

**From:** NITOPS  
**To:** "narac@lnl.gov"; HOO Hoc  
**Subject:** FW: UPDATE  
**Date:** Friday, March 11, 2011 9:46:23 PM  
**Importance:** High

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New data and information from Fukushima I and II.

-Warren Wylupski

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Warren Wylupski (Contractor)  
Department of Energy/ National Nuclear Security Administration  
NA-42 Office of Emergency Response  
202.287.2344  
warren.wylupski@nnsa.doe.gov

**From:** Aoki, Steven  
**Sent:** Friday, March 11, 2011 9:27 PM  
**To:** NITOPS  
**Subject:** FW: UPDATE

**From:** Koichi Uchida (b)(6)  
**Sent:** Friday, March 11, 2011 9:27 PM  
**To:** 'Koichi Uchida'; Connery, Joyce; Cherry, Ron; Aoki, Steven; Lyons, Peter; Poneman, Daniel; D'Agostino, Thomas; Mustin, Tracy; Carlson, Nicholas; Alldridge, David; Hoffman, Patricia; Koonin, Steven; Miller, Neile; Krol, Joseph; Johnson, Shane; Kelly, John E (NE); McGinnis, Edward  
**Cc:** Duncan, Aleshia; O'Connor, Rod; Bryan, William; Williams, Melvin; Hurlbut, Brandon; Anderson, Margot; Mueller, Stephanie; LaVera, Damien; Reynolds, Tom; Hunsaker, Christopher; Koontz, Thomas; Leistikow, Dan  
**Subject:** RE: UPDATE

JNN News reported at 10:48 that TEPCO announced one employee was dead and one is missing at Fukushima Dai-ichi NPP and one employee was dead at Fukushima Dai-ni NPP, but the causes were not reported.

FNN News reported at 11:23 that it was not officially confirmed, but the cooling water level of Fukushima Dai-ichi NPP reactor No.1 seems to be lower than the top of fuel assembly.

Uchida  
DOE Tokyo

**From:** Koichi Uchida (b)(6)  
**Sent:** Saturday, March 12, 2011 10:48 AM  
**To:** 'Koichi Uchida'; 'Connery, Joyce'; 'Cherry, Ron'; 'Aoki, Steven'; 'Lyons, Peter'; 'Poneman, Daniel'; 'D'Agostino, Thomas'; 'Mustin, Tracy'; 'Carlson, Nicholas'; 'Alldridge, David'; 'Hoffman, Patricia'; 'Koonin, Steven'; 'Miller, Neile'; 'Krol, Joseph'; 'Johnson, Shane'; 'Kelly, John E (NE)'; 'McGinnis, Edward'  
**Cc:** 'Duncan, Aleshia'; 'O'Connor, Rod'; 'Bryan, William'; 'Williams, Melvin'; 'Hurlbut, Brandon'; 'Anderson,

HHH/1

Margot'; 'Mueller, Stephanie'; 'LaVera, Damien'; 'Reynolds, Tom'; 'Hunsaker, Christopher'; 'Koontz, Thomas'; 'Leistikow, Dan'  
**Subject:** RE: UPDATE

I am very sorry, the radiation levels of my previous email are from Fukushima Dai-ichi NPP, not Fukushima Dai-ni.

Uchida  
DOE Tokyo

**From:** Koichi Uchida (b)(6)  
**Sent:** Saturday, March 12, 2011 10:43 AM  
**To:** 'Koichi Uchida'; 'Connery, Joyce'; 'Cherry, Ron'; 'Aoki, Steven'; 'Lyons, Peter'; 'Poneman, Daniel'; 'D'Agostino, Thomas'; 'Mustin, Tracy'; 'Carlson, Nicholas'; 'Alldridge, David'; 'Hoffman, Patricia'; 'Koonin, Steven'; 'Miller, Neile'; 'Krol, Joseph'; 'Johnson, Shane'; 'Kelly, John E (NE)'; 'McGinnis, Edward'  
**Cc:** 'Duncan, Aleshia'; 'O'Connor, Rod'; 'Bryan, William'; 'Williams, Melvin'; 'Hurlbut, Brandon'; 'Anderson, Margot'; 'Mueller, Stephanie'; 'LaVera, Damien'; 'Reynolds, Tom'; 'Hunsaker, Christopher'; 'Koontz, Thomas'; 'Leistikow, Dan'  
**Subject:** RE: UPDATE

TEPCO announced radiation level at main gate and Monitoring point 8 (MP-8), where is near to the South boundary, of Fukushima Dai-ni NPP.

5:00 gate 1 3 0 7 nGy/h —  
5:10 gate 1 5 9 0 nGy/h below 0.001μSv/h  
(6:25 MP-8 1. 2 1 μSv/h)  
6:30 gate 3. 2 9 μSv/h below 0.001μSv/h  
(6:30 MP-8 1. 5 3 μSv/h —)  
6:40 gate 4. 9 2 μSv/h below 0.001μSv/h  
(7:35 MP-8 2. 4 7 μSv/h —)  
(7:40 MP-8 2. 5 6 μSv/h —)  
(7:45 MP-8 2. 5 3 μSv/h —)  
7:50 gate 4. 9 7 μSv/h below 0.001μSv/h  
(7:50 MP-8 2. 5 0 μSv/h —)

Current evacuees around Fukushima Dai-ichi NP is around 20,000 people; residents of Futaba-machi, Okuma-machi and Tomioka-machi.

On Fukushima Dai-ni NPP, TEPCO's announcements are as below.

**Press Release (Mar 12, 2011)**

**Occurrence of a Specific Incident Stipulated in Article 15, Clause 1 of the Act on Special Measures Concerning Nuclear Emergency Preparedness (Unit 1)**

At 2:48PM on March 11th, the reactor of Fukushima Dai-ni Nuclear Power Station Unit 1 (Boiling Water Reactor, rated output 1,100 Megawatts) shut down due to the impact of the earthquake.

Reactor Core Isolation Cooling System was used to inject water into the reactor to cool it. Today at 3:48AM, water injection by Make-up Water Condensate System begun.

Subsequently, at 5:22AM, the temperature of the suppression chamber

exceeded 100 degrees.

As the reactor pressure suppression function was lost, at 5:22AM, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.

#### Safety and Impact to the Environment

- Currently, water level to cool irradiated fuels in the reactor is maintained.
- Indication of monitoring posts installed in the site boundary is not different from normal. Currently, no radiation impact to the external environment has been confirmed.

We will continue monitoring in detail discharge of radioactive material from exhaust stack and discharge canal.

<http://www.tepco.co.jp/en/press/corp-com/release/11031212-e.html>

#### **Press Release (Mar 12,2011)**

##### **Occurrence of a Specific Incident Stipulated in Article 15, Clause 1 of the Act on Special Measures Concerning Nuclear Emergency Preparedness (Unit 2)**

At 2:48PM on March 11th, the reactor of Fukushima Daini Nuclear Power Station Unit 1 (Boiling Water Reactor, rated output 1,100 Megawatts) shut down due to the impact of the earthquake.

Reactor Core Isolation Cooling System was used to inject water into the reactor to cool it. Today at 4:50AM, water injection by Make-up Water Condensate System begun.

Subsequently, at 5:32AM, the temperature of the suppression chamber exceeded 100 degrees.

As the reactor pressure suppression function was lost, at 5:32AM, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.

#### Safety and Impact to the Environment

- Currently, water level to cool irradiated fuels in the reactor is maintained.
- Indication of monitoring posts installed in the site boundary is not different from normal. Currently, no radiation impact to the external environment has been confirmed.

We will continue monitoring in detail discharge of radioactive material from exhaust stack and discharge canal.

<http://www.tepco.co.jp/en/press/corp-com/release/11031213-e.html>

#### **Press Release (Mar 12,2011)**

##### **Occurrence of a Specific Incident Stipulated in Article 15, Clause 1 of the Act on Special Measures Concerning Nuclear Emergency Preparedness (Unit 4)**

At 2:48PM on March 11th, the reactor of Fukushima Daini Nuclear Power Station Unit 1 (Boiling Water Reactor, rated output 1,100 Megawatts) shut down due to the impact of the earthquake.

Make-up Water Condensate System was used to inject water into the reactor to cool it.

Subsequently, at 6:07AM, the temperature of the suppression chamber exceeded 100 degrees.

As the reactor pressure suppression function was lost, at 6:07AM, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.

#### Safety and Impact to the Environment

- Currently, water level to cool irradiated fuels in the reactor is maintained.

- Indication of monitoring posts installed in the site boundary is not different from normal. Currently, no radiation impact to the external environment has been confirmed.

We will continue monitoring in detail discharge of radioactive material from exhaust stack and discharge canal.

<http://www.tepco.co.jp/en/press/corp-com/release/11031214-e.html>

Uchida  
DOE Tokyo

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**From:** Koichi Uchida (b)(6)  
**Sent:** Saturday, March 12, 2011 10:23 AM  
**To:** 'Koichi Uchida'; 'Connery, Joyce'; 'Cherry, Ron'; 'Aoki, Steven'; 'Lyons, Peter'; 'Poneman, Daniel'; 'D'Agostino, Thomas'; 'Mustin, Tracy'; 'Carlson, Nicholas'; 'Alldridge, David'; 'Hoffman, Patricia'; 'Koonin, Steven'; 'Miller, Neile'; 'Krol, Joseph'; 'Johnson, Shane'; 'Kelly, John E (NE)'; 'McGinnis, Edward'  
**Cc:** 'Duncan, Aleshia'; 'O'Connor, Rod'; 'Bryan, William'; 'Williams, Melvin'; 'Hurlbut, Brandon'; 'Anderson, Margot'; 'Mueller, Stephanie'; 'LaVera, Damien'; 'Reynolds, Tom'; 'Hunsaker, Christopher'; 'Koontz, Thomas'; 'Leistikow, Dan'  
**Subject:** RE: UPDATE

According to JNN TV news at around 10:17, one employee of TEPCO Fukushima Dai-ni NPP was dead.

The cause was not announced.

Also it was said on the TV news at around 10:15 that about 70 times more than ordinary level of radioactivity was detected at the main gate of Fukushima Dai-ichi NPP.

Uchida  
DOE Tokyo

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**From:** Koichi Uchida (b)(6)  
**Sent:** Saturday, March 12, 2011 10:09 AM  
**To:** 'Koichi Uchida'; 'Connery, Joyce'; 'Cherry, Ron'; 'Aoki, Steven'; 'Lyons, Peter'; 'Poneman, Daniel'; 'D'Agostino, Thomas'; 'Mustin, Tracy'; 'Carlson, Nicholas'; 'Alldridge, David'; 'Hoffman, Patricia'; 'Koonin, Steven'; 'Miller, Neile'; 'Krol, Joseph'; 'Johnson, Shane'; 'Kelly, John E (NE)'; 'McGinnis, Edward'  
**Cc:** 'Duncan, Aleshia'; 'O'Connor, Rod'; 'Bryan, William'; 'Williams, Melvin'; 'Hurlbut, Brandon'; 'Anderson, Margot'; 'Mueller, Stephanie'; 'LaVera, Damien'; 'Reynolds, Tom'; 'Hunsaker, Christopher'; 'Koontz,



Thomas'  
**Subject:** RE: UPDATE

Chief Cabinet Secretary Edano made a press announcement at around 10:00 about the damages of the earthquake in general.

He mentioned TEPCO has released radioactive steam from Fukushima Dai-ichi NPP reactor No.1 under the supervision of NISA.  
But he emphasized that this release is controlled and as evacuation of residents within 3km radius from the reactors was completed, it won't be harmful.

On Fukushima Dai-ni NPP, he said the nuclear emergency was declared by GOJ but no radioactive release was made.

Uchida  
DOE Tokyo

**From:** Koichi Uchida (b)(6)  
**Sent:** Saturday, March 12, 2011 9:55 AM  
**To:** 'Koichi Uchida'; 'Connery, Joyce'; 'Cherry, Ron'; 'Aoki, Steven'; 'Lyons, Peter'; 'Poneman, Daniel'; 'D'Agostino, Thomas'; 'Mustin, Tracy'; 'Carlson, Nicholas'; 'Alldridge, David'; 'Hoffman, Patricia'; 'Koonin, Steven'; 'Miller, Neile'; 'Krol, Joseph'; 'Johnson, Shane'; 'Kelly, John E (NE)'; 'McGinnis, Edward'  
**Cc:** 'Duncan, Aleshia'; 'O'Connor, Rod'; 'Bryan, William'; 'Williams, Melvin'; 'Hurlbut, Brandon'; 'Anderson, Margot'; 'Mueller, Stephanie'; 'LaVera, Damien'; 'Reynolds, Tom'; 'Hunsaker, Christopher'; 'Koontz, Thomas'  
**Subject:** RE: UPDATE

TEPCO has officially announced at around 9:50 that they will release radioactive steam from Fukushima Dai-ichi NPP Reactor No.1.

Uchida DOE Tokyo

**From:** Koichi Uchida (b)(6)  
**Sent:** Saturday, March 12, 2011 9:31 AM  
**To:** 'Connery, Joyce'; 'Cherry, Ron'; 'Aoki, Steven'; 'Lyons, Peter'; 'Poneman, Daniel'; 'D'Agostino, Thomas'; 'Mustin, Tracy'; 'Carlson, Nicholas'; 'Alldridge, David'; 'Hoffman, Patricia'; 'Koonin, Steven'; 'Miller, Neile'; 'Krol, Joseph'; 'Johnson, Shane'; 'Kelly, John E (NE)'; 'McGinnis, Edward'  
**Cc:** 'Duncan, Aleshia'; 'O'Connor, Rod'; 'Bryan, William'; 'Williams, Melvin'; 'Hurlbut, Brandon'; 'Anderson, Margot'; 'Mueller, Stephanie'; 'LaVera, Damien'; 'Reynolds, Tom'; 'Hunsaker, Christopher'; 'Koontz, Thomas'  
**Subject:** RE: UPDATE

Ms.Connery

**Fukushima Dai-ichi (It means No.1) NPP**  
Reactor No.1 (BWR, 460 MWe)  
Reactor No.2 (BWR 784 MWe)

Both reactors were shut down but without cooling water and the pressure of the vessels were increasing.

NISA has ordered TEPCO to release air from the reactor vessel.

GOJ instructed evacuation for the residents within radius of 10 km .

**Fukushima Dai-ni (It means No.2) NPP**

Reactor No.1 (BWR 1100 MWe)

Reactor No.2 (BWR 1100 MWe)

Reactor No.4 (BWR 1100 MWe)

Three reactors were shut down but lost cooling capability, because the temperature of the coolants are now above 100 degree C.

GOJ instructed to evacuate for the residents within radius of 3 km and to keep in buildings for residents between 3 and 10 km radius from the NPP.

GOJ declared nuclear emergencies on both of Fukushima Dai-ichi NPP and Fukushima Dai-ni NPP.

I am sorry for confused you.

Uchida  
DOE Tokyo

**From:** Connery, Joyce [mailto:Joyce.Connery@hq.doe.gov]

**Sent:** Saturday, March 12, 2011 9:13 AM

**To:** 'Koichi Uchida'; Cherry, Ron; Aoki, Steven; Lyons, Peter; Poneman, Daniel; DAgostino, Thomas; Mustin, Tracy; Carlson, Nicholas; Alldridge, David; Hoffman, Patricia; Koonin, Steven; Miller, Neile; Krol, Joseph; Johnson, Shane; Kelly, John E (NE); McGinnis, Edward

**Cc:** Duncan, Aleshia; OConnor, Rod; Bryan, William; Williams, Melvin; Hurlbut, Brandon; Anderson, Margot; Mueller, Stephanie; LaVera, Damien; Reynolds, Tom; Hunsaker, Christopher; Koontz, Thomas

**Subject:** RE: UPDATE

Can you pls recap in one email which reactors are in what state, when they got there? Hard to distinguish what you said in this email versus the last.

Thank you.

**From:** Koichi Uchida (b)(6)

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

**To:** 'Koichi Uchida'; Cherry, Ron; Connery, Joyce; Aoki, Steven; Lyons, Peter; Poneman, Daniel; DAgostino, Thomas; Mustin, Tracy; Carlson, Nicholas; Alldridge, David; Hoffman, Patricia; Koonin, Steven; Miller, Neile; Krol, Joseph; Johnson, Shane; Kelly, John E (NE); McGinnis, Edward

**Cc:** Duncan, Aleshia; OConnor, Rod; Bryan, William; Williams, Melvin; Hurlbut, Brandon; Anderson, Margot; Mueller, Stephanie; LaVera, Damien; Reynolds, Tom; Hunsaker, Christopher; Koontz, Thomas

**Subject:** RE: UPDATE

NHK TV news reported that GOJ has declared nuclear emergency on Fukushima Dai-ni (No.2) NPP at 7:45 and instructed to evacuate for the residents within radius of 3 km and to keep in buildings for residents between 3 and 10 km radius from the NPP.

Uchida  
DOE Tokyo

**From:** Koichi Uchida (b)(6)

**Sent:** Saturday, March 12, 2011 7:48 AM

**To:** 'Koichi Uchida'; 'Cherry, Ronald C'; 'Connery, Joyce'; 'Aoki, Steven'; 'Lyons, Peter'; 'Poneman, Daniel'; 'DAgostino, Thomas'; 'Mustin, Tracy'; 'Carlson, Nicholas'; 'Alldridge, David'; 'Hoffman, Patricia';

'Koonin, Steven'; 'Miller, Neile'; 'Krol, Joseph'; 'Johnson, Shane'; 'Kelly, John E (NE)'; 'McGinnis, Edward'  
**Cc:** 'Duncan, Aleshia'; 'OConnor, Rod'; 'Bryan, William'; 'Williams, Melvin'; 'Hurlbut, Brandon'; 'Anderson, Margot'; 'Mueller, Stephanie'; 'LaVera, Damien'; 'Reynolds, Tom'; 'Hunsaker, Christopher'; 'Koontz, Thomas'

**Subject:** RE: UPDATE

TEPCO announced that reactor No.1, No.2 and No.4 of Fukushima Dai-ni (No.2) lost the cooling capability at around 6:00as same as No.1 reactor of Fukushima Daiichi (No.1) and asked GOJ declare another nuclear emergency.

There are four BWRs (1100 MWe each) in Fukushima Dai-ni (No.2) site.

Uchida DOE Tokyo

**From:** Koichi Uchida

(b)(6)

**Sent:** Saturday, March 12, 2011 7:04 AM

**To:** 'Koichi Uchida'; 'Cherry, Ronald C'; 'Connery, Joyce'; 'Aoki, Steven'; 'Lyons, Peter'; 'Poneman, Daniel'; 'DAGostino, Thomas'; 'Mustin, Tracy'; 'Carlson, Nicholas'; 'Alldridge, David'; 'Hoffman, Patricia'; 'Koonin, Steven'; 'Miller, Neile'; 'Krol, Joseph'; 'Johnson, Shane'; 'Kelly, John E (NE)'; 'McGinnis, Edward'  
**Cc:** 'Duncan, Aleshia'; 'OConnor, Rod'; 'Bryan, William'; 'Williams, Melvin'; 'Hurlbut, Brandon'; 'Anderson, Margot'; 'Mueller, Stephanie'; 'LaVera, Damien'; 'Reynolds, Tom'; 'Hunsaker, Christopher'; 'Koontz, Thomas'

**Subject:** RE: UPDATE

According to NHK TV, at 5:45 (before his departure to Fukushima) Prime Minister Kan reinforced the measures to instruct the residents within radius of 10 km for evacuation.

The news program said NISA official mentioned that around 1000 times more than ordinary levels of radiation was detected at the Central Control Room of Reactor No.1 at Fukushima Daiichi .

Uchida  
DOE Tokyo

**From:** Koichi Uchida

(b)(6)

**Sent:** Saturday, March 12, 2011 6:51 AM

**To:** 'Koichi Uchida'; 'Cherry, Ronald C'; 'Connery, Joyce'; 'Aoki, Steven'; 'Lyons, Peter'; 'Poneman, Daniel'; 'DAGostino, Thomas'; 'Mustin, Tracy'; 'Carlson, Nicholas'; 'Alldridge, David'; 'Hoffman, Patricia'; 'Koonin, Steven'; 'Miller, Neile'; 'Krol, Joseph'; 'Johnson, Shane'; 'Kelly, John E (NE)'; 'McGinnis, Edward'  
**Cc:** 'Duncan, Aleshia'; 'OConnor, Rod'; 'Bryan, William'; 'Williams, Melvin'; 'Hurlbut, Brandon'; 'Anderson, Margot'; 'Mueller, Stephanie'; 'LaVera, Damien'; 'Reynolds, Tom'; 'Hunsaker, Christopher'; 'Koontz, Thomas'

**Subject:** RE: UPDATE

According to TEPCO's web site, the radiation levels at the main gate of Fukushima Daiichi NP are as in below.

3:40 6 6 nGy/h below 0.001μSv/h  
3:50 6 4 nGy/h below 0.001μSv/h  
4:00 6 9 nGy/h below 0.001μSv/h  
4:40 8 6 6 nGy/h —  
4:50 1 0 0 2 nGy/h —  
5:00 1 3 0 7 nGy/h —

5:10 1 5 9 0 nGy/h below 0.001μSv/h

<http://www.tepco.co.jp/cc/press/11031210-j.html> (only in Japanese)

Uchida  
DOE Tokyo

**From:** Koichi Uchida (b)(6)  
**Sent:** Saturday, March 12, 2011 6:43 AM  
**To:** 'Cherry, Ronald C'; 'Connery, Joyce'; 'Aoki, Steven'; 'Lyons, Peter'; 'Poneman, Daniel'; 'D'Agostino, Thomas'; 'Mustin, Tracy'; 'Carlson, Nicholas'; 'Alldridge, David'; 'Hoffman, Patricia'; 'Koonin, Steven'; 'Miller, Neile'; 'Krol, Joseph'; 'Johnson, Shane'; 'Kelly, John E (NE)'; 'McGinnis, Edward'  
**Cc:** 'Duncan, Aleshia'; 'O'Connor, Rod'; 'Bryan, William'; 'Williams, Melvin'; 'Hurlbut, Brandon'; 'Anderson, Margot'; 'Mueller, Stephanie'; 'LaVera, Damien'; 'Reynolds, Tom'; 'Hunsaker, Christopher'; 'Koontz, Thomas'  
**Subject:** RE: UPDATE

According to JNN News of TV at 6:40, at the gate of TEPCO's Fukushima Daiichi NPP, 8 times more than ordinary level of radiation was detected (no specific figure).  
Official announcement of release of the air has not been made yet by GOJ nor TEPCO.

Uchida  
DOE Tokyo

**From:** Cherry, Ronald C [mailto:CherryRC@state.gov]  
**Sent:** Saturday, March 12, 2011 5:43 AM  
**To:** Connery, Joyce; Aoki, Steven; Lyons, Peter; Poneman, Daniel; D'Agostino, Thomas; Mustin, Tracy; Carlson, Nicholas; Alldridge, David; Hoffman, Patricia; Koonin, Steven; Miller, Neile; Krol, Joseph; Johnson, Shane; Kelly, John E (NE); McGinnis, Edward  
**Cc:** Duncan, Aleshia; O'Connor, Rod; Bryan, William; Williams, Melvin; Hurlbut, Brandon; Anderson, Margot; Mueller, Stephanie; LaVera, Damien; Reynolds, Tom; Hunsaker, Christopher; Koontz, Thomas  
**Subject:** RE: UPDATE

Joyce,

This is the latest Fukushima nuclear plant update:  
(Source: Yahoo, re-reporting from Japanese newspaper Sankei Shimbun): At 0300, Minister of Economy and Industry Kaieda held a press conference and said Tokyo Electric has decided to release a "small" amount of vapor from reactor #1 due to above average pressure. As the wind is blowing oceanward, it's not expected to have any effect on citizens. Prime Minister Kan is expected to visit Saturday morning to inspect. Reactor #2 showed no abnormalities, but may change.

From the Embassy's emergency ops team.

Ron

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

**From:** Cherry, Ronald C  
**Sent:** Saturday, March 12, 2011 4:47 AM  
**To:** 'Connery, Joyce'; Aoki, Steven; Lyons, Peter; Poneman, Daniel; D'Agostino, Thomas; Mustin, Tracy; Carlson, Nicholas; Alldridge, David; Hoffman, Patricia; Koonin, Steven; Miller, Neile; Krol, Joseph; Johnson, Shane; Kelly, John E (NE); McGinnis, Edward  
**Cc:** Duncan, Aleshia; O'Connor, Rod; Bryan, William; Williams, Melvin; Hurlbut, Brandon; Anderson, Margot; Mueller, Stephanie; LaVera, Damien; Reynolds, Tom

Subject: RE: UPDATE

Joyce,

I got the same question from Pete Lyons. The Embassy's emergency ops team monitored a report by NHK, Japanese public news, that they may be planning a release to relieve pressure at Fukushima-1 Unit 1. Here are some more numbers from the article:

The release would be at plant #1  
They also have plants #2 and #3, about which they will decide later.  
Pressure: 1.5 times the average  
600 kilopascal  
Residents who are between 3-10 km away, if sheltered, should be safe.

I haven't seen anything official yet to confirm this. Still looking.

FYI, tremors are continuing to be felt in Tokyo. The last one was while I was typing this email.

Ron

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

From: Connery, Joyce [<mailto:Joyce.Connery@hq.doe.gov>]

Sent: Saturday, March 12, 2011 4:12 AM

To: Cherry, Ronald C; Aoki, Steven; Lyons, Peter; Poneman, Daniel; DAgostino, Thomas; Mustin, Tracy; Carlson, Nicholas; Alldridge, David; Hoffman, Patricia; Koonin, Steven; Miller, Neile; Krol, Joseph; Johnson, Shane; Kelly, John E (NE); McGinnis, Edward

Cc: Duncan, Aleshia; OConnor, Rod; Bryan, William; Williams, Melvin; Hurlbut, Brandon; Anderson, Margot; Mueller, Stephanie; LaVera, Damien; Reynolds, Tom

Subject: RE: UPDATE

Ron,

We are hearing reports that METI Minister is calling for a controlled release. Any insight?

Joyce

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

From: Cherry, Ron

Sent: Friday, March 11, 2011 2:11 PM

To: Connery, Joyce; Aoki, Steven; Lyons, Peter; Poneman, Daniel; DAgostino, Thomas; Mustin, Tracy; Carlson, Nicholas; Alldridge, David; Hoffman, Patricia; Koonin, Steven; Miller, Neile; Krol, Joseph; Johnson, Shane; Kelly, John E (NE); McGinnis, Edward

Cc: Duncan, Aleshia; OConnor, Rod; Bryan, William; Williams, Melvin; Hurlbut, Brandon; Anderson, Margot; Mueller, Stephanie; LaVera, Damien; Reynolds, Tom

Subject: RE: UPDATE

All,

The attached is from Joe Glaser and Vince McClelland. It's from the nuclear safety regulator and backs up the earlier information we had, with more details on the time line and status at the NPPs. I've reached out to the contact at NISA for further information on the coolant system and water levels at Fukushima-1.

Thanks.

Ron

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

From: Connery, Joyce [<mailto:Joyce.Connery@hq.doe.gov>]

Sent: Saturday, March 12, 2011 1:23 AM

To: Connery, Joyce; Cherry, Ronald C; Aoki, Steven; Lyons, Peter; Poneman, Daniel; DAgostino, Thomas; Mustin, Tracy; Carlson, Nicholas; Alldridge, David; Hoffman, Patricia; Koonin, Steven; Miller, Neile; Krol, Joseph  
Cc: Duncan, Aleshia; Zumwalt, James P; Wall, Marc M; Cipullo, Timothy L; OConnor, Rod; Bryan, William; Williams, Melvin; Hurlbut, Brandon; Anderson, Margot; Mueller, Stephanie; LaVera, Damien; Reynolds, Tom  
Subject: UPDATE

All,

Attached is the update for the NSS--including information about who was contacted and when.

Please let me know if there is any additional information: RON--folks are keenly interested in any information on the back-up generators/water levels at Fukushima...

Alert me if you are going to send something and I will wait for it, otherwise, I'll send this up to NSS.

Best,  
Joyce

**Melfi, Jim**

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**From:** Qualls, Phil  
**Sent:** Friday, March 11, 2011 2:12 PM  
**To:** Melfi, Jim; Ruesch, Eric; Latta, Robert  
**Subject:** FW: Radiation Level Rising in Fukushima Nuclear Plant Turbine Building - emergency generators dispatched

**From:** McCann, Edward  
**Sent:** Friday, March 11, 2011 2:09 PM  
**To:** Qualls, Phil  
**Subject:** FW: Radiation Level Rising in Fukushima Nuclear Plant Turbine Building - emergency generators dispatched

**From:** Lee, Samuel  
**Sent:** Friday, March 11, 2011 3:08 PM  
**To:** NRO\_DSRA\_SBPA; NRO\_DSRA\_SBPB Distribution  
**Subject:** Fw: Radiation Level Rising in Fukushima Nuclear Plant Turbine Building - emergency generators dispatched

Fyi  
Sent from BBerry

(b)(6)

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**From:** Breskovic, Clarence  
**To:** Breskovic, Clarence  
**Sent:** Fri Mar 11 13:13:42 2011  
**Subject:** Radiation Level Rising in Fukushima Nuclear Plant Turbine Building - emergency generators dispatched

Radiation Level Rising in Fukushima Nuclear Plant Turbine Building

Fukushima, Japan, March 12 Kyodo -- The radiation level is rising in the building housing a turbine of the No. 1 reactor of the Fukushima No. 1 nuclear power plant following Friday's powerful earthquake, the operator Tokyo Electric Power Co. said Saturday.

The company also said monitoring data suggested the air pressure level has also soared inside the container of the reactor.

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**State of Emergency Declared at Fukushima Plant**

Tokyo Asahi Shimbun Online 1733 GMT 11 Mar 11

Friday's devastating earthquake in the Tohoku region may have created a dangerous situation at two nuclear reactors in Fukushima Prefecture.

Officials of the Nuclear and Industrial Safety Agency were informed by Tokyo Electric Power Co. that the emergency core cooling system was not working at two reactors.

In addition, another mechanism that had been used to send water to the core also stopped at 8:30 p.m.

If the cores are not sufficiently cooled, there is a danger of a possible core meltdown.

At a news conference Friday night, Chief Cabinet Secretary Yukio Edano said a state of emergency at a nuclear facility was declared at 4:36 p.m.

It is the first time such a state of emergency has been declared.

According to NISA officials, although the reactor core stopped operations after the earthquake hit, water had to be inserted to the core to cool it because heat continued to be emitted from the nuclear fuel.

Although workers had to initiate emergency core cooling system procedures, the lack of an external power source and the failure of an emergency generator crippled the system that circulates water to the core to cool it.

TEPCO officials dispatched 51 generator vehicles to the reactors in an attempt to restore power. One vehicle reached one of the nuclear reactors late Friday and some of that reactor's power was restored.

At 9:23 p.m., the central government issued an evacuation instruction for residents living within a 3-kilometer radius of the No. 1 Fukushima nuclear power plant as well as an instruction to residents living within a radius of between 3 and 10 kilometers to remain indoors.

Edano said no radiation leakage had been detected.

The company issued an emergency evacuation order for the two reactors at the No. 1 Fukushima nuclear power plant. Officials from local communities gathered at a special monitoring facility in Okuma to oversee the cooling of the cores.

There was also the possibility that seawater pumps for cooling purposes may have stopped at two reactors at the No. 2 Fukushima nuclear power plant.

If those pumps remain inoperational, it could affect the emergency core cooling systems at those reactors as well.



## Hergenroder, Dan

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**From:** Collins, Elmo  
**Sent:** Friday, March 11, 2011 7:11 PM  
**To:** Virgilio, Martin  
**Subject:** Fw: [Yama] Situation now - Japan NPPs - ECCS mode

Scroll down to note "ECCS mode"

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**From:** Sheron, Brian  
**To:** Weber, Michael; Martin Brechbeil (b)(6); Leeds, Eric; Borchardt, Bill; Wiggins, Jim; Haney, Catherine; Miller, Charles; Dean, Bill; McCree, Victor; Satorius, Mark; Collins, Elmo  
**Cc:** Case, Michael; Richards, Stuart  
**Sent:** Fri Mar 11 07:21:15 2011  
**Subject:** FW: [Yama] Situation now - Japan NPPs - ECCS mode

FYI.

---

**From:** [Lawrence.BURKHART@oecd.org](mailto:Lawrence.BURKHART@oecd.org) [mailto:Lawrence.BURKHART@oecd.org]  
**Sent:** Friday, March 11, 2011 5:51 AM  
**To:** Leeds, Eric; Regan, Christopher; Sheron, Brian; Sangimino, Donna-Marie; Doane, Margaret; Cullingford, Michael; Johnson, Michael; Uhle, Jennifer; Schwartzman, Jennifer  
**Cc:** Holahan, Gary; Williams, Donna; [John.NAKOSKI@oecd.org](mailto:John.NAKOSKI@oecd.org); [Diane.JACKSON@oecd.org](mailto:Diane.JACKSON@oecd.org)  
**Subject:** FW: [Yama] Situation now - Japan NPPs - ECCS mode

Dear all,

Greetings from Paris. Im sure you've heard about the earthquake in Japan and Im sure you may have your own information sources. But just wanted to pass on this is an email from a colleague (who used to work at NEA but recently returned to Japan).

Apparently all of the 15 Japanese Nuclear Power Plants shutdown successfully but there are some issues with Diesel Generators operating properly at the plants listed below.

I will send more info if it is relevant and if you would like.

Very Best Regards. Larry

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

**Sent:** Friday, March 11, 2011 11:30

**To:** GAUVAIN Jean, NEA/SURN

**Cc:** REIG Javier, NEA/SURN; ECHAVARRI Luis, NEA; YOSHIMURA Uichiro, NEA/SURN; GUYOT Lydie, NEA; PEYRAT Marie-Laure, NEA/SURN; GAS Serge, NEA/RE; BREEST Axel, NEA/SURN; MAUNY Elisabeth, NEA/SURN; LAMARRE Greg, NEA/SURN; REHACEK Radomir, NEA/SURN; HUERTA Alejandro, NEA/SURN; JACKSON Diane, NEA/SURN; GAUVAIN Jean, NEA/SURN; NAKOSKI John, NEA/SURN; GRESS Philippe, NEA/SURN; BURKHART Lawrence, NEA/SURN; IANNOLO Nicolina, NEA/SURN; CHAUHAN Roopa, DAF/COMP; [christele.tephanympania@oecd.org](mailto:christele.tephanympania@oecd.org); LITTLE Aileen, NEA/ADMI; 'Carlo Vitanza'; AMRI Abdallah, NEA/SURN

**Subject:** [Yama] Situation now - ECCS mode

Dear all,

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

Fukushima 1-1

Fukushima 1-2

Fukushima 1-3

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

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

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

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

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

Yama

+++++

**Akihiro YAMAMOTO**

Ageing Management Specialist,

Nuclear Safety Measurement Division

Fukui Prefectural Government

Telephone: +81 (0) 776 20 0314

E-mail: [a-yamamoto@houshasen.tsuruga.fukui.jp](mailto:a-yamamoto@houshasen.tsuruga.fukui.jp)

+++++

## Hergenroder, Dan

---

**From:** Collins, Elmo  
**Sent:** Friday, March 11, 2011 8:00 AM  
**To:** Howell, Art; Kennedy, Kriss; Vogel, Anton; Caniano, Roy  
**Subject:** Fyi only: [Yama] Situation now - Japan NPPs - ECCS mode

---

**From:** Sheron, Brian  
**To:** Weber, Michael; Martin Brechbeil (b)(6) Leeds, Eric; Borchardt, Bill; Wiggins, Jim; Haney, Catherine; Miller, Charles; Dean, Bill; McCree, Victor; Satorius, Mark; Collins, Elmo  
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**Cc:** Holahan, Gary; Williams, Donna; [John.NAKOSKI@oecd.org](mailto:John.NAKOSKI@oecd.org); [Diane.JACKSON@oecd.org](mailto:Diane.JACKSON@oecd.org)  
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Telephone: +81 (0) 776 20 0314

E-mail: [a-yamamoto@houshasen.tsuruga.fukui.jp](mailto:a-yamamoto@houshasen.tsuruga.fukui.jp)

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**Hergenroder, Dan**

---

**From:** Collins, Elmo  
**Sent:** Friday, March 11, 2011 5:59 AM  
**To:** Weber, Michael  
**Cc:** Howell, Linda  
**Subject:** Re: RESPONSE - Briefing This Morning at 0800

Thanks - we'll clarify about the report of "tsunami warning"

Elmo

---

**From:** Weber, Michael  
**To:** McDermott, Brian  
**Cc:** Virgilio, Martin; Collins, Elmo; Howell, Art; Merzke, Daniel  
**Sent:** Fri Mar 11 06:49:55 2011  
**Subject:** RESPONSE - Briefing This Morning at 0800

Thanks. I heard on the radio (WTOP) this morning that the coast of California is only under an advisory, not a tsunami warning. That means that they may experience stronger currents than normal, but no specific wave is expected. Alaska and Hawaii have received tsunami warnings.

---

**From:** McDermott, Brian  
**Sent:** Friday, March 11, 2011 5:26 AM  
**To:** Weber, Michael; Virgilio, Martin  
**Subject:** Briefing This Morning at 0800

Brian

Brian McDermott  
301-415-7475 (direct)  
(b)(6) (mobile)

---

**From:** HOO Hoc  
**To:** McDermott, Brian  
**Sent:** Fri Mar 11 05:18:43 2011  
**Subject:** RE: HOO HIGHLIGHT - DIABLO CANYON UNUSUAL EVENT

Brian,  
Region IV will conduct a briefing regarding projections at 0800 EST. If you'd like to participate just call in here. We have no current projections on size of any tidal wave on the West Coast.  
Joe O'Hara

---

**From:** McDermott, Brian  
**Sent:** Friday, March 11, 2011 5:11 AM  
**To:** HOO Hoc  
**Cc:** Gott, William; Morris, Scott  
**Subject:** Re: HOO HIGHLIGHT - DIABLO CANYON UNUSUAL EVENT

Any info on projected size of tsunami and the Diablo design basis?

Brian

Brian McDermott  
301-415-7475 (direct)  
(b)(6) (mobile)

---

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

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

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





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



**Hergenroder, Dan**

---

**From:** Dorothy Collins Andreas  
**Sent:** Friday, March 11, 2011 5:45 PM  
**To:** Collins, Elmo  
**Subject:** clarification about coolant delivery from Reuters

(b)(6)

<http://www.reuters.com/article/2011/03/11/japan-quake-nuclear-coolant-idUSN1125270120110311>

**Hergenroder, Dan**

---

**From:** Collins, Elmo  
**Sent:** Friday, March 11, 2011 7:01 PM  
**To:** Virgilio, Martin  
**Cc:** Satorius, Mark; Dean, Bill; McCree, Victor  
**Subject:** Fw: more bad news from japan

Marty in case you have not seen

Elmo

---

**From:** Dorothy Collins Andreas (b)(6)  
**To:** Collins, Elmo  
**Sent:** Fri Mar 11 18:42:51 2011  
**Subject:** more bad news from japan

[http://www3.nhk.or.jp/daily/english/12\\_27.html](http://www3.nhk.or.jp/daily/english/12_27.html)

The Tokyo Electric Company has warned the Japanese government of an emergency situation at a second nuclear plant in quake-stricken Fukushima Prefecture.

Tokyo Electric issued the warning about its Fukushima Number Two Plant on Saturday. The warning follows one earlier in the day for the Number One Plant.

The government's Nuclear and Industrial Safety Agency said equipment failures have made it impossible to cool 3 of the plant's 4 reactors. It said the situation poses no immediate threat of a leakage of radioactive materials.

The agency is considering whether it needs to issue an evacuation advisory to people living near the plant.

Saturday, March 12, 2011 08:18 +0900 (JST)

**Hergenroder, Dan**

---

**From:** Dorothy Collins Andreas (b)(6)  
**Sent:** Friday, March 11, 2011 4:15 PM  
**To:** Collins, Elmo  
**Subject:** LA Times article (from 30 min ago) about Japan reactor

<http://www.latimes.com/news/nationworld/world/la-sci-japan-quake-nuclear-20110312.0.2627198.story>

Features quotes from Ed Lyman among others.

**Hergenroder, Dan**

---

**From:** Dorothy Collins Andreas (b)(6)  
**Sent:** Friday, March 11, 2011 5:08 PM  
**To:** Collins, Elmo  
**Subject:** no schedule for venting nuclear power plant

New story about this.

[http://www3.nhk.or.jp/daily/english/12\\_24.html](http://www3.nhk.or.jp/daily/english/12_24.html)

HHH/9

Hergenroder, Dan

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**From:** Dorothy Collins Andreas  
**Sent:** Friday, March 11, 2011 5:43 PM  
**To:** Collins, Elmo  
**Subject:** more bad news from japan

(b)(6)

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The agency is considering whether it needs to issue an evacuation advisory to people living near the plant.

Saturday, March 12, 2011 08:18 +0900 (JST)

4/4/10

**Hergenroder, Dan**

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**From:** Dorothy Collins Andreas (b)(6)  
**Sent:** Friday, March 11, 2011 3:34 PM  
**To:** Collins, Elmo  
**Subject:** Japanese news (in English) about reactor

Follow this link to the main Japanese news website. You can poke around to see the different articles they have put out about the reactor (and other earthquake issues).

[http://www3.nhk.or.jp/daily/english/12\\_15.html](http://www3.nhk.or.jp/daily/english/12_15.html)

Love,  
Dorothy

**Hergenroder, Dan**

---

**From:** Dorothy Collins Andreas (b)(6)  
**Sent:** Friday, March 11, 2011 3:40 PM  
**To:** Collins, Elmo  
**Subject:** CNN is reporting that Japanese prime minister is going to visit the reactor <EOM>

4/4/12



**From:** Peck, Michael  
**Sent:** Friday, March 11, 2011 7:10 AM  
**To:** Miller, Geoffrey  
**Cc:** Collins, Elmo; Kennedy, Kriss; Pruett, Troy; Howell, Linda; Wang, Alan; Deese, Rick; Denissen, Christie; Braisted, Jonathan; Trapp, James; Dricks, Victor; Uselding, Lara; Polickoski, James; Markley, Michael; Kammerer, Annie; Howell, Art; Farnholtz, Thomas; Vogel, Anton  
**Subject:** FYI: Update - Diablo Canyon UE Following Tsunami Warning

Geoff,

(Update as of 0700 hours PST): The Tsunami is expected to arrive at Diablo Canyon at 0803 hours (PST). The licensee anticipates about a 3 foot wave surge at the plant intake. The Shift Manager decided to maintain both units at full power during the event. The Shift Manager expects about 3 feet NPSH margin for the condenser circulating pumps and about 15 feet margin for the auxiliary saltwater pumps (ultimate heat sink). The Shift Manager has release all non-essential personnel from the site.

County authorities are evacuating low lying coastal areas, including Port St. Luis, Avila Beach, parts of Moore Bay and Pismo Beach.

Michael Peck,  
SRI

---

**From:** Peck, Michael  
**Sent:** Friday, March 11, 2011 4:12 AM  
**To:** Miller, Geoffrey  
**Cc:** Collins, Elmo; Kennedy, Kriss; Pruett, Troy; Howell, Linda; Wang, Alan; Deese, Rick; Denissen, Christie; Braisted, Jonathan; Trapp, James; Dricks, Victor; Uselding, Lara  
**Subject:** FYI: Diablo Canyon - UE Following Tsunami Warning

Geoff,

(Update as of 0400 hours PST): The Diablo Canyon Shift Manager declared an Unusual Event at 0123 hours (PST) on March 11, 2011, after receiving a Tsunami Warning from the West California Emergency Management Agency. The Tsunami Warning was generated after an estimated 8.9 M earthquake occurred off the eastern Japanese coast. The Pacific Gas and Electric Geosciences Department is monitoring reports from ocean buoys and Pacific locations as the Tsunami travels across the Pacific Ocean. Geosciences personnel have concluded that the Tsunami is unlikely to cause damage at either Diablo Canyon or Humboldt Bay facilities. The Shift Manager implemented the station casualty procedure for a Tsunami Warning. These actions included:

- Evacuation of personnel from the station inlet structure (except minimum security watch)
- Briefed control operators on the rapid shutdown procedure
- Established commutations with the San Luis Obispo Emergency Operations Center
- Established Fire Brigade and local command center

The resident inceptors responded to the site following the declaration of the Unusual Event.

Michael Peck, Ph.D.  
Senior Resident Inspector  
Diablo Canyon Power Plant  
Office: (805) 595-2354  
Cell (b)(6)

Owen, Lucy

---

From: Elmo Collins (b)(6)  
Sent: Saturday, March 12, 2011 1:49 PM  
To: Collins, Elmo  
Subject: link

[http://www3.nhk.or.jp/daily/english/13\\_01.html](http://www3.nhk.or.jp/daily/english/13_01.html)

11/14

**Hergenroder, Dan**

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**From:** Collins, Elmo  
**Sent:** Saturday, March 12, 2011 1:56 PM  
**To:** Uselding, Lara  
**Subject:** Fw: link

In case you don't have this link

---

**From:** Elmo Collins (b)(6)  
**To:** Collins, Elmo  
**Sent:** Sat Mar 12 14:49:08 2011  
**Subject:** link

[http://www3.nhk.or.jp/daily/english/13\\_01.html](http://www3.nhk.or.jp/daily/english/13_01.html)

44/15

**From:** Harrington, Holly  
**To:** HOO Hoc  
**Subject:** RE: Fukushima Reactor Crisis, Richard Webb's offer of technical advice  
**Date:** Saturday, March 12, 2011 9:45:04 PM

---

Opa.resource@nrc.gov . sorry. It's late and I'm tired

**From:** HOO Hoc  
**Sent:** Saturday, March 12, 2011 9:43 PM  
**To:** Harrington, Holly  
**Subject:** FW: Fukushima Reactor Crisis, Richard Webb's offer of technical advice

FYI

Email address previously sent did not work.

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



**From:** Richard Webb (b)(6)  
**Sent:** Saturday, March 12, 2011 9:39 PM  
**To:** d.sacchetti@iaea.org  
**Cc:** HOO Hoc  
**Subject:** Fukushima Reactor Crisis, Richard Webb's offer of technical advice

To the International Atomic Energy Agency  
Vienna,

I am attaching the letter which states my proposal and offer of technical advice concerning the Fukushima reactors.

The letter is the MS Word document named "Advice for the IAEA and the Japan Authorities.doc." I include in the attachments various documents that relates to my letter. I neglected to mention in my letter that I am a citizen of the United States of America, but this fact is evident in my background statement. I am temporarily in Germany.

This message and attachments is CC.being sent to the Emergency Operations Center of the U.S. Nuclear Regulatory Commission.

Respectfully offered,

Richard E. Webb

Telephone in Germany

(b)(6)

44/16

**From:** [Richard Webb](#)  
**To:** [d.sacchetti@iaea.org](mailto:d.sacchetti@iaea.org)  
**Cc:** [HOO Hoc](#)  
**Subject:** Fukushima Reactor Crisis, Richard Webb's offer of technical advice  
**Date:** Saturday, March 12, 2011 9:39:56 PM  
**Attachments:** [nucl\\_haz.htm](#)  
[Advice for the IAEA and Japan Authorities.doc](#)  
[Dr\\_Richard\\_Webb's\\_Background.doc](#)  
[Purdue Colloquium.pdf](#)  
[Summary of Webb's Involvement TMI Accident.pdf](#)  
[Norway Childhood Leukemia.pdf](#)  
[IAEA Report\\_march 12.doc](#)  
[InfantDeaths\\_around\\_TMI.pdf](#)  
[Graph of still births.pdf](#)  
[Note on the website technidigm reference.doc](#)  
[Hiroshima Dose versus Distance.JPG](#)  
[RBMK.htm](#)  
[Section V of Webb's TMI Essay.doc](#)  
[Treatise on Harmfulness Nuclears Radiation Sec 1.pdf](#)  
[Webb home page.doc](#)  
[TMI.tif](#)

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Telephone in Germany

(b)(6)



**Studies of Nuclear Hazards  
and Constitutional Law**

Richard E. Webb, Ph.D.  
American Scientist (Engineering Physics)  
Hotel Seeblick  
Bernried, Germany  
Telephone: +49 8158 254 122  
Mobile Phone:  
Germany (b)(6)  
Switzerland (b)(6)  
(within Germany, 0160...  
and Switzerland, 078...)  
[www.technidigm.org/webb](http://www.technidigm.org/webb)

March 13, 2011  
3:15 a.m.

Public Affairs Office  
International Atomic Energy Agency (IAEA)  
Vienna,

Attention: Mr. D. Saccchetti

Subject: The Fukushima Nuclear Power Plant Crisis

Regarding the crisis at the Fukushima nuclear power plant in Japan, the following technical advice for the efforts being made to regain control of the reactors and prevent a reactor eruption.

I hold a Ph.D. degree in nuclear reactor physics and engineering (Ohio State University 1972), and have researched the accident hazards of nuclear power plants since 1970. I attach some biographical information on my work. The University of Massachusetts Press published my treatise *The Accident Hazards of Nuclear Power Plants* in 1976. I was involved in the Three Mile Island nuclear accident by giving technical advice to the Pennsylvania Government and the U.S. Nuclear Regulatory Commission. I attach a Summary of my advisory involvement. I feel a moral obligation to offer your organization, and the U.S. Nuclear Regulatory Commission as well, by copy of this letter, my advice concerning the reactor crisis at the Fukushima nuclear power plant.

Essentially, my advice is that the engineers at the Fukushima plant ought to be extremely careful in changing the status of the reactor(s), and not assume, on the basis of theoretical speculation, that by changing things they would improve the conditions of the reactors. Obviously, when the pressure rose in the reactor container to a dangerous level, a deliberate pressure relief would be proper. However, from the information which your agency has issued, a copy of which I attach with my notes and underscoring, I sense that after the venting of "vapor" from the reactor containment began, the explosion occurred. I assume that the explosion was caused by hydrogen gas detonating; for there are reports in the news that fuel rods have been damaged – the assumed hydrogen produced by zirconium-steam chemical reactions. I worry that by injecting water into the reactor and/or its container, the water might come into contact with molten material, and result in a reactor eruption – by a steam explosion. The steam explosion potential is enormous – a potential of about 100 one-thousand pound bombs.

The experience of the Three Mile Island accident seems very relevant to the current crisis in Japan. The Three Mile Island (TMI) accident began on March 28, 1979 in the early morning, around 0400. From the official information given later that day by the company that operated the reactor, and by the NRC, I judged that the Unit 2 reactor suffered a "beyond design basis accident" (a complete loss of feedwater to the steam generators). The chief health minister for the Pennsylvania government consulted me in the evening of that day, March 28th. I offered my advice that the reactor suffered an accident for which the reactor safety systems were not designed to control, and therefore, I requested that the Pennsylvania Government provide me with the basic reactor status data, so that I could study the condition of the reactor and formulate advice based on my experience and research of the nuclear reactor accident hazards. Although the Health Minister passed my request to the proper office in the Pennsylvania government, Bureau of Radiation Protection, no one from that office contacted me. In the following morning, March 29<sup>th</sup>, the TMI company announced that they would be changing the status of the reactor, by switching to "decay heat removal system" – the normal shutdown mode of cooling.

I then immediately contacted (by telephone) the NRC's Emergency Operations Center, about 9.30 a.m., March 29<sup>th</sup>. The manager of the Center said that the reactor operators have the reactor well under control. I then inquired whether the TMI unit 2 reactor is instrumented with "core thermocouples." The reply was yes, but the manager of the Center refused to answer whether the thermocouples are working and being monitored. About one hour later the Chairman of the NRC testified before a committee of the U.S. Congress, declaring that the accident is over. However, four hours after my phone inquiry about the core thermocouples, the NRC obtained core thermocouple data and gave the data to Dr. Roger Mattson, who headed the NRC's Office of Nuclear Systems Safety. Mattson then discovered by the data that the reactor core is overheated, so that the reactor was not under control

As a result of Mattson's debates with the TMI engineers about the significance of the core thermocouple readings, the TMI company decided to keep the status quo, and not switch to the decay heat removal system cooling. Switching to decay heat removal would have involved depressurizing the reactor system. (The reactor system was at 1000 psig pressure at that time.) Five years later, it was discovered that about half of the core melted, and that the molten material was held up by a crust of frozen material. Had the system been depressurized, as well planned earlier that day, the pressure within the melt could have broken the crust, and released molten fuel into water. A potential catastrophic steam explosion could then have resulted (assuming that the core melted on the first day of the accident). So, maintaining the status quo was very wise.

While maintaining the status quo and probing the system, the TMI engineers discovered later (in the evening of that second day) an enormous quantity of hydrogen gas in the reactor system. Based on the reported size of the hydrogen gas volume in the reactor, and the level of the reactor system pressure, 1000 psig, which was a fact disclosed to me by a Davis-Besse reactor engineer, I discovered by calculation that the core was destroyed, by the mechanism of a zirconium-steam reaction that produced the hydrogen. I discovered this right when the NRC announced that the hydrogen "bubble" in the reactor system had "dissipated," that, therefore, the reactor would be put into a "cold safe shutdown" condition. I learned that that meant that a main reactor coolant circulation pump that was running would be stopped. I then advised the NRC and the Pennsylvania Government, that the reactor core is destroyed, and, therefore, the reactor operators ought not change the reactor cooling status: *That they ought not venture into a difference state of the reactor.* I reasoned that since the reactor was slowly cooling down, as indicated by decreasing core thermocouple readings, they ought to maintain the present mode of cooling, since that

mode was so far successful in averting a reactor eruption, until the decay heat diminished to such a low level that there could not longer be a potential for core melting. (At the time it was not known whether any fuel had melted.) One of the science advisors for the Governor of Pennsylvania then consulted me, after the Governor's office received my advice, and the result was that the Governor of Pennsylvania conferred with the NRC's chief of the reactor accident management at the site, Mr. Harold Denton, about my information. Following that meeting, the NRC and the TMI company decided to maintain the status quo, and not switch to natural circulation as they were about to do. That was a good decision; for the reactor did not erupt! So, that experience is a lesson – a lesson that when things are working all right, don't change things. The TMI reactor cooling continued by means of that main coolant pump for three more weeks, during which time the fission-product heat rate decayed substantially. That continued cooling could have saved the public from a certain catastrophe.

However, I must add that on April 27<sup>th</sup>, almost one month into the accident, the operators turned off the main coolant pump and attempted natural circulation cooling. Fortunately, the reactor did not erupt, and so that action proved to be successful. On the day before, April 26<sup>th</sup> I had met with Dr. Mattson in his NRC office, after learning that the NRC and the Sandia Laboratory, and the TMI company, wanted to make an "experiment" with the the TMI Unit 1 reactor, by switching off the main coolant pump that was running and see whether the damaged reactor core could be cooled by natural circulation. In my meeting, which ran about four hours, Mattson and his associate, one Carl Berlinger, argued that Sandia, Babcock and Wilcox, and the advisory group of nuclear engineers for the TMI company, all predicted successful cooling of the damaged reactor core by natural circulation. Mattson and Berlinger showed me the TMI company's safety analysis for the experiment, and the NRC's report that evaluated the safety analysis. The NRC staff in their evaluation concurred in the safety analysis. I argued, however, that their safety analysis is mere theoretical speculation, and that the state of the reactor core was not known. Whereupon, Mattson conceded that my point is a "good point." He then gave me a copy of the safety analysis and the NRC's safety evaluation, and promised me that he and Berlinger would consult me before a final decision would be made whether to go ahead with the proposed experiment.

My meeting with Mattson and Berlinger was on Thursday, April 26. The experiment was tentatively scheduled for the following Tuesday, May 1st. I was to have the weekend to study the documents, and Berlinger was then to telephoned me on Monday, April 30 for a final conference. However, on the next day, April 27<sup>th</sup>, the coolant pump was switched off. So, the TMI operators and whoever authorized that action took a chance. Fortunately, the reactor did not erupt following the switch to natural circulation. But they, and we in the public, were lucky! For the safety analysis for that experiment was based on the assumption that the core thermocouple readings were measuring the temperature of the reactor coolant exiting at the top of the reactor core. The TMI advisory group, Sandia, the B&W engineers, and the NRC engineers, all assumed that the core thermocouples were intact, and measuring the core exit coolant temperatures across the top of the core. Based on the assumed core exit temperatures, and the estimated core decay heat rate, they calculated the core coolant flow up through the core. Their analysis assumed that some of the fuel rods crumbled and impeded the coolant flow through the core, but that the core thermocouples were still intact and in their proper place above the core. By so estimating the coolant flow up through the reactor core, they estimated the flow friction factors that were need for the natural circulation predictive calculations.

However, five years later, when the reactor was opened for examination, it was found that the upper part of the reactor core had melted away, leaving a large cavity; and that most of the core thermocouples had also melted away-- that the thermocouples had



vanished from their original positions above the core. Therefore, if the reactor core had melted before the coolant pump was stopped on April 27, then the safety analysis for the natural circulation experiment was grounded on a wholly erroneous assumption that the reactor core suffered only a relatively small fracturing of fuel elements at the top of the core, and that the thermocouple readings measured the coolant temperature across the top of the core. For after the core melted, and with it the melting of the thermocouples, the signals from the thermocouple instrumentation must have been produced by the junctions of the two wires of each of the destroyed thermocouples that had formed beneath the molten fuel material. If, however, the core had melted, and the thermocouples became destroyed, after the switch to natural circulation, then the safety analysis would have failed to predict such a consequence. So, either way, the safety analysis was wrong. Thus, either the core was already destroyed and was or had been molten, before the switch to natural circulation, in which case the assumption of intact thermocouples was wrong, or the core and its thermocouples melted after the switch to natural circulations, in which case, the safety analysis failed to predict the core behavior.

So, this history is a lesson about changing the status of a reactor in an accident condition on the basis of theoretical speculations. I refer to the essay attached that gives a better summary of my involvement in the TMI accident, with official drawings of the states of the core thermocouples found after the reactor was opened for examination.

Now about the Fukushima crisis. The reports so far appear to indicate that the condition of the reactor or reactors has worsened. For in one report it is stated that mobile electric generators were being brought to the plant, presumably to power the coolant pumps for reestablishing core cooling; but a later report, issued after the explosion, says that sea water will be injected into the reactor container. The later reports seems to indicate that the reactor cooling systems are not operable, and so the condition is worse than assessed earlier?

May I therefore propose that the IAEA obtain for my study a complete statement of the condition of the reactor systems, and that a small conference with me be held to receive and discuss what analysis I would make and what suggestions or advice that I would propose. In this way the Fukushima reactor engineers could have the benefit of my many years experience and knowledge of reactor accident hazards research.

For instance, the question: Is it necessary to flood the reactor containing with sea water? I worry about a potential steam explosion. It ought to be considered that they seem to be in a complete experimental mode of operations – venturing actions without knowing beforehand what will happen as a result. I know that there are many other experts in the nuclear engineering laboratories and industry, but most of their works are in the design and normal operations of reactors. I have specialized in the reactor accident conditions. I call your attention to a paper I issued in 1996 about warning that the reactors in Japan, as well as in the U.S. and Europe, are very dangerous. That essay has been on the internet since 1999, the website [www.technidigm.org/webb](http://www.technidigm.org/webb) , or <http://technidigm.org/webb.htm> .

By the way, the website was created and has been maintained by U.S. Navy Comander Charles Jones of Germantown, Maryland. Jones was manager of the safety of all of the U.S. nuclear weapons in the Department of Energy for six years; and before that he was qualified chief reactor engineer for the *Nimitz* and the *Enterprise* nuclear powered aircraft carriers. He has an endorsement of my work at the head of the website.

I add that Chapter 11 of my book, *The Accident Hazards of Nuclear Power Plants*, published by the University of Massachusetts Press, in 1976, warned of the possibility of a runaway atomic fission chain reaction in pressure-tube reactors by a positive void-reactivity

coefficient; and the Chernobyl RBMK reactor that erupted in 1986, as you know, was a pressure-tube reactor, and had suffered a runaway atomic fission chain reaction that caused that eruption. Also, Chapter 12 of my book warned that the nuclear runaway hazard is worse when the reactor is at low power. The Chernobyl reactor runaway occurred when the reactor was at very lower power. And, my book was published before the Three Mile Island accident!

By the way, promptly after the Chernobyl reactor erupted, a copy of my 1984 report, *Catastrophic Nuclear Reactor Accident Hazards – a Warning for Europe*, was hand delivered to the Soviet Embassy in Washington, D.C., and also I had a telephone discussion with the Science Attaché of the Soviet Union embassy. I warned of a steam explosion potential should molten core drop into the water basin beneath the reactor. Soon thereafter the nuclear engineers at Chernobyl drained that water basin! That was a wise action.

I close by mentioning also a work that I will be completing in the near future an analysis and assessment of the harmfulness of nuclear radiation that I have made. I offer a preview of my analysis in the form of an essay and also Section I of a treatise on the harmfulness of nuclear radiation that I have written, and which I need to finish and published as soon as possible. But I ought to offer these parts now.

In my assessment of the harmfulness of nuclear radiation, I apply the principles of atomic physics to calculate the fraction of the nuclei of body tissue cells that are damaged by the attack of high energetic electrons (400,000 eV) that are produced by Compton scattering of one MeV gamma ray photons off molecular electrons at a certain dose. I calculate that hardly any cell nuclei are disturbed in a ten hour period at the natural dose rate; which explains to me why natural radiation seems not to be harmful to us. For what few cells that are damaged in their respective nuclei at the natural radiation dose rate, those cells can be removed by the body tissue repair mechanisms, and healthy cells (with their cell nuclei undisturbed) can divide and replace the damaged cells with healthy new cells. The new cells, being produced by undamaged cells, would have the same molecular structure (human life code) that mother and father gave when creating the first cell of a person's body. For cell division is a wondrous process, since we all started as one cell, and by cell division, the cells multiplied until our body becomes fully developed – only 48 multiplications mathematically for that full development: the series 1, 2, 4, 8, 16, ... etc.

But at a dose one rad, the nucleus of every cell in one's body would be hit by an energetic electron (400,000 eV electron produced by 1 MeV gamma photon), which breaks up molecules as it traverses the nucleus, and thereby changes the molecular structure of the cell nucleus. I hypothesize that the human life code of the cell is in the structure of the nucleus; so that at one to two rads dose, a person so exposed would lose the human life code of his body by the molecular disruption in the nucleus; hence, one rad dose is a disastrous dose of radiation, I conclude. This calculation/assessment has been confirmed by the calculations that I have also made of the gamma dose suffered by the Hiroshima population. I attach a graph of the results of my calculations, which exhibits that radiation sicknesses and deaths resulted at doses in the range 0.5 to 2 rads. My dose calculations are very complicated theoretical calculations of the slowing down and diffusion through the atmosphere of the fast neutrons that were emitted from the atomic bomb device, the production of gamma radiation from the absorption of neutrons by the nitrogen in the air, the transport of the gamma photons down to the ground level, and finally the absorption of the gamma radiation in the body tissues of Hiroshima persons who suffered the radiation.

So, I conclude that nuclear radiation, and X-rays, are far more harmful to human and other life than what is generally believed in government offices and in the medical and nuclear engineering professions. Also, I made statistical analysis of childhood leukemia

rates in Norway for the years 1948-2000, and found significant increases on childhood leukemia after the fallout from the atmospheric testing of nuclear weapons, and later, after Chernobyl!!! (Norway suffered the greatest fallout from Chernobyl in western Europe – more so than Sweden even.) Also, I discovered large above-normal numbers of still-births and infant deaths in southern Bavaria after Chernobyl; and southern Bavaria suffered much fallout from Chernobyl – about 30,000 Bq/square meter of Cs-137. (Norway suffered 200,000 Bq/sq.m in sheep grazing land!) In addition, I discovered large increases in infant deaths in Dauphin County, Pennsylvania after the TMI accident – that county includes the TMI plant and Harrisburg, where most of the radioactivity that was released moved about. I gave a report of my statistical analysis to the Health Department of the Pennsylvania Government. I would have analyzed the statistics on stillbirths as well, but the Pennsylvania government (Department of Health Statistics) had changed the statistical rules for compiling the vital statistics on stillbirths in the year 1979 – the year of the TMI accident, thereby preventing a statistical comparison of the rates of stillbirths before the TMI accidents with the rates after the accident.

Therefore, I further advise that nuclear radiation is far more harmful than assumed by radiation protection offices, and that this assessment ought to be weighed carefully by the Japan authorities in their studies of the crisis conditions and the making of their determinations of what actions shall be taken. Also, please consider this information as a preview of my forthcoming treatise on the harmfulness of nuclear radiation for the object of protecting the public from potential catastrophic nuclear accidents.

In closing I propose that the proper IAEA officers confer with me about the Fukushima reactors and provide me with the reactor status information. My purpose is only to help the Fukushima engineers with reasoned advice grounded on forty years of scientific research of the nuclear accident hazards.

Respectfully submitted,

Richard E. Webb

## **Dr. Richard E. Webb**

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### **His Background, list of his main Writings & Publications constituting his main Works, request for support, and a preview of a future paper.**

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#### **Webb's Background<sup>(1)</sup> (The List of Writings and Publications follows.)**

1. Doctorate (Ph.D.), Studies in nuclear reactor physics and engineering, Ohio State University, Columbus, Ohio, 1972. His doctoral dissertation treats the subject of explosive power transients (nuclear explosions accidents) in liquid metal cooled, fast neutron, plutonium breeder reactors - popularly called "fast breeder reactors".

2. Bachelor of Science, Engineering Physics, University of Toledo, Toledo, Ohio, 1962.

3. Commission, U.S. Navy (Line Officer), U.S. Naval Officer Candidate School, Newport, Rhode Island, May 1963. Achieved the rank of Lieutenant.

4. In the Navy served four years in the Division of Naval Reactors, U.S. Atomic Energy Commission, 1963-1967, on the Staff of Vice Admiral Hyman G. Rickover with the following responsibility and training:

a. Responsibility as the cognizant (junior) engineer for the nuclear reactor part of the Shippingport Pressurized Water Reactor (PWR), which was the first civilian nuclear power plant in the United States. The Division of Naval Reactors was given the responsibility to develop the first civilian nuclear power plant for the United States, drawing on much of the naval reactors technology. The Shippingport PWR went into operation in 1957.

b. Bettis Reactor Engineering School, Bettis Atomic Power Laboratory, U.S. Atomic Energy Commission (AEC), West Mifflin, Pennsylvania, 1965 (awarded the certificate of successful completion). The Bettis Laboratory, operated by Westinghouse under contract with the AEC, Div. of Naval Reactors, is a prime Naval Reactors laboratory and developed the Shippingport reactor and roughly half of the naval reactor designs for the U.S. Navy.

c. Reactor systems training (self-conducted) at the U.S. Navy's D1G and S3G prototype reactor plants at the Knolls Atomic Power Laboratory in West Milton, New York (1966). The Knolls Laboratory was operated by General Electric Company under contract with the AEC, Division of Naval Reactors.

5. Associate Engineer (designated Reactor Engineer) at the Big Rock Point Nuclear Power Station - a prototype boiling water reactor owned and operated by the Consumers Power Company - Charlesvoix, Michigan (1967-1968). Resigned, in order to pursue studies of the hazards of nuclear power plants.

6. Offered a Position in the Liquid Metal Fast Breeder Reactor Program Planning Office, Argonne National Laboratory, Argonne, Illinois, January 1968, but declined the offer, in order to study for the doctorate in nuclear reactor physics and engineering.

7. Webb made his doctoral (graduate) studies of nuclear reactor physics and engineering at Ohio State University, Department of Nuclear Engineering (1968-1972), in order to be educated and skilled to make his own scientific investigations and evaluations of the accident hazards of nuclear power plants, including all types of nuclear reactors, and be completely free and independent of government control, and not dependent on any assessments of the nuclear accident hazards, and the hazards of nuclear radiation, issued by the United States

Government's nuclear establishment, and also be fully qualified to make scientific reviews of any matters found in the scientific and technical literature relating to evaluating the nuclear accident hazards, including any analyses of the nuclear hazards issued by the nuclear industry and the Government's nuclear laboratories and other offices. His doctoral dissertation presented theoretical calculations evaluating some effects for possibly augmenting the potentials for explosive power surges in fast neutron, plutonium breeder reactors in other words, *nuclear explosions*.

8. His studies at Ohio State University also included studies of United States constitutional law mainly, the Constitution of the United States in relation to both the domestic and foreign affairs of the United States (e.g., the Vietnam War).

His constitutional law studies in respect to the domestic affairs of the United States were originally undertaken to pursue the question, *Who should make the subjective judgments about the reliability of certain reactor safety systems functioning properly in a particular reactor system fault which judgments determine the specific set of reactor accident possibilities which are to be officially analyzed and evaluated in providing for "safety systems", and those accident possibilities which are not to be evaluated, because of judgments that their probability of occurrence is remote, hence are to be regarded as "incredible", hence are to be disregarded?* To pursue this question, it was natural start by comparing the Atomic Energy Act of the United States Congress the statutory basis for the United States Government's development of nuclear power plants with the Constitution of the United States.

The question arose in Webb's nuclear engineering studies at the start of his doctoral research concerning the *nuclear excursion* dangers of the fast breeder reactor, and was related to his threshold question: *Is it unreasonable to assume that two highly reliable (by design), independent, automatic, fast acting reactor shutdown systems should fail upon a reactor system fault (such as a loss of coolant flow disturbance) in a liquid metal cooled, fast neutron, plutonium breeder reactor (LMFBR)?* Such assumption would have to be made, in order to postulate the conditions for a runaway nuclear fission chain reaction occurring, the explosion hazard of which would be evaluated. Webb soon found in his initial studies of the United States constitutional law with regard to the Atomic Energy Act that that federal law is unconstitutional. (He then wrote and issued in the year 1969 his treatise, *The Unconstitutionality of the 1954 Atomic Energy Act*.) Whereupon, Webb determined that it is necessary that all serious nuclear accident possibilities in nuclear power plants must be analyzed and evaluated for their risks of occurring and their potential harmful consequences for the public health and safety, including his first project (his doctoral research project): to evaluate the possible explosive power transients (power excursions) in fast breeder reactors, which he regarded as the most serious of the accident hazards of nuclear power reactors hence, the proper place to start his scientific investigations of the nuclear accident hazards. The constitutional law question which he had posed was then naturally extended to the question, *Who should decide the public policy issue of the safety of, and necessity for, nuclear power plants?*

His constitutional law studies at Ohio State University also covered the subjects of the war-making and treaty-making powers (the making of war alliances and the conduct of foreign negotiations) assumed and exercised by a succession of Presidents of the United States in the 20th century, with immediate concern for the Vietnam War, and the rights of the United States Senate to determine the United States policy in the peace negotiations, as well as the unconstitutionality of the United States war in Vietnam, Laos, and Cambodia. His first study of the *treaty-making power* was published in the **Ohio State Law Journal** as a "lead article," titled, "Treaty-Making and the President's Obligation to Seek the Advice and Consent of the Senate with special Reference to the Vietnam Peace Negotiations," *Ohio State Law Journal*, Vol. 31, No. 3 (1970).

He also drafted two United States Senate resolutions which were introduced in the Senate by Indiana Senator Vance Hartke, and designed to reassert the Senate's power and responsibility in determining the United States policy in respect to foreign negotiations, including nuclear weapons, and more immediately at the time, the Vietnam peace negotiations (Senate Res. 156 in 1970, 71, or 72, I cannot recall which year now, and a revised, improved resolution submitted later). However, the Senators did not support the resolutions, according to the

Senate's Foreign Relations Committee Chairman, J. William Fulbright in a debate with Senator Hartke on the Senate floor (recorded in the *Congressional Register*). The peace negotiations then failed to produce peace, and the Congress then ended up cutting the money funds for the war, in order to stop it.

Webb also prosecuted a law suit on the Vietnam War, *Richard E. Webb v. Ambassador William J. Porter*. Mr. Porter was President Nixon's personal representative at the Paris Peace Talks, but who was appointed without the advice and consent of the Senate. The law suit was later extended to include Henry Kissinger, as he also was conducting negotiations with North Vietnam representatives, without the advice and consent of the Senate for his appointment. Webb has submitted to the United States Courts a series of briefs which treat the matter thoroughly. The U.S. Courts, including the Supreme Court, refused to adjudicate the constitutional law issues of the suits. Webb claimed that the unconstitutional acts of the President endangered his safety and that of his family with the possibility of nuclear war growing out of the Vietnam War a war with the Soviet Union, besides the anguish of the killing going on in that war, caused by the unconstitutional acts of the Executive.

Webb also in 1972 sued the Atomic Energy Commission in the case *Richard E. Webb v. the United States Atomic Energy Commission*, on the claim that the Atomic Energy Act is unconstitutional, and that the nuclear power plants which were then just being constructed would endanger him and his family. However, the United States Courts, including the Supreme Court, refused to adjudicate his claims, despite the fact that Article III, Section 2 of the Constitution requires that the judicial power shall extend to all cases arising under this Constitution! His only recourse was to publish a book of his analysis, and appeal to his fellow citizens his book, four years later, *The Accident Hazards of Nuclear Power Plants* was the result (see below).

9. Researched the accident hazards of nuclear power plants, and also constitutional law, since 1970 in full time (parallel) research, including:

a. Post-doctoral studies of nuclear reactor hazards and constitutional law at the Institute for Advanced Studies in Science, Technology, and Public Policy, Department of Political Science, Indiana University (1972-1974).

b. Completion of post-doctoral studies of nuclear hazards and constitutional law in the Department of Physics and the Department of Environmental Sciences, University of Massachusetts, Amherst, Massachusetts (1974-1976). Dr. David R. Inglis, a professor of nuclear physics at the University of Massachusetts, and one of the original forty physicists who developed the first atomic bombs at the Los Alamos Laboratory in New Mexico, obtained a position for Webb at the University of Massachusetts that enabled him to continue his work. (Dr. Inglis authored the book, *Nuclear Energy: Its Physics and its Social Challenges*, Addison-Wesley publishers, and the book, *To end the Arms Race*, University of Michigan Press, Ann Arbor, among many other publications. He made the first public proposal for a nuclear weapons test ban. Dr. Inglis also served as President of the American Physical Society for two terms. At Los Alamos, Dr. Inglis was the editor of all of the technical/scientific reports of the several sections of the laboratory during the development of the atomic bombs, and made the calculations (predictions) of the energy yields of the uranium-235 and plutonium bombs. Therefore, he was interested in Webb's work, especially Webb's calculations of the nuclear explosion potentials of the fast breeder reactor. Dr. Inglis was the only scientist, and the only university or college professor, to respond to Webb's *Proposal for a Post* to teach physics, plus perform research in the fields of the nuclear accident hazards and constitutional law a written proposal (essay) that was sent to about fifty universities and colleges in the United States.) The product of his research at the University of Massachusetts was his treatise, *The Accident Hazards of Nuclear Power Plants*, published by the University of Massachusetts Press (Amherst) in 1976, upon the recommendation of Dr. Inglis.

Also, taught an academic course in Constitutional Law at the University of Massachusetts. The last chapter of the book *Accident Hazards* is titled, "Who Should Decide?," and gives an analysis of the Atomic Energy Act with respect to the United States Constitution a short basic proof that the Act is unconstitutional, for the purpose of promoting a full review of the Constitution in relation to nuclear energy. The professor of Legal Studies at the University recommended the publication of the chapter on constitutional law.

c. Research of the matter of the hazards of nuclear waste disposal (high level radioactive waste), 1977, and issued a treatise evaluating these hazards and the magnitude of the potential volume of nuclear waste disposal. Also in 1977 initiated calculations of the nuclear explosion potentials of the SNR-300 fast breeder reactor that was under construction in West Germany.

d. In 1978 Webb made calculations of the heat-up of spent fuel rods in loss of cooling accident conditions in spent fuel storage basins in a nuclear power plants conditions that would likely occur in a severe reactor accident, and discovered that the zirconium-clad spent fuel rods would likely overheat and ignite in a deflagrating zirconium fire, releasing into the atmosphere up to twenty time more long-lived cesium radioactivity, and also possibly strontium-90, and plutonium, than could be released into the atmosphere from a reactor eruption. The reactor eruption alone would be catastrophic over a geographically widespread land area of the order of 200,000 square miles!

e. Involvement in the Three Miles Island nuclear reactor accident in 1979 (the accident began on March 28). Webb gave technical advice six days into the accident on a critical decision on cooling down the destroyed reactor core, which advice was followed, which helped to avert a reactor eruption. See Webb's TMI Essay addressed "To the People of the Area of the TMI Nuclear Power Plant," the Transcript of Audio Tape Recordings that record his involvement, and other items (Nos. 10, 15, 24, and 40 in the List of Writings and Publications.)

Also, on the morning of the second day of the accident, around 10 a.m., Webb by telephone alerted the Nuclear Regulatory Commission (NRC) its Emergency Operations Center to inquire into the status of the "core thermocouples" devices for measuring the temperatures of the water coolant at the outlets of the fuel assemblies in the reactor during normal reactor operations in order to assess the nuclear fuel conditions inside the reactor. Evidently, after Webb's morning telephone call into the Emergency Operations Center, the Center obtained core thermocouple readings (data) from the TMI site. In the early afternoon of that second day of the accident, those core thermocouple data were given over to the NRC's Dr. Roger Mattson for an evaluation. Dr. Mattson was then chief of the NRC's division of Nuclear Systems Safety, and who up to that time was ordered by his superiors not to be concerned with, nor to spend any time on, the TMI accident situation, but instead to devote his time to preparing a report for the Congress about the nuclear power plant design features with respect to possible earthquakes. The NRC's assessment of the TMI accident given to the Pennsylvania Government authorities on the first day of the accident, and through the evening of the first day, was that the accident was not very serious.

However, the core thermocouple data were recognized by Dr. Mattson as alarming, indicating as they did, extremely high temperatures in the reactor core, and therefore, indicating that the core was destroyed, and so the reactor was in a much more dangerous condition than had been officially estimated and reported earlier. (Years later it was determined that about half of the reactor core melted, a condition for a potential catastrophic steam explosion!) Mattson's evaluation of the thermocouple data and his intense discussions with the B&W reactor vendor who designed the TMI reactors, which discussions carried over to the next morning non-stop (without sleep), caused the NRC and industry engineers at the TMI-2 reactor to be extremely careful in handling the crisis, and probing the reactor conditions and taking actions efforts which prevented rash actions that could have worsen the conditions and thereby produced a catastrophic reactor eruption.

f. On the first evening of the TMI accident Webb became, in effect, an emergency consultant to the Secretary of Health of the Commonwealth of Pennsylvania in Harrisburg, which consultations lasted for two weeks, and also Webb was consulted by an official of the Governor's Science Advisory Council of the State of Pennsylvania Government in connection with and during the critical phase of the Three Mile Island accident near Harrisburg, Pennsylvania in 1979. Webb has since thoroughly investigated the accident and has issued several treatises and reports on the subject. See items Nos. 10, 15, 24, and 40 of the List of Writings and Publications below.

g. Consultant to the town of Lower Alloways Creek, Salem County, New Jersey, investigating the accident hazards of spent nuclear fuel storage at the Salem pressurized water reactors

(Westinghouse designs), 1979-1980. Webb participated in the NRC's licensing proceedings on the subject of spent fuel storage a license application to pack more spent fuel in the storage basin, since there were no radioactive waste disposal facilities that could accept the spent fuel rods that were being regularly removed from the reactor in periodic reactor "refuelings." In those proceedings Webb submitted several treatises on the matter: one evaluating the potentials for spent fuel heat up and fire following a reactor accident; and another treatise which proved that the TMI accident was a "Class Nine Accident," meaning that the reactor safety systems were not designed to control safely the mechanical disturbance that started that accident.

Webb's *Class Nine Accident* treatise demonstrated that the TMI accident was one of the accident possibilities of the class of reactor accident possibilities which the Atomic Energy Commission, later the Nuclear Regulatory Commission, had before judged to be "incredible" and therefore, judged the risk of their occurrence to be acceptably low, or remote. Prior to Webb's submission of his "TMI Class Nine Accident" treatise the Executive Director of the NRC had declared in a letter addressed to the United States Congress that the TMI accident was a "design basis accident" that is, a "Class 8 accident," which would mean that the safety systems at TMI were designed to control the accident that happened. Thus, the NRC executive director had asserted in effect that the TMI safety systems functioned as designed to prevent a catastrophic reactor eruption. However, after Webb's submission of his "TMI - Class Nine Accident" treatise in the Salem spent fuel licensing proceedings, the NRC reversed their assessment, and submitted to the Salem proceedings a response to Webb's treatise, conceding that the TMI accident was a Class Nine Accident. The official giving the response was Dr. Roger Mattson. It all means that it was essentially LUCK that averted a reactor eruption during the TMI accident, in addition to the strenuous efforts of the reactor engineers and technicians at the site and in the offices of the GPU, B&W, and NRC.

h. Member of the official West German Government investigation of the explosion accident hazards of the SNR-300 fast breeder reactor, 1981-1982: Research Group Fast Breeder Reactor, Risk oriented Analysis of the SNR-300 (Forschungsgruppe Schneller Brüter, Risikorientierte Analysen zum SNR-300, Max Planck Institut für Physik), Munich. Continued research of the nuclear explosion potentials of the SNR-300 reactor in 1985; and discovered atomic bomb size explosion potentials. Submitted a report of this research, including the calculations, to the licensing authorities in West Germany. The West German Government authorities subsequently decided not to operate the reactor, after it was built and ready for fuel loading.

i. Continued research of the accident hazards of nuclear power plants, including fast breeder reactors (nuclear explosion potentials), light water reactors, the British type gas-cooled reactors, and the Soviet's RBMK-type Reactors (Chernobyl type), 1982-present. Before the Chernobyl accident of April 26, 1986, Webb investigated the June 1985 loss of cooling reactor mishap at the Davis Besse Nuclear Power Plant, and issued a report. That reactor came close to an explosion in that mishap, as is demonstrated in his report. Also, Webb issued a draft treatise on the core meltdown and explosion hazards of light water reactors (LWRs).

j. Investigated the Chernobyl nuclear accident in the spring and summer of 1986 (the accident began on April 26, 1986), and issued a report of his investigation dated August 1, 1986, two months before the Soviets released their report. (See the list below.) Webb then went to Europe on September 1, 1986, to promote his analysis of the Chernobyl accident, and to investigate the accident further. He obtained the Soviet Report of the accident, and paid special attention to the estimates of the amount of radioactivity released and the reactor power excursion that occurred. Prepared a second addendum to his Chernobyl report, but deferred that work in order to investigate the nuclear excursion accident hazards of the British gas-cooled reactors, which are similar to the Chernobyl RBMK in certain respects.

k. In one year research (1987-1988) discovered nuclear explosion hazards of the British Advanced Gas Cooled Reactors (AGRs). Issued a treatise, *The Nuclear Explosion Hazards of the British Advanced Gas-Cooled Reactors (AGRs)*. A report of this scientific discovery is given in the British magazine *New Scientist*, October 22, 1988, the lead story "This Week."



l. Participated in the British Government's Hinkley Point 'C' Public Inquiry, October 1988 - December 1989, which investigated various matters (e.g., safety) concerning the planned construction and operation of a pressurized water reactor (PWR) station at the Hinkley Point nuclear power plant in Somerset, England. Submitted evidence in these proceedings on PWR and AGR accident hazards, cross-examined officials, and underwent cross-examination. Near the end of these proceedings the British Government cancelled their plans to construct the PWR station at Hinkley Point, and three other such stations. Made additional research of the steam explosion hazards of core melting accidents in water cooled reactors, and reactivity accident hazards of PWRs and Boiling Water Reactors (BWRs), and other topics in connection with the Hinkley Point Inquiry proceedings. Issued a treatise on the unstable power oscillation that occurred at the LaSalle BWR near Chicago in 1988.

m. Made further research in 1989-90 into the potential reactivity effect of "neutron streaming" in nuclear excursion accidents in fast breeder reactors, and developed a possible mathematical solution to the problem of evaluating the reactivity potential by this effect - an effect which conceivably could have a large catastrophic effect (nuclear explosion). This was undertaken because of the hazards of the operating fast breeder reactor in northern Scotland and the possibility of the SNR-300 fast breeder reactor in Germany being put into operation. However, this research was set aside, in order to prepare a second book on the nuclear hazards for the public, and to resume work on developing a mathematical analysis of the cancer mortality statistics of the Japanese atomic bomb survivors and radiation workers, to evaluate the effect of nuclear radiation causing cancer disease at low dose (see the next item below). Also raised the matter of the nuclear explosion accident hazards of the British fast breeder reactor in the Hinkley Point Public Inquiry. The British Government has since announced that it plans to close down this reactor, and the German Government has announced its decision not to operate the SNR-300 reactor.

n. Undertook a mathematical analysis of the cancer mortality statistics of the Japanese atomic bomb survivors, and the Hanford radiation workers, to determine whether or not nuclear radiation causes cancer at "low" dose, and if so, the magnitude of the effect: the so-called "risk coefficient" - the additional probability of cancer death per unit dose of nuclear radiation. (Began this work in 1984 and worked intermittently until 1990, then worked full time on this problem from 1991 to February 1993.) This work was supported in part by the Schleswig-Holstein Government in northern Germany. Issued a three-volume treatise of my analysis, plus a forth unfinished draft, plus a series of reports. Had postponed this work in February 1993, in order to undertake a further and thorough scientific investigation of the Three Mile Island accident of March 28, 1979. However, in February-May, of the present year 2000, Webb has resumed his statistical analysis research on the "risk coefficient", as part of his current research (near completion) of the health hazards of nuclear radiation.

o. Resumed constitutional law studies in October 1990, particularly concerning the war-making power under the U.S. Constitution, following the blockade of Iraq in August 1990, and issued a treatise on the subject (see below). This work spanned the period October 1990 to April 1991.

p. Made additional studies and analyses of the hazards of catastrophic steam explosions in reactor core melt accidents in water-cooled reactors, plus the question of harm to the human body due to low dose of radiation.

q. Re-investigated the March 28, 1979 Three Mile Island Nuclear Accident, and other topics, including an analysis and evaluation of the radioactivity releases into the atmosphere during the Three Miles Island nuclear accident, the radiation dose levels in the TMI area due to those releases, and the extent of harm by the public's exposure to the radiation emissions of the accident. Have prepared a treatise evaluating the radiation doses which the inhabitants around the Three Mile Island nuclear plant likely received, or possibly received, as a result of the TMI accident. This treatise critically analyzes the official U.S. Government's "Radiation Protection Standards," and the official investigation of the TMI accident with respect to compliance or non-compliance with these standards. His research included development of mathematical theory of gamma radiation physics for calculating the radiation dose to person exposed to a passing radioactive cloud, as in the TMI accident, including body tissue doses, besides the air dose outside the body, and for calculating the energy spectrum of the gamma photons. The

theory permits a calculation of the radiation doses using a small personal computer without resort to extremely expensive "Monte Carlo" calculations that employ large "main frame" computers of a nuclear laboratory for long computer running times (several days times). Webb has prepared the material for a full treatise on the TMI accident; but has had to defer the work to take up pressing matters.

r. Made a mathematical Analysis of the Birth Statistics in Bavaria before and after Chernobyl, and discovered statistical indications of deadly harmful effects of nuclear radiation at low doses - increases in the still-birth rate in 1987-1989 in Bavarian due to the Chernobyl radiations exposures in Bavaria, which suffered substantial levels of nuclear fallout from the Chernobyl accident. Issued in 1995 a four volume treatise that represented the complete details of the original analysis. The Bavarian Government in September 1994 had published a report giving the official statistical analysis, made by the German federal Office of Radiation Protection (Bundesamt für Strahlenschutz, BfS), which concluded that there were no detectable effects of the Chernobyl fallout in Bavaria on the health of child birth. However, Webb treatise included a critical review of the BfS analysis, proving that the analysis was not sound. Later in 1996-1998 further work was made, and a further report/treatise was issued, dated March 4, 1997, and later a draft treatise, July 31, 1997 that extends the work. The Bavarian Government then re-opened its investigation, following Webb's statistical analysis and his critical review of the BfS analysis, and commissioned two pairs of experts in mathematical statistics to review the BfS analysis and Webb's analysis, and two other statistical analyses. The expert commission from the Institute of Mathematical Statistics, University of Freiburg, in their report dated May 1998, concluded that Webb's statistical analysis is "solid," and they confirmed Webb's results by their independent calculations. The matter is on-going. Webb has issued a 15-book treatise in June 1998, and is presently in Bavaria to complete the whole work, and prepare for publication a scientific article on the subject.

s. In 1994 Webb undertook research into the biological and health effects of nuclear radiation, to assess the extent of the human harm from one *rad* dose of nuclear radiation. Discovered that the health effects of nuclear radiation (and X-rays) are far more serious than the radiation biology and radiation protection establishment have heretofore reported (see Section V of his TMI essay, addressed *To the People of the Area of the Three Miles Island Nuclear Power Plant* listed below.) Also, he made further analyses of the nobel gas radioactivity releases in the TMI accident, and has prepared a follow-on report, but which has had to be deferred.

t. Resumed his studies of constitutional law when he learned of the United States bombing attacks in Yugoslavia in September 1995.

u. Investigated the critical reviews of his analysis of the radioactivity releases in the TMI accident which the TMI company, General Public Utilities, submitted to the United States District Court in Pennsylvania, and the Court Judge's decision pronouncement that Webb's analysis is "scientifically unreliable" a proceeding in regards to Webb's work which Webb was not informed about. See his TMI essay addressed "To the People of the Area of the Three Miles Island Nuclear Power Plant," as listed below.

v. In December 1996 Webb returned to the United States, settled in Harrisburg, Pennsylvania, in order to prepare for a set of law suits to recover damages for the injuries (defamation) he has suffered as a result of the Court proceedings just mentioned. This work included additional studies of constitutional law, needed to determine his rights to protect his reputation by legal action, and the proper rules of proceeding and rules of evidence in the United States Courts under the Constitution. He has made a thorough critical review of the Federal Rules of Evidence and the Federal Rules of Civil Procedure, taking for a specific case for study the matter of the prosecutions conducted by the Independent Counsel, Kenneth Starr, and the Impeachment and Trial proceedings involvement President William J. Clinton. See items Nos. 46 and 47 of the List of Writings and Publications below. In Webb's view, those proceedings were not unrelated to Mr. Clinton's unconstitutional actions to make more war in Iraq and Yugoslavia, which was a factor in motivating Webb's study of the matter of the Independent Counsel's prosecutions and the Impeachment and Trial proceedings.

w. In the period 1997-1999 Webb has also further investigated the Three Miles Island nuclear accident, and made further discoveries about the accident which so far have not been documented, such as the discovery of the dangers of "going water solid" in the reactor system during the accident, including the possibility of a Chernobyl-like nuclear excursion (reactor explosion). Also determine that the real lessons of the TMI accident have not really been learned. Also, discovered significant above-normal numbers of infant deaths in Dauphin County the county in which the TMI plant is located upon a mathematical analysis of the official Pennsylvania *Vital Statistics*, and issued a report. The report was submitted to the Secretary of Health of the Commonwealth of Pennsylvania, and included a critical review of the official Pennsylvania Government's analysis of the statistics on child birth in the area of the TMI plant following the TMI accident.

x. In 1996-1999 Webb made additional, and extremely thorough studies of constitutional law in regards to both the domestic affairs powers and foreign affairs powers assumed by the United States Congress and the President, with immediate focus on the additional war-makings of the United States Government: renewed bombing attacks against Iraq, and Yugoslavia. Wrote up additional treatises on constitutional law, and has nearly completed a set of papers for taking legal action with regard to those attacks. But had to defer the work for a lack of a home in which to live. Returned to Germany in August 1999, in order to survive, being offered an apartment to live and continue his work. It has not been possible for Webb presently to survive in his home country, and be critical of the United States Government's assumptions and exercise of unconstitutional powers, mainly, powers to make wars and alliances on behalf of other nations or peoples, powers to develop nuclear energy, and other unconstitutional assumptions of power that have so seriously affected the life of our country, and other nations; especially, when the United States District Court Judge in Harrisburg has acted to destroy his reputation, and unjustly so! See his essay on TMI and his essays on the Constitution of the United States, some of which appear on the Internet with this summary of Webb's Background and List of Writings and Publications.

y. Presently Webb is residing in Bavaria, completing his statistical analysis research of the harmful effects of nuclear radiation, and his studies and physics analysis of the action of nuclear radiation on body living tissue electron track calculations; coulomb scattering of electrons, photo-electron interactions, cloud chamber evidence of such interactions, &c., for calculating the fraction of body tissues cells hit, and consequent damaged (mutated) by energetic electrons at a certain radiation dose energetic electrons produced by the absorption of gamma radiation photon energy in the body tissue, when exposed to nuclear radiation. Webb's statistical analyses cover (1) the official Bavaria statistics on still births and infant deaths for the period 1980-1993, to assess the effects of the Chernobyl nuclear fallout in Bavaria, which was relatively high in southern Bavaria, (2) the official Pennsylvania statistics on infant deaths for Dauphin and York counties of Pennsylvania for the period 1970-1989 made for assessing the possible harmful effect of the Three Miles Island nuclear accident of March 28, 1979, and (3) the semi-official cancer mortality statistics of the Japanese atomic bomb survivors, to assess the cancer death "risk coefficient" of nuclear radiation exposure. Preparing a scientific article for publication of his statistical analyses and physics analysis, the object of which is to assess the health hazards of nuclear radiation.

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**The List of Richard Webb's  
Writings and Publications  
follows on the next page.**

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## A List of R.E. Webb's Writings and Publications constituting his Main Works<sup>(2)</sup>

1. *Some Autocatalytic Effects during Explosive Power Transients in Liquid Metal Cooled, Fast Breeder Nuclear Power Reactors (LMFBRs)*, doctoral dissertation, Ohio State University, 1972. (For the record Webb declares that his analysis of autocatalytic reactivity effects that is given in his dissertation is not adequate; though that analysis served to demonstrate the necessity to account for these effects in any evaluation of the nuclear explosion potentials of fast breeder reactor accidents. See the items Nos. 12 and 28 below which discuss Webb's later research in regards to "neutron streaming" reactivity effects.)

2. *The Unconstitutionality of the 1954 Atomic Energy Act*, 1969.

3. *Statement on the Explosion Hazards of the Liquid Metal Fast Breeder Reactor* published by the Joint Committee on Atomic Energy, United States Congress, in September 1972, Committee Print - *The LMFBR Demonstration Plant*. This congressional document concerned the U.S. Government's plan, which has since been discarded, to build the a LMFBR demonstration reactor, the Clinch River Breeder Reactor.

4. *The Explosion Hazards of the Liquid Metal-Cooled, Fast Neutron, Plutonium-Breeding Reactor (LMFBR)*, printed by Indiana University, Bloomington, Indiana, July 1973. Contains a section on the "Unconstitutionality of the Atomic Energy Act." This report gives a point-by-point refutation of the Atomic Energy Commission's comments on Webb's statement on the explosion hazards of the LMFBR.

5. *The Accident Hazards of Nuclear Power Plants* (University of Massachusetts Press, 1976). Includes as its final chapter the author's analysis of constitutional law with respect to the U.S. Atomic Energy Act - the chapter titled "Who Should Decide?"

6. *The Vietnam War and the Responsibilities of Congress*, published Summer 1967, Charlesvoix, Michigan.

7. "Treaty-Making and the President's Obligation to Seek the Advice and Consent of the Senate with special Reference to the Vietnam Peace Negotiations," *Ohio State Law Journal*, Vol. 31, No. 3 (1970).

8. *Grounds for the Impeachment of President Richard M. Nixon* - a legal analysis. Also published in the Indiana University student newspaper, *The Daily Student*, 1973 (School of Journalism)

9. *Presidential War-Making, Nuclear Weapons, and Unconstitutional Government* (a detailed outline of a treatise), 1983.

10. "Analysis of the Accident at Three Mile Island," a chapter published in the book, *Nuclear Lessons*, by E. Hogan and R. Curtis, Stackpole Books, Harrisburg, Pennsylvania 1980.

11. *An Inquiry into the Safety of Nuclear Waste Disposal* (1977) - an analysis of the hazards of nuclear waste disposal, including geologic disposal and surface storage.

12. *The Nuclear Explosion Potentials of the SNR-300 Fast Breeder Reactors at Kalkar, West Germany*- a series of ten treatises on this subject (1977-1984).

Of special importance is the final report of this series, which was presented to the West German Government, the Minister for Research and Technology, and to the Kalkar reactor licensing authority of the North Rhine-Westphalia Government, and which reports on Webb's discovery of atomic bomb size nuclear explosion potentials of the fast breeder reactors, and the SNR-300 reactor in particular. (The report is to be given a restricted distribution for obvious reasons.) One of the theoretical developments which was made in the course of this research relates to a mechanism called "neutron streaming," and more specifically, the second type of neutron streaming that is treated in Webb's doctoral dissertation, having to do with a "planar gap" through the reactor core (postulated to form during a core meltdown, as assumed in the official hazards analysis for the EBR-II experimental fast breeder reactor). For the record, Webb asserts that the treatment of the gap neutron streaming given in his doctoral dissertation is not adequate. He has developed an improved, more accurate mathematical

theory for calculating the effect, which figures in the calculation of the atomic bomb size nuclear explosion potentials of the fast breeder. This particular development needs to be published in a nuclear engineering journal. However, the work had to be deferred in order to take up more pressing work, such as the occurrence of the Chernobyl accident, that happened three weeks after Webb submitted his report on the atomic bomb size explosion potentials of the SNR-300 reactor.

13. *Calculations of Spent Fuel Heat-Up following Loss-of-Cooling in the Spent Fuel Storage Pool at Prairie Island Nuclear Power Plant, Red Wing, Minnesota*, June 27, 1980.

14. *The Potential Harmful Consequences of Catastrophic Accidents in Nuclear Power Plants*, 1980, and published in the reports of the official, West Germany Government study of the SNR-300 accident risks, "SNR-300 Risikoorientierte Analyse," April 30 and November, 1982. This treatise is mainly an application of atmospheric dispersion and fallout theory to estimate the potential size land areas of serious air and soil contamination from radioactivity releases in nuclear reactor plant accidents.

15. *Analysis of the Three Mile Island Accident and the Implications for the Reactor Accident Hazards in General*, September 1982, which is a full treatise, including a critical review of the official studies of the accident (draft manuscript). This report is supplemented by my March 10, 1989 "Evidence" submitted in the Hinkley Point public inquiry (see below) and in my Three Mile Island Accident "Transcript" (see below).

16. *The Likelihood and Potentials for Catastrophic Reactor Accidents*, draft manuscript, December 1982, which analyses the probability of accidents and the potentials for explosion and fission product release in light water reactors.

17. *Catastrophic Nuclear Accident Hazards - A Warning for Europe*, August 1984.

- *Supplemental Analysis of the Potentials for Nuclear Reactor Plant Eruptions, Light Water Reactors*, May 1985.

- Addendum, April 12, 1986: *Atomic Bomb Size Explosion Potentials* a summary of my analysis (discovery) of atomic bomb size explosion potentials in the SNR-300 fast breeder reactor.

18. *Catastrophic Nuclear Accident Hazards and Unconstitutional Government* (unpublished manuscript, May 1984) - similar to Webb's *Warning for Europe* (No. 17 above), only written specially for the American situation, including a voluminous chapter on U.S. Constitutional Law, and including a critical review and evaluation of the U.S. Nuclear Regulatory Commission's evaluation of the potential magnitude of fission product release in "degraded core accidents."

19. *The Chernobyl Nuclear Accident: A Summary Analysis of its Cause and Consequences, with a Comparative Analysis of the Accident Hazards of the Western Reactors*, August 1, 1986. (Extracts of this report were published in the British journal *The Ecologist*, Vol. 16 No 4/5 1986; though it should be noted that the editors changed without Webb's permission and knowledge a key section of his report which presents his evaluation of the possible numbers of cancer deaths arising out of the Chernobyl. The problem was corrected by R. Webb's letter to the editor in the following issue of *The Ecologist*.)

20. *Democratic and Constitutional Principles Reviewed and Asserted* - a lecture given at the Anti-Atom International Conference in Vienna, September 1986.

21. *The Nuclear Explosion Accident Hazards of the British Advanced Gas-Cooled Reactors (AGRs)*, June 1988.

22. *An Analysis and Evaluation of the Accident Hazards of, and the official Safety Arguments for, the Sizewell-B Type Pressurized Water Reactor proposed for the Hinkley Point Reactor Site in England*, March 10, 1989 (corrected for typing errors, November 20, 1989) - Evidence submitted in the Hinkley Point 'C' Public Inquiry.

23. *Boiling Water Reactors: Reactivity Accidents and Unstable Power Oscillations*, August 15, 1989.

24. *The Three Mile Island Accident - Transcript of Excerpted Telephone Discussions and Radio and Television Reports, giving an audio account of the TMI Accident and R.E. Webb's involvement in the accident - his efforts to advise the authorities in a critical decision on the method for cooling down the destroyed reactor core, plus narration and a Sequel*. (September 23, 1989, revised slightly March 1990).

25. *Analysis of the February 11, 1990 Loss-of-Power (Loss of Reactor Cooling) Mishap at Hinkley Point Nuclear Power Plant and its Implications - a Further Assessment of the Hazards and Risks of Catastrophic Accidents in the Advanced Gas-Cooled Reactors in Great Britain*, May 6, 1990.

26. A draft treatise titled *Refutation of the Statements of the United Kingdom Atomic Energy Authority - UKAEA/Dounreay - Denying the Credibility, Competence, and Integrity of Dr. Richard E. Webb with regard to his Analysis of the Accident Hazards of Nuclear Power Plants, and in particular the Nuclear Explosion Hazards of Fast Breeder Reactors, such as the Prototype Fast Reactor (PFR) at Dounreay and the SNR-300 in West Germany*. This treatise will be enlarged to include the results of R.E. Webb's current research into the question of the reactivity effect of neutron streaming as a possible mechanism for nuclear explosions in the fast breeder reactor.

The work for the completion of the treatise had to be postponed, in order to pursue a series of other matters, from 1990 to the present (March 2000).

An important part of the research concerns a thing called "neutron streaming" in the sodium coolant flow space between the fuel rods in a fast breeder reactor in that part of the reactor core in which the sodium coolant has been blown away in an overheating fault (called "coolant voiding"). This form of neutron streaming is also treated in Webb's doctoral dissertation, besides the "planar gap" mechanism of neutron streaming mentioned above (see item 12 above). For the record Webb declares that the theory or method which he devised for his dissertation for evaluating this kind of neutron streaming is not adequate, namely, the method based on the theory of neutron streaming by Behrens, as is given in the book *The Physical Theory of Neutron Fission Chain Reactors* [or *Reactions*], by Weinberg and Wigner, University of Chicago Press. One result of the work has been to devise a way to obtain an estimate of the neutron streaming reactivity worth by means of a rigorous neutron transport theory calculation, without having to assume a theory which relates the neutron diffusion coefficient to the mean square distance of neutron penetration in a medium. That way is to assume an idealized reactor consisting of an infinitely long series of equally spaced, identical circular slabs of fissionable material, fixed on a common axis, and a gap between each slab, to take full advantage of symmetry in the calculation. The calculation for this system remains to be made.

27. *The Risks of Catastrophic Accidents at Nuclear Power Plants*, a paper for the Conferència Catalana per un Futur Sense Nuclears, Barcelona, Spain, 25 April 1990

28. *Technical Questions on the Accident Hazards of Nuclear Weapons*, 1985, sent to the U.S. Department of Energy, which contains an analysis of the accident hazards of nuclear weapons, and of the two major nuclear weapon accidents, Palamaros, Spain, and Thule, Greenland. This treatise also proves that most of the *plutonium* of the several nuclear bombs that exploded in those accidents has not been accounted for in the so-called "clean up" work (decontamination work) performed at each accident site.

29. *Analysis of the Constitution with respect to the Authority to make War and Alliances, and the Employment of Force against Iraq by Presidential Acts*, January 11, 1990 with an *Addendum* on the January 12, 1991 use-of-force resolution of the U.S. Congress, and *Supplement* dated April 6, 1991.

30. *Unconstitutional Government - A Sketch of a Constitutional Analysis with respect to Domestic and Foreign Affairs*, May 1984, revised August 1990. Includes the introduction "Unconstitutional Government in America."

31. *A Mathematical Analysis of the Cancer Mortality Statistics of the Japanese Atomic Bomb Survivors and Workers at the Hanford Nuclear Installation - An Evaluation of the Probability of Cancer Death by Exposure to Nuclear Radiation at Low Dose*. May 1991. Includes five *Addenda* (June 1991 - September 1991), plus a sixth *Addendum* in preparation. Submitted a series of reports of the progress of the work to the Government of Schleswig-Holstein, including Webb's finding that the semi-official cancer mortality statistics of the atomic bomb survivors issued by the Radiation Effects Research Foundation, an institution supported by the United States Department of Energy are unreliable. For one, there is great uncertainty in the actual radiation doses received by the individual survivors.

32. *The Matter of the Planned Use of Mixed Plutonium Dioxide-Uranium Dioxide Nuclear Fuel in the Gundremmingen Reactor*. July 11, 1991. A supplement, dated January 1994, has just been finished and will be issued, titled: *The Accident Hazards of Nuclear Power Plants in Germany, and the Use of MOX Plutonium Recycle Fuel in the Gundremmingen Boiling Water Reactor - Comments, Questions, and Proposals, supplementing my July 1991 MOX Paper*.

33. *The Reactor "Safety Container" of Nuclear Power Plants in Germany*, November 23, 1991 (revised) with "postscript" dated November 20, 1991. This paper is a critical evaluation of the official "German Risk Study" - the official analysis of the accident risks of nuclear power plants in Germany, particular the pressurized water reactors.
34. "Der 'Sicherheitsbehälter' von Kernkraftwerken," an article published in the *Umwelt Zeitung Starnberg* in December 1991.
35. *Analysis of the Three Mile Island Nuclear Accident with respect to the Release of Noble Gas Fission Product Radioactivity into the Atmosphere*, June 19, 1993. This Treatise includes a section: "Mathematical Model of the Release into the Atmosphere of Noble Gas Radioactivity in the Three Mile Island Accident," and an *Errata and Supplement*, dated June 19, 1993.
36. *Affidavit*, June 4, 1993, submitted in the present legal proceedings before the United States District Court in Harrisburg, Pennsylvania, concerning the March 28, 1979 accident at the Three Mile Island nuclear power plant, unit 2 reactor. This affidavit critically evaluates the analyses of noble gas radioactivity release in the Three Mile Island accident issued by the company owning the reactor, plus summarizes my own analysis.
37. *An Assessment of the Public's Exposure to the Nuclear Radiation from the Three Mile Island Nuclear Accident of March 28, 1979 A Preview Short Synopsis*, Affidavit, August 1, 1994, submitted to the U.S. District Court in Harrisburg in the Three Mile Island legal proceedings. This affidavit gives a preview of Webb's assessment of the public's exposure to nuclear radiation from the Three Mile Island nuclear accident.
38. Preparing a report giving a comprehensive analysis of the Three Mile Island nuclear accident. This report includes an assessment of the harm caused by nuclear radiation exposure and the associated scientific uncertainties.
39. Four-Volume Treatise, *Statistical Analysis*, which presented Webb's original mathematical analysis of the birth statistics in Bavaria for the period before and after the Chernobyl nuclear fallout in Bavaria, made for assessing the effects of the fallout on the public health. The Treatise includes a critical review of the official statistical analysis of still births and infant deaths in Bavaria following the Chernobyl radioactive fallout in Bavaria made by the Federal Office of Radiation Protection Bundesamt für Strahlenschutz (BfS) plus a letter to the Bavaria ministry for the Environment (Dr. Eder), dated 17 June 1996, regarding "BfS's Statement of Position on Webb's Statistical Analysis on Human Health Effects of the Chernobyl Radiation in Bavaria."
40. A report on the Three Miles Island nuclear accident, titled: *To the People of Area of the Three Mile Island Nuclear Power Plant, near Harrisburg, Pennsylvania, Concerning the Three Mile Island Nuclear Accident of March 28, 1979: The Impact of the Nuclear Radiation Emissions on the Health of the People in the Area of the Plant, and the Rights of the People in this Regard; and the recent Judgment of the U.S. District Court (Harrisburg) of a TMI Controversy which relates to this Matter, and which involves this Author*, September 12, 1996. The table of contents of this report is given below:

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41. Letter to the Secretary of Health, Department of Health, Commonwealth of Pennsylvania, 14 January 1997, presenting Webb's statistical analysis for infant deaths in the area of the Three Mile Island Nuclear Power Plant, and his critical evaluation of the official statistical analyses issued by the Department of Health concerning the effects of the radiation releases in the Three Mile Island nuclear accident of March 28, 1979.

42. Refutation of the Bavaria State Government's Position Statement regarding R. E. Webb's Statistical Analysis

- Calculations of Significant Increases in Still-Births and Infant Deaths in Bavaria following the Chernobyl Accident: Statistical Indications of Deadly Harmful Effects of the Radioactive Contamination in Südbayern from Chernobyl; including Proof that the official Epidemiological Investigation of the Effects of the Nuclear Radiation from Chernobyl in Bavaria on the Health of the Children of Bavaria - the official Analysis of the official Bavaria Statistics on Still Births and Infant Deaths made by the Bundesamt für Strahlenschutz, under the Bundes-ministerium für Umwelt, Naturschutz and Reaktorsicherheit, and published by the Bavaria Staatsministerium für Landesentwicklung und Umweltfragen, in the Report *Säuglingsterblichkeit und angeborene Fehlbildungen in Bayern nach dem Reaktor-unfall in Tschernobyl*, which finds no statistical Evidence of adverse Health Effects of Chernobyl in Bavaria -is Unsound and Contrived!

March 4, 1997. (103 pages plus appendices)

43. Preview Report Harmful Effects of the Radioactive Fallout in Bavaria from the Chernobyl Reactor Eruption of April 26, 1986

A Mathematical Analysis of the Official Statistics on Still Births and Infant Deaths in Bavaria and other Parts of West Germany (1980-1993). This is a preview of a multi-book treatise on this subject to be issued soon. This 15-book treatise includes among other topics, a book, titled:

Critical Review of the Article "Perinatal Mortality in Bavaria, Germany, after the Chernobyl Reactor Accident," by B. Grosche, et al., Federal Office of Radiation Protection, German Government (Bundesamt für Strahlenschutz), published in *Radiation Environment Biophysics*, Editor, A. M. Kellerer, Vol. 36 (1997), pp. 129-136.

A list of the 15 books is attached to this List of Writings and Publications.

44. Preview of Webb's Critical Review of the Report: Prüfauftrag zu den Untersuchungen über die Kindersterblichkeit in Bayern nach dem Reaktorunfall von Tschernobyl Stefan Wagenpfeil and Albrecht Neiß Institut für Medizinische Statistik und Epidemiologie der Technischen Universität München, 9 July 1998.



45. *The Nuclear Reactors used in Japan, United States, Europe, and Britain are much more hazardous than the Chernobyl RBMK reactor type.* An essay dated May 29, 1998, issued at the request of the public television of Japan.

46. A Treatise on United States constitutional law, titled:

"A Critical Analysis of the Independent Counsel Statute; the Federal Rules of Civil Procedure; the Federal Rules of Evidence; the executive Powers assumed by the Supreme Court, and its Chief Justice; the Proceedings of the civil Suit *Jones v. Clinton*, in the United States District Court, Arkansas; the Supreme Court Opinion in *Clinton v. Jones* (1997); the Powers of the Independent Counsel under the Ethics in Government Act; the Independent Counsel's *Referral* Report submitted to the House of Representatives; the Impeachment of President William J. Clinton by the House of Representatives; and the Conduct of the present Senate Trial of the Impeachment with respect to the Constitution of the United States."

47. PETITION concerning the Senate Trial of the Impeachment of William J. Clinton President of the United States, submitted to the Presiding Officer of the Senate Trial, Chief Justice William Rehnquist, the chief justice of the United States Supreme Court, with attention to the Secretary of the Senate and the Senate Parliamentarian.

48. Sections of a Webb's developing full treatise on the CONSTITUTION OF THE UNITED STATES as follows:

a. The Supreme Court opinion in *U.S. v. Curtiss-Wright Export Corp.* The doctrine of inherent powers of the United States Government with respect to "international relations," reviewed and refuted.

b. The Supreme Court opinion in *McCulloch v. Maryland* The doctrine of implied, incidental powers by the *necessary and proper* clause, refuted.

c. The General Welfare Clause.

d. All the Wars, Alliances and Confederations made and entered into by the United States Government are, and have been, unconstitutional. A full treatise proving that the Constitution does not vest in the United States Government any power to enter into *alliances* with foreign nations: that the power to make treaties granted by Article II, Section 2 of the Constitution does not confer any power to contract *alliances*!

The treatise on the United States Constitution will treat just about everything of importance; such as the United States Government's assumptions power to acquire territory (e.g., the Louisiana Purchase), the United States Banking System erected by the United States Government, including the Federal Reserve System and the National Banks, and Alexander Hamilton's Report on the Public Credit, &c.

49. Papers constituting the Plaintiff's Declaration in Webb's planned law suit against President's Clinton and Bush for having made unconstitutional wars in Iraq and Yugoslavia, under preparation.

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27 March 2000 .

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and inside Germany, of course: (b)(6)

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Webb is currently residing in Germany, in order to complete his statistical analysis work. He plans soon to return to America as soon as possible, and resume his main line of work. See his *Advertisement concerning the U.S. Constitution*, and his *Proposals for an Urgent Book on the Imminent Dangers of Catastrophic Accidents at Nuclear Power Plants and for Continuing Research and Major Undertakings to Promote the Public Safety in regard to the Nuclear Hazards*, and his essay on Three Miles Island. These and several other writings have been placed on the Internet: <http://www.technidigm.org/c5001/tmi.htm>

Webb welcomes support!

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Attachment follows.

**Titles of the preview copy of  
the several Books comprising  
Webb's forthcoming Treatise  
which was sent to the StMLU by Federal Express  
from Harrisburg, Pennsylvania (airway bill #400-4773-6555),  
due to arrive at the StMLU on July 6, 1998.**

**These Books are not in the finished form (see note on page 2 bottom.)**

**Preview Report** (finished printed version, dated June 17, 1998):

Harmful Effects of the Radioactive Fallout in Bavaria  
from the Chernobyl Reactor Eruption of April 26, 1986

- A Mathematical Analysis of the Official Statistics on Still  
Births and Infant Deaths in Bavaria and other Parts of West  
Germany (1980-1993).

**Book** Critical Analysis of the new official Statistical Analysis and Evaluation, made by the  
**I:** Bundesamt für Strahlenschutz (BfS) and the Bavaria Environment Minister, Dr.

Thomas Goppel (StMLU), and communicated on May 20, 1997, to Mr. Hans Kolo, deputy chairman, Bavarian Parliament's Environment Committee, pertaining to the BfS/StMLU Epidemiological Investigation of the Effects of the Chernobyl Radioactive Fallout in Bavaria on the Health of Child-Birth New BfS Calculations of "p-Values" made in response to Richard E. Webb's Criticisms of the original BfS Statistical Analysis, given in the September 1994 BfS/StMLU Report.

- Book II:** Analysis of the Statistics on Still Births in Bavaria using the Mathematical Theory derived by R. Webb Proof of Statistical Indications of Deadly Harmful Effects of the Chernobyl Radiation in Bavaria.
- Book II.A.** Critical Review of the SAS Theory Comparison of the Exact Theory with the SAS Theory.
- Book III.** The Assumption of an Extra Variance reconsidered.
- Book IV.** On Causation. Plus **Book IV.A.**, **Book IV.B.**, and **Book IV.C.**, constituting three appendices on Causation.
- Book V.** The Formulation of the Appropriate Scheme for a Definitive Statistical Analysis for Causation: Statistics Type, Number of Observation Windows, Duration of Windows, the Statistical Basis for the Estimate Function  $Q(t)$  of the Normal Probability of Death, &c.
- Book VI.** The Reliability of the Statistical Analysis Calculations (The Soundness of Probability Theory)
- Book VII.** Critical Review of the Article "Perinatal Mortality in Bavaria, Germany, after the Chernobyl Reactor Accident," by B. Grosche, et al., Federal Office of Radiation Protection, German Government (Bundesamt für Strahlenschutz), published in *Radiation Environment Biophysics*, Editor, A. M. Kellerer, Vol. 36 (1997), pp. 129-136.
- Book VIII.** Critical Review of the Article "Perinatal Mortality in Germany following the Chernobyl Accident," Authors, A. Körblein and H. Küchenhoff, published in *Radiation Environment and Biophysics* (Vol.36, 3-7; 1997, Editor, A.M. Kellerer)
- Book IX.** Letter to Dr. R. Rost, Bayerischer Landesamt für Statistik (Bavaria Statistics Office), Munich, on the subject: Serious Discrepancies in the Statistics on Still Births and Infant Deaths for the Years 1980-1993, affecting an Evaluation of the Health Consequences of the Chernobyl Nuclear Fallout in Bavaria. (By mistake the whole copy of this letter (really a treatise) was not sent to the StMLU. The missing pages of in the back part of the letter/treatise was not sent a mistaking in assembling the photocopying.) Request an Investigation and a Report.
- Book X.** Major new Development by Richard E. Webb: Evaluation of Monthly Rates of Still Births: Indications of Semi-Permanent Injury and also Germ Cell Injury, by means of a refined mathematical theory, containing radiation dose-response relations. The theory is described in **Book XI**. The Refined Theory.

This set of books are [were presented] for preview, and are not totally finished. Most of the books have been read after printing, but with many pen-and-ink changes added. These are marked "finished," even though they require a final printing. Several of the books still need to be read (after being printed by the computer printer), and corrected for any errors, and insertion of any needed graphs, and are labelled "unfinished." These are Book VII, the critical review of the Grosche, et al, article, Book X, and Book XI on Major Development and The Refined Theory, and the last 1/3 of the Book VIII on the Körblein and Küchenhoff article (the first 2/3's about have been read and corrected).

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**Note, 28 March 2000: This treatise is presently being completed, including some revisions and extensions, to present Webb's final statistical analysis.**

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1. \* This summary of Webb's Background may not be complete, meaning that some works or projects which he has undertaken may have been overlooked, when composing this summary; but he has endeavored to give a full description, though he cannot devote the time presently to ensure that all work is covered by this summary.  
Date: 28 March 2000.

2. \*\* This list may not be complete, as there is no time at present to take a full stock of his past works, to ensure completeness of the list.

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**[Dr. Webb's home page....](#)**

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School of

**Nuclear Engineering**

West Lafayette, Indiana 47907-1336



## **GRADUATE COLLOQUIUM**

**Thursday, May 11, 2006  
3:00 p.m. GRIS 166**

**The Accident Hazards of Nuclear Power Plants, and of Nuclear  
Weapons, the Hazards of Radioactive Waste Disposal, and the  
Constitutional Law Respecting These Matters**

**Dr. Richard Webb**  
Independent Researcher

Dr. Richard Webb will declare the primary findings of his research of the accident hazards of nuclear power plants (performed over 36 years), and relate his analysis of the nuclear accident hazards to the law of the Constitution of the United States of America.

Bachelor of Science, Engineering Physics, University of Toledo, Toledo, Ohio, 1962.

Doctorate (Ph.D.), Studies in nuclear reactor physics and engineering, Ohio State University, Columbus, Ohio, 1972. His doctoral dissertation treats the subject of explosive power transients (nuclear explosions accidents) in liquid metal cooled, fast neutron, plutonium breeder reactors – popularly called “fast breeder reactors”.

Post-Doctoral Studies at Indiana University, Bloomington, Indiana, Institute for Science, Technology, and Public Policy, 1972-1974: studies of nuclear reactor accident hazards, and the Constitution of the United States.

Research and some teaching at University of Massachusetts, Amherst, 1974-1976. The result of this work was the writing and publication of his book *The Accident Hazards of Nuclear Power Plants*, published by the University of Massachusetts Press, 1976.

**The following is a copy of the latest IAEA information on the Fukushima reactors crisis as of about 2100 hours, March 12, but with notes added by R.E. Webb, and with underscoring by Webb.**

**1340 CET 12 March 2011** Japan's Nuclear and Industrial Safety Agency (NISA) has informed the IAEA's Incident and Emergency Centre (IEC) that there has been an **explosion** at the **Unit 1 reactor at the Fukushima Daiichi plant**, and that they are assessing the condition of the reactor core.

The explosion was reported to NISA by the plant operator, Tokyo Electric Power Company (TEPCO), at 0730 CET. Further details were not immediately available.

Japanese authorities have extended the evacuation zone around the Fukushima Daiichi plant to a 20-kilometre radius from the previous 10 kilometres. At the nearby Fukushima Daini nuclear power plant, the evacuation zone has been extended to a 10-kilometre radius from the previous three kilometres.

The authorities also say they are making preparations to distribute iodine to residents in the area of both the plants.

The IAEA has reiterated its offer of technical assistance to Japan, should the government request this. The IAEA continues to liaise with the Japanese authorities, and is in full response mode to monitor the situation closely around the clock as it evolves.

**0730 CET, 12 March 2011** Japanese authorities have informed the IAEA's Incident and Emergency Centre (IEC) that, starting at 12 March 9:00AM local Japan time, they have started the preparation for the venting of the containment of the Unit 1 reactor at the Fukushima Daiichi plant through a controlled release of vapour. The operation is intended to lower pressure inside the reactor containment. [Webb: The explosion occurred after this venting, evidently.]

Evacuation of residents living within ten kilometres of the Fukushima Daiichi nuclear power plant is reported to be under way. An area with a radius of three kilometres around the plant had already been evacuated.

The evacuation of residents living within three kilometres of the Fukushima Daini nuclear power plant is also under way.

The IAEA's IEC continues to liaise with the Japanese authorities, and is in full response mode to monitor the situation closely around the clock as it evolves.

**2210 CET, 11 March 2011** Japanese authorities have informed the IAEA's Incident and Emergency Centre (IEC) that officials are working to restore power to the cooling systems of the Unit 2 reactor at the Fukushima Daiichi nuclear power plant. Mobile electricity supplies have arrived at the site.

Japanese officials have also reported that pressure is increasing inside the Unit 1 reactor's containment, and the officials have decided to vent the containment to lower the pressure. The controlled release will be filtered to retain radiation within the containment.

Three reactors at the plant were operating at the time of the earthquake, and the water level in each of the reactor vessels remains above the fuel elements, according to Japanese authorities.

The IAEA's IEC continues to liaise with the Japanese authorities, and is in full response mode to monitor the situation closely round the clock.

**2050 CET, 11 March 2011** *IAEA Director General Expresses Condolences Following Japan Earthquake* "I would like to express my condolences and sympathies to the people of Japan who have suffered from this earthquake and to the Government of Japan," said IAEA Director General Yukiya Amano.

**2030 CET, 11 March 2011** Japanese authorities have informed the IAEA's Incident and Emergency Centre (IEC) that today's earthquake and tsunami have cut the supply of off-site power to the Fukushima Daiichi nuclear power plant. In addition, diesel generators intended to provide back-up electricity to the plant's cooling system were disabled by tsunami flooding, and efforts to restore the diesel generators are continuing.

At Fukushima Daiichi, officials have declared a nuclear emergency situation, and at the nearby Fukushima Daini nuclear power plant, officials have declared a heightened alert condition.

Japanese authorities say there has so far been no release of radiation from any of the nuclear power plants affected by today's earthquake and aftershocks.

The IAEA's IEC continues to liaise with the Japanese authorities, and is in full response mode to monitor the situation closely round the clock.

**1755 CET 11 March 2011** Japanese authorities have informed the IAEA's Incident and Emergency Centre (IEC) that they have ordered the evacuation of residents within a three-kilometre radius of the Fukushima Daiichi nuclear power plant, and told people within a 10-kilometre radius to remain indoors.

The Japanese authorities say there has so far been no release of radiation from any of the nuclear power plants affected by today's earthquake and aftershocks.

"The IAEA continues to stand ready to provide technical assistance of any kind, should Japan request this," IAEA Director General Yukiya Amano said.

The IAEA's IEC continues to liaise with the Japanese authorities, and is in full response mode to monitor the situation closely round the clock.

**1245 CET, 11 Mar 2011** The IAEA's Incident and Emergency Centre has received information from Japan's Nuclear and Industrial Safety Agency (NISA) that a heightened state of alert has been declared at Fukushima Daiichi nuclear power plant. NISA says the plant has been shut down and no release of radiation has been detected.

Japanese authorities have also reported a fire at the Onagawa nuclear power plant, which has been extinguished. They say Onagawa, Fukushima-Daini and Tokai nuclear power plants were also shut down automatically, and no radiation release has been detected.

The IAEA received information from its International Seismic Safety Centre that a second earthquake of magnitude 6.5 has struck Japan near the coast of Honshu, near the Tokai plant.

The IAEA is seeking further details on the situation at Fukushima Daiichi and other nuclear power plants and research reactors, including information on off-site and on-site electrical power supplies, cooling systems and the condition of the reactor buildings. Nuclear fuel requires continued cooling even after a plant is shut down.

The IAEA is also seeking information on the status of radioactive sources in the country, such as medical and industrial equipment.

The World Meteorological Organization has informed the IAEA that prevailing winds are blowing eastwards, away from the Japanese coast.

All IAEA staff in Japan, both in the Tokyo office and in nuclear facilities, are confirmed to be safe.

**0930 CET, 11 Mar 2011** The IAEA's Incident and Emergency Centre received information from the International Seismic Safety Centre (ISSC) at around 0815 CET this morning about the earthquake of magnitude 8.9 near the east coast of Honshu, Japan.

The Agency is liaising with the Japanese Ministry of Economy, Trade and Industry (METI) to confirm further details of the situation. Japanese authorities reported that the four nuclear power plants closest to the quake have been safely shut down.

The Agency has sent an offer of Good Offices to Japan, should the country request support.

Current media reports say a tsunami alert has been issued for 50 countries, reaching as far as Central America. The Agency is seeking further information on which countries and nuclear facilities may be affected.



Owen, Lucy

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**From:** Charles Hackney (b)(6)  
**Sent:** Sunday, March 13, 2011 9:37 PM  
**To:** Collins, Elmo  
**Subject:** RE: Fukushima-Daiichi-1  
**Attachments:** image001.jpg

Here is some good news, I will not be going to Japan.

---

**From:** Collins, Elmo [mailto:Elmo.Collins@nrc.gov]  
**Sent:** Sunday, March 13, 2011 4:56 PM  
**To:** (b)(6)  
**Subject:** Re: Fukushima-Daiichi-1

Thanks - this is not good news

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**From:** Charles Hackney (b)(6)  
**To:** Charles Hackney (b)(6); Spitzberg, Blair; Bill Brown (b)(6); Cheryl Sudman (b)(6); Chuck Hackney (b)(6); Claude Johnson (b)(6); Dean Chaney (b)(6)  
**Sent:** Sun Mar 13 17:46:22 2011  
**Subject:** Fukushima-Daiichi-1

This was sent to me from Pat Gwynn

---

**Subject:** Fukushima-Daiichi-1

Here is a picture of the damaged Fukushima 1 Unit 1 Reactor Building. Assuming this is similar to a GE BWR-3 in a MK I Containment (similar to Cooper Nuclear Station in Nebraska), the damage is to the "blowout panels" above the refueling floor. The reactor building itself appears intact. The blowout panels are designed to blow off in a design basis tornado/hurricane/cyclone to protect the main structure from damage resulting from the wind loading. In this case, an energetic event (e.g., steam explosion or hydrogen detonation) blew the panels off. Based on my observation of the explosive event video, it looked like a major steam explosion to me. This is the first close-up picture I have seen of the damage. The refueling area includes the spent fuel storage pool which is now exposed to the environment. If the station is still without electric power, the spent fuel pool will continually heat up (because of the spent fuel in the pool). Eventually, the fuel pool itself could become a problem resulting in an uncontrolled release of radioactivity. This is a longer term concern, depending on how long it has been since the last refueling at the facility.

BTW - I read this morning that this particular unit was scheduled for decommissioning in February 2011 but its license was just extended for 10

Hergenroder, Dan

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From: Charles Hackney (b)(6)  
Sent: Sunday, March 13, 2011 4:46 PM  
To: Charles Hackney; Spitzberg, Blair; Bill Brown; Cheryl Sudman; Chuck Hackney; Claude Johnson; Dean Chaney  
Subject: Fukushima-Daiichi-1

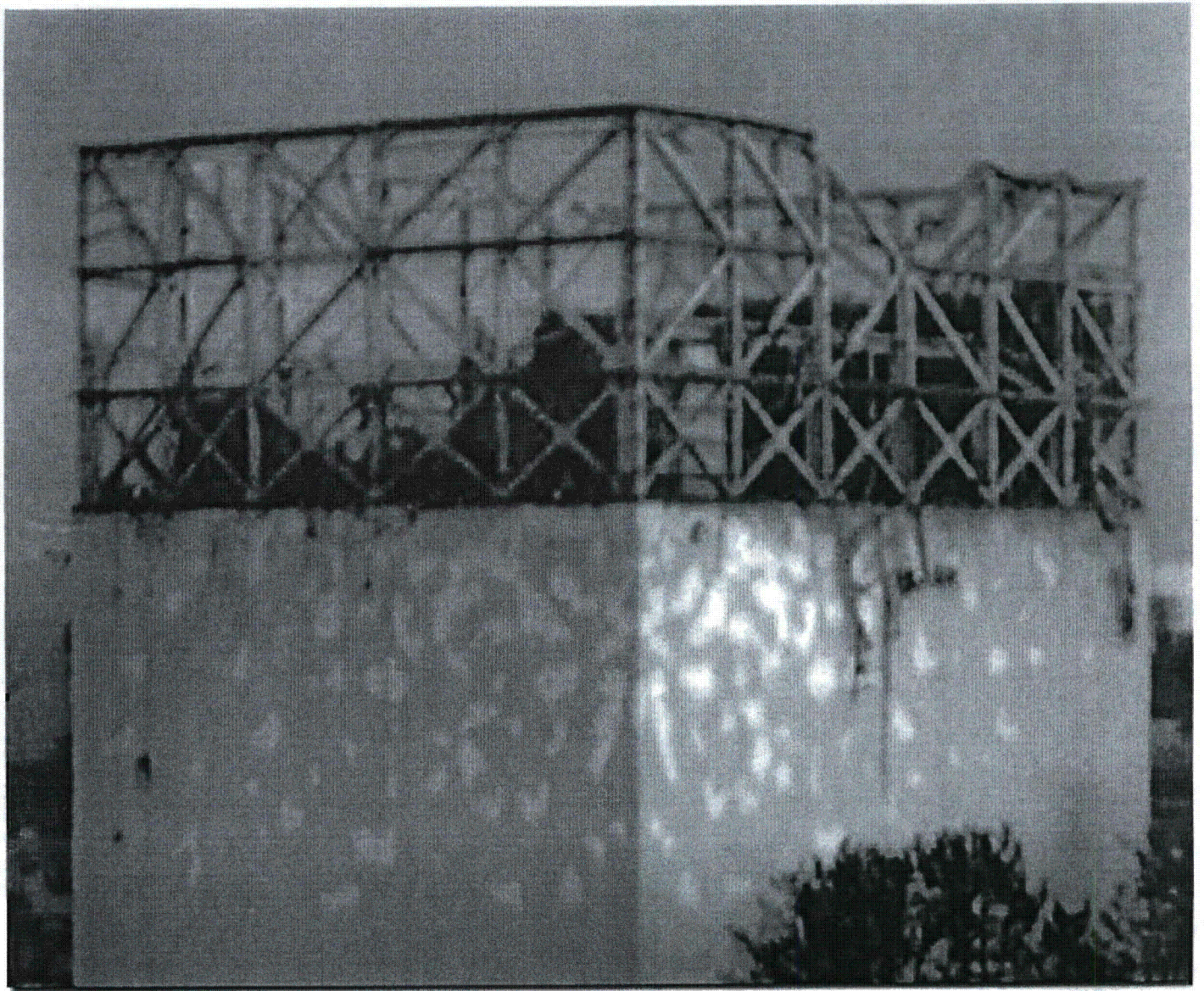
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**Hergenroder, Dan**

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**From:** Collins, Elmo  
**Sent:** Sunday, March 13, 2011 4:57 PM  
**To:** Howell, Art; Vogel, Anton; Kennedy, Kriss; Caniano, Roy  
**Subject:** Fw: Fukushima-Daiichi-1

Not a bad analysis by Pat

---

**From:** Charles Hackney (b)(6)  
**To:** Charles Hackney (b)(6); Spitzberg, Blair; Bill Brown (b)(6); Cheryl Sudman (b)(6); Chuck Hackney (b)(6); Claude Johnson (b)(6); Dean Chaney (b)(6)  
**Sent:** Sun Mar 13 17:46:22 2011  
**Subject:** Fukushima-Daiichi-1

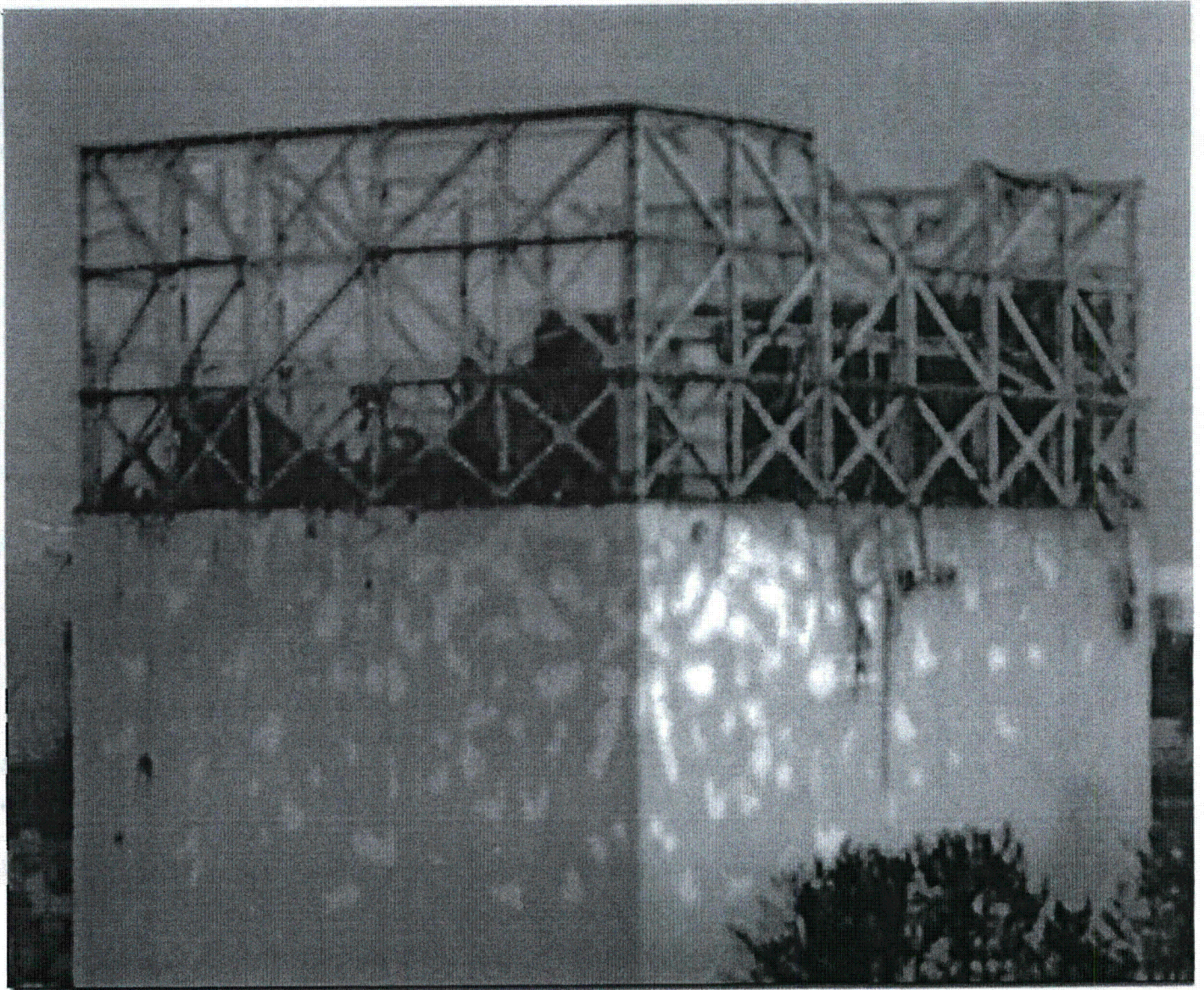
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From: Pobanz, Brenda M. (b)(6)  
To: NITOPS; HOO Hoc;  
Cc: narac@ltnl.gov  
Subject: Updated winds beginning 00UTC March 14  
Date: Sunday, March 13, 2011 6:55:01 PM

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WRF forecast winds are switching to be from the NE beginning at 22Z on March 14 (in about 24 hours). This would drive any release material to the SW (inland).

MO	DY	HR	WSP	WDR	Stability	Rain
--	--	UTC	m/s	Direction from	----	mm/hr
3	14	0	6.6	255	D	0
3	14	1	8.3	262	D	0
3	14	2	8.8	257	D	0
3	14	3	8.9	260	D	0
3	14	4	8.7	262	D	0
3	14	5	8	256	D	0
3	14	6	7.3	256	D	0
3	14	7	6	256	D	0
3	14	8	5.2	256	D	0
3	14	9	4.7	257	D	0
3	14	10	4.7	269	D	0
3	14	11	5.5	270	D	0
3	14	12	4.3	283	E	0
3	14	13	3.6	297	E	0
3	14	14	3.9	298	E	0
3	14	15	3.5	301	E	0
3	14	16	3.7	305	E	0
3	14	17	4.3	321	E	0
3	14	18	4.5	323	E	0
3	14	19	3.9	335	E	0
3	14	20	3.7	333	E	0
3	14	21	3.5	342	E	0
3	14	22	3.8	10	E	0
3	14	23	4.5	11	E	0
3	15	0	4.1	21	C	0
3	15	1	3.8	41	C	0
3	15	2	3.6	59	C	0
3	15	3	3.7	66	C	0
3	15	4	3.9	65	C	0
3	15	5	4.5	58	C	0
3	15	6	4.3	50	C	0
3	15	7	3.9	41	C	0
3	15	8	3.1	30	C	0

HHH/20

3	15	9	3	25	C	0.01
3	15	10	2.9	36	E	0.02
3	15	11	3.5	32	E	0.03
3	15	12	3.4	21	E	0.03

Brenda Pobanz

Lawrence Livermore National Laboratory

925-422-1823

**From:** Pobanz, Brenda M.  
**To:** NITOPS; HQO Hqs; (b)(6) PMT02 Hqs  
**Cc:** "narac@linl.gov"  
**Subject:** Updated WRF forecast  
**Date:** Tuesday, March 15, 2011 11:30:37 PM  
**Attachments:** Updated WRF Forecast 18ZMarch15\_18ZMarch17.xlsx

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From the 18Z March 15 5km WRF run.

Please let us know if you have any questions.

Brenda Pobanz  
NARAC Operations  
Lawrence Livermore National Laboratory  
925-422-1823

HH/21



YEAR	MO	DY	Time	WSP	WDR	S	Precip
----	--	--	UTC	m/s	Direction	fr Stability	inches/hr
2011		3	15	18	3.5	17 D	0
2011		3	15	19	3.9	320 D	0.01
2011		3	15	20	7.1	341 D	0.05
2011		3	15	21	9.8	347 D	0.02
2011		3	15	22	9.5	350 D	0
2011		3	15	23	10	340 D	0
2011		3	16	0	10.4	341 C	0
2011		3	16	1	9.1	352 C	0
2011		3	16	2	6.6	14 C	0
2011		3	16	3	6.3	11 C	0
2011		3	16	4	10.5	318 D	0.01
2011		3	16	5	9.2	323 D	0
2011		3	16	6	7.6	318 C	0
2011		3	16	7	10.5	327 D	0
2011		3	16	8	7.6	324 D	0
2011		3	16	9	14.9	307 D	0
2011		3	16	10	10.6	313 D	0
2011		3	16	11	9.5	313 D	0
2011		3	16	12	2.9	293 D	0
2011		3	16	13	4.1	284 D	0
2011		3	16	14	4.3	283 D	0
2011		3	16	15	3.6	276 E	0
2011		3	16	16	4.7	291 D	0
2011		3	16	17	5.1	289 D	0
2011		3	16	18	4.4	339 D	0
2011		3	16	19	5.5	313 D	0
2011		3	16	20	4.4	338 D	0
2011		3	16	21	0.6	256 F	0
2011		3	16	22	2.8	97 C	0
2011		3	16	23	0.3	39 C	0
2011		3	17	0	3.6	292 C	0
2011		3	17	1	5.1	299 C	0.01
2011		3	17	2	9.7	281 C	0
2011		3	17	3	10.8	294 C	0
2011		3	17	4	11.8	286 C	0
2011		3	17	5	13.3	282 D	0
2011		3	17	6	15.4	282 D	0
2011		3	17	7	10.6	302 D	0
2011		3	17	8	8.6	313 D	0
2011		3	17	9	7.9	307 D	0
2011		3	17	10	7.7	301 D	0
2011		3	17	11	6.9	301 D	0
2011		3	17	12	5.1	311 D	0
2011		3	17	13	5.1	310 D	0
2011		3	17	14	8.5	311 D	0

2011	3	17	15	6.4	295 D	0
2011	3	17	16	7.4	301 D	0
2011	3	17	17	3.6	286 E	0
2011	3	17	18	4.2	290 D	0

## Hergenroder, Dan

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**From:** Maier, Bill  
**Sent:** Sunday, March 13, 2011 2:19 PM  
**To:** 'Nakasone, Lynn M.'; Dasher, Douglas H (DEC); 'Frazee, Terry (DOH)'; 'Niles, Ken'; 'Jim Boyd'; 'Pearce, Clyde E (HSS)'; 'Jeff Eckerd'; 'gary.butner@cdph.ca.gov'; 'Lee Shin'; 'david.m.howe@state.or.us'  
**Subject:** TALKING POINTS FROM NRC  
**Attachments:** State QA Rev 1.pdf; 11-046.pdf; State QA Rev1.doc  
**Importance:** High

We received clearance to send these to you last evening. I have just gotten on line and am forwarding them. There is a pdf and a Word version attached.

The request is that you keep them within State Govt. and use them orally for communication with the public.

The list is short because we thought these were the most immediate questions that needed to be answered. Are there other immediate questions that you need the answers to? One restriction is that the NRC CANNOT comment on the situation at the Japanese reactors as is stated on the last page of the attachment.

Also, I have attached a pdf version of the NRC's most recent news release, issued today (3/13) that states the NRC does not anticipate harmful levels of radioactive materials reaching the U.S. based on current information.

Please call if you have questions, but I will be here at the keyboard for much of today.

Bill Maier  
817-917-1226

The NRC will not provide information on the status of Japan's nuclear power plants. See NRC's web site at [www.nrc.gov](http://www.nrc.gov) or blog at <http://public-blog.nrc-gateway.gov> for the latest information on NRC actions.

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

**Other sources of information:**

USAID -- [www.usaid.gov](http://www.usaid.gov)

U.S. Dept. of State -- [www.state.gov](http://www.state.gov)

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

White House -- [www.whitehouse.gov](http://www.whitehouse.gov)

Nuclear Energy Institute -- [www.nei.org](http://www.nei.org)

International Atomic Energy Agency -- [www.iaea.org/press](http://www.iaea.org/press)

Date: 3/13/2011

Time: 1:55am

**State Q&A's:**

**Q.** What is the radiological consequence of the event in Japan for the U.S.?

**A.** At this time, there is no indication that materials from the incidents in Japan have the potential to have any significant radiological effect on the U.S.

**Q.** Are there any protective measures that residents in the U.S. should be considering?

**A.** No, not given current information.

**Q.** What is the Federal family, i.e., NRC-EPA-DOE, doing to monitor the radiological consequence of the event in Japan on the United States?

**A.** The NRC is coordinating its actions with other Federal agencies as part of the U.S. government response. The NRC is examining all available information as part of the effort to analyze the event and understand its implications both for Japan and the United States.

U.S. nuclear power plants have sensitive equipment to monitor the status of radiological conditions. Additionally, personnel at nuclear power plants have specific knowledge in radiological field monitoring techniques and could assist State and Federal personnel in environmental sampling activities, should that be necessary to evaluate public health and safety concerns.

EPA has permanent stationary radiological monitoring stations on the West coast. In the event of a confirmed radiological release with a potential to impact the U.S., EPA is the Federal agency responsible for radiological monitoring. DOE would be responsible for aerial monitoring, should there be a confirmed radiological release.

**Non-Public Info For States Only:** Questions about any radiological impact on the U.S. West coast is Adora Andy, the Deputy Associate Administrator for EPA's Office of External Affairs: cell (b)(6) email [andy.adora@epa.gov](mailto:andy.adora@epa.gov)

**Key Messages:**

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

NRC officials in Rockville, MD have spoken with the agency's counterpart in Japan and offered the assistance of U.S. technical experts. Two officials from NRC with expertise in boiling water nuclear reactors have deployed to Japan as part of a U.S. International Agency for International Development (USAID) team. USAID is the federal government agency primarily responsible for providing assistance to countries recovering from disaster administering.

U.S. nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis. Even those plants that are located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster. The NRC requires that safety-significant structures, systems, and components be designed to take into account the most severe natural phenomena historically estimated for the site and surrounding area.



# NRC NEWS

## U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs Telephone: 301/415-8200

Washington, D.C. 20555-0001

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

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

No. 11-046

March 13, 2011

### **NRC SEES NO RADIATION AT HARMFUL LEVELS REACHING U.S. FROM DAMAGED JAPANESE NUCLEAR POWER PLANTS**

The Nuclear Regulatory Commission is coordinating with the Department of Energy and other federal agencies in providing whatever assistance the Japanese government requests as they respond to conditions at several nuclear power plant sites following the March 11 earthquake and tsunami. The NRC has sent two boiling-water reactor experts to Japan as part of a U.S. Agency for International Development team.

In response to nuclear emergencies, the NRC works with other U.S. agencies to monitor radioactive releases and predict their path. All the available information indicates weather conditions have taken the small releases from the Fukushima reactors out to sea away from the population. Given the thousands of miles between the two countries, Hawaii, Alaska, the U.S. Territories and the U.S. West Coast are not expected to experience any harmful levels of radioactivity.

During a nuclear event the NRC has requirements to protect populations around reactors. For instance, the U.S. evacuation standard at 10 miles is roughly equivalent to the 20-kilometer distance recommended in some instances in Japan. The United States also uses sheltering in place and potassium iodide, protective measures also available in Japan.

The NRC will not comment on hour-to-hour developments at the Japanese reactors. This is an ongoing crisis for the Japanese who have primary responsibility.

###

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

The NRC will **not** provide information on the status of Japan's nuclear power plants. See NRC's web site at [www.nrc.gov](http://www.nrc.gov) or blog at <http://public-blog.nrc-gateway.gov> for the latest information on NRC actions.

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

**Other sources of information:**

USAID -- [www.usaid.gov](http://www.usaid.gov)

U.S. Dept. of State -- [www.state.gov](http://www.state.gov)

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

White House -- [www.whitehouse.gov](http://www.whitehouse.gov)

Nuclear Energy Institute -- [www.nei.org](http://www.nei.org)

International Atomic Energy Agency -- [www.iaea.org/press](http://www.iaea.org/press)

Date: 3/13/2011

Time: 1:55am

**State Q&A's:**

**Q.** What is the radiological consequence of the event in Japan for the U.S.?

**A.** At this time, there is no indication that materials from the incidents in Japan have the potential to have any significant radiological effect on the U.S.

**Q.** Are there any protective measures that residents in the U.S. should be considering?

**A.** No, not given current information.

**Q.** What is the Federal family, i.e., NRC-EPA-DOE, doing to monitor the radiological consequence of the event in Japan on the United States?

**A.** The NRC is coordinating its actions with other Federal agencies as part of the U.S. government response. The NRC is examining all available information as part of the effort to analyze the event and understand its implications both for Japan and the United States.

U.S. nuclear power plants have sensitive equipment to monitor the status of radiological conditions. Additionally, personnel at nuclear power plants have specific knowledge in radiological field monitoring techniques and could assist State and Federal personnel in environmental sampling activities, should that be necessary to evaluate public health and safety concerns.

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NRC officials in Rockville, MD have spoken with the agency's counterpart in Japan and offered the assistance of U.S. technical experts. Two officials from NRC with expertise in boiling water nuclear reactors have deployed to Japan as part of a U.S. International Agency for International Development (USAID) team. USAID is the federal government agency primarily responsible for providing assistance to countries recovering from disaster administering.

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From: Pobanz, Brenda M.  
To: NITOPS; HOO Hoc; (b)(6)  
Cc: parac@fnl.gov  
Subject: Updated winds beginning 00UTC March 14  
Date: Sunday, March 13, 2011 6:55:01 PM

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WRF forecast winds are switching to be from the NE beginning at 22Z on March 14 (in about 24 hours). This would drive any release material to the SW (inland).

MO	DY	HR	WSP	WDR	Stability	Rain
--	--	UTC	m/s	Direction from	----	mm/hr
	3	14	0	6.6	255 D	0
	3	14	1	8.3	262 D	0
	3	14	2	8.8	257 D	0
	3	14	3	8.9	260 D	0
	3	14	4	8.7	262 D	0
	3	14	5	8	256 D	0
	3	14	6	7.3	256 D	0
	3	14	7	6	256 D	0
	3	14	8	5.2	256 D	0
	3	14	9	4.7	257 D	0
	3	14	10	4.7	269 D	0
	3	14	11	5.5	270 D	0
	3	14	12	4.3	283 E	0
	3	14	13	3.6	297 E	0
	3	14	14	3.9	298 E	0
	3	14	15	3.5	301 E	0
	3	14	16	3.7	305 E	0
	3	14	17	4.3	321 E	0
	3	14	18	4.5	323 E	0
	3	14	19	3.9	335 E	0
	3	14	20	3.7	333 E	0
	3	14	21	3.5	342 E	0
	3	14	22	3.8	10 E	0
	3	14	23	4.5	11 E	0
	3	15	0	4.1	21 C	0
	3	15	1	3.8	41 C	0
	3	15	2	3.6	59 C	0
	3	15	3	3.7	66 C	0
	3	15	4	3.9	65 C	0
	3	15	5	4.5	58 C	0
	3	15	6	4.3	50 C	0
	3	15	7	3.9	41 C	0
	3	15	8	3.1	30 C	0

44/23

3	15	9	3	25	C	0.01
3	15	10	2.9	36	E	0.02
3	15	11	3.5	32	E	0.03
3	15	12	3.4	21	E	0.03

Brenda Pobanz  
 Lawrence Livermore National Laboratory  
 925-422-1823

## Hergenroder, Dan

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**From:** Collins, Elmo  
**Sent:** Monday, March 14, 2011 12:42 PM  
**To:** Howell, Art; Kennedy, Kriss; Vogel, Anton; Caniano, Roy  
**Subject:** FW: Confirmation of names for Japan

---

**From:** Leeds, Eric  
**Sent:** Monday, March 14, 2011 12:11 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

HH/24

Nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis. Even those plants that are located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster.

The NRC requires that safety-significant structures, systems, and components be designed to take into account the most severe natural phenomena historically reported for the site and surrounding area.

The NRC requires that safety-significant structures, systems, and components be designed to take into account:

- the most severe natural phenomena historically reported for the site and surrounding area. The NRC then adds a margin for error to account for the historical data's limited accuracy;
- appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena; and
- the importance of the safety functions to be performed.

**Lara Uselding**  
**U.S. Nuclear Regulatory Commission (NRC)**  
**Public Affairs - Region IV**

**Lara.Uselding@nrc.gov**

**BlackBerry:** (b)(6)

**Office: 817-276-6519**

For more information visit [www.nrc.gov](http://www.nrc.gov)

## **Hergenroder, Dan**

---

**From:** LIA04 Hoc  
**Sent:** Monday, March 14, 2011 6:17 PM  
**To:** LIA06 Hoc  
**Cc:** Barker, Allan; Browder, Rachel; Collins, Elmo; Dean, Bill; Erickson, Randy; Heck, Jared; Logaras, Haral; Maier, Bill; McCree, Victor; McNamara, Nancy; Tifft, Doug; Trojanowski, Robert; Woodruff, Gena; Flannery, Cindy; Lukes, Kim; Noonan, Amanda; Rautzen, William; Rivera, Alison; Ryan, Michelle; Turtill, Richard; Virgilio, Rosetta  
**Subject:** FW: ACTION: Do States Require Additional Information?  
**Attachments:** Questions from the States.doc

Amanda Noonan  
State Liaison – Liaison Team  
Incident Response Center

---

**From:** Virgilio, Rosetta  
**Sent:** Monday, March 14, 2011 6:45 PM  
**To:** Turtill, Richard; LIA04 Hoc; Mroz (Sahm), Sara  
**Subject:** FW: ACTION: Do States Require Additional Information?

I agree

---

**From:** LIA04 Hoc  
**Sent:** Monday, March 14, 2011 6:25 PM  
**To:** Virgilio, Rosetta; LIA06 Hoc; Thaggard, Mark; McGinty, Tim  
**Cc:** Noonan, Amanda; Brenner, Eliot; Mroz (Sahm), Sara; Miller, Charles; Leeds, Eric; Virgilio, Martin  
**Subject:** RE: ACTION: Do States Require Additional Information?

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

-Sara (from the LT room)

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

---

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

4/4/25

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

---

**From:** LIA06 Hoc

**Sent:** Monday, March 14, 2011 5:56 PM

**To:** Thaggard, Mark; LIA04 Hoc; Miller, Charles; Virgilio, Rosetta; Brenner, Eliot; Mroz (Sahm), Sara; Noonan, Amanda

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

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

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

---

**From:** Tifft, Doug

**Sent:** Monday, March 14, 2011 3:44 PM

**To:** McNamara, Nancy; LIA04 Hoc; Woodruff, Gena; Barker, Allan; Logaras, Harral; Maier, Bill; LIA06 Hoc

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

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

Amanda,

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

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

Questions related to event in Japan:

Could this happen at [X plant]?

What is the sequence of events at the Japanese reactors?

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

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

When will the plume hit the US?

What are the environmental consequences to the US?

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

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

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

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

Hypothetical questions related to US plants:

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

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

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

-Doug

---

**From:** McNamara, Nancy  
**Sent:** Monday, March 14, 2011 1:27 PM  
**To:** LIA04 Hoc; Tift, Doug; Woodruff, Gena; Barker, Allan; Logaras, Harral; Maier, Bill; LIA06 Hoc  
**Cc:** Turtill, Richard; Virgilio, Rosetta; Rautzen, William; Lukes, Kim; Flannery, Cindy  
**Subject:** RE: ACTION: Do States Require Additional Information?

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

---

**From:** LIA04 Hoc  
**Sent:** Monday, March 14, 2011 1:24 PM  
**To:** McNamara, Nancy; Tift, Doug; Woodruff, Gena; Barker, Allan; Logaras, Harral; Maier, Bill; LIA06 Hoc  
**Cc:** Turtill, Richard; Virgilio, Rosetta; Rautzen, William; Lukes, Kim; Flannery, Cindy  
**Subject:** ACTION: Do States Require Additional Information?

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

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

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

Currently the Operation Center is responding to an International Emergency and any possible implications from this event that may affect the United States. If States have specific questions about Reactors in the United States they should be answered by the RSLO's if it reasonable. If the questions are regarding hypothetical events at U.S. Reactors these questions can be collected and answered, if possible, at a later date.

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

Amanda Noonan  
State Liaison – Liaison Team  
Incident Response Center

It's just the ex-reporter in me but I notice the news release doesn't specify how big an earthquake or how great a tsunami that CA nuclear power plants are built to withstand. Anybody know that? See attached draft responses – not approved by OPA.

Michael Sicilia  
Assistant Deputy Director  
Office of Public Affairs  
California Department of Public Health  
916.440.7259 office

(b)(6) blackberry

The California Department of Public Health is dedicated to optimizing the health and well-being of the people in California.

Needless to say, there are a lot of questions being asked because of the devastation in Japan. The Director, Secretary of EOPSS and Governor's office have been asking questions and I have been sending out information I have received on the plants in Japan. I would like all three plants to answer the following questions that I have been asked.

- What is the seismic limit that Pilgrim Station, Seabrook Station and Vermont Yankee have been built to withstand?
- Please explain that outcome at each plant if it was hit with a 8.9 earthquake the same as what hit Japan?
- For Pilgrim Station and Seabrook Station, what design and safety precautions have been installed at your plant to sustain a devastating tsunami that would hit as did the tragedy at the Japanese plants?
- If the same tragedy hit our plants would we be having the same major issues that the Japanese plants have? Please explain yes or not

Please let me know when I can expect an answer to these questions or if you would like to meet and discuss that would be ok

Thanks and let me know if you have any questions  
John

John Giarrusso, Jr.  
Planning and Preparedness Division Chief  
MEMA

508-820-2040 (w)

(b)(6) (c)



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Doug Tift

Nancy - I obviously don't have enough facts to do a proper accident assessment, but it does seem that the loss of electrical power supply is at the heart of much of the problems. Loss of on-site generation, loss of off-site generation, loss of emergency diesel generators, and loss of battery supply taking out the steam driven RCIC pumps. My initial questions are:

What specific design features of the US plants are similar to any of the failed features at the Japanese plants and if we are "better" how is that evidenced. Example - design of off-site and back-up power supplies.

In Japan the battery life was designed for 8 hours then failed, as expected. How does the US plant battery life design compare; and for those plants with only 4-hour back-up, how does that bode as an acceptable/better design?

Boron or boric acid injection into the primary coolant in BWR's (Standby Liquid Control System) is intended to kill the reaction. It appears that either this was not a design feature of the Japanese plants, they did not activate this system, or power failures rendered it useless. As sea water was being pumped into the PC, reports indicate that they added boric acid.

For the plants I'm familiar with, they all have the ability to inject city/river/lake/sea water as an emergency measure. My question then is:  
during last ditch efforts to inject alternate source water, is the injection of boric acid along with the water injection part of the plans and procedures for the US plants?

From: [paul\\_eddy@dps.state.ny.us](mailto:paul_eddy@dps.state.ny.us) [mailto:[paul\\_eddy@dps.state.ny.us](mailto:paul_eddy@dps.state.ny.us)]

Sent: Monday, March 14, 2011 2:56 PM

To: McNamara, Nancy

Cc: Tifft, Doug; [michael\\_worden@dps.state.ny.us](mailto:michael_worden@dps.state.ny.us); Alyse Peterson

Subject: Re: Getting Information for our States

**From:** McCree, Victor - *RV*  
**To:** Meighan, Sean - *MS*  
**Cc:** Leeds, Eric; Boger, Bruce; Grobe, Jack  
**Subject:** FW: NRC Support for Japan  
**Date:** Monday, March 14, 2011 9:53:05 AM

---

See below, as requested. Please let me know if you need any additional information.

Vic

**From:** Leeds, Eric - *NRC*  
**Sent:** Monday, March 14, 2011 9:28 AM  
**To:** McCree, Victor - *RV*  
**Subject:** RE: NRC Support for Japan

Outstanding – thanks, Vic!

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

*release*

**From:** McCree, Victor - *RV*  
**Sent:** Monday, March 14, 2011 9:18 AM  
**To:** Leeds, Eric - *MS*  
**Cc:** Virgilio, Martin  
**Subject:** NRC Support for Japan

Eric,

Here's a brief list of Region II folks that you may want to consider for providing EOC support to the ongoing nuclear events in Japan:

**Operations, Technical Experts/Communicators**

1. **Rudy Bernhard**, Senior Reactor Analyst – BWR Specialist, with severe accident expertise; Senior Resident Inspector at Grand Gulf; GE SRO Certification at Dresden, Hatch and River Bend; General Electric Construction/Pre-op/Start-up Testing/ and Operations, Browns Ferry Restart support. (b)(6) *6*

2. **Bruno Caballero**, Senior Operator Licensing Examiner, former SRO at Browns Ferry (BWR4/Mark 1) (b)(6) *6*

**Operations, Technical Experts/Managers**

1. **Len Wert**, SRI Browns Ferry and Hatch (BWR4/Mark 1) (b)(6)

2. **Chuck Casto**, former licensed SRO at Browns Ferry (BWR4/Mark 1) (b)(6)

*HH/26*

3. **Joel Munday**, former licensed SRO at Brunswick ((BWR4/Mark 1), SRI at Hatch  
(BWR4/Mark 1) (b)(6)

Vic

**From:** Hudson, Jody *HR*  
**To:** Leeds, Eric; Boger, Bruce  
**Cc:** Tracy, Glenn; Cohen, Miriam  
**Subject:** FW: Addition of Mark Miller  
**Date:** Monday, March 14, 2011 11:34:04 AM  
**Attachments:** BWR Expertise.xlsx

---

OHR submitted to Sean Meighan the attached list of expert staff who are available to deploy to Japan.

**Jody Hudson**

Chief Learning Officer  
Human Resources Training & Development  
U.S. Nuclear Regulatory Commission  
Mailstop: GW-4A01  
301-492-2215

**From:** Rutledge, Steven *HR*  
**Sent:** Monday, March 14, 2011 11:31 AM  
**To:** Meighan, Sean  
**Cc:** Tracy, Glenn; Hudson, Jody; Miller, Mark  
**Subject:** Addition of Mark Miller

*HH/27*

## **BWR Expertise**

<b>NAME</b>	<b>Operations</b>	<b>Emergency Operations</b>
<b>Richard DeVercelly</b>	30+ years, SRO for 15 plus years on BWR 4 with Mk I containment	BWR EOP/SAG expert, very knowledgeable on emergency operations
<b>Delson Erb</b>	15+ years, SRO on BWR 4 and 5 with Mk II containments	BWR EOP/SAG Expert
<b>James McHugh</b>	25+ years, SRO on BWR 6	BWR EOP/SAG expert
<b>Mark Miller</b>	BWR Qualified Senior Resident, Chief Examiner qualified, BS/MS Nuclear Engineering	Examiner Qualified

6

Emergency Planning	Valid Passport	Will GO?
Significant experience in EP operations and radiation dose	(b)(6)	Yes
Significant Experience		Yes
20+ years EP experience		Yes
Headquarters Operations Office qualified		Yes

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**To:** Meighan, Sean  
**Cc:** Leeds, Eric; Boger, Bruce; Grobe, Jack  
**Subject:** FW: NRC Support for Japan  
**Date:** Monday, March 14, 2011 9:53:05 AM

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REL  
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U.S. Nuclear Regulatory Commission  
301-415-1270

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Here's a brief list of Region II folks that you may want to consider for providing EOC support to the ongoing nuclear events in Japan:

**Operations, Technical Experts/Communicators**

1. **Rudy Bernhard**, Senior Reactor Analyst – BWR Specialist, with severe accident expertise; Senior Resident Inspector at Grand Gulf; GE SRO Certification at Dresden, Hatch and River Bend; General Electric Construction/Pre-op/Start-up Testing/ and Operations, Browns Ferry Restart support. (b)(6)
2. **Bruno Caballero**, Senior Operator Licensing Examiner, former SRO at Browns Ferry (BWR4/Mark 1) – (b)(6)

**Operations, Technical Experts/Managers**

1. **Len Wert**, SR Browns Ferry and Hatch (BWR4/Mark 1) – (b)(6)
2. **Chuck Casto**, former licensed SRO at Browns Ferry (BWR4/Mark 1) – (b)(6)

44/28



3. **Joel Munday**, former licensed SRO at Brunswick ((BWR4/Mark 1), SRI at Hatch  
(BWR4/Mark 1) (b)(6)

6

Vic

From: Boger, Bruce *NR*  
To: McCree, Victor  
Cc: Casto, Chuck  
Subject: RE: NRC Support for Japan  
Date: Monday, March 14, 2011 11:19:00 AM

---

Thanks. Once I have the list in a few minutes I'll discuss with Marty, then the EDO. We should have some feedback in the early afternoon. *release*

From: McCree, Victor *NR*  
Sent: Monday, March 14, 2011 11:10 AM  
To: Boger, Bruce  
Cc: Casto, Chuck  
Subject: RE: NRC Support for Japan

Got it – Chuck is ready and willing..and is standing by for confirmation.

Vic

From: Boger, Bruce *NR*  
Sent: Monday, March 14, 2011 11:01 AM  
To: McCree, Victor  
Subject: RE: NRC Support for Japan

Thanks, Vic. FYI--Casto has a big red target on his back, given the recent interest in having a "technically oriented management guy" support the Ambassador, plus he has a *u* (b)(6) and there's a notion that selected folks will head out today. *release*

From: McCree, Victor *NR*  
Sent: Monday, March 14, 2011 9:53 AM  
To: Meighan, Sean  
Cc: Leeds, Eric; Boger, Bruce; Grobe, Jack  
Subject: FW: NRC Support for Japan

See below, as requested. Please let me know if you need any additional information.

Vic

From: Leeds, Eric *NR*  
Sent: Monday, March 14, 2011 9:28 AM  
To: McCree, Victor  
Subject: RE: NRC Support for Japan

Outstanding – thanks, Vic!

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

From: McCree, Victor  
Sent: Monday, March 14, 2011 9:18 AM  
To: Leeds, Eric

*release*

*HH/29*

**Cc:** Virgilio, Martin  
**Subject:** NRC Support for Japan

Eric,

Here's a brief list of Region II folks that you may want to consider for providing EOC support to the ongoing nuclear events in Japan:

**Operations, Technical Experts/Communicators**

1. **Rudy Bernhard**, Senior Reactor Analyst – BWR Specialist, with severe accident expertise; Senior Resident Inspector at Grand Gulf; GE SRO Certification at Dresden, Hatch and River Bend; General Electric Construction/~~Pre-op/Start-up Testing~~ and Operations, Browns Ferry Restart support. (b)(6) 6

2. **Bruno Caballero**, Senior Operator Licensing Examiner, former SRO at Browns Ferry (BWR4/Mark 1) (b)(6)

**Operations, Technical Experts/Managers**

1. **Len Wert**, SRI Browns Ferry and Hatch (BWR4/Mark 1) (b)(6) (b)(6) 6
2. **Chuck Casto**, former licensed SRO at Browns Ferry (BWR4/Mark 1) (b)(6) (b)(6)
3. **Joel Munday**, former licensed SRO at Brunswick ((BWR4/Mark 1), SRI at Hatch (BWR4/Mark 1) (b)(6)

Vic

**From:** Aluzzi, Fernando J.  
**To:** NITOPS; HQO Hoc: (b)(6)  
**Subject:** Latest Wind Forecast, from 3/14 00 UTC through 3/16 00 UTC  
**Date:** Monday, March 14, 2011 7:50:11 AM  
**Attachments:** Fukushima\_031400z.xlsx

---

Latest WRF single point forecast is attached and provided below. The time period over which onshore winds are forecast has decreased from prior forecasts.

North to Northeasterly winds (onshore) now predicted from 4 UTC on the 15<sup>th</sup> for roughly 5 to 6 hours, ending at 10 z.

Forecast winds from WRF

Month	Day	Hour (UTC)	Wind Speed(m/s)	Wind Direction
3	14	0	2.1	273
3	14	1	3.6	160
3	14	2	5.2	158
3	14	3	5.8	287
3	14	4	8	278
3	14	5	9.8	285
3	14	6	7.5	279
3	14	7	5.3	267
3	14	8	4.4	244
3	14	9	4.8	258
3	14	10	5	268
3	14	11	2.2	330
3	14	12	4.6	337
3	14	13	7.2	323
3	14	14	6.6	305
3	14	15	8.6	15
3	14	16	7.5	2
3	14	17	6.5	5
3	14	18	5.5	355
3	14	19	5.9	337
3	14	20	5.2	328
3	14	21	4.5	327
3	14	22	4.1	342
3	14	23	3.9	329
3	15	0	3.4	332
3	15	1	3.3	327
3	15	2	2.9	338
3	15	3	3.1	357
3	15	4	2.6	20
3	15	5	1.3	42
3	15	6	1.5	73

THH/30

3	15	7	1	86
3	15	8	1	59
3	15	9	0.8	2
3	15	10	1.7	321
3	15	11	2.3	328
3	15	12	4	311
3	15	13	4.3	329
3	15	14	3.6	4
3	15	15	3.3	344
3	15	16	3.2	322
3	15	17	4	327
3	15	18	4.5	315
3	15	19	3.3	307
3	15	20	3.3	310
3	15	21	5.3	308
3	15	22	6.6	331
3	15	23	8	336
3	16	0	6.3	348

# Forecast winds from WRF

Month	Day	Hour (UTC)	Wind Speed (m/s)	Wind Direction
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3	14	15	8.6	15
3	14	16	7.5	2
3	14	17	6.5	5
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3	15	20	3.3	310
3	15	21	5.3	308
3	15	22	6.6	331
3	15	23	8	336
3	16	0	6.3	348

**From:** Vogt, Phil  
**To:** [nltops@nnsa.doe.gov](mailto:nltops@nnsa.doe.gov); HQO Hoc; (b)(6)  
**Cc:** [narac@linl.gov](mailto:narac@linl.gov)  
**Subject:** Latest surface forecast for Japan  
**Date:** Monday, March 14, 2011 2:52:59 PM

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Here is the latest forecast for the Fukushima Daiichi 1 area.

Date	Hour (UTC)	Speed (m/s)	Dir	Stability	RAIN
14-Mar	18	5.2	347	E	0
	19	5.6	332	E	0
	20	4	332	E	0
	21	3.5	344	E	0.01
	22	3.8	26	E	0.05
	23	4.4	44	E	0.02
15-Mar	0	4.2	20	E	0.01
	1	3.4	10	E	0
	2	3.5	30	D	0.03
	3	3	27	D	0.01
	4	3.4	37	D	0.01
	5	3.7	53	B	0
	6	3.7	58	B	0
	7	3.2	67	C	0.01
	8	3.9	81	C	0.01
	9	4.7	89	B	0
	10	4.4	85	B	0
	11	4.4	83	B	0.03
	12	4.6	74	C	0.04
	13	5	54	D	0.08
	14	5.6	29	D	0.1
	15	5.1	11	D	0.05
	16	4.3	346	C	0.08
	17	5.3	350	D	0.08
	18	5.6	323	D	0.03
	19	5.4	316	D	0
	20	4.8	298	D	0
	21	5.6	314	D	0
	22	4.7	312	D	0
	23	4.9	331	D	0
16-Mar	0	4.1	353	D	0

HH/31



## Hergenroder, Dan

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**From:** Uselding, Lara  
**Sent:** Monday, March 14, 2011 11:53 AM  
**To:** R4; R4 IRC  
**Subject:** Recent NRC blog posts and press releases with NRC messaging  
**Attachments:** fs-seismic-issues.pdf; Press Release 5.pdf; Press Release 1.pdf; Press Release 2.pdf; Press Release 3.pdf; Press Release 4.pdf; Press release 5.docx

### U.S. Nuclear Plants are Designed for Severe Natural Hazards

[Leave a Comment](#) Posted by [Moderator](#) on March 13, 2011

We've gotten some questions about how U.S. nuclear power plants would fare when faced with severe natural hazards. To answer: NRC's rigorous safety regulations ensure that U.S. nuclear facilities are designed to withstand tsunamis, earthquakes and other hazards. In addition to those plants in recognized earthquake zones, the NRC has been working with several agencies to assess recent seismic research for the central and eastern part of the country. That work continues to indicate U.S. plants will remain safe.

For more information on U.S. nuclear power plants and earthquakes, read our backgrounder on the subject here:

<http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/fs-seismic-issues.html>

*Eliot Brenner*  
*Public Affairs Director*

Operating Reactors nuclear

### Available Information Points to No Radiation Risk to U.S. From Damaged Japanese Plants

[2 Comments](#) Posted by [Moderator](#) on March 13, 2011

We are working with other U.S. government agencies to monitor the situation in Japan — and to monitor for radioactive releases and to be prepared to predict their path. Fortunately, all the available information at this time indicates weather conditions have taken the small releases from the Fukushima reactors out to sea away from the population.

And, importantly, given the thousands of miles between Japan and us — including Hawaii, Alaska, the U.S. territories and the U.S. West Coast — we are not expecting to experience any harmful levels of radioactivity here. We would like to repeat — we are not expecting to experience any harmful levels of radioactivity here.

As expected, we are getting a lot of questions from people who are seeking information about developments at Japanese reactors. We understand the need for information, but we are not able to comment on the situation. It is an ongoing crisis for the Japanese and they have primary responsibility for handling it and communicating about it. But please stay tuned to this blog for the latest information we can provide.

Thank you for reading our blog. Remember to look at yesterday's post about how you can help Japan in this crisis with donations.

*Eliot Brenner*  
*Public Affairs Director*

The following is helpful as used in our press releases:

Nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis. Even those plants that are located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster.

The NRC requires that safety-significant structures, systems, and components be designed to take into account the most severe natural phenomena historically reported for the site and surrounding area.

The NRC requires that safety-significant structures, systems, and components be designed to take into account:

- the most severe natural phenomena historically reported for the site and surrounding area. The NRC then adds a margin for error to account for the historical data's limited accuracy;
- appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena; and
- the importance of the safety functions to be performed.

**Lara Uselding**  
**U.S. Nuclear Regulatory Commission (NRC)**  
**Public Affairs - Region IV**

**Lara.Uselding@nrc.gov**

**BlackBerry:** (b)(6)

**Office: 817-276-6519**

For more information visit [www.nrc.gov](http://www.nrc.gov)



# FACT SHEET

Office of Public Affairs

Phone: 301-415-8200

Email: [opa.resource@nrc.gov](mailto:opa.resource@nrc.gov)

## Seismic Issues for Existing Nuclear Power Plants

Nuclear power plants are built to withstand environmental hazards, including earthquakes. Even those plants that are located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster. The Nuclear Regulatory Commission (NRC) requires all of its licensees to take seismic activity into account when planning and maintaining its nuclear power plants.

### Background

The NRC has examined recent earthquake-related information to assess potential safety implications for nuclear power plants in the Central and Eastern United States (CEUS). The agency requires plant designs to withstand the effects of natural phenomena including earthquakes (i.e., seismic events). The agency's requirements, including General Design Criteria for licensing a plant, are described in Title 10 of the *Code of Federal Regulations* (10 CFR). These license requirements include traditional engineering practices such as "safety margins." Practices such as these add an extra element of safety into design, construction, and operations.

The NRC has always required licensees to design, operate, and maintain safety-significant structures, systems, and components to withstand the effects of earthquakes and to maintain the capability to perform their intended safety functions. The agency ensures these requirements are satisfied through the licensing, reactor oversight, and enforcement processes.

### Earthquake (or Seismic) Hazard

The NRC requires that safety-significant structures, systems, and components be designed to take into account:

- the most severe natural phenomena historically reported for the site and surrounding area. The NRC then adds a margin for error to account for the historical data's limited accuracy;
- appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena; and
- the importance of the safety functions to be performed.

The U.S. Geological Survey (USGS) Web site provides general information about earthquakes (<http://earthquake.usgs.gov/learning/index.php>). An earthquake releases energy that radiates from the fault and causes ground movement. As the ground moves, objects such as nuclear power plant structures on or in the ground also move. The nature of the movement depends on how the earthquake releases energy and on how the soil conditions absorb (or dissipate) the energy as it moves away from the fault to a plant location. The intensity of an earthquake can be characterized by both the frequency of the shaking and by

the acceleration of the ground at the plant. These characteristics describe how the energy released from the earthquake impacts the plant's buildings as well as the systems and components that are contained inside those buildings.

Earthquake characteristics provide information used in designing existing nuclear plants. The frequency of the shaking is measured in cycles per second (or Hz), and the acceleration is typically expressed as some fraction of the acceleration of gravity, which is about 32.2 feet per second per second (ft/s<sup>2</sup>). For example, an acceleration of 0.15 g (15 percent of the acceleration of gravity) is about equal to an acceleration of 5 ft/s<sup>2</sup>.

### **Seismic Safety Assessment**

The licensing bases for existing nuclear power plants are based on historical data at each site. This data is used to determine design basis loads from the area's maximum credible earthquake, with an additional margin included. The NRC also requires existing plants to assess their potential vulnerability to earthquake events, including those that might exceed the design basis, as part of the Individual Plant Examination of External Events Program. This process examines the available safety margins of existing plants for various earthquakes and ensures these margins, together with the plant's accident management programs, continue to protect public health and safety.

Today, the NRC utilizes a risk-informed regulatory approach, including insights from probabilistic assessments and traditional deterministic engineering methods to make regulatory decisions about existing plants (e.g., licensing amendment decisions). Any new nuclear plant the NRC licenses will use a probabilistic, performance-based approach to establish the plant's seismic hazard and the seismic loads for the plant's design basis.

### **Evolving Knowledge about Earthquakes**

The CEUS is generally an area of low to moderate earthquake hazard with few active faults in contrast to the western United States. Even so, in 1811–1812, three major earthquakes (Magnitude 7 to 7.7 on the commonly used Richter Scale) shook much of the CEUS. These earthquakes occurred near the town of New Madrid, M.O. In 1886, a large earthquake (Richter Scale magnitude of about 7) occurred near Charleston, S.C. This earthquake caused extensive damage and was felt in most of the eastern United States. Geologists are aware of these historic occurrences, and knowledge of such earthquakes was taken into account in plant design and analysis.

The NRC regularly reviews new information on earthquake source and ground motion models. For example, the NRC reviewed updated earthquake information provided by applicants in support of Early Site Permits for new reactors. This additional information included new models to estimate earthquake ground motion and updated models for earthquake sources in seismic regions such as eastern Tennessee and around both Charleston and New Madrid.

Analysis of these updates indicated slight increases to earthquake hazard estimates for some plants in the CEUS. The NRC also reviewed and evaluated recent USGS earthquake hazard estimates for the CEUS that are used for building code applications outside of plant licensing. These reviews showed that the estimated likelihood of earthquakes occurring at some current CEUS operating sites might be slightly higher than what was expected during design and previous evaluations.

## **NRC Response to Increased Estimated CEUS Earthquake Hazards**

The NRC began assessing the safety implications of increased plant earthquake hazards in the CEUS through a May 26, 2005, memorandum (available under Accession No. ML051450456 in the NRC Agencywide Documents Access and Management System [ADAMS]) in which the staff recommended examining the new CEUS earthquake hazard information under the Generic Issues Program (GIP). The NRC staff identified the issue as GI-199 in a June 9, 2005, memorandum (ADAMS Accession No. ML051600272) and completed the screening analysis for the issue in January 2008. The staff then assessed available earthquake data and models.

The GIP confirmed that operating nuclear power plants are safe. The assessment also found that, although still small, some seismic hazard estimates have increased and warrant further attention. In September 2010, NRC issued a Safety/Risk Assessment report (ADAMS Accession No. ML100270582) and an Information Notice (ADAMS Accession No. ML101970221) to inform stakeholders of the Safety/Risk Assessment results. Further action may include obtaining additional, updated information, as well as developing methods to determine if plant improvements to reduce seismic risk are warranted. Information regarding this generic issue and the GIP in general is available at <http://www.nrc.gov/about-nrc/regulatory/gen-issues.html>.

To read more about risk-related NRC policy, see the fact sheets on Probabilistic Risk Assessment (<http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/probabilistic-risk-asses.html>) and Nuclear Reactor Risk (<http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/reactor-risk.html>). Each provides more information on the use of probability in evaluating hazards (including earthquakes) and their potential impact on plant safety margins.

November 2010



# NRC NEWS

## U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs Telephone: 301/415-8200

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

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No. 11-044

March 12, 2011

### NRC IN COMMUNICATION WITH JAPANESE REGULATORS

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

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

U.S. nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis. Even those plants that are located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster. The NRC requires that safety-significant structures, systems, and components be designed to take into account the most severe natural phenomena historically estimated for the site and surrounding area.

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

###

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



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No. 11-045

March 12, 2011

### NRC EXPERTS DEPLOY TO JAPAN AS PART OF U.S. GOVERNMENT RESPONSE

Two officials from the U.S. Nuclear Regulatory Commission with expertise in boiling water nuclear reactors have deployed to Japan as part of a U.S. International Agency for International Development (USAID) team. USAID is the federal government agency primarily responsible for providing assistance to countries recovering from disaster administering.

"We have some of the most expert people in this field in the world working for the NRC and we stand ready to assist in any way possible," said Chairman Gregory Jaczko.

The NRC has stood up its Maryland-based headquarters Operations Center since the beginning of the emergency in Japan, and is operating on a 24-hour basis.

The NRC will not provide information on the status of that country's nuclear power plants. Check the NRC web site or blog for the latest information on NRC actions. Other sources of information include:

USAID -- [www.usaid.gov](http://www.usaid.gov)

U.S. Dept. of State -- [www.state.gov](http://www.state.gov)

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

White House -- [www.whitehouse.gov](http://www.whitehouse.gov)

Nuclear Energy Institute --- [www.nei.org](http://www.nei.org)

International Atomic Energy Agency -- [www.iaea.org/press/](http://www.iaea.org/press/)

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

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No. 11-047

March 14, 2011

### **JAPANESE GOVERNMENT ASKS FOR ASSISTANCE WITH REACTOR EVENTS; U.S. GOVERNMENT AND NRC PREPARING RESPONSE**

The Japanese government has formally asked for assistance from the United States as it continues to respond to nuclear power plant cooling issues triggered by an earthquake and tsunami on March 11. As part of a larger U.S. government response, the NRC is considering possible replies to the request, which includes providing technical advice.

Included in a U.S. Agency for International Development (USAID) team dispatched earlier to Japan to assist with the disaster are two boiling-water reactor (BWR) experts from the NRC. They are currently in Tokyo offering technical assistance. USAID is the federal government agency primarily responsible for providing help to countries recovering from a disaster.

The NRC has been monitoring the Japanese reactor events via its Headquarters Operations Center in Rockville, Md., on a 24-hour-a-day basis.

The NRC will not comment on hour-to-hour developments at the Japanese reactors. This is an ongoing crisis for the Japanese who have primary responsibility.

###

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

No. 11-043

March 11, 2011

### NRC CONTINUES TO TRACK EARTHQUAKE AND TSUNAMI ISSUES

Senior officials at U.S. Nuclear Regulatory Commission headquarters in Rockville, Md., are following events related to the Japanese earthquake and subsequent tsunami. In addition, the agency's regional office in Arlington, Texas, will continue to monitor the Diablo Canyon Power Plant's handling of a notice of unusual event (NOUE) at the site, near San Luis Obispo, Calif., for the duration of the event.

"We offer our condolences to all those in Japan affected by these tragedies," said NRC Chairman Gregory Jaczko. "The NRC is ready to provide whatever assistance we can to our Japanese counterparts, should there be a specific request. We're closely coordinating with other federal agencies."

Friday's tsunami warning, issued after an estimated 8.9 magnitude earthquake occurred off the eastern Japanese coast, prompted Pacific Gas and Electric Co. (PG&E), operator of the Diablo Canyon two-reactor plant, to declare a precautionary NOUE at 4:23 a.m. EST Friday. PG&E has reported both reactors have remained online throughout the event. While PG&E has reported only minor tsunami-related effects, the plant is well-protected against tsunami conditions as required by NRC regulations. NRC staff at the plant are keeping track of the plant's response during the event and remain in close contact with plant operators.

Nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis. Even those plants that are located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster. The NRC requires that safety-significant structures, systems, and components be designed to take into account the most severe natural phenomena historically reported for the site and surrounding area.

In addition to the Diablo Canyon plant, the NRC is following events at the San Onofre nuclear power plant, the Humboldt Bay spent fuel storage site and NRC-regulated nuclear materials sites in Hawaii and Alaska to name a few. Personnel at all those sites have informed the NRC conditions remain safe.

###

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No. 11-042

March 11, 2011

### NRC MONITORS NOTICE OF UNUSUAL EVENT AT DIABLO CANYON POWER PLANT, TSUNAMI ISSUES

The U.S. Nuclear Regulatory Commission, through its regional office in Arlington, Tex., is monitoring a notice of unusual event (NOUE) at the Diablo Canyon Power Plant, located near San Luis Obispo, Calif. Senior NRC officials are working at the agency's Rockville, Md., headquarters to coordinate NRC activities with respect to the Japanese earthquake and subsequent tsunami.

"The NRC is closely monitoring this situation as it unfolds with respect to nuclear facilities within the United States. NRC staff is working closely with its resident inspectors who are on site to ensure safe operations," said NRC Chairman Gregory Jaczko.

Pacific Gas and Electric Co. (PG&E), operator of the Diablo Canyon two-reactor plant, declared a precautionary NOUE Unusual Event at 4:23 a.m. EST today after receiving a tsunami warning from the West California Emergency Management Agency. The tsunami warning was generated after an estimated 8.9 magnitude earthquake occurred off the eastern Japanese coast.

The licensee reported the Diablo Canyon plant is stable and both units remain on line. The plant is well protected against tsunami conditions as required by NRC regulations. The NRC has staff at the plant keeping track of the plant's response.

Nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis. Even those plants that are located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster. The NRC requires that safety-significant structures, systems, and components be designed to take into account the most severe natural phenomena historically reported for the site and surrounding area.

In addition to the Diablo Canyon plant, the NRC is also monitoring the San Onofre nuclear power plant, the Humboldt Bay spent fuel storage site and NRC-regulated nuclear materials sites in Hawaii and Alaska to name a few. Site personnel have informed the NRC they are prepared for possible tsunami effects.

###

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



# NRC NEWS

## U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs Telephone: 301/415-8200

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

No. 11-046

March 13, 2011

### **NRC SEES NO RADIATION AT HARMFUL LEVELS REACHING U.S. FROM DAMAGED JAPANESE NUCLEAR POWER PLANTS**

The Nuclear Regulatory Commission is coordinating with the Department of Energy and other federal agencies in providing whatever assistance the Japanese government requests as they respond to conditions at several nuclear power plant sites following the March 11 earthquake and tsunami. The NRC has sent two boiling-water reactor experts to Japan as part of a U.S. Agency for International Development team.

In response to nuclear emergencies, the NRC works with other U.S. agencies to monitor radioactive releases and predict their path. All the available information indicates weather conditions have taken the small releases from the Fukushima reactors out to sea away from the population. Given the thousands of miles between the two countries, Hawaii, Alaska, the U.S. Territories and the U.S. West Coast are not expected to experience any harmful levels of radioactivity.

During a nuclear event the NRC has requirements to protect populations around reactors. For instance, the U.S. evacuation standard at 10 miles is roughly equivalent to the 20-kilometer distance recommended in some instances in Japan. The United States also uses sheltering in place and potassium iodide, protective measures also available in Japan.

The NRC will not comment on hour-to-hour developments at the Japanese reactors. This is an ongoing crisis for the Japanese who have primary responsibility.

###

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

**From:** Pobanz, Brenda M.  
**To:** NITOPS; HQQ Hoc (b)(6)  
**Subject:** Updated Wind Forecast from latest 5km WRF run  
**Date:** Monday, March 14, 2011 11:50:42 PM  
**Attachments:** WRF Forecast Update 00ZMarch15 - 00ZMarch16.xlsx

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Please let us know if you have any questions.

Brenda Pobanz  
NARAC Operations  
Lawrence Livermore National Laboratory  
925-422-1823

111/33

Day	UTC	Wind Speed m/s	Direction(f rom)	Stability	Precip (inch/hr)
15	0	7	9 D		0
15	1	6.5	12 D		0
15	2	6	32 D		0
15	3	5.2	37 D		0
15	4	3.8	44 D		0
15	5	4	47 C		0
15	6	2.4	4 C		0
15	7	2.9	42 C		0.04
15	8	1.8	99 E		0
15	9	1.4	172 E		0
15	10	1.6	183 E		0
15	11	2.4	242 E		0.02
15	12	2.5	258 E		0.03
15	13	3.3	305 E		0.04
15	14	3.9	307 E		0.07
15	15	4.6	335 E		0.09
15	16	4.9	7 E		0.1
15	17	4.7	344 E		0.04
15	18	3.7	348 C		0
15	19	2.6	29 C		0
15	20	1.6	219 C		0
15	21	4.4	293 C		0
15	22	4.8	305 C		0
15	23	9	308 D		0
16	0	9.3	329 D		0

**From:** Aluzzi, Fernando J. (b)(6)  
**To:** "NTOPS"; HQO Hoc;  
**Cc:** narac@lml.gov  
**Subject:** Latest WRF Forecast for Fukushima from 3/15 00 UTC through 3/17 00 UTC  
**Date:** Tuesday, March 15, 2011 4:44:53 AM

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Latest WRF single point forecast (March 15 00z) is attached and provided below. A new addition is the Rain column which specifies a forecast rainfall rate in inches per hour.

Month	Day	Hour	Wind Speed (m/s)	Wind Direction	Rain (inches/hour)
3	15	0	3.6	1	0
3	15	1	5.1	25	0
3	15	2	5	40	0
3	15	3	5.3	50	0
3	15	4	5.1	55	0
3	15	5	4.5	75	0
3	15	6	4.2	84	0
3	15	7	3.9	84	0.04
3	15	8	2.9	96	0.07
3	15	9	4	115	0.03
3	15	10	3	116	0.01
3	15	11	4.6	116	0.05
3	15	12	5.6	116	0.04
3	15	13	6.5	125	0.04
3	15	14	2	29	0.13
3	15	15	7.7	321	0.26
3	15	16	5.5	342	0.1
3	15	17	4.5	340	0.02
3	15	18	4.8	323	0
3	15	19	4.6	319	0
3	15	20	6.4	345	0
3	15	21	3.1	342	0
3	15	22	3.8	0	0
3	15	23	3.9	323	0
3	16	0	6.3	326	0
3	16	1	7.1	312	0
3	16	2	6.5	330	0
3	16	3	6.3	15	0.01
3	16	4	8.9	354	0.01
3	16	5	6.9	342	0.07
3	16	6	10	312	0.03
3	16	7	9.9	311	0

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3	16	8	10.6	320	0
3	16	9	11.4	303	0
3	16	10	12.1	304	0.01
3	16	11	10.6	320	0
3	16	12	9.5	310	0
3	16	13	3.2	261	0
3	16	14	6.4	291	0
3	16	15	5.4	302	0
3	16	16	6.9	299	0
3	16	17	7.3	297	0
3	16	18	9.7	295	0
3	16	19	11.7	300	0
3	16	20	13.2	292	0
3	16	21	8.4	302	0
3	16	22	4.6	102	0
3	16	23	1.4	19	0
3	17	0	3.4	306	0

**From:** Grobe, Jack - NRR  
**To:** Bower, Anthony  
**Subject:** Fw: Follow-up from 4 pm teleconference on Ops Center Long Term Staffing  
**Date:** Tuesday, March 15, 2011 6:49:28 PM  
**Attachments:** Japan Exercise Position Title March 15.docx  
Japan Support.xlsx

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Jack Grobe, Deputy Director, NRR

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**From:** Evans, Michele - WSE R  
**To:** Hackett, Edwin; Brenner, Eliot; Schmidt, Rebecca; Powell, Amy; Droggitis, Spiros; Doane, Margaret; Mamish, Nader; Dyer, Jim; Brown, Milton; Greene, Kathryn; Stewart, Sharon; Howard, Patrick; Miller, Charles; Moore, Scott; Cohen, Miriam; Tracy, Glenn; Haney, Catherine; Dorman, Dan; Johnson, Michael; Holahan, Gary; Leeds, Eric; Boger, Bruce; Grobe, Jack; Zimmerman, Roy; Campbell, Andy; Sheron, Brian; Uhle, Jennifer; Dean, Bill; Lew, David; McCree, Victor; Wert, Leonard; Casto, Chuck; Satorius, Mark; Pederson, Cynthia; Collins, Elmo; Howell, Art; Muessele, Mary; Andersen, James; Akstulewicz, Brenda; Belmore, Nancy; Quesenberry, Jeannette; Kreuter, Jane; Armstrong, Janine; Hudson, Sharon; Ellis, Marv; Hasan, Nasreen; Ronewicz, Lynn; Schumann, Stacy; Daniels, Stanley; Casby, Marcia; Thomas, Loretta; Walker, Dwight; Sprogeris, Patricia; Schwarz, Sherry; Ross, Robin; Cohen, Shari; Riddick, Nicole; Flory, Shirley; Veltri, Debra; Matakas, Gina; ODaniell, Cynthia; Miles, Patricia; Lee, Pamela; Dubose, Sheila; Buckley, Patricia; Tomczak, Tammy; Owen, Lucy; Tannenbaum, Anita; Gusack, Barbara; Harrington, Holly; Ricketts, Paul; Howell, Linda; Higginbotham, Tina; Ross, Brenda; Boyce, Thomas (OIS); Schaeffer, James; Jackson, Donald  
**Sent:** Tue Mar 15 17:53:24 2011  
**Subject:** Follow-up from 4 pm teleconference on Ops Center Long Term Staffing

Everyone,

Please find attached 1) a list of current positions being staffed in the Ops Center and 2) the staff identified as available to support in Japan.

Regarding additional staff available to support in the ops center, the primary needs are for the specialized positions on the PMT and anyone with previous international experience in OIP.

Regarding support in Japan, please provide any updates/changes to the list by COB March 17. The target time frame for sending these staff members is March 27-April 9, so please consider that when considering staff to put on the list.

Thanks for your support.

Michele

HH/35



## Positions being staffed in the Operations Center as of March 15, 2011

### Liaison Team

LT Director  
LT Coordinator  
LT Federal Liaison (2)  
LT Congressional Liaison (2)  
LT International Liaison (2)

### Protective Measures Team

PMTR Director  
PMTR Coordinator  
PMTR Protective Actions Assistant Director  
PMTR RAAD (Radiological Assessment Assistant Director)  
PMTR Dose Assessment (RASCAL)  
RASCAL Developer  
PMTR GIS Analyst (Geographical Information Systems)  
PMTR Meteorologist

### Reactor Safety Team

RST Director  
RST Coordinator  
Severe Accident / PRA  
BWR Expert  
RST Comm / ERDS Operator  
RST Support (Seismology Q&A)

SAMG

SRO/RI  
@BWR

Desc

(b)(6)

Rudy Bernhard		SRO/RI @BWR	Senior Reactor Analyst, Senior Resident Inspector at Grand Gulf; GE SRO Certification at Dresden, Hatch and River Bend; General Electric Construction/Pre-op/Start-up Testing/ and Operations, Browns Ferry Restart support.
Bruno Caballero		SRO/RI @BWR	Senior Operator Licensing Examiner, former SRO at Browns Ferry (BWR4/Mark
Len Wert		SRO/RI @BWR	SRI Browns Ferry and Hatch (BWR4/Mark 1)
Chuck Casto		SRO/RI @BWR	former licensed SRO at Browns Ferry (BWR4/Mark
Joel Munday		SRO/RI @BWR	former licensed SRO at Brunswick ((BWR4/Mark 1) SRI a Hatch (BWR4/Mark 1)
Tony Nakanishi		SRO/RI @BWR	BWR analysis guy, spent fuel pool criticality,
Tony Mendiola		SRO/RI @BWR	BWR qualified examiner (dated) , SRO certified by GE, Navy Nuke
Lawrence Kokajko	SAMG	SRO/RI @BWR	licensed operator on this type of plant (SOP 3938). He also taught degraded core cooling post TMI.
Aby Mohseni	SAMG		severe accident experience for this type of unit
George Wilson – Chief, I&C Branch		SRO/RI @BWR	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
Martin Murphy			Navy Nuke program – GE / Knolls Atomic Power Laboratory employee – 6 years operating prototype Calve Cliffs nuclear power plant – 12 years system engineering (ECCS & containment spray), senior material engineer US NRC materials engineer licensing experience project engineering – special projects

5/6

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.
Jeff Circle		SRO/RI @BWR	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		SRO/RI @BWR	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.
Tim Kolb		SRO/RI @BWR	BWR specialist
Kristy Bucholtz		SRO/RI @BWR	Recently licensed SRO at Peach Bottom.
Chuck Norton		SRO/RI @BWR	BWR expertise (shift manager for many years at a BWR 4, resident inspector at a BWR 6 (Grand Gulf)).
Joe Glitter			source term, incident response
Bill Cook	SAMG		severe accident mitigation. knowledgeable of SAMAs and B.5.b strategies. considerable BWR backgrounds. Region I Senior reactor analysts.
Wayne Schmidt	SAMG		severe accident mitigation. knowledgeable of SAMAs and B.5.b strategies. considerable BWR backgrounds. Region I Senior reactor analysts.

(b)(6)

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Chris Cahill	SAMG		severe accident mitigation. knowledgeable of SAMAs and B.5.b strategies. considerable BWR backgrounds. Region I Senior reactor analysts.
Ron Nimitz			radiological health effects and plume modeling
Jim Noggle			radiological health effects and plume modeling
Ray McKinley		SRO/RI @BWR	incident response, former BWR 4 SRO
Edward Fuller	SAMG		Ph.D. Nuclear Engineering, Expert: Severe Accident Analysis
Donald Dube	SAMG		Ph.D. Nuclear Engineering Expert: Severe Accident Analysis and Operational Experience
Charles Hinson			M.E. Nuclear Engineering/ Health Physics Expert: ALARA & Radiological Safety Programs
Reynaldo Jenkins			M.E. Nuclear Engineering/ Health Physics Expert: ALARA & Radiological Safety Programs
Mark Ring	SAMG	SRO/RI @BWR	Div of Reactor Projects Br Chief for many years. Responsible for Dresden and Quad, I consider him one of the agency's best on BWR 3 and 4's qual in our emerg response org in rst, pmt, and response coordination
Jim Mcghee		SRO/RI @BWR	SRI Quad, former SRO BWR and BWR examiner. Former licensee Ops and Maint mana at entergy BWRs.
Jack Foster	SAMG		HOO Protective Measure Team (PMT). Qualified as Reactor Safety Team/PMT Liaison and PMT Coordinator. RST/PMT skills need include Reactor background and health physics. PMT Coordinator skill include use and training on RASCAL, GIS, overall process of PMT. Branch Chief Materials Licensing Branch in FSME. Responsibilities include: Exempt Distribution Licensing, General Licensing, Web Based Licensing/Licensing Tracking System.Branch Chief Generic Issues and OpE (RES). Included skills are GI-199 (Seismic) and Accident sequence precursor program (ASP)
Jason Schaperow	SAMG		Severe Accident (SA) Management Strategies (SAMGs), SA phenomena, source term chemical interaction, member of RST

(b)(6)

Richard Lee	SAMG		SAMGs, SA phenomena
Mark Leonard (Sandia)	SAMG	SRO/RI @BWR	BWR SAMGs, SA phenomena
Randy Gauntt (Sandia)	SAMG	SRO/RI @BWR	SAMGs, SA phenomena, source term chemical interaction
Annie Kammerer			Seismic, tsunami, works with Japanese through IAEA program
Steve Garchow			Licensed as a BWR 6 (Perry) SRO. Went through construction and startup. While at Perry, I developed many of the initial safety related normal operating and abnormal operating procedures. This was a "from scratch" effort and, thus, involved a large amount of research with regard to system designs, capabilities, and interfaces with other systems. Perry was the lead plant for the development of the initial BWR EOPs following TMI. I was one of the licensed SRO's responsible for the initial validation and subsequent revisions of the draft EOP's. This effort was part of the BWR industry's EOP implementation plan following TMI. While an INPO employee, was a simulator evaluation team leader. This involved evaluating BWR operating crews across the country in "emergency" EOP simulated scenarios. As an NRC Chief Examiner, led many exams on BWR 4's, 5's, and 6's. This has included exams on MARK I, MARK II and MARK III containment designs. While at INPO was an accident/incident investigator and in this capacity investigated many nuclear industry events. Was a company spokesperson at First Energy and, as such, was responsible for the JPIC during emergency situations.
Michael Hay			Bachelors/Masters in Health Physics NRC GE/BWR series course Resident Inspector at Cooper Nuclear Station: BWR 4/Mark 1 (approx 4 years) Extensive emergency planning and event response experiences
Tony Vogel			RI/SRI at BWR's (Fermi, Perry) Knowledgeable of BWR Mark 1 Containment Lead RIV NRC response to Hurricane Katrina Extensive emergency planning and event response experiences, including Base Team Manager
Art Howell			26 years NRC experience

(b)(6)

[illegible]

**From:** Leeds, Eric *NRK*  
**To:** Rutland, William  
**Cc:** Grobe, Jack; Boger, Bruce; Bahadur, Sher  
**Subject:** ACTION:: Clothes for Ulsis  
**Date:** Tuesday, March 15, 2011 10:54:40 AM  
**Attachments:** RE Clothes for Ulsis.msg

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

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

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

**From:** Dyer, Jim *CFO*  
**Sent:** Tuesday, March 15, 2011 9:47 AM  
**To:** Grobe, Jack; Virgilio, Martin; Leeds, Eric; Givvines, Mary  
**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 *NRK*  
**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 (b)(6) 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

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HH/36

**Owen, Lucy**

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**From:** Howell, Linda  
**Sent:** Tuesday, March 15, 2011 8:01 AM  
**To:** Collins, Elmo; Howell, Art; Uselding, Lara  
**Cc:** Maier, Bill; Kennedy, Kriss  
**Subject:** FW: Media will be at today's Palo Verde Reception and Care Center (RCC) Drill

FYI

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

**From:** Wright, Lisa (Gibney)  
**Sent:** Tuesday, March 15, 2011 7:22 AM  
**To:** LIA01 Hoc; LIA11 Hoc; Howell, Linda  
**Subject:** Fw: Media will be at today's Palo Verde Reception and Care Center (RCC) Drill

Fyi. Perhaps the ET or our OPA (especially Region 4) would want a heads up

The reception is spotty here at Disney World but I am trying to keep a periodic eye on my blackberry. We are heading to the Ocean today so maybe things will improve

Sent from my NRC blackberry

Lisa Gibney

To reach me please call

(b)(6)

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

**From:** Ralston, Michelle <Michelle.Ralston@dhs.gov>  
**To:** Fiore, Craig <craig.fiore@dhs.gov>; Sherwood, Harry <harry.sherwood@dhs.gov>; Quinn, Vanessa <Vanessa.Quinn@dhs.gov>; Greten, Timothy <Timothy.Greten@dhs.gov>; Horwitz, Steve <steve.horwitz@dhs.gov>; Coons, Albert <albert.coons@dhs.gov>  
**Cc:** Hamill, John <John.Hamill@dhs.gov>; Hudson, Kelly <kelly.hudson@dhs.gov>; Lusk, Jeff <jeffrey.lusk@dhs.gov>; O'Boyle, Seamus <Seamus.O'Boyle@dhs.gov>; Kirin, Alexandra <alexandra.kirin@dhs.gov>  
**Sent:** Tue Mar 15 07:33:37 2011  
**Subject:** RE: Media will be at today's Palo Verde Reception and Care Center (RCC) Drill

Craig,

As a courtesy, I will forward this information to our HQ OPA folks. I am certain that the RIX OPA staff have done so, however in the interest of information sharing I promised to share what I receive with them as well.

Please let us know if there is any information or support that Outreach may provide. There are TPs, Facts Sheets, etc. that you might like to have in hand, if do not already.

Thanks!

Respectfully,

Michelle Ralston, MS, PMI

Public Affairs, Stakeholder Outreach & Campaign Planning Professional Services & Integration Technological Hazards Division Protection & National Preparedness DHS/FEMA 1800 South Bell Street, Rm. 828 Arlington, VA 22202  
(202) 212-2310 desk

HH/37



(b)(6)

Blackberry

(703) 905-0837 facsimile

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

From: Fiore, Craig

Sent: Tuesday, March 15, 2011 7:27 AM

To: Sherwood, Harry; Quinn, Vanessa; Greten, Timothy; Horwitz, Steve; Coons, Albert; Ralston, Michelle

Cc: Hamill, John; Hudson, Kelly; Lusk, Jeff

Subject: Media will be at today's Palo Verde Reception and Care Center (RCC) Drill

THD Senior Leadership:

At yesterday's Controller/Evaluator Briefing, the Lead Coordinator for this week's RCC Drill here at Palo Verde informed us that there is the real potential that several local media outlets (TV and print) will be present for the Drill later today. It was not certain whether or not any of these media sources will be requesting to ask questions or conduct interviews with FEMA but the indication was that because of the recent EQ/Tsunami/NPP emergency in Japan...I should definitely be prepared to field some questions about the state of REP around Palo Verde and even nationwide.

I'm confident I can appropriately respond to any sort of media inquiries that may come my way over the course of today, but per the direction we received on yesterday's Daily Japanese Emergency SitAwareness Call with the Regions and DHS IP...I wanted to be sure THD HQ was aware that there is the potential for media interaction today down here in Arizona.

Please let me know if you need any additional details regarding this matter. Thank you.

-Craig

-----  
Sent from the BlackBerry of Craig J. Fiore

**McKelvey, Harold**

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**From:** Collins, Elmo  
**Sent:** Tuesday, March 15, 2011 5:26 PM  
**To:** Uselding, Lara  
**Subject:** FW: Diablo Canyon, San Onofre questions from AP  
**Attachments:** image001.jpg

Looks like you should handle this one  
Thanks  
Elmo

---

**From:** Blood, Michael [<mailto:mblood@ap.org>]  
**Sent:** Tuesday, March 15, 2011 4:50 PM  
**To:** Collins, Elmo  
**Subject:** Diablo Canyon, San Onofre questions from AP

Elmo Collins,

I'm a reporter with AP. I'm working on a story about the new faults around Diablo and San Onofre and the potential threat to plant safety, and I have some questions I'd like to ask you.

Can you give me a call, or would you prefer to use e-mail?

Thanks.

**AP** Associated Press

Michael R. Blood  
Political Writer, Los Angeles  
(213) 346-3116, office  
(b)(6) cell

<http://twitter/michaelrbloodap>

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[IP\_US\_DISC]msk dccc60c6d2c3a6438f0cf467d9a4938

**Hergenroder, Dan**

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**From:** Uselding, Lara  
**Sent:** Tuesday, March 15, 2011 5:26 PM  
**To:** Collins, Elmo  
**Subject:** RE: Diablo Canyon, San Onofre questions from AP

Yep, thanks!

Lara Uselding  
U.S. Nuclear Regulatory Commission (NRC)  
Public Affairs - Region IV

[Lara.Uselding@nrc.gov](mailto:Lara.Uselding@nrc.gov)

BlackBerry: (b)(6)

Office: 817-276-6519

For more information visit [www.nrc.gov](http://www.nrc.gov)

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**From:** Collins, Elmo  
**Sent:** Tuesday, March 15, 2011 5:26 PM  
**To:** Uselding, Lara  
**Subject:** FW: Diablo Canyon, San Onofre questions from AP

Looks like you should handle this one  
Thanks  
Elmo

---

**From:** Blood, Michael [<mailto:mblood@ap.org>]  
**Sent:** Tuesday, March 15, 2011 4:50 PM  
**To:** Collins, Elmo  
**Subject:** Diablo Canyon, San Onofre questions from AP

Elmo Collins,

I'm a reporter with AP. I'm working on a story about the new faults around Diablo and San Onofre and the potential threat to plant safety, and I have some questions I'd like to ask you.

Can you give me a call, or would you prefer to use e-mail?

Thanks.

**AP** Associated Press

Michael R. Blood  
Political Writer, Los Angeles  
(213) 346-3116, office

(b)(6) cell

<http://twitter/michaelrbloodap>

**Miller, Geoffrey**

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**From:** Kotzalas, Margie  
**Sent:** Tuesday, March 15, 2011 7:14 AM  
**To:** Miller, Geoffrey  
**Subject:** Japan - U still here?

Hey. I heard that we sent another team of 9 people to Japan and that Chuck Casto is leading it. Do you know who else is on the team? I'll see what I can hear from my side.

I couldn't sleep again last night. Michelle was doing a shift in the Ops center (protective measures team) last night. She texted me "U2 ex-vessel, U4 zirc fire SFP, catastrophe" Outside of Scope

Outside of Scope

HH/40

**From:** Yogt, Phil  
**To:** PMT02 Hoc; HOO Hoc; nitops@nnsa.doe.gov;  
**Cc:** narac@llnl.gov  
**Subject:** Latest forecast winds for Fukushima Daiichi 1  
**Date:** Tuesday, March 15, 2011 5:33:11 PM

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(b)(6)

The table below has the latest forecast winds based on our WRF model run.

Date	Hour (UTC)	Speed (m/s)	Dir	Stability	RAIN
15-Mar	21	6.4	332	E	0
	22	7.2	329	D	0
	23	7.6	333	D	0
16-Mar	0	8.7	350	C	0
	1	10	353	C	0
	2	7.7	1	C	0
	3	7.4	2	C	0
	4	7.3	351	C	0
	5	10.3	321	D	0
	6	10.4	323	D	0
	7	12.7	316	D	0
	8	13	315	D	0
	9	10	314	D	0
	10	6.4	315	D	0
	11	6.6	302	C	0
	12	7.6	302	D	0
	13	7.1	280	E	0
	14	7.7	291	E	0
	15	8.6	293	E	0
	16	9.1	291	E	0
	17	7.5	282	E	0
	18	6	262	E	0
	19	3.7	278	E	0
	20	3.1	5	E	0
	21	3.9	308	D	0

NARAC Operations  
925-422-7627  
narac@llnl.gov

4/14/11

**From:** Yost, Phil  
**To:** PMT02 Hoc; HQO Hoc; nitops@nnsa.doe.gov; (b)(6)  
**Cc:** narac@linl.gov  
**Subject:** Latest NARAC forecast winds for Fukushima Daiichi 1  
**Date:** Tuesday, March 15, 2011 2:33:39 PM

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Here are the latest wind forecast from our WRF model for the plant.

Date	HR (UTC)	Speed (m/s)	Dir	Stability	RAIN	
15-Mar	18	7.6	331	D	0.01	
	15	19	6.1	332	D	0
	15	20	4.4	320	C	0
	15	21	7.2	319	E	0.03
	15	22	6.4	340	E	0.01
	15	23	6.6	348	C	0
16-Mar	0	6.6	356	C	0	
	16	1	5.6	14	B	0
	16	2	6.6	341	B	0
	16	3	9.2	321	D	0
	16	4	9.8	327	D	0
	16	5	10.2	d	0	
	16	6	13.1	316	D	0
	16	7	13.4	312	D	0
	16	8	11.4	315	D	0
	16	9	5.3	299	C	0
	16	10	7.6	311	D	0
	16	11	9.2	313	D	0
	16	12	7.9	295	D	0
	16	13	7.9	296	D	0
	16	14	3.5	236	C	0
	16	15	3.6	280	C	0
	16	16	4.6	289	C	0
	16	17	0.6	10	E	0
	16	18	1.4	100	E	0
	16	19	1.6	356	E	0

NARAC Operations  
925-422-7627

HH/42

**Morell, Clyde**

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**From:** Morell, Clyde  
**Sent:** Wednesday, March 16, 2011 8:40 AM  
**To:** 'DJ Malloy'  
**Subject:** Japan Nuclear Disaster

DJ,

I am working fulltime for the US Nuclear Regulatory Commission in Rockville, MD. I have been asked by friends and family as to what is going on with the Nuclear Power plants disasters. The new media is not doing a credible job in presenting the facts. I would appreciate it if you would tell everyone to go either website for credible information: <http://www.nei.org/> or <http://tinyurl.com/ansafe>

Respectfully,

Clyde.

**From:** DJ Malloy (b)(6)  
**Sent:** Monday, March 14, 2011 5:13 PM  
**To:** Morell, Clyde  
**Subject:** Here's my personal email address

It was nice to speak with you today! Keep well and stay in touch!

All my best

DJ

HH/43

**McKelvey, Harold**

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**From:** Collins, Elmo  
**Sent:** Wednesday, March 16, 2011 9:54 PM  
**To:** Maier, Bill  
**Subject:** Fw: U.S. Nuclear Regulatory Commission Communication to Northern Mariana Islands

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**From:** LIA04 Hoc  
**To:** Kate Fuller (b)(6)  
**Cc:** Kate Fuller <katefuller@deq.gov.mp>; Maier, Bill; Collins, Elmo; OST05 Hoc; Flannery, Cindy; Lukes, Kim; Noonan, Amanda; Rautzen, William; Rivera, Alison; Ryan, Michelle; Turtill, Richard; Virgilio, Rosetta  
**Sent:** Wed Mar 16 20:56:57 2011  
**Subject:** RE: U.S. Nuclear Regulatory Commission Communication to Northern Mariana Islands

Thank you Ms. Fuller (Northern Mariana Islands). We are on a call this moment that is organized by HHS. NMI (Mr. Seaman), Guam, American Samoa, HI, FEMA, CDC, EPA, NRC, and others are all on. It is a good gathering of interested and concerned territories and Fed and State agencies. Again, thank you for contacting me. We shall reach out to Mr. Seaman and/or Mr. Mease.

I'm finding that Jerold Fenner of HHS will also be a good resource for contacting Pacific Island Countries (PICs). Thank you.

Richard Turtill  
State Liaison – Liaison Team  
Incident Response Center

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**From:** Kate Fuller (b)(6)  
**Sent:** Wednesday, March 16, 2011 8:42 PM  
**To:** LIA04 Hoc  
**Cc:** Kate Fuller  
**Subject:** RE: U.S. Nuclear Regulatory Commission Communication to Northern Mariana Islands

Dear Mr. Turtill:

I am glad to know that the NRC is thinking of the CNMI and was happy to be of assistance.

I haven't spoken to Nathan in some time, but I believe he is still the legal counsel for the ASEPA. His contact information is

Nathan Mease  
AS-EPA Legal Counsel  
PO Box PPA  
Pago Pago, Am. Samoa 96799  
Ph:684-633-2304  
Fx:684-633-5801

Let me know if you cannot reach him and I'll try to find another contact for you.

Kate B. Fuller  
CNMI Assistant Attorney General/Legal Counsel to



the Division of Environmental Quality/Acting Air Branch Manager, CNMI DEQ  
(P) 670-664-8503  
(F) 670-664-8540

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From: [LIA04.Hoc@nrc.gov](mailto:LIA04.Hoc@nrc.gov)  
To: [katefuller@deq.gov.mp](mailto:katefuller@deq.gov.mp)  
CC: [OST05.Hoc@nrc.gov](mailto:OST05.Hoc@nrc.gov); [Bill.Maier@nrc.gov](mailto:Bill.Maier@nrc.gov); [Jared.Heck@nrc.gov](mailto:Jared.Heck@nrc.gov); [Mark.Satorius@nrc.gov](mailto:Mark.Satorius@nrc.gov); [Cindy.Flannery@nrc.gov](mailto:Cindy.Flannery@nrc.gov);  
[Kim.Lukes@nrc.gov](mailto:Kim.Lukes@nrc.gov); [Amanda.Noonan@nrc.gov](mailto:Amanda.Noonan@nrc.gov); [William.Rautzen@nrc.gov](mailto:William.Rautzen@nrc.gov); [Alison.Rivera@nrc.gov](mailto:Alison.Rivera@nrc.gov);  
[Michelle.Ryan@nrc.gov](mailto:Michelle.Ryan@nrc.gov); [Richard.Turtill@nrc.gov](mailto:Richard.Turtill@nrc.gov); [Rosetta.Virgilio@nrc.gov](mailto:Rosetta.Virgilio@nrc.gov)  
Date: Wed, 16 Mar 2011 19:50:24 -0400  
Subject: U.S. Nuclear Regulatory Commission Communication to Northern Mariana Islands

Thank you Ms. Fuller (Northern Mariana Islands) for your assistance in developing appropriate contacts within your government and with Guam and American Samoa. In response to the events in Japan, the attached U.S. Nuclear Regulatory Commission (NRC) press releases have been released by the NRC and can also be found at NRC's web site at [www.nrc.gov](http://www.nrc.gov).

These press releases reflect the following: In response to nuclear emergencies, the NRC works with other U.S. agencies to monitor radioactive releases and predict their path. All the available information continues to indicate Hawaii, Alaska, the U.S. Territories and the U.S. West Coast are not expected to experience any harmful levels of radioactivity.

The NRC's web site will continue to be updated with press releases that address ongoing events in Japan.

Again, thank you for your assistance.

Richard Turtill  
State Liaison – Liaison Team  
Incident Response Center  
301-816-5100, State Liaison

**McKelvey, Harold**

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**From:** Owen, Lucy  
**Sent:** Wednesday, March 16, 2011 11:19 AM  
**To:** Cain, Chuck; Caniano, Roy; Clark, Jeff; Collins, Elmo; Hays, Myra; Howell, Art; Pellet, John; Pruett, Troy; Vogel, Anton  
**Subject:** FW: DRAFT SRM - SECY-10-0137 - Proposed Rule: Requirements for Access Authorization and Physical Protection During Nuclear Power Plant Construction (RIN 3150-A165)

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**From:** RidsEdoDraftSrmVote Resource  
**Sent:** Wednesday, March 16, 2011 11:17 AM  
**To:** Ash, Darren; Borchardt, Bill; Boyd, Lena; Buckley, Patricia; Clarke, Deanna; Cohen, Miriam; EDO\_Staff\_Assistants; Flory, Shirley; Fry, Jeannie; Garland, Stephanie; Johnson, Michael; Mamish, Nader; Matakas, Gina; Miles, Patricia; Miller, Charles; Owen, Lucy; Riddick, Nicole; RidsAdmMailCenter Resource; RidsCsoMailCenter Resource; RidsFsmeOd Resource; RidsHrMailCenter Resource; RidsNmssOd Resource; RidsNroMailCenter Resource; RidsNrrOd Resource; RidsNsirMailCenter Resource; RidsOeMailCenter Resource; RidsOiMailCenter Resource; RidsOIS Resource; RidsResOd Resource; RidsRgn1MailCenter Resource; RidsRgn2MailCenter Resource; RidsRgn3MailCenter Resource; RidsRgn4MailCenter Resource; RidsSbcrMailCenter Resource; Thomas, Loretta; Virgilio, Martin; Walker, Dwight; Weber, Michael  
**Subject:** FW: DRAFT SRM - SECY-10-0137 - Proposed Rule: Requirements for Access Authorization and Physical Protection During Nuclear Power Plant Construction (RIN 3150-A165)

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**From:** Pearson, Laura  
**Sent:** Wednesday, March 16, 2011 12:01 PM  
**To:** Castleman, Patrick; Lewis, Antoinette; Baggett, Steven; Bates, Andrew; Batkin, Joshua; Baval, Rochelle; Blake, Kathleen; Bozin, Sunny; Bradford, Anna; Bubar, Patrice; Bupp, Margaret; Burns, Stephen; Chairman Temp; Clark, Lisa; Coggins, Angela; Cordes, John; Crawford, Carrie; Davis, Roger; Fopma, Melody; Franovich, Mike; Gibbs, Catina; Hackett, Edwin; Hart, Ken; Harves, Carolyn; Henderson, Karen; Herr, Linda; Hipschman, Thomas; Hudson, Sharon; Joosten, Sandy; KLS Temp; Kock, Andrea; Laufer, Richard; Lepre, Janet; Loyd, Susan; Mamish, Nader; Marshall, Michael; Monninger, John; Moore, Scott; Orders, William; Pace, Patti; Poole, Brooke; Reddick, Darani; RidsEdoDraftSrmVote Resource; Rothschild, Trip; Savoy, Carmel; Sharkey, Jeffery; Shea, Pamela; Snodderly, Michael; Sosa, Belkys; Speiser, Herald; Svinicki, Kristine; Temp, GEA; Temp, WCO; Temp, WDM; Thoma, John; Vietti-Cook, Annette; Warren, Roberta; Zorn, Jason; Tadesse, Rebecca; Joosten, Sandy; Montes, David; Dhir, Neha; Adler, James; Jimenez, Patricia; Muessle, Mary; Nieh, Ho; Ostendorff, William; Warnick, Greg; Apostolakis, George; Sexton, Kimberly; Lui, Christiana  
**Cc:** Wright, Darlene  
**Subject:** RE: DRAFT SRM - SECY-10-0137 - Proposed Rule: Requirements for Access Authorization and Physical Protection During Nuclear Power Plant Construction (RIN 3150-A165)

The Chairman's office requests an extension until COB March 18, 2011.

Laura Pearson  
Acting Policy Advisor for Security and Int'l Programs  
Office of the Chairman  
U.S. NRC  
(301) 415-8044

(b)(6) (C)

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**From:** Lewis, Antoinette  
**Sent:** Friday, March 11, 2011 4:27 PM  
**To:** Baggett, Steven; Bates, Andrew; Batkin, Joshua; Baval, Rochelle; Blake, Kathleen; Bozin, Sunny; Bradford, Anna; Bubar, Patrice; Bupp, Margaret; Burns, Stephen; Chairman Temp; Clark, Lisa; Coggins, Angela; Cordes, John; Crawford,

; Carrie; Davis, Roger; Fopma, Melody; Franovich, Mike; Gibbs, Catina; Hackett, Edwin; Hart, Ken; Harves, Carolyn; Henderson, Karen; Herr, Linda; Hipschman, Thomas; Hudson, Sharon; Joosten, Sandy; KLS Temp; Kock, Andrea; Laufer, Richard; Lepre, Janet; Loyd, Susan; Mamish, Nader; Marshall, Michael; Monninger, John; Moore, Scott; Orders, William; Pace, Patti; Poole, Brooke; Reddick, Darani; RidsEdoDraftSrmVote Resource; Rothschild, Trip; Savoy, Carmel; Sharkey, Jeffry; Shea, Pamela; Snodderly, Michael; Sosa, Belkys; Speiser, Herald; Svinicki, Kristine; Temp, GEA; Temp, WCO; Temp, WDM; Thoma, John; Vietti-Cook, Annette; Warren, Roberta; Zorn, Jason; Tadesse, Rebecca; Joosten, Sandy; Castleman, Patrick; Montes, David; Dhir, Neha; Adler, James; Jimenez, Patricia; Muesse, Mary; Nieh, Ho; Ostendorff, William; Warnick, Greg; Apostolakis, George; Sexton, Kimberly; Pearson, Laura; Lui, Christiana

**Cc:** Wright, Darlene; Lewis, Antoinette

**Subject:** DRAFT SRM - SECY-10-0137 - Proposed Rule: Requirements for Access Authorization and Physical Protection During Nuclear Power Plant Construction (RIN 3150-A165)

The attached file contains a draft SRM which is being circulated for the normal 3-day period for Commission review. As provided in the Internal Commission Procedures, the staff is "...afforded an opportunity to review the SRM to ensure that the Commission decision is clear and understandable and that resource, scheduler, and legal constraints are properly considered." Please provide any responses to Ken Hart (KRH), Richard Laufer (RJL), Rochelle Baval (RCB5), and Pam Shea (PWS).

**McKelvey, Harold**

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**From:** Uselding, Lara  
**Sent:** Wednesday, March 16, 2011 1:39 PM  
**To:** Baratta, Anthony  
**Cc:** Collins, Elmo; Howell, Art  
**Subject:** RE: Judge, NRC OPA Lara here...some helpful talkers for today

Very good, I truly appreciate your support. You have huge vote of confidence here from both Elmo and Art. They say you are a pro!

**Lara Uselding**  
U.S. Nuclear Regulatory Commission (NRC)  
Public Affairs - Region IV

Lara.Uselding@nrc.gov  
BlackBerry (b)(6)  
Office: 817-276-6519

For more information visit [www.nrc.gov](http://www.nrc.gov)

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**From:** Baratta, Anthony  
**Sent:** Wednesday, March 16, 2011 1:10 PM  
**To:** Uselding, Lara  
**Subject:** Re: Judge, NRC OPA Lara here...some helpful talkers for today

No, nothing needed. They understand exactly what we can talk about.  
Sent from NRC BlackBerry

(b)(6)

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**From:** Uselding, Lara  
**To:** Baratta, Anthony  
**Sent:** Wed Mar 16 14:08:43 2011  
**Subject:** RE: Judge, NRC OPA Lara here...some helpful talkers for today

Yes, you doing o.k.? I can take calls if you need me to. I just did a Texas Public Radio interview. Helpful for you to know and say that this meeting was scheduled in advance of Japan – there is not a connection.

For NRC take on situation, have reporters call me.

let me know if you need help in the form of talking points!!

**Lara Uselding**  
U.S. Nuclear Regulatory Commission (NRC)  
Public Affairs - Region IV

Lara.Uselding@nrc.gov  
BlackBerry (b)(6)  
Office: 817-276-6519

For more information visit [www.nrc.gov](http://www.nrc.gov)

**From:** Baratta, Anthony  
**Sent:** Wednesday, March 16, 2011 1:02 PM  
**To:** Uselding, Lara  
**Subject:** Re: Judge, NRC OPA Lara here...some helpful talkers for today

Did short interview. If you can, you probably should be here as we have 6 cameras and live feed.

Sent from NRC BlackBerry

(b)(6)

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**From:** Uselding, Lara  
**To:** Baratta, Anthony  
**Cc:** Hove, Ann; Prange, Ashley; Burnell, Scott  
**Sent:** Wed Mar 16 10:26:13 2011  
**Subject:** Judge, NRC OPA Lara here...some helpful talkers for today

In addition to what you feel comfortable with in the way of discussing the process as we discussed the other night, maybe you could share with any press people who ask:

We are admin law specialists, not technical experts.  
We have no information regarding the situation in Japan.

Then direct them to me at cell (b)(6) and/or email [lara.uselding@nrc.gov](mailto:lara.uselding@nrc.gov)

Lara Uselding  
U.S. Nuclear Regulatory Commission (NRC)  
Public Affairs - Region IV

[Lara.Uselding@nrc.gov](mailto:Lara.Uselding@nrc.gov)  
BlackBerry (b)(6)  
Office: 817-276-6519

For more information visit [www.nrc.gov](http://www.nrc.gov)

**McKelvey, Harold**

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**From:** Dean, Bill  
**Sent:** Wednesday, March 16, 2011 9:26 PM  
**To:** Leeds, Eric; Collins, Elmo; Satorius, Mark; McCree, Victor  
**Cc:** Virgilio, Martin; Weber, Michael  
**Subject:** RE: Event Response - Communications and Qs&As

outstanding!!!

---

**From:** Leeds, Eric  
**Sent:** Wednesday, March 16, 2011 6:01 PM  
**To:** Collins, Elmo; Satorius, Mark; McCree, Victor; Dean, Bill  
**Cc:** Virgilio, Martin; Weber, Michael  
**Subject:** FYI: Event Response - Communications and Qs&As

See below – we've upped our ante and are doing our best to support the regions.

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

**From:** Nelson, Robert  
**Sent:** Wednesday, March 16, 2011 3:13 PM  
**To:** Lew, David; Wert, Leonard; Pederson, Cynthia; Howell, Arthur  
**Cc:** Gitter, Joseph; Leeds, Eric; Boger, Bruce; Ruland, William; Meighan, Sean; Nguyen, Quynh; Thomas, Eric; Thorp, John  
**Subject:** Event Response - Communications and Qs&As

I've been assigned as the NRR Communications Coordinator for matters dealing with our response to the events in Japan.

1. I understand that you were recently sent the Chairman's Qs&As. I understand that EOC meetings are beginning next week and the regional staff need to be prepared for stakeholder questions that will arise regarding the events & our plants. Are these Qs&As sufficient? If not, what additional areas do you want addressed?
2. Please identify a POC in your region that my team & I can coordinate with on communications issues.
3. I understand that a concern was raised about the Ops Center contacting a family member and that a protocol is needed for such contact. I'm working on it.
4. We will likely formulate a "tiger team" to prepare responses to written inquiries. I'll keep you advised.
5. Communications with the regions, particularly those requesting information regarding specific plants, should be coordinated thru my team. If you have concerns in this regard, please contact me.

R.A. Nelson

Robert A. Nelson  
Deputy Director  
Division of Operating Reactor Licensing

Office of Nuclear Reactor Regulation

[cid:image001.png@01CBE3EC.AED8EC70]

• E-mail: [robert.nelson@nrc.gov](mailto:robert.nelson@nrc.gov) <<mailto:robert.nelson@nrc.gov>> | • Office: (301) 415-1453 | ( Cell:

(b)(6)

7 Fax: (301) 415-2102]

(b)(6)

**Owen, Lucy**

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**From:** Cohen, Shari  
**Sent:** Wednesday, March 16, 2011 8:55 AM  
**To:** Schwarz, Sherry; Dean, Bill; Lew, David; Roberts, Darrell; Wilson, Peter; McCree, Victor; Wert, Leonard; Casto, Chuck; Croteau, Rick; Munday, Joel; Satorius, Mark; Pederson, Cynthia; West, Steven; Reynolds, Steven; Collins, Elmo; Howell, Art; Kennedy, Kriss; Vogel, Anton  
**Cc:** Leeds, Eric  
**Subject:** 11:00 a.m. (EST) Telcon w/ Regions Re: Japan (phone: 888-469-2155/Passcode (b)(6))

Mr. Eric Leeds has requested a teleconference with the regions. He wants to update you and ask for your support – teleconference information below:

Phone: 888-469-2155

Pass code: (b)(6)

Headquarters:

Eric Leeds

Please forward to appropriate AA and DAAs(actors or delegation of authority):

Region 1: Bill Dean, David Lew, Darrell Roberts, Peter Wilson

Region 2: Victor McCree, Len Wert, Chuck Casto, Richard Croteau, Joel Munday

Region 3: Mark Satorius, Cindy Pederson, Steve West, Steve Reynolds

Region 4: Elmo Collins, Art Howell, Kriss Kennedy, Anton Vogel

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](mailto:shari.cohen@nrc.gov)

11/17/48



L

**From:** Nguyen, Quynh *DRK*  
**To:** Ruland, William  
**Cc:** Titus, Brett  
**Subject:** FW: Congressional Query: FW: This was in media last night related to very bad Japan scenario now in play  
**Date:** Wednesday, March 16, 2011 11:53:30 AM

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Brett is working this.

**From:** Wittick, Brian *LOD*  
**Sent:** Wednesday, March 16, 2011 10:24 AM  
**To:** Meighan, Sean; Nguyen, Quynh  
**Cc:** Decker, David  
**Subject:** HOT: Congressional Query: FW: This was in media last night related to very bad Japan scenario now in play

Request answer to the below question. Please note the assertion by a Nuclear Engineer in the article that spent fuel in a SFP can overheat, melt and form a critical mass such that it may explode. It would be best if we could respond with an answer that characterizes the possible scenario of fuel melt in a SFP and the type of energetic force that could result.

Thanks

Brian Wittick  
Executive Technical Assistant for Reactors  
Office of the Executive Director for Operations  
U.S. Nuclear Regulatory Commission  
301-415-2496 (w); (b)(6) c) *efl*

**From:** Decker, David *OCA*  
**Sent:** Wednesday, March 16, 2011 9:45 AM  
**To:** Wittick, Brian  
**Cc:** Weil, Jenny; Dacus, Eugene; Riley (OCA), Timothy; Powell, Amy  
**Subject:** FW: This was in media last night related to very bad Japan scenario now in play

Brian,  
Here's one more question that came in that we'd appreciate your help in getting to the right staff to answer. Thanks!

David

**From:** Beck, Chris [mailto:Chris.Beck@mail.house.gov]  
**Sent:** Tuesday, March 15, 2011 11:56 AM  
**To:** Decker, David  
**Subject:** Re: This was in media last night related to very bad Japan scenario now in play

Thanks David. Main question is can spent fuel rods (or even fresh fuel rods) create a nuclear fission explosion. - cb

On 3/15/11 11:50 AM, "Decker, David" <[David.Decker@nrc.gov](mailto:David.Decker@nrc.gov)> wrote:

*447/49*

Chris,

Let me see if I can get someone to check this out. I hadn't seen the article, and in general, we haven't been commenting too much on news articles since it's hard to know exactly what's happening.

David

From: Beck, Chris [mailto:Chris.Beck@mail.house.gov]

Sent: Tuesday, March 15, 2011 11:39 AM

To: Decker, David

Subject: FW: This was in media last night related to very bad Japan scenario now in play

Hi David,

Does NRC think this story is accurate? Could spent fuel rods create a fission reaction? I am surprised by this, since I thought fuel rods in the US or Japan use low-enriched uranium, which will not result in a fission explosion. Please advise. - cb

Fission Criticality In Cooling Ponds Threaten Explosion At Fukushima

<<http://www.dcbureau.org/201103141303/Natural-Resources-News-Service/fission-criticality-in-cooling-ponds-threaten-explosion-at-fukushima.html>>

<<http://www.dcbureau.org/201103141303/Natural-Resources-News-Service/fission-criticality-in-cooling-ponds-threaten-explosion-at-fukushima/Print.html>>

Monday, 14 March 2011

Written by Joseph Trento <<http://www.dcbureau.org/Staff/joe.html>>

*Photo: U.S. Navy*

The threat of a fission explosion at the Fukushima power facility emerged today when the roof of the number three reactor exploded and fears that a spent fuel pool, located over the reactor, has been compromised. The pool, designed to allow reactor fuel to cool off for several years, was constructed on top of the Fukushima reactors instead of underground. As of 2010, there were 3450 fuel assemblies in the pool at the number three reactor. The destruction of the number three reactor building has experts concerned about whether the spent fuel storage pool, which sits just below the roof, could have survived intact the hydrogen explosion. The explosion was much more severe than Saturday's blast at the number one reactor.

As massive amounts of seawater are pumped by fire trucks into Fukushima's failing nuclear reactors and cooling ponds, the radioactive waste water, now laden with a variety of radioisotopes, is being flushed into the sea.

Just how much danger the spent fuel pool raises is made clear in a November 2010 powerpoint presentation from the Tokyo Electric Company detailing how fuel storage works at the huge complex <[http://www.nirs.org/reactorwatch/accidents/6-1\\_powerpoint.pdf](http://www.nirs.org/reactorwatch/accidents/6-1_powerpoint.pdf)> .

The fuel inventory in the pool is detailed on page 9. According to TEPCO, each reactor generates 700 "waste" fuel assemblies a year, and there are 3450 assemblies in each pool at the Fukushima Daiichi

plant, plus another 6,291 in a common pool in a separate building.

As shown in slide 10, the common pool building sits at ground level, with the pool itself above ground. The building also has windows on at least one side, and experts fear these were broken out by the tsunami which would have flooded the building.

According to Albert Donnay, a former nuclear engineer, "This means the common pool is now full of radioactive and corrosive seawater that will cause the fuel assemblies to fail and burst open, as they are doing inside the reactor cores that have been deliberately flooded with seawater. If the pool drains or boils away, the fuel will melt, burn and even possibly explode if the fuel collapses into a sufficiently critical mass."

This may explain why the Japanese government began adding boric acid to the reactor spent fuel pools at the facility shortly after the earthquake and tidal wave.

The Japanese government has not explained why it is adding boric acid and if the acid is being used to prevent criticality in the reactor or in the spent fuel pool. A spokesman for the Embassy of Japan, in Washington, D.C., said the boric acid was being only added as a "precautionary measure," but said the Embassy did not know why. Because the GE reactor's control rods are made of boron, and they were automatically inserted when the earthquake struck to end fission in the reactor, there should have been no need for additional boric acid. But if fuel rods had been compromised and the damaged fuel bundles were not properly separated, they can become critical and boric acid could be used to help prevent a far more serious meltdown in the spent fuel pools.

When the power was lost at the site, the cooling system for the pools would have run out of water in about a day. The water in these pools would heat up and evaporate to the point where the tops of the fuel bundles would be exposed about 24 hours after the cooling system shut down.

Experts fear the explosion rained debris into the pool that stopped natural cooling of the fuel bundles or knocked the bundles together, damaging them, sending the irradiated fuel chunks to the bottom of the pool where they could reach critical mass. "They got a one-two punch," said David Lochbaum, nuclear safety engineer of the Union of Concerned Scientists and a consultant to both industry and the Nuclear Regulatory Commission. Lochbaum told Roger Witherspoon on [newjerseynewsroom.com](http://newjerseynewsroom.com), "If it had just been the earthquake, or just the tsunami, we wouldn't even be talking about this. But the combination of nature was more than they could handle. It doesn't seem that they have lost control yet. But they have definitely run out of options."

"If those solutions – the sea water and the boric acid – don't work, there are no more arrows in the quiver. They have shot everything they have, they have run out of options and there is nothing left."

#### *Fukushima nuclear power plant after the earthquake.*

The problem for the Tokyo Electric Company engineers is water containing boric acid has to circulate in the pools to keep the bundles from going critical.

Both United States and Japanese governments have for decades allowed re-racking of the pools to reduce the originally-designed minimum safe distance between the assemblies so that more rods can be stored in each pool. Utilities complained they were running out of storage space on site at the reactors. The problem is if the spent fuel gets too close, they will produce a fission reaction and explode with a force much larger than any fission bomb given the total amount of fuel on the site. All the fuel in all the reactors and all the storage pools at this site (1760 tons of Uranium per slide #4) would be consumed in such a mega-explosion. In comparison, Fat Man and Little Boy weapons dropped on Hiroshima and

Nagasaki contained less than a hundred pounds each of fissile material.

According to Donnay, "Several cores worth of spent fuel are usually stored in these pools until they are cool enough to transfer into dry cask storage. In comparison, the reactor itself contains only one core, and its total radioactivity is less than that in each spent core."

Nuclear Information Resource Service led a coalition of groups that petitioned the US Nuclear Regulatory Commission in 2005 requesting emergency enforcement action on the vulnerability of the Mark I and II elevated nuclear waste storage pool. The coalition's petition to the NRC was denied.

Another worry for engineers is that in 2009 plutonium-based mixed oxide fuel produced by the huge French nuclear power company AREVA was loaded into reactor number three.

Correspondent Celia Sampol spoke to AREVA and the company spokesman said AREVA will not make a specific statement on the issue or on the possible losses for its activities in Japan because "today the priority is for the Japanese authorities to save people and help victims". AREVA's employees in Japan were contacted on Friday, all are safe and some of them left Japan. Anne Lauvergeon "will talk about that in France soon".

Nathalie Bonnefoy, from the MELOX Division of AREVA La Hague, France, said, "Today, the type of fuel used in the reactor is absolutely not involved in the problems at the Fukushima facility...It's not a matter of the MOX fuel exploding; the problem is if you have a loss of cooling, you have a risk of fusion and the hydrogen released could generate difficulties in contact with air, but it is independent from the type of combustible used."

"In this site, all the MOX fuel has been already loaded in the reactor (it started in October 2010)," no MOX fuel is stored on site here. On others sites, a part of the MOX fuel is stored on site (every 18 months you have to renew one third of the MOX fuel because it has lost efficiency). According to Bonnefoy, four reactors in Japan are burning MOX fuel fabricated by AREVA; the first loading took place in December 2009; AREVA signed contracts with eight (out of eleven) Japanese electric companies to supply MOX fuel, but the French group has no reactors of its own in Japan. The company does have about 100 employees in Japan.

According to NIRS (Nuclear Information Resource Service) at <http://www.nirs.org/factsheets/brownsferryfactsheet.pdf> In <http://www.nirs.org/factsheets/brownsferryfactsheet.pdf%22In> the GE Mark I design, the irradiated fuel pool, containing billions of curies of high-level atomic waste, sits atop the reactor building, outside primary containment and vulnerable to attack, according to both NRC documents (2001) and the National Academy of Sciences (2005)."

*Cutaway drawing of a typical Boiling water reactor (BWR) Mark I Concrete Containment with Steel Torus (suppression pool), as used in the BWR/1, BWR/2, BWR/3 and some BWR/4 model reactors. Photo: Sandia National Laboratories*

The same diagram appears in the Sunday New York Times, pA11, with the uppermost rectangular chamber just to the left of the reactor top identified as the spent fuel storage pool, but the accompanying article does not discuss it.

Donnay said, "If these pools are breached (as could have happened in the explosions, Fukushima #3 looks worse than #1) and can no longer hold water, the spent fuel racked inside them will start to overheat, and eventually melt and burn. And since there is no longer any roof above these pools in reactors 1 and 3, all the radioactivity they contain is directly open to the atmosphere."

According to a Defense Department source, the cesium detected in the atmosphere around the plant could be coming from the spent fuel pools.

According to Donnay, there is an additional danger from used fuel being stored in casks: "I'm also worried about the dry cask storage pods that were on the site before the tsunami.

Full casks are very heavy and probably would not be carried away by the flood, but some were probably not full. Any that were only partially filled with spent fuel would have air locked into the unfilled chambers, making them able to float in water. Did the tsunami carry any of these casks away? Are they all still onsite? Before and after satellite photos should be able to show this clearly, but Google Earth is not showing after photos of the Fukushima plant.

John Kappenman

Storm Analysis Consultants

Phone: 218-727-2666

Cell: (b)(6)

Fax: 218-727-2728

email: (b)(6)

(b)(6)

web downloadable pdf articles:

Geomagnetic Storms - Space Weather and Electric Power Grid Impacts -

[http://my.pogoplug.com/share/G4CdFCw3zGHXM1MIZli\\_BA/](http://my.pogoplug.com/share/G4CdFCw3zGHXM1MIZli_BA/)

Electron Tube Technology for Power Electronics, HVDC and FACTS Applications -

<http://my.pogoplug.com/share/al0GLIFPg08FPUhvEWBcaA/>

Breaker Blanket Cold Weather Protection -

<http://my.pogoplug.com/share/GTd8l3dOLm0aS2dfASOZOA/>

----- End of Forwarded Message

## McKelvey, Harold

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**From:** Collins, Elmo  
**Sent:** Wednesday, March 16, 2011 8:58 AM  
**To:** Owen, Lucy  
**Subject:** FW: 11:00 a.m. (EST) Telcon w/ Regions Re:Japan (phone: 888-469-2155/Passcode (b)(6))

---

**From:** Cohen, Shari  
**Sent:** Wednesday, March 16, 2011 8:55 AM  
**To:** Schwarz, Sherry; Dean, Bill; Lew, David; Roberts, Darrell; Wilson, Peter; McCree, Victor; Wert, Leonard; Casto, Chuck; Croteau, Rick; Munday, Joel; Satorius, Mark; Pederson, Cynthia; West, Steven; Reynolds, Steven; Collins, Elmo; Howell, Art; Kennedy, Kriss; Vogel, Anton  
**Cc:** Leeds, Eric  
**Subject:** 11:00 a.m. (EST) Telcon w/ Regions Re:Japan (phone: 888-469-2155/Passcode (b)(6))

Mr. Eric Leeds has requested a teleconference with the regions. He wants to update you and ask for your support – teleconference information below:

Phone: 888-469-2155

Pass code: (b)(6)

Headquarters:

Eric Leeds

Please forward to appropriate AA and DAAs(actors or delegation of authority):

Region 1: Bill Dean, David Lew, Darrell Roberts, Peter Wilson

Region 2: Victor McCree, Len Wert, Chuck Casto, Richard Croteau, Joel Munday

Region 3: Mark Satorius, Cindy Pederson, Steve West, Steve Reynolds

Region 4: Elmo Collins, Art Howell, Kriss Kennedy, Anton Vogel

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](mailto:shari.cohen@nrc.gov)

**McKelvey, Harold**

---

**From:** McCree, Victor  
**Sent:** Wednesday, March 16, 2011 5:31 PM  
**To:** Leeds, Eric; Collins, Elmo; Satorius, Mark; Dean, Bill  
**Cc:** Virgilio, Martin; Weber, Michael  
**Subject:** Re: FYI: Event Response - Communications and Qs&As

Thanks Eric - we appreciate your support.

Vic

This email is being sent from an NRC Blackberry device.

---

**From:** Leeds, Eric  
**To:** Collins, Elmo; Satorius, Mark; McCree, Victor; Dean, Bill  
**Cc:** Virgilio, Martin; Weber, Michael  
**Sent:** Wed Mar 16 18:01:24 2011  
**Subject:** FYI: Event Response - Communications and Qs&As

See below – we've upped our ante and are doing our best to support the regions.

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

---

**From:** Nelson, Robert  
**Sent:** Wednesday, March 16, 2011 3:13 PM  
**To:** Lew, David; Wert, Leonard; Pederson, Cynthia; Howell, Arthur  
**Cc:** Giitter, Joseph; Leeds, Eric; Boger, Bruce; Ruland, William; Meighan, Sean; Nguyen, Quynh; Thomas, Eric; Thorp, John  
**Subject:** Event Response - Communications and Qs&As

I've been assigned as the NRR Communications Coordinator for matters dealing with our response to the events in Japan.

1. I understand that you were recently sent the Chairman's Qs&As. I understand that EOC meetings are beginning next week and the regional staff need to be prepared for stakeholder questions that will arise regarding the events & our plants. Are these Qs&As sufficient? If not, what additional areas do you want addressed?
2. Please identify a POC in your region that my team & I can coordinate with on communications issues.
3. I understand that a concern was raised about the Ops Center contacting a family member and that a protocol is needed for such contact. I'm working on it.
4. We will likely formulate a "tiger team" to prepare responses to written inquiries. I'll keep you advised.
5. Communications with the regions, particularly those requesting information regarding specific plants, should be coordinated thru my team. If you have concerns in this regard, please contact me.

*R. A. Nelson*

Robert A. Nelson  
Deputy Director  
Division of Operating Reactor Licensing

Office of Nuclear Reactor Regulation



☒ E-mail: [robert.nelson@nrc.gov](mailto:robert.nelson@nrc.gov) | ☎ Office: (301) 415-1453 | 📱 Cell: (b)(6) ☎ Fax: (301) 415-2102



**From:** Kenagy, W David  
**To:** Kenagy, W David; McClelland, Vince; Rodriguez, Veronica; Heinrich, Ann; HOO Hoc; HOO2 Hoc; Huffman, William; DeCair, Sara@epamail.epa.gov; timothy.greten@dhs.gov; Maria.Marinissen@hhs.gov; (b)(6); doeheoc@oem.doe.gov; hhs.soc@hhs.gov; James.Kish@dhs.gov; HOO Hoc; Smith, Brooke; Zubarev, Jill E; Shaffer, Mark R; NITOPS@nnsa.doe.gov  
**Subject:** RE: IAEA Distributed Document plus link to PM website  
**Date:** Wednesday, March 16, 2011 12:07:47 PM  
**Attachments:** METI Press Release 26 in Japanese[1].pdf

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Link to Japanese Prime Minister's web site  
<http://www.kantei.go.jp/foreign/index-e.html>

This email is UNCLASSIFIED.

**From:** Kenagy, W David  
**Sent:** Wednesday, March 16, 2011 9:19 AM  
**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; 'DeCair, Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6); 'doehqec@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'; Zubarev, Jill E; Shaffer, Mark R  
**Subject:** RE: IAEA Distributed Documents

**From:** Kenagy, W David  
**Sent:** Tuesday, March 15, 2011 2:59 PM  
**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; 'DeCair, Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6); 'doehqec@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'; Zubarev, Jill E; Shaffer, Mark R  
**Subject:** RE: IAEA Distributed Document

This email is UNCLASSIFIED.

**From:** Kenagy, W David  
**Sent:** Tuesday, March 15, 2011 11:56 AM  
**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; 'DeCair, Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6); 'doehqec@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'; Zubarev, Jill E; Shaffer, Mark R  
**Subject:** RE: IAEA Distributed Plum Model

44/52

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**From:** Kenagy, W David  
**Sent:** Tuesday, March 15, 2011 10:33 AM  
**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6) 'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'; Zubarev, Jill E; Shaffer, Mark R  
**Subject:** IAEA Distributed Plum Model

This email is UNCLASSIFIED.

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**From:** Kenagy, W David  
**Sent:** Tuesday, March 15, 2011 10:27 AM  
**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6) 'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'; Zubarev, Jill E; Shaffer, Mark R  
**Subject:** IAEA Documents plus spreadsheet from JAIF

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---

**From:** Kenagy, W David  
**Sent:** Monday, March 14, 2011 6:02 PM  
**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6) 'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'; Zubarev, Jill E; Shaffer, Mark R  
**Subject:** RE: Notes from IAEA Press Briefing

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**From:** Kenagy, W David  
**Sent:** Monday, March 14, 2011 12:00 PM

**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6) 'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'; Zubarev, Jill E; Shaffer, Mark R  
**Subject:** RE: IAEA Documents

This email is UNCLASSIFIED.

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**From:** Kenagy, W David  
**Sent:** Monday, March 14, 2011 9:03 AM  
**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; Shaffer, Mark A; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6) 'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'; Zubarev, Jill E  
**Subject:** RE: IAEA Documents

reports

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**From:** Kenagy, W David  
**Sent:** Monday, March 14, 2011 8:49 AM  
**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; Shaffer, Mark A; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6) 'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'; Zubarev, Jill E  
**Subject:** RE: IAEA Documents

The attached reports from the IAEA include data from METI (in Japanese)

This email is UNCLASSIFIED.

---

**From:** Kenagy, W David  
**Sent:** Sunday, March 13, 2011 4:12 PM  
**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; Shaffer, Mark A; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6) 'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'; Zubarev, Jill E  
**Subject:** RE: IAEA Documents

The attached reports from the IAEA include data from METI (in Japanese)

---

**From:** Kenagy, W David  
**Sent:** Sunday, March 13, 2011 10:35 AM  
**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; Shaffer, Mark A; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6)  
'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'; Zubarev, Jill E  
**Subject:** RE: IAEA Documents

More IAEA distributed documents

---

**From:** Kenagy, W David  
**Sent:** Saturday, March 12, 2011 5:25 PM  
**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; Shaffer, Mark A; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6)  
'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'; Zubarev, Jill E  
**Subject:** RE: IAEA Documents

More IAEA distributed documents

---

**From:** Kenagy, W David  
**Sent:** Saturday, March 12, 2011 12:02 PM  
**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; Shaffer, Mark A; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6)  
'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'  
**Subject:** RE: IAEA Document RSMC Obinsk plume model

Below (and attached) is advice from the DOE office director for international radiological emergency response assistance.

David Kenagy

We have had some problems in the past with plume models produced by FEERC of Roshydromet. An example is during the Mexican CONVEX exercise, FEERC plume prediction went in a different direction whereas the NARAC and Japanese WSPPED1 plume predictions were compatible. I would recommend that someone request the IAEA IEC to request a plume prediction from JAEA WSPPED1. We have also been running plume models using the NARAC system and the HQ EOC has information on this

thanks  
Vince

SBU  
This email is UNCLASSIFIED.

**From:** Kenagy, W David

**Sent:** Saturday, March 12, 2011 12:44 PM

**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; Shaffer, Mark A; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov' (b)(6); 'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'

**Subject:** RE: IAEA Document RSMC Obinsk plume model

Correction in the subject of the previous distribution

David Kenagy commentary

Because there is reported to be a confirmed discharge from Fukushima I, regardless of whether it turns out to be a significant discharge or not something that may well begin to happen is that various government and nongovernment agencies around the world are going to start producing and distributing plume models. This is a map that describes where the radiation "plume" is going to travel. There will probably be a lot of variation in these maps and sometimes it takes some amount of experience to understand them. If there is a need to draw some conclusion about the plume I suggest that you rely exclusively on NRC and DOE.

Distribution of IAEA document:

The attached plume model is the first to be distributed by the IAEA.

The Federal Environmental Emergency Response Centre of Roshydromet (FEERC of Roshydromet) is designated by the WMO as the Obninsk Regional Specialized Meteorological Centre (RSMC) for the provision of atmospheric transport modelling in case of an environmental Emergency Response. The region of responsibility is WMO Regional Association (RA) II, which encompasses Asia. RSMC Obninsk performs its functions jointly with RSMC Tokyo and RSMC Beijing in WMO RA II.

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This email is UNCLASSIFIED.

**From:** Kenagy, W David

**Sent:** Saturday, March 12, 2011 11:35 AM

**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; Shaffer, Mark A; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6); 'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'

**Subject:** IAEA notification of Japan's report on borated seawater injection

For info:

This email is UNCLASSIFIED.

**From:** Kenagy, W David

**Sent:** Saturday, March 12, 2011 10:27 AM

**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; Shaffer, Mark A; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6); 'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; 'hoo.hoc@nrc.gov'; 'Brooke.Smith@nrc.gov'

**Subject:** RE: IAEA notification of Japan's latest News report

For info

This email is UNCLASSIFIED.

**From:** Kenagy, W David

**Sent:** Saturday, March 12, 2011 5:41 AM

**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; Shaffer, Mark A; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6); 'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; Kang, Eliot

**Subject:** IAEA notification of Japan's report of explosion at Fukushima

This email is UNCLASSIFIED.

**From:** Kenagy, W David

**Sent:** Friday, March 11, 2011 9:49 PM

**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; Shaffer, Mark A; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6); 'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; ISN-NESS-DL; Kang, Eliot

**Subject:** RE: IAEA Status of Fukushima NPP

**From:** Kenagy, W David

**Sent:** Friday, March 11, 2011 2:21 PM

**To:** Kenagy, W David; 'McClelland, Vince'; 'Rodriguez, Veronica'; 'Heinrich, Ann'; 'Hoo1@nrc.gov'; 'Hoo2@nrc.gov'; 'wch@nrc.gov'; Shaffer, Mark A; 'DeCair.Sara@epamail.epa.gov'; 'timothy.greten@dhs.gov'; 'Maria.Marinissen@hhs.gov'; (b)(6)

'doehqeoc@oem.doe.gov'; 'hhs.soc@hhs.gov'; 'James.Kish@dhs.gov'; ISN-NESS-DL; Kang, Eliot

**Subject:** RE: IAEA Status of Fukushima NPP

This email is UNCLASSIFIED.

**From:** Simpson, Matthew D.  
**To:** HOO Hoc; PMT02 Hoc; PMT01 Hoc; CMHT@nnsa.doe.gov; nitops@nnsa.doe.gov; alan.remick@nnsa.doe.gov;  
(b)(6)  
**Cc:** narac@lnl.gov  
**Subject:** Update of forecast wind conditions for Fukushima Daiichi 1  
**Date:** Wednesday, March 16, 2011 11:26:54 PM  
**Attachments:** WRF Fukushima NPP Forecast 2011-03-16 18Z 5km.xlsx

---

Please find attached a spreadsheet containing the latest forecast wind conditions at the Fukushima Power Plant.

The forecast time series is derived from the latest NARAC WRF simulation with 5 km horizontal grid spacing.

Matthew Simpson  
NARAC Atmospheric Scientist

HH/53



Forecast Model: WRF

Horizontal Grid Spacing: 5 km

Vertical Levels: 44

Forecast Location: Fukushima NPP, Japan

Data Produced by Matthew Simpson (NARAC, 925 / 422-7627)

YEAR	MO	DY	HR	WSP	WDR	CLASS	RAIN
----	--	--	UTC	m/s	---	----	in/hr
2011	3	17	3	8.4	331	C	0
2011	3	17	4	9.1	320	C	0
2011	3	17	5	11.5	312	C	0
2011	3	17	6	10.9	302	C	0
2011	3	17	7	9	305	C	0
2011	3	17	8	8.7	305	D	0
2011	3	17	9	8.5	298	D	0
2011	3	17	10	7.9	295	D	0
2011	3	17	11	7.3	295	D	0
2011	3	17	12	8.4	302	D	0
2011	3	17	13	8	310	D	0
2011	3	17	14	6	308	D	0
2011	3	17	15	4.7	318	D	0
2011	3	17	16	4.8	313	D	0
2011	3	17	17	4.9	319	D	0
2011	3	17	18	7.2	318	D	0
2011	3	17	19	9.3	313	D	0
2011	3	17	20	8.6	312	D	0
2011	3	17	21	6.7	320	D	0
2011	3	17	22	6	338	C	0
2011	3	17	23	6.2	346	C	0
2011	3	18	0	6.2	341	C	0
2011	3	18	1	6.1	331	C	0
2011	3	18	2	6.8	324	C	0
2011	3	18	3	6.1	328	C	0
2011	3	18	4	3.3	292	C	0
2011	3	18	5	2.9	253	C	0
2011	3	18	6	1.7	266	B	0
2011	3	18	7	4.8	289	C	0
2011	3	18	8	7.2	275	D	0
2011	3	18	9	7.7	273	D	0
2011	3	18	10	8.1	278	D	0
2011	3	18	11	7.8	274	D	0
2011	3	18	12	5.5	235	D	0
2011	3	18	13	9.6	268	D	0
2011	3	18	14	6.2	258	D	0
2011	3	18	15	4.1	250	E	0
2011	3	18	16	5.4	251	D	0

2011	3	18	17	6.9	250	D	0
2011	3	18	18	7.4	248	D	0

**From:** Simpson, Matthew D.  
**To:** HOO Hoc; PMT02 Hoc; PMT01 Hoc; CMHT@nnsa.doe.gov; nltops@nnsa.doe.gov; alan.remick@nnsa.doe.gov;  
(b)(6)  
**Cc:** narac@linl.gov  
**Subject:** Update of forecast wind conditions for Fukushima Daiichi 1  
**Date:** Wednesday, March 16, 2011 7:46:14 PM  
**Attachments:** WRF\_Fukushima\_NPP\_Forecast\_2011-03-16\_12Z\_5km.xlsx

---

Please find attached a spreadsheet containing the latest forecast wind conditions at the Fukushima Power Plant.

The forecast time series is derived from the latest NARAC WRF simulation with 5 km horizontal grid spacing.

Matthew Simpson  
NARAC Atmospheric Scientist

44/54

YEAR	MO	DY	HR	WSP	WDR	CLASS	RAIN
----	--	--	UTC	m/s	---	----	in/hr
2011	3	16	23	5.4	324	C	0
2011	3	17	0	7.4	325	C	0
2011	3	17	1	8.1	309	C	0
2011	3	17	2	8.3	323	C	0
2011	3	17	3	11.3	307	C	0
2011	3	17	4	11.4	299	C	0
2011	3	17	5	12.1	310	C	0
2011	3	17	6	10.6	305	C	0
2011	3	17	7	9.1	310	D	0
2011	3	17	8	7.7	297	D	0
2011	3	17	9	8.5	299	D	0
2011	3	17	10	8.4	303	D	0
2011	3	17	11	7.9	305	D	0
2011	3	17	12	9.1	306	D	0
2011	3	17	13	8	315	D	0
2011	3	17	14	7	319	D	0
2011	3	17	15	5.9	323	D	0
2011	3	17	16	3.9	325	D	0
2011	3	17	17	3.7	322	D	0
2011	3	17	18	5.1	314	D	0
2011	3	17	19	6.6	309	D	0
2011	3	17	20	5.1	306	D	0
2011	3	17	21	4.6	308	D	0
2011	3	17	22	4.6	322	C	0
2011	3	17	23	4.6	334	C	0
2011	3	18	0	4.5	341	C	0
2011	3	18	1	4.4	336	C	0
2011	3	18	2	5.3	324	C	0
2011	3	18	3	5.6	325	C	0

**From:** Vogt, Phil  
**To:** HOO.Hoc; PMT02.Hoc; PMT01.Hoc; CMHT@nnsa.doe.gov; nltops@nnsa.doe.gov; alan.remick@nnsa.doe.gov; (b)(6)  
**Cc:** narac@ltnl.gov  
**Subject:** Update of forecast wind conditions for Fukushima Daiichi 1  
**Date:** Wednesday, March 16, 2011 11:32:41 AM  
**Attachments:** Updated Forecast 16March16Z.xlsx

---

See attached spreadsheet for the forecast (table also included below)

Date	Hour (UTC)	Speed (m/s)	Dir	CLASS	RAIN
16-Mar	16	3.7	281	D	0
16	17	6.7	271	D	0
16	18	6.2	302	D	0
16	19	5	315	D	0
16	20	4.1	320	D	0
16	21	4.6	324	D	0
16	22	5.1	295	C	0
16	23	5.3	344	C	0
17-Mar	0	6.4	338	C	0
17	1	8.2	352	C	0
17	2	7.8	346	C	0
17	3	8.8	309	C	0
17	4	9.9	292	C	0
17	5	11.9	283	C	0
17	6	10.6	289	C	0
17	7	12.3	287	D	0
17	8	12.8	285	D	0
17	9	11.3	302	D	0
17	10	13	302	D	0
17	11	10.4	302	D	0
17	12	9.7	306	D	0
17	13	5.9	321	D	0
17	14	4.7	315	D	0
17	15	2.9	294	E	0
17	16	5.5	313	D	0

NARAC Operations  
925-0422-7627  
narac@ltnl.gov

Date	Hour (UTC)	Speed (m/s)	Dir	CLASS	RAIN
16-Mar	16	3.7	281	D	0
16	17	6.7	271	D	0
16	18	6.2	302	D	0
16	19	5	315	D	0
16	20	4.1	320	D	0
16	21	4.6	324	D	0
16	22	5.1	295	C	0
16	23	5.3	344	C	0
17-Mar	0	6.4	338	C	0
17	1	8.2	352	C	0
17	2	7.8	346	C	0
17	3	8.8	309	C	0
17	4	9.9	292	C	0
17	5	11.9	283	C	0
17	6	10.6	289	C	0
17	7	12.3	287	D	0
17	8	12.8	285	D	0
17	9	11.3	302	D	0
17	10	13	302	D	0
17	11	10.4	302	D	0
17	12	9.7	306	D	0
17	13	5.9	321	D	0
17	14	4.7	315	D	0
17	15	2.9	294	E	0
17	16	5.5	313	D	0

**From:** Pobanz, Brenda M.  
**To:** NITOPS; (b)(6) HQO Hoc; PMT02 Hoc  
**Cc:** "narac@lnl.gov"  
**Subject:** Updated wind prediction  
**Date:** Wednesday, March 16, 2011 6:37:56 AM  
**Attachments:** Updated WRF Forecast 00ZMarch16 00ZMarch18.xlsx

---

Based on 00Z March 16 WRF run.

Please contact the center if you have any questions.

Brenda Pobanz  
Lawrence Livermore National Laboratory  
925-422-1823

44/55

YEAR	MO	DY	HR	WSP	WDR	Stability	Rain
----	--	--	UTC	m/s	---	----	inches/hr
2011		3	16	0	4.2	299 D	0
2011		3	16	1	5.4	312 C	0
2011		3	16	2	7.5	309 C	0
2011		3	16	3	7.2	304 C	0
2011		3	16	4	8.8	314 C	0
2011		3	16	5	10.4	325 C	0
2011		3	16	6	12.3	324 C	0
2011		3	16	7	14.7	304 D	0
2011		3	16	8	14.2	299 D	0
2011		3	16	9	11.3	297 D	0
2011		3	16	10	9.8	316 D	0
2011		3	16	11	9.4	309 D	0
2011		3	16	12	9.5	294 D	0
2011		3	16	13	7.6	299 D	0
2011		3	16	14	9.7	300 D	0
2011		3	16	15	5	294 D	0
2011		3	16	16	7	286 D	0
2011		3	16	17	6.6	287 D	0
2011		3	16	18	6.5	293 D	0
2011		3	16	19	6.3	300 D	0
2011		3	16	20	5.9	311 D	0
2011		3	16	21	7.4	295 D	0
2011		3	16	22	8.4	303 C	0
2011		3	16	23	4.8	333 C	0
2011		3	17	0	5.9	321 C	0
2011		3	17	1	5	307 C	0
2011		3	17	2	8.4	292 C	0
2011		3	17	3	9.3	315 C	0
2011		3	17	4	11.1	299 C	0
2011		3	17	5	11.8	292 C	0
2011		3	17	6	10.7	286 C	0
2011		3	17	7	9.3	298 D	0
2011		3	17	8	8.5	286 D	0
2011		3	17	9	10.6	285 D	0
2011		3	17	10	11.1	288 D	0
2011		3	17	11	11.3	301 D	0
2011		3	17	12	10.1	311 D	0
2011		3	17	13	8.4	307 D	0
2011		3	17	14	8.7	303 D	0
2011		3	17	15	7.1	311 D	0
2011		3	17	16	3.4	316 D	0
2011		3	17	17	6	310 D	0
2011		3	17	18	7.4	319 D	0
2011		3	17	19	6.3	316 D	0
2011		3	17	20	4.9	307 D	0



2011	3	17	21	4.4	311 D	0
2011	3	17	22	5.1	326 C	0
2011	3	17	23	5.4	343 C	0
2011	3	18	0	6.1	344 C	0

From: JapanEmbassy, TaskForce  
To: (b)(6) (b)(6) (b)(6) (b)(6)  
(b)(6) (b)(6) (b)(6) (b)(6)  
(b)(6) (b)(6) (b)(6) (b)(6)  
(b)(6) (b)(6) (b)(6)  
(b)(6) (b)(6) (b)(6)  
(b)(6) NITOPS@nnsa.doe.gov (b)(6) (b)(6) Alex  
Robinson; Uises, Anthony; Cat 5; Cherry, Ronald C; cmht@nnsa.doe.gov; Craig Haas; Curry Wright; DART  
Uaison; HQO Hoc; Trapp, James; John Okon; Mears, Jeremy M; Morales, Russell A; Paul Guss; PMT01 Hoc;  
Hoc, PMT12; Theodore Shaw; Uchida, Koichi  
Subject: 01:00 SPEEDI Data  
Date: Thursday, March 17, 2011 12:39:34 PM  
Attachments: FUKUSHIMA1\_031801h.zip

---

Attached please find 01:00 SPEEDI Data.

SBU

This email is UNCLASSIFIED

Naomi Walcott  
Emergency Action Officer  
Japan Emergency Command Center  
U.S. Embassy Tokyo

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

From: nustec [mailto:spd01@nustec.or.jp]

Sent: Friday, March 18, 2011 1:34 AM

To: (b)(6) (b)(6) (b)(6) (b)(6) (b)(6)

(b)(6) (b)(6) (b)(6) (b)(6)

(b)(6) (b)(6) (b)(6)

(b)(6) (b)(6) (b)(6)

(b)(6) (b)(6) (b)(6)

(b)(6) (b)(6) (b)(6)

NITOPS@nnsa.doe.gov; JapanEmbassy, TaskForce; (b)(6)

Subject: 3/18 01時SPEEDI単位量放出図形イメージの送付

関係者各位

お世話になっております。

原子力安全技術センター SPEEDI担当です。

3/18 01時のSPEEDI単位量放出図形のイメージデータを送付致します。

ご確認のほど、よろしくお願い致します。

14/56

**From:** JapanEmbassy, TaskForce  
**To:** spd01@nustec.or.jp (b)(6) (b)(6) (b)(6) (b)(6)  
(b)(6) (b)(6) (b)(6) (b)(6)  
(b)(6) (b)(6) (b)(6) (b)(6)  
(b)(6) (b)(6) (b)(6)  
(b)(6) (b)(6) (b)(6)  
(b)(6) NITOPS@nnsa.doe.gov; JapanEmbassy, TaskForce; Alex Robinson; Ulises Anthony; CAT 5; Cherry, Ronald C; cmht@nnsa.doe.gov; Craig Haas; Curry Wright; DART Liaison; HQO Hoc; Trapp, James; John Okon; Mears, Jeremy M; Morales, Russell A; Hoc, PMT12; PMT01 Hoc; Theodore Shaw; Uchida, Koichi  
**Subject:** 1300 Speedi Data  
**Date:** Thursday, March 17, 2011 12:38:24 AM  
**Attachments:** FUKUSHIMA1 wind(13h01.gif  
FUKUSHIMA1 air concentration0113-14h01.gif  
FUKUSHIMA1 air concentration0114-15h01.gif  
FUKUSHIMA1 air concentration0115-16h01.gif  
FUKUSHIMA1 air dose0113-14h01.gif  
FUKUSHIMA1 air dose0114-15h01.gif  
FUKUSHIMA1 air dose0115-16h01.gif

---

Please find attached 1300 Speedi Data.

SBU

This email is UNCLASSIFIED

Jennifer Clever  
Japan Emergency Command Center  
U.S. Embassy, Tokyo

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

**From:** nustec [mailto:spd01@nustec.or.jp]

**Sent:** Thursday, March 17, 2011 1:29 PM

**To:** (b)(6) (b)(6) (b)(6) (b)(6) (b)(6)  
(b)(6) (b)(6) (b)(6) (b)(6)  
(b)(6) (b)(6) (b)(6)  
(b)(6) (b)(6) (b)(6)  
(b)(6) (b)(6) (b)(6)  
(b)(6) (b)(6) (b)(6)

NITOPS@nnsa.doe.gov; JapanEmbassy, TaskForce  
**Subject:** 13時SPEEDI単位量放出図形イメージの送付

関係者各位

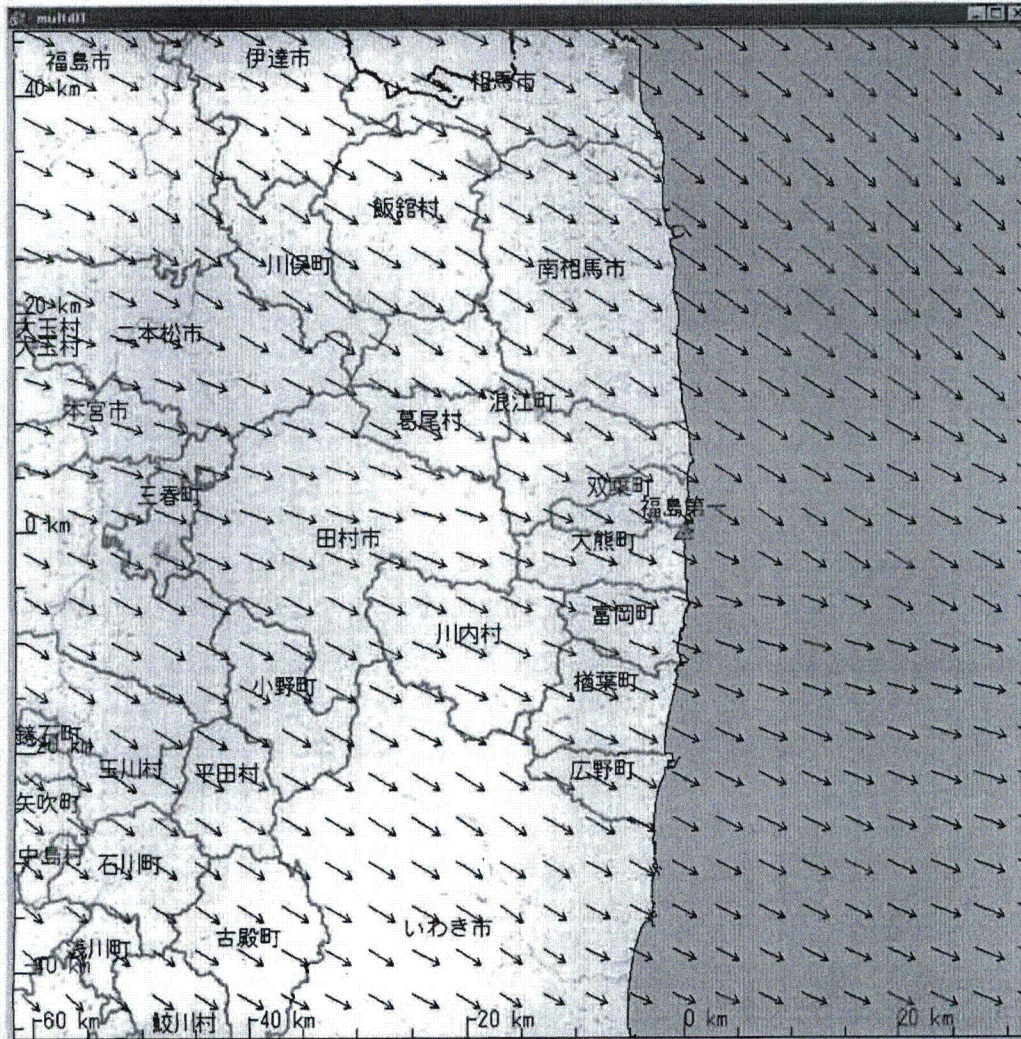
お世話になっております。

原子力安全技術センター 竹村 辻本です。

3/17 13時のSPEEDI単位量放出図形のイメージデータを送付致します。

ご確認のほど、よろしくお願い致します。

44/57



風速場(地上高)

### 風速場 (地上高)

日時 = 2011/03/17 13:00

気象データ = G P V + 観測値

(2011/03/17 13:00) まで

福島第1 広域図

サイト中心 : 141°02'10" - 37°25'12"

領域 : 92km X 92km

表示高度 = 120.00 m

サイト中心付近の風 : 西北西 9.8 m/s

大気安定度 : C型

計算モデル名 = PHYSIC

計算メッシュ幅 水平方向 = 2.00 km

【凡例】

標準風速 (標準領域の場合の長さ)

→ = 10 m/s

13時定期福島1-2号





大気中濃度(ヨウ素)(地上高)

大気中濃度(ヨウ素)(地上高)

日時 = 2011/03/17 13:00 -

2011/03/17 14:00

気象データ = G P V + 観測値

(2011/03/17 13:00) まで

福島第1 2号炉 広域図

放出地点 : 141°02'08" - 37°25'18"

領域 : 92km X 92km

表示高度 = 1.00 m

【凡例】

大気中濃度等値線 (Bq/m<sup>3</sup>)

1 =  $1.00 \times 10^{-10}$

2 =  $5.00 \times 10^{-11}$

3 =  $1.00 \times 10^{-11}$

4 =  $5.00 \times 10^{-12}$

5 =  $1.00 \times 10^{-12}$

最大濃度 =  $1.398 \times 10^{-10}$  Bq/m<sup>3</sup>

放出地点から ( 2.5, -1.7 ) km ( × E N )

計算モデル名 = PRWDA21

使用モデル名 = 通常モデル

【計算条件】

計算メッシュ幅 水平方向 = 1.00 km

放出高 = 120.0m

燃焼度 = 20000 MWd/MTU

原子炉停止時刻 = 2011/03/11 16:00

放出開始時刻 = 2011/03/17 13:00

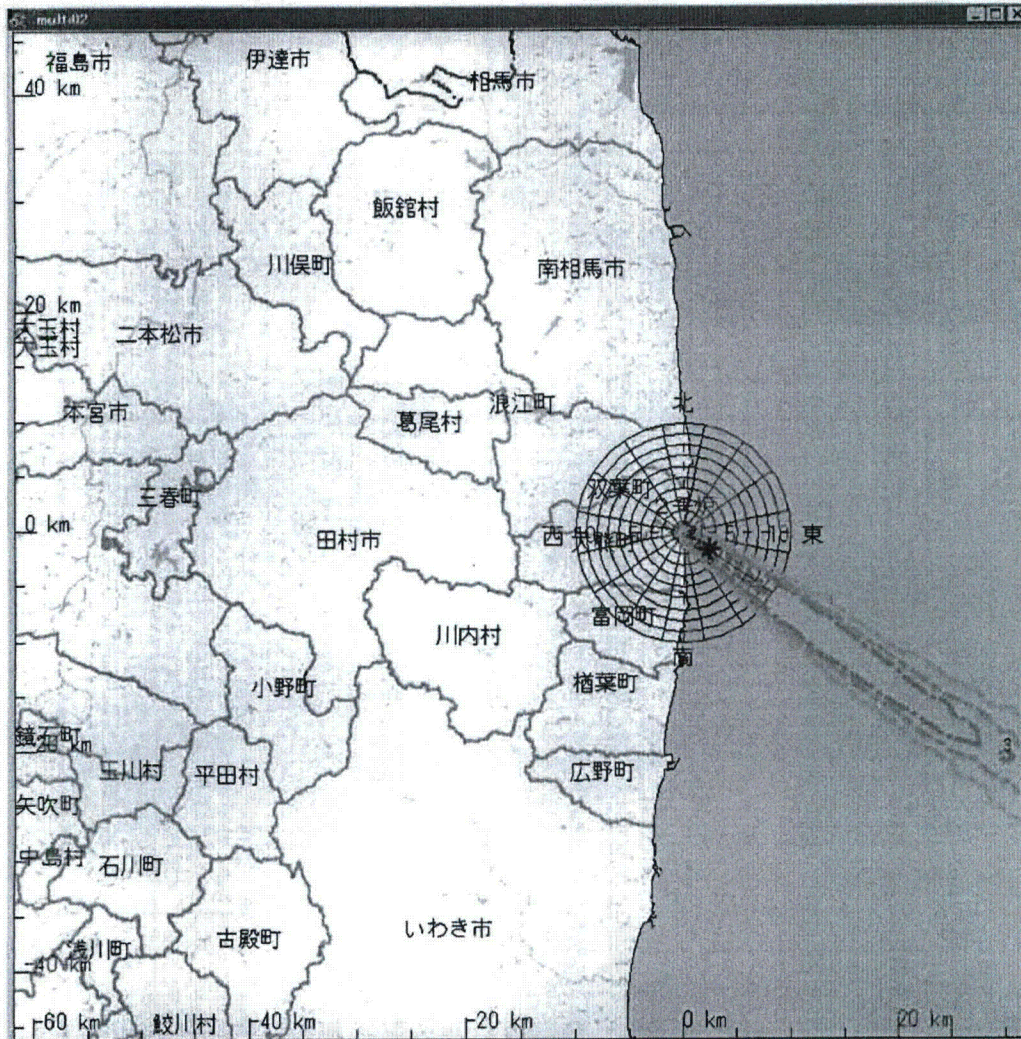
放出モード = 単位量放出

放出核種・放出率(積算) : Bq/h (Ba)

ヨウ素 :  $1.00 \times 10^0$  ( $1.00 \times 10^0$ )

13時定期福島1-2号





大気中濃度(ヨウ素)(地上高)

大気中濃度(ヨウ素) (地上高)

日時 = 2011/03/17 14:00 -

2011/03/17 15:00

気象データ = G P V + 観測値

(2011/03/17 13:00) まで

福島第1 2号炉 広域図

放出地点 : 141°02'08" - 37°25'18"

領域 : 92km X 92km

表示高度 = 1.00 m

【凡例】

大気中濃度等値線 (Bq/m<sup>3</sup>)

1 =  $1.00 \times 10^{-10}$

2 =  $5.00 \times 10^{-11}$

3 =  $1.00 \times 10^{-11}$

4 =  $5.00 \times 10^{-12}$

5 =  $1.00 \times 10^{-12}$

最大濃度 =  $1.296 \times 10^{-10}$  Bq/m<sup>3</sup>

放出地点から (2.5, -1.7) km (\*印)

計算モデル名 = PRWDA21

使用モデル名 = 通常モデル

【計算条件】

計算メッシュ幅 水平方向 = 1.00 km

放出高 = 120.0m

燃焼度 = 20000 MWd/MTU

原子炉停止時刻 = 2011/03/11 16:00

放出開始時刻 = 2011/03/17 13:00

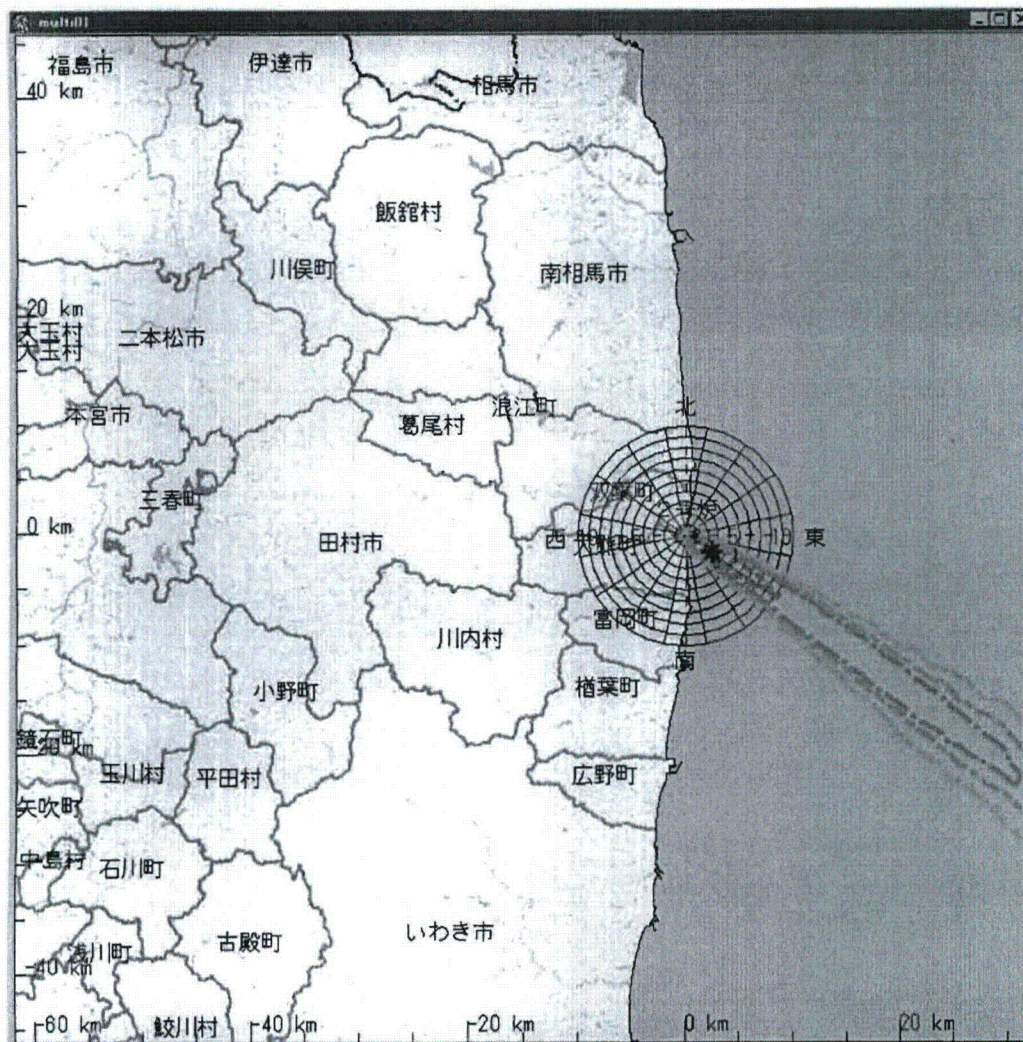
放出モード = 単位量放出

放出核種・放出率(積算): Bq/h (Ba)

ヨウ素 :  $1.00 \times 10^0$  ( $1.00 \times 10^0$ )

13時定期福島1-2号





大気中濃度(ヨウ素)(地上高)

# 大気中濃度(ヨウ素) (地上高)

日時 = 2011/03/17 15:00 -

2011/03/17 16:00

気象データ = G P V + 観測値

(2011/03/17 13:00) まで

福島第1 2号炉 広域図

放出地点 : 141°02'08" - 37°25'18"

領域 : 92km X 92km

表示高度 = 1.00 m

【凡例】

大気中濃度等値線 (Bq/m<sup>3</sup>)

1 =  $1.00 \times 10^{-10}$

2 =  $5.00 \times 10^{-11}$

3 =  $1.00 \times 10^{-11}$

4 =  $5.00 \times 10^{-12}$

5 =  $1.00 \times 10^{-12}$

最大濃度 =  $1.434 \times 10^{-10}$  Bq/m<sup>3</sup>

放出地点から ( 2.5, -1.7 ) km (\* EP)

計算モデル名 = PRWDA21

使用モデル名 = 通常モデル

【計算条件】

計算メッシュ幅 水平方向 = 1.00 km

放出高 = 120.0m

燃焼度 = 20000 MWD/MTU

原子炉停止時刻 = 2011/03/11 16:00

放出開始時刻 = 2011/03/17 13:00

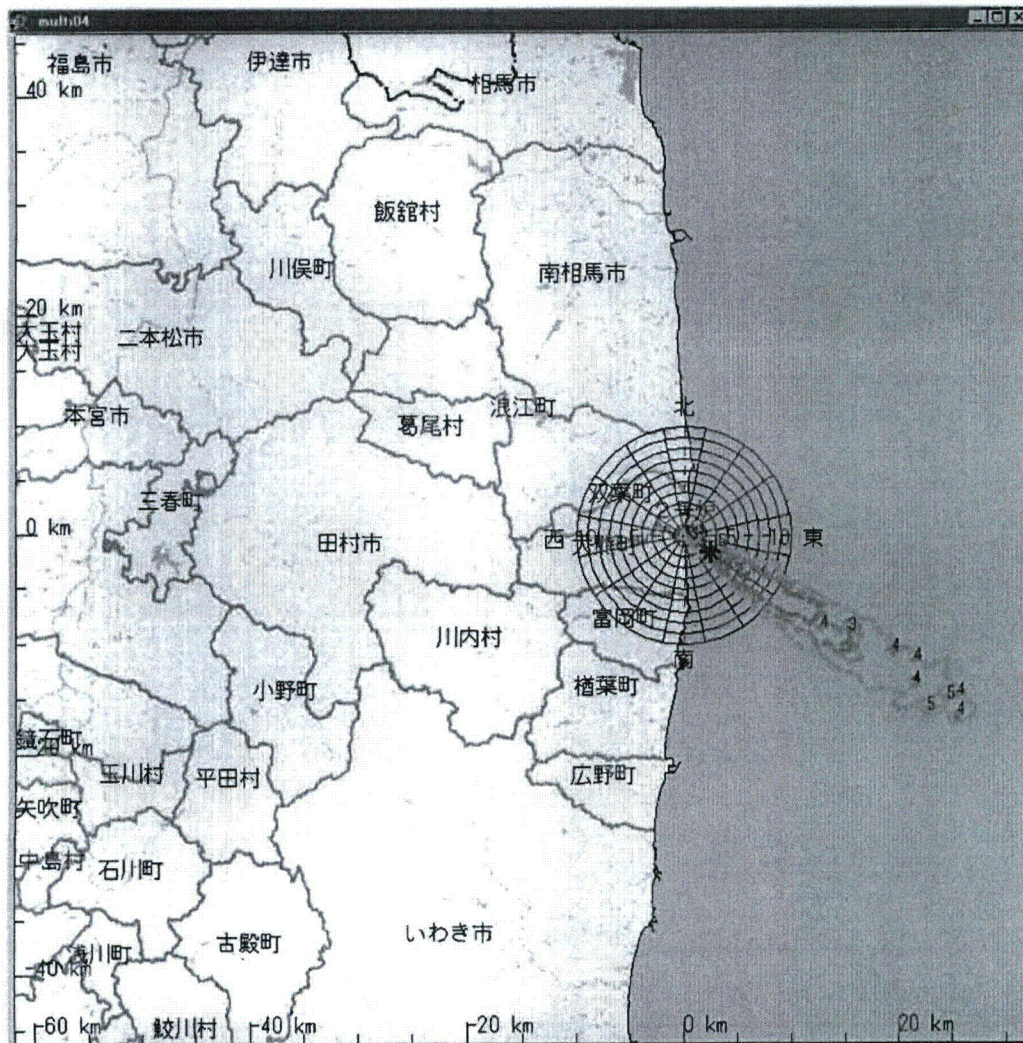
放出モード = 単位量放出

放出核種・放出率(積算): Bq/h (Bq)

ヨウ素 :  $1.00 \times 10^0$  ( $1.00 \times 10^0$ )

13時定期福島1-2号





空気吸収線量率

### 空気吸収線量率

日時 = 2011/03/17 13:00 -

2011/03/17 14:00

気象データ = G P V + 観測値

(2011/03/17 13:00) まで

福島第1 2号炉 広域図

放出地点 : 141°02'08" - 37°25'18"

領域 : 92km X 92km

核種名 = 希ガス

#### 【凡例】

空気吸収線量率等値線 ( $\mu\text{Gy/h}$ )

1 =  $1.00 \times 10^{-15}$

2 =  $5.00 \times 10^{-16}$

3 =  $1.00 \times 10^{-16}$

4 =  $5.00 \times 10^{-17}$

5 =  $1.00 \times 10^{-17}$

最大線量率 =  $1.863 \times 10^{-15} \mu\text{Gy/h}$

放出地点から ( 2.5, -1.7 ) km (\* 印)

計算モデル名 = PRWDA21

使用モデル名 = 通常モデル

#### 【計算条件】

計算メッシュ幅 水平方向 = 1.00 km

放出高 = 120.0m

燃焼度 = 20000 MWD/MTU

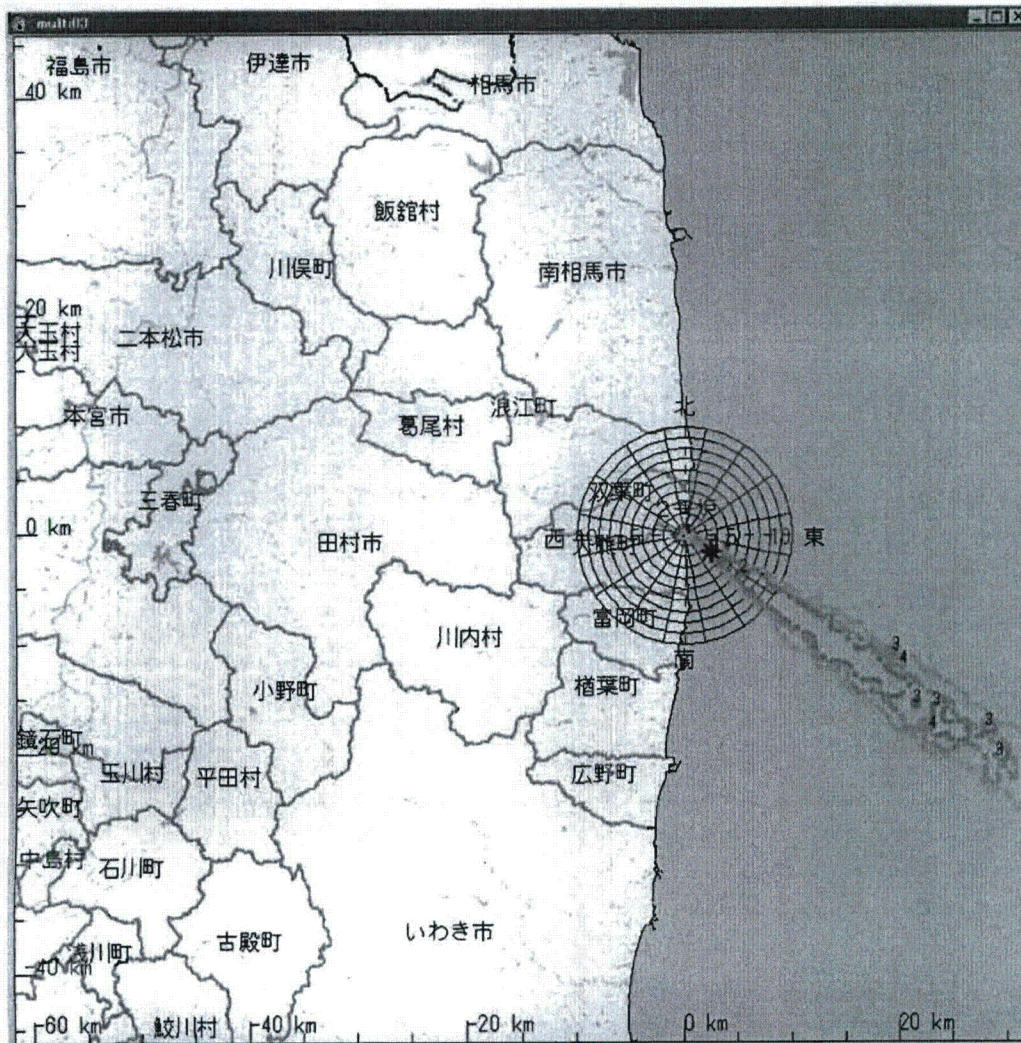
原子炉停止時刻 = 2011/03/11 16:00

放出開始時刻 = 2011/03/17 13:00

放出モード = 単位量放出

13時定期福島1-2号





# 空気吸収線量率

## 空気吸収線量率

日時 = 2011/03/17 14:00 -

2011/03/17 15:00

気象データ = G P V + 観測値

(2011/03/17 13:00) まで

福島第1 2号炉 広域図

放出地点 : 141°02'08" - 37°25'18"

領域 : 92km X 92km

核種名 = 希ガス

## 【凡例】

空気吸収線量率等値線 ( $\mu\text{Gy/h}$ )

1 =  $1.00 \times 10^{-15}$

2 =  $5.00 \times 10^{-16}$

3 =  $1.00 \times 10^{-16}$

4 =  $5.00 \times 10^{-17}$

5 =  $1.00 \times 10^{-17}$

最大線量率 =  $1.741 \times 10^{-15} \mu\text{Gy/h}$

放出地点から (2.5, -1.7) km (\*E1)

計算モデル名 = PRWDA21

使用モデル名 = 通常モデル

【計算条件】

計算メッシュ幅 水平方向 = 1.00 km

放出高 = 120.0m

燃焼度 = 20000 MWD/MTU

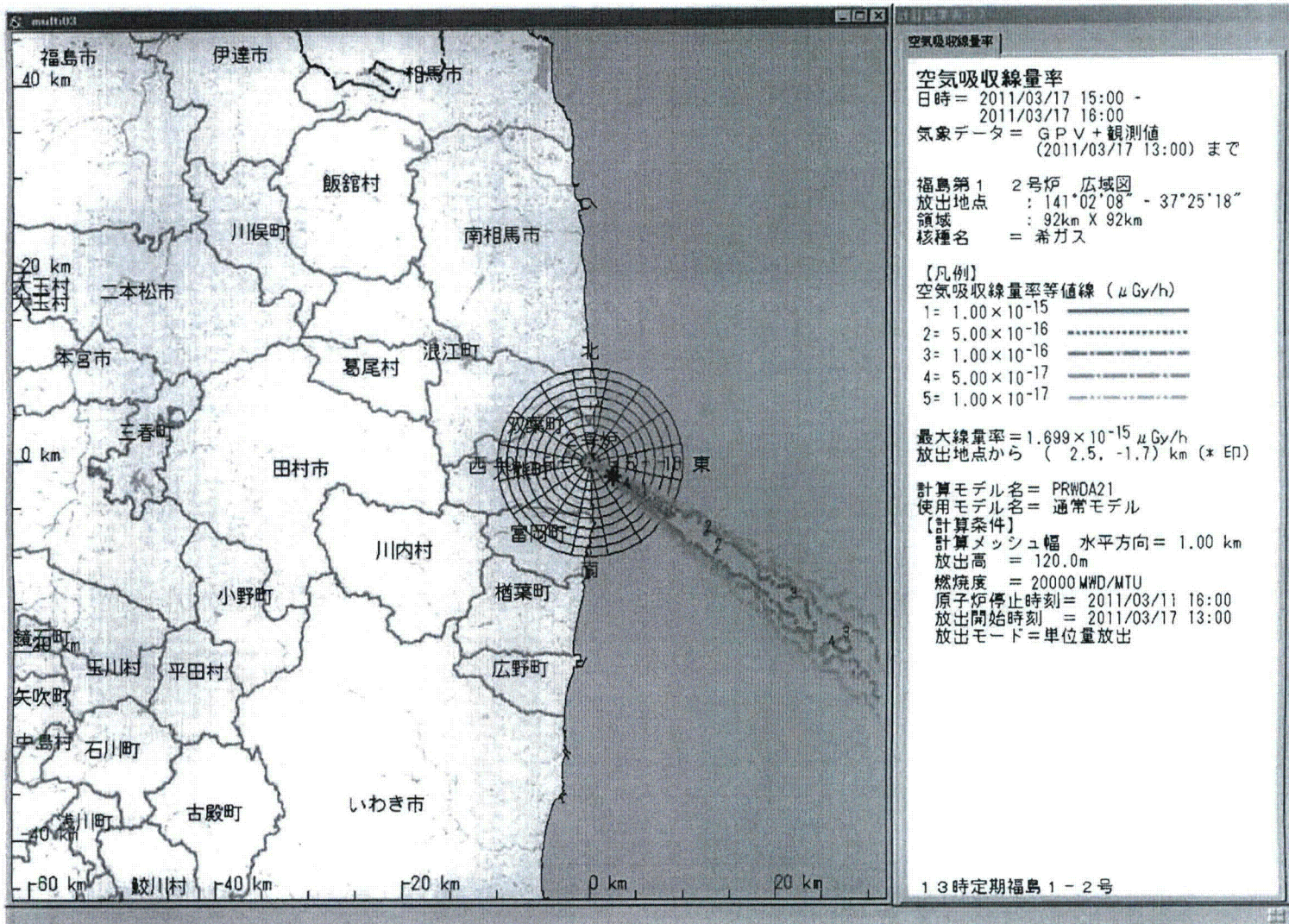
原子炉停止時刻 = 2011/03/11 16:00

放出開始時刻 = 2011/03/17 13:00

放出モード = 単位量放出

13時定期福島1-2号





**From:** Nguyen, Quynh  
**Sent:** Thursday, March 17, 2011 8:31 AM  
**To:** Barkley, Richard  
**Cc:** Roberts, Darrell; Meighan, Sean  
**Subject:** RE: Sharepoint Site on the Fukushima Event

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

It's important to note that there is Limited Contribute rights for document control. Only those blessed by OPA are "useable." Keep checking as we keep adding.

---

**From:** Barkley, Richard  
**Sent:** Wednesday, March 16, 2011 5:59 PM  
**To:** Wertz, Trent; Virgilio, Rosetta; Sheehan, Neil; Nguyen, Quynh  
**Subject:** Sharepoint Site on the Fukushima Event  
**Importance:** High

Word is there is a Sharepoint site on the Fukushima event that can be annexed by employees.

I can't find the link – Have any leads?? Thanks!

I promised to share it with the Region I staff.

Richard S. Barkley, PE  
Nuclear & Environmental Engineer  
(610) 337-5065 Work

(b)(6) Cell

44/58

**McKelvey, Harold**

---

**From:** Collins, Elmo  
**Sent:** Thursday, March 17, 2011 10:09 AM  
**To:** Kennedy, Kriss; Vogel, Anton; Hay, Michael  
**Subject:** FW: FOR INTERNAL USE BY STAFF: Sharepoint Site on the Fukushima Event

**Importance:** High

---

**From:** Nguyen, Quynh  
**Sent:** Thursday, March 17, 2011 9:51 AM  
**To:** Landau, Mindy; Barkley, Richard  
**Cc:** Roberts, Darrell; Meighan, Sean; Dean, Bill; McNamara, Nancy; Tifft, Doug; Lew, David; Ellmers, Glenn; Nelson, Robert; Leeds, Eric; Boger, Bruce; Grobe, Jack; McCree, Victor; Satorius, Mark; Collins, Elmo; Lee, Michael; Brenner, Eliot; Thomas, Eric; Couret, Ivonne; Burnell, Scott; McIntyre, David; Wittick, Brian; Virgilio, Rosetta  
**Subject:** FOR INTERNAL USE BY STAFF: Sharepoint Site on the Fukushima Event  
**Importance:** High

Mindy,

We placed the OPA-approved documents to the NRR SharePoint Site. We understand the need to keep staff informed. It links directly to the documents.

<http://portal.nrc.gov/edo/nrr/default.aspx>

NRR ET/LT agreed that the "FAQ" SharePoint site needs limited access so we can put draft working documents there for ease of use by those directly responding to Japan-related actions. Again, Robert Nelson (NRR SES) has been assigned to lead the Q&A effort.

Thank you everyone for the continued support and understanding,  
Quynh

---

**From:** Landau, Mindy  
**Sent:** Thursday, March 17, 2011 8:47 AM  
**To:** Barkley, Richard; Nguyen, Quynh  
**Cc:** Roberts, Darrell; Meighan, Sean; Dean, Bill; McNamara, Nancy; Tifft, Doug; Lew, David; Ellmers, Glenn  
**Subject:** RE: Sharepoint Site on the Fukushima Event

Quynh – can we reference the cite as a resource for the entire NRC staff?

Mindy

---

**From:** Barkley, Richard  
**Sent:** Thursday, March 17, 2011 8:45 AM  
**To:** Nguyen, Quynh  
**Cc:** Roberts, Darrell; Meighan, Sean; Dean, Bill; Landau, Mindy; McNamara, Nancy; Tifft, Doug; Lew, David  
**Subject:** RE: Sharepoint Site on the Fukushima Event

Thanks very much Quynh!

---

**From:** Nguyen, Quynh  
**Sent:** Thursday, March 17, 2011 8:31 AM  
**To:** Barkley, Richard  
**Cc:** Roberts, Darrell; Meighan, Sean  
**Subject:** RE: Sharepoint Site on the Fukushima Event

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

It's important to note that there is Limited Contribute rights for document control. Only those blessed by OPA are "useable." Keep checking as we keep adding.

---

**From:** Barkley, Richard  
**Sent:** Wednesday, March 16, 2011 5:59 PM  
**To:** Wertz, Trent; Virgilio, Rosetta; Sheehan, Neil; Nguyen, Quynh  
**Subject:** Sharepoint Site on the Fukushima Event  
**Importance:** High

Word is there is a Sharepoint site on the Fukushima event that can be annexed by employees.

I can't find the link – Have any leads?? Thanks!

I promised to share it with the Region I staff.

Richard S. Barkley, PE  
Nuclear & Environmental Engineer  
(610) 337-5065 Work  
(b)(6) Cell

**McKelvey, Harold**

---

**From:** Collins, Elmo  
**Sent:** Thursday, March 17, 2011 6:57 AM  
**To:** Howell, Art; Kennedy, Kriss; Pruett, Troy; Vogel, Anton; Caniano, Roy  
**Subject:** FYI only: Information regarding a device that could assist recovering Spent Fuel Pool cooling and inventory at the Japanese Plants  
**Attachments:** Spent Fuel Pool Spray Nozzle Overview.docx  
**Importance:** High

---

**From:** McCree, Victor  
**Sent:** Thursday, March 17, 2011 6:18 AM  
**To:** Virgilio, Martin; Leeds, Eric; Dean, Bill; Satorius, Mark; Collins, Elmo  
**Cc:** Howell, Art; Pederson, Cynthia; Lew, David; Wert, Leonard  
**Subject:** FW: Information regarding a device that could assist recovering Spent Fuel Pool cooling and inventory at the Japanese Plants  
**Importance:** High

Marty, et.al.,

See below/attached, for your information.

Vic

---

**From:** Croteau, Rick  
**Sent:** Thursday, March 17, 2011 7:07 AM  
**To:** McCree, Victor; Wert, Leonard  
**Cc:** Jones, William  
**Subject:** FW: Information regarding a device that could assist recovering Spent Fuel Pool cooling and inventory at the Japanese Plants  
**Importance:** High

Vic/Len,

We sent this info to the HOO yesterday. The HOO called Andy Sabisch last night requesting Duke box up the equipment to send to Japan and that is taking place. Duke has spares.

Rick

---

**From:** Bartley, Jonathan  
**Sent:** Wednesday, March 16, 2011 2:28 PM  
**To:** HOO Hoc; OPA Resource  
**Cc:** Sabisch, Andrew; Croteau, Rick; Jones, William  
**Subject:** Information regarding a device that could assist recovering Spent Fuel Pool cooling and inventory at the Japanese Plants  
**Importance:** High

Attached is a document that describes a device that Duke developed as a B.5.b strategy for providing cooling to the spent fuel pools after a catastrophic event. Please contact Andy Sabisch, Oconee SRI, if you have any questions or need a POC at Duke to discuss the device.

---

**From:** Sabisch, Andrew  
**Sent:** Wednesday, March 16, 2011 1:40 PM

**To:** Bartley, Jonathan

**Subject:** Information regarding a device that could assist recovering Spent Fuel Pool cooling and inventory

Please review this

=====

**Andrew T. Sabisch**

U.S. Nuclear Regulatory Commission

Senior Resident Inspector

Oconee Nuclear Station

Seneca, SC 29678

(O) 864-882-6927/6928

(F) 864-882-0189

(C) (b)(6)

**Owen, Lucy**

---

**From:** Leeds, Eric  
**Sent:** Thursday, March 17, 2011 4:30 PM  
**To:** Collins, Elmo  
**Subject:** FW: Event Response - Communications and Qs&As

Check out the email below. It looks like my guys are already working with the regions to put together a script for the EOCs. I'll touch base with Nelson in the am.

Thanks for planting the seed!

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

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**From:** Lew, David  
**Sent:** Thursday, March 17, 2011 5:07 PM  
**To:** Leeds, Eric  
**Subject:** FW: Event Response - Communications and Qs&As

---

**From:** Nelson, Robert  
**Sent:** Wednesday, March 16, 2011 3:13 PM  
**To:** Lew, David; Wert, Leonard; Pederson, Cynthia; Howell, Arthur  
**Cc:** Glitter, Joseph; Leeds, Eric; Boger, Bruce; Ruland, William; Meighan, Sean; Nguyen, Quynh; Thomas, Eric; Thorp, John  
**Subject:** Event Response - Communications and Qs&As

I've been assigned as the NRR Communications Coordinator for matters dealing with our response to the events in Japan.

1. I understand that you were recently sent the Chairman's Qs&As. I understand that EOC meetings are beginning next week and the regional staff need to be prepared for stakeholder questions that will arise regarding the events & our plants. Are these Qs&As sufficient? If not, what additional areas do you want addressed?
2. Please identify a POC in your region that my team & I can coordinate with on communications issues.
3. I understand that a concern was raised about the Ops Center contacting a family member and that a protocol is needed for such contact. I'm working on it.
4. We will likely formulate a "tiger team" to prepare responses to written inquiries. I'll keep you advised.
5. Communications with the regions, particularly those requesting information regarding specific plants, should be coordinated thru my team. If you have concerns in this regard, please contact me.

*R. A. Nelson*

Robert A. Nelson  
Deputy Director  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation





✉ E-mail: [robert.nelson@nrc.gov](mailto:robert.nelson@nrc.gov) | ☎ Office: (301) 415-1453 | 📱 Cell: (b)(6) | 📠 Fax: (301) 415-2102 |

**McKelvey, Harold**

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**From:** Collins, Elmo  
**Sent:** Thursday, March 17, 2011 2:55 PM  
**To:** Howell, Art; Kennedy, Kriss; Vogel, Anton; Hay, Michael  
**Subject:** FW: Congressional Correspondence  
**Attachments:** Boxer Feinstein LETTER (2).pdf

Letter from California Senators

**From:** Sosa, Belkys  
**Sent:** Thursday, March 17, 2011 2:45 PM  
**To:** Davis, Roger; Baggett, Steven; Snodderly, Michael; Collins, Elmo  
**Subject:** Fw: Congressional Correspondence

Fyi

Sent from an NRC Blackberry  
Belkys Sosa

(b)(6)

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**From:** McKelvin, Sheila  
**To:** Monninger, John; Sharkey, Jeffry; Sosa, Belkys; Bubar, Patrice; Nieh, Ho; Batkin, Joshua  
**Cc:** Champ, Billie; Jaegers, Cathy; Clayton, Kathleen; Vietti-Cook, Annette; Mike, Linda  
**Sent:** Thu Mar 17 14:59:15 2011  
**Subject:** Congressional Correspondence

I have attached for your information a letter from Senators Boxer and Feinstein dated March 16, 2011 re: Risks posed to nuclear reactors in the U.S.

*Sheila*

HAH/62

# United States Senate

WASHINGTON, DC 20510

March 16, 2011

The Honorable Gregory Jaczko  
Chairman  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Dear Chairman Jaczko:

The unfolding nuclear disaster in Japan has raised questions about the safety of nuclear power plants here in the U.S. As Senators from California, we are particularly interested in the safety of San Onofre Nuclear Generating Station, located in San Clemente, and the Diablo Canyon Nuclear Power Plant near San Luis Obispo, both of which are near earthquake faults.

Roughly 424,000 live within 50 miles of the Diablo Canyon and 7.4 million live within 50 miles of San Onofre Nuclear Generating Station. Although many safety measures have been taken to address potential hazards associated with these facilities, we need to ensure that the risk is fully evaluated.

For example, a 2008 California Energy Commission report presented very clear warnings of potential threats at both of these plants. This report found that the San Onofre plant could experience "larger and more frequent earthquakes" than the maximum 7.0 magnitude earthquake predicted when the plant was designed. It is our understanding that the NRC has not taken action to address these warnings in the report. It is also our understanding that the 2008 report found that there is an additional fault near the Diablo Canyon plant that should be taken into consideration as part of NRC's relicensing process. We want to know if the NRC will address all of the threats, including seismic threats, described in the 2008 report at these facilities.

We ask that the Nuclear Regulatory Commission (NRC) perform a thorough inspection at these two plants to evaluate their safety and emergency preparedness plans.

In addition, we ask the NRC to answer the questions below regarding plant design and operations, type of reactor, and preparedness to withstand an earthquake or tsunami and other potential threats.

### Plant Design and Operations

1. What changes to the design or operation of these facilities have improved safety at the plants since they began operating in the mid-1980s?
2. What emergency notification systems have been installed at California nuclear power plants? Has there ever been a lapse of these systems during previous earthquakes or emergencies?
3. What safety measures are in place to ensure continued power to California reactors in the event of an extended power failure?

### Type of Reactor

1. What are the differences and similarities between the reactors being used in California (pressurized water reactors) and those in Japan (boiling water reactors), as well as the facilities used to house the reactors, including the standards to which they were built and their ability to withstand natural and manmade disasters?

### Earthquakes and Tsunamis

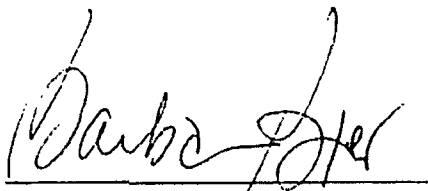
1. We have been told that both Diablo Canyon and San Onofre Nuclear Generating Station are designed to withstand the maximum credible threat at both plants, which we understand to be much less than the 9.0 earthquake that hit Japan. What assumptions have you made about the ability of both plants to withstand an earthquake or tsunami? Given the disaster in Japan, what are our options to provide these plants with a greater margin for safety?
2. Have new faults been discovered near Diablo Canyon or San Onofre Nuclear Generating Station since those plants began operations? If so, how have the plants been modified to account for the increased risk of an earthquake? How will the NRC consider information on ways to address risks posed by faults near these plants that is produced pursuant to state law or recommendations by state agencies during the NRC relicensing process?

3. What are the evacuation plans for both plants in the event of an emergency? We understand that Highway 1 is the main route out of San Luis Obispo, what is the plan for evacuation of the nearby population if an earthquake takes out portions of the highway and a nuclear emergency occurs simultaneously?
4. What is the NRC's role in monitoring radiation in the event of a nuclear accident both here and abroad? What is the role of EPA and other federal agencies?
5. What monitoring systems currently are in place to track potential impacts on the U.S., including California, associated with the events in Japan?
6. Which federal agency is leading the monitoring effort and which agencies have responsibility for assessing human health impacts? What impacts have occurred to date on the health or environment of the U.S. or are currently projected or modeled in connection with the events in Japan?
7. What contingency plans are in place to ensure that the American public is notified in the event that hazardous materials associated with the events in Japan pose an imminent threat to the U.S.?

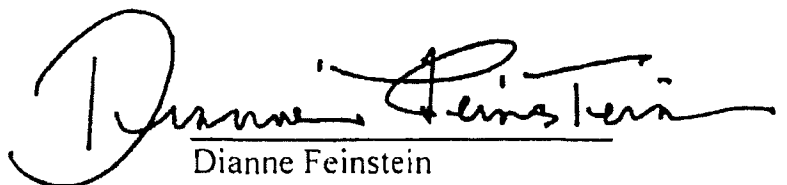
The NRC was created in the mid-1970s specifically to ensure the protection of public health and safety with regard to civilian nuclear power. The Commission plays an essential role ensuring that we learn from nuclear accidents and near misses. We hope you agree that we must identify whatever lessons are to be learned from the disaster in Japan in order to make facilities in the United States as safe as possible.

We look forward to working with you to ensure the safety of our nation's nuclear power plants and to make the changes necessary to ensure a nuclear tragedy does not occur in this country.

Sincerely,



Barbara Boxer



Dianne Feinstein

**From:** NITOPS  
**To:** HOO Hoc; PMT02 Hoc; PMT01 Hoc; CMHT; "narac@lnt.gov"  
**Cc:** NITOPS  
**Subject:** FW: Fukushima -1 NPP  
**Date:** Thursday, March 17, 2011 12:57:19 PM

---

For your information.  
NITOPS

**From:** Koichi Uchida (b)(6)  
**Sent:** Thursday, March 17, 2011 12:57 PM  
**To:** Cherry, Ron; 'Miller, Chris'; 'Alan Remick'  
**Cc:** 'LIA08 Hoc'; NITOPS; Lyons, Peter; Connery, Joyce; Aoki, Steven; Poneman, Daniel; DAgostino, Thomas; Mustin, Tracy; Carlson, Nicholas; Alldridge, David; Hoffman, Patricia; Koonin, Steven; Miller, Neile; Krol, Joseph; Johnson, Shane; Kelly, John E (NE); McGinnis, Edward; Duncan, Aleshia; OConnor, Rod; Bryan, William; Williams, Melvin; Hurlbut, Brandon; Anderson, Margot; Mueller, Stephanie; LaVera, Damien; Reynolds, Tom; Hunsaker, Christopher; Koontz, Thomas; Leistikow, Dan; Zubarev, Jill  
**Subject:** RE: Fukushima -1 NPP

NISA announced the numbers of SNFs of F-1 NPP.

<http://www.meti.go.jp/press/20110317008/20110317008-4.pdf>

Unit 1 (capacity 900), New fuels:100, other fuels: 292  
Unit 2 (1240), New : 28, others : 587  
Unit 3 (1220), New : 52, others: 514  
Unit 4 (1590): New 204, others: 1331  
Unit 5 (1590), New 48, others: 946  
Unit 6 (1770), New 64, others: 876

Uchida

**From:** Koichi Uchida (b)(6)  
**Sent:** Friday, March 18, 2011 12:02 AM  
**To:** 'Cherry, Ronald C'; 'Miller, Chris'; 'Alan Remick'  
**Cc:** 'LIA08 Hoc'; 'nitops@nnsa.doe.gov'; 'Lyons, Peter'; 'Connery, Joyce'; 'Aoki, Steven'; 'Poneman, Daniel'; 'DAgostino, Thomas'; 'Mustin, Tracy'; 'Carlson, Nicholas'; 'Alldridge, David'; 'Hoffman, Patricia'; 'Koonin, Steven'; 'Miller, Neile'; 'Krol, Joseph'; 'Johnson, Shane'; 'Kelly, John E (NE)'; 'McGinnis, Edward'; 'Duncan, Aleshia'; 'OConnor, Rod'; 'Bryan, William'; 'Williams, Melvin'; 'Hurlbut, Brandon'; 'Anderson, Margot'; 'Mueller, Stephanie'; 'LaVera, Damien'; 'Reynolds, Tom'; 'Hunsaker, Christopher'; 'Koontz, Thomas'; 'Leistikow, Dan'; 'Zubarev, Jill E'  
**Subject:** RE: Fukushima -1 NPP

NISA announced the latest onsite monitoring data.

<http://www.meti.go.jp/press/20110317008/20110317008-2.pdf>

Uchida  
DOE Tokyo

**From:** Koichi Uchida (b)(6)  
**Sent:** Thursday, March 17, 2011 11:56 PM  
**To:** 'Cherry, Ronald C'; 'Miller, Chris'; 'Alan Remick'

44/63

**Cc:** 'LIA08 Hoc'; 'nitops@nnsa.doe.gov'; 'Lyons, Peter'; 'Connery, Joyce'; 'Aoki, Steven'; 'Poneman, Daniel'; 'D'Agostino, Thomas'; 'Mustin, Tracy'; 'Carlson, Nicholas'; 'Alldridge, David'; 'Hoffman, Patricia'; 'Koonin, Steven'; 'Miller, Neile'; 'Krol, Joseph'; 'Johnson, Shane'; 'Kelly, John E (NE)'; 'McGinnis, Edward'; 'Duncan, Aleshia'; 'O'Connor, Rod'; 'Bryan, William'; 'Williams, Melvin'; 'Hurlbut, Brandon'; 'Anderson, Margot'; 'Mueller, Stephanie'; 'LaVera, Damien'; 'Reynolds, Tom'; 'Hunsaker, Christopher'; 'Koontz, Thomas'; 'Leistikow, Dan'; 'Zubarev, Jill E'

**Subject:** Fukushima -1 NPP

NISA's announced the related parameters of Fukushima -1 as of 17:00 on March 17.

<http://www.meti.go.jp/press/20110317008/20110317008-3.pdf> (in Japanese)

From Unit 1 to Unit 6.

Water injection situation:

Unit 1: Sea water injection through fire extinguish pipe, No flow gauge, Pressure: 0.35 MPa (14:00)

Unit 2: Sea water injection through fire extinguish pipe, Flow rate: 410 L/min, Pressure: 0.65 MPa (16:31)

Unit 3: Sea water injection through fire extinguish pipe, Flow rate: 180 L/min, Pressure: 0.35 MPa (14:00)

Reactor Water level:

Unit 1: Fuel area A: minus 1700 mm, Fuel area B: minus 1750mm (12:50)

Unit 2: Fuel area A: minus 1800 mm (12:50)

Unit 3: Fuel area A: minus 1920 mm, Fuel area B: minus 2300 mm (16:35)

Unit 4: -

Unit 5: 1868mm (17:00)

Unit 6: 1694 mm (17:00)

Reactor Pressure:

Unit 1: 0.185 MPag (A), 0.144 MPag (B), (12:50)

Unit 2: minus 0.027 MPag (A), minus 0.045 MPag (B), (12:50)

Unit 3: 0.005 MPag (A), 0.018 MPag (B), (12:50)

Unit 4: -

Unit 5: 1.135 MPag (17:00)

Unit 6: 0.500 MPag (17:00)

Reactor Water temperature:

Unit 1-4: -

Unit 5: 186.2 C (17:00)

Unit 6: 153.5 C(17:00)

D/W, S/C Pressure and S/C water temperature:

Unit 1: D/W detector malfunction, S/C detector malfunction

Unit 2: D/W 0.110 MPaaba, S/C D/C (12:50)

Unit 3: D/W 0.170 MPaaba, S/C D/C (16:35)

Unit 4-6: -

CAMS:

Unit 1: D/W  $4.10 \times 10^{-3}$  Sv/h, S/W  $3.16 \times 10^1$  Sv/h (12:50)

Unit 2: D/W  $8.44 \times 10^1$  Sv/h, S/W  $2.43 \times 10^0$  Sv/h (12:50)

Unit 3: CAMS was not recovered.

Unit 4-6: -

D/W designed utilization pressure:

Unit 1: 384 kPag

Unit 2: 384 kPag

Unit 3: 384 kPag

D/W maximum utilization pressure:

Unit 1: 427 kPag

Unit 2: 427 kPag

Unit 3: 427 kPag

Spent fuel water temperature:

Unit 4: 84 C (March 14, 04:08)

Unit 5: 64.5 C (17:00)

Unit 6: 64.0 C (17:00)

Power:

Unit 1: 1A & 1B : trip

Unit 2: 2A & 2B: trip

Unit 3: 3A & 3B: trip

Unit 4: 4A & 4B: unusable

Unit 5: 5A & 5B: trip

Unit 6: 6A: unusable, 6B: operational, HPCS: unusable

Uchida

DOE Tokyo



**McKelvey, Harold**

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**From:** Collins, Elmo  
**Sent:** Thursday, March 17, 2011 2:54 PM  
**To:** Howell, Art; Kennedy, Kriss; Vogel, Anton; Hay, Michael  
**Subject:** FYI: Congressional Correspondence  
**Attachments:** Sen. Boxer and Carper.pdf

Letter from Senate EPW and Clean Air committees

---

**From:** Sosa, Belkys  
**Sent:** Thursday, March 17, 2011 2:49 PM  
**To:** Davis, Roger; Baggett, Steven; Snodderly, Michael; Collins, Elmo  
**Subject:** Fw: Congressional Correspondence

Fyi

Sent from an NRC Blackberry  
Belkys Sosa

(b)(6)

---

**From:** Champ, Billie  
**To:** Batkin, Joshua; Monninger, John; Sharkey, Jeffry; Sosa, Belkys; Bubar, Patrice; Nieh, Ho  
**Cc:** Vietti-Cook, Annette; Jaegers, Cathy; Clayton, Kathleen; McKelvin, Sheila  
**Sent:** Thu Mar 17 14:40:45 2011  
**Subject:** Congressional Correspondence

I have attached for your information a letter from Senators Boxer and Carper dated March 17, 2011 re: Risks posed to nuclear reactors in the U.S.

*Billie A. C-Lopes*  
*March 17, 2011*

BARBARA BOHLEN, CALIFORNIA, CHAIRMAN

DAVID BAILEY, MONTANA  
THOMAS R. CARPER, DE LAWARE  
FRANK R. LUTTERBECK, NEW JERSEY  
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JOHN BARRASSO, MONTANA  
JIM COOPER, ARIZONA  
MIKE CRAPANZANO, OHIO  
LARRY CROWDER, TEXAS  
JOHN L. CRAMER, ARIZONA  
JOHN L. CRAMER, ARIZONA

## United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

WASHINGTON, DC 20510-6125

OFFICE OF THE CLERK, U.S. SENATE  
WASHINGTON, DC 20540-5000

March 17, 2011

The Honorable Gregory Jaczko  
Chairman  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Dear Chairman Jaczko:

The loss of life and physical damage that Japan sustained in last week's devastating earthquake and subsequent destructive tsunami is catastrophic and heartbreaking. Our thoughts and prayers, as well as those of the American people, go out to all citizens of Japan and especially to the families of the thousands of disaster victims.

As this tragedy continues to unfold, we encourage the Nuclear Regulatory Commission and other U.S. agencies to continue to coordinate fully with the Japanese government to assess the status of public safety in light of the reactors' failures and to provide all technical assistance required.

The earthquake and tsunami that struck Japan are chilling reminders that we are all vulnerable to unexpected disasters, whether they are an act of nature or a terrorist attack. While we cannot predict with any certainty when or where the next major disaster will occur, we know that adequate preparation and response planning are absolutely vital to minimize injury, death, and destruction when it does happen.

As the Committee with oversight responsibilities on nuclear safety, we believe it is important to assist Japan to ensure that this nuclear disaster is contained as quickly and effectively as possible. For the long term, the multiple simultaneous failures of backup coolant systems at nuclear reactors in Japan are a clear warning that we must step up efforts to ensure that every precaution is taken to safeguard the American people from a similar incident at a U.S. nuclear facility.

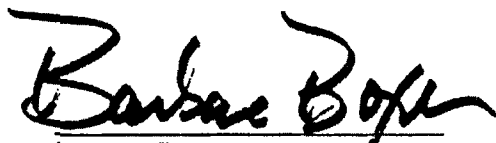
Therefore, we call on the NRC to conduct a comprehensive investigation of all nuclear facilities in the United States to assess their capacity to withstand catastrophic natural or man-made disasters including scenarios that may be considered remote like the recent events in Japan. These domestic nuclear reactors must be fully evaluated to ensure that they are as safe and resilient as possible, that worst case scenarios are examined and addressed, and that personnel training and equipment for emergency responses are in place and up-to-date. Special and immediate attention should be given to those U.S. nuclear reactors that share similar characteristics as the failing reactors in Japan, including similar designs or located near a coastline or seismic fault line.

In addition to updating the EPW Committee on a regular basis, we also request that the NRC supply information to the committee as soon as possible regarding the following issues:

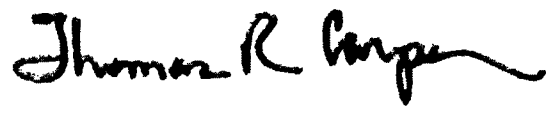
1. Please identify all U.S. nuclear facilities subject to significant seismic activity and/or tsunamis.
2. U.S. nuclear power plants are designed to be safe based on historical data of the area's maximum credible threat (including earthquakes and tsunamis). What extra safety features does the NRC currently require for facilities that have a credible threat of an earthquake and/or tsunami? In light of the recent events in Japan, we would also like the NRC to re-examine the assumptions used to determine the maximum credible threat and suggest additional options that could provide a greater margin for safety at plants nationwide that might be subject to challenges similar to those currently being seen in Japan following the earthquake and tsunami.
3. Which U.S. nuclear power plants share similar design features with the affected Japanese reactor facilities? Do these facilities have design vulnerabilities that should be addressed to ensure their cooling systems do not fail when confronted by stresses including those similar to what we have seen in Japan following the earthquake and tsunami?
4. How comprehensive is the radiation monitoring system in Japan? Would the U.S. take a similar monitoring approach if a serious accident were to occur here? What increased risk is associated with exposure to mixed oxide fuel?
5. Given what has happened at the Japanese facilities, please describe how the NRC currently ensures the safety of spent fuel pools at U.S. facilities and identify additional steps the NRC could take to better address the vulnerabilities of spent fuel pools at plants in the U.S.
6. Has the NRC modeled what could happen if the U.S. had multiple nuclear accidents simultaneously? If so, how would the NRC respond to such a disaster?

Safety is always our number one priority, and therefore it is vital that the NRC immediately evaluate the risks posed to nuclear reactors in the United States. We look forward to working with you to ensure that the nuclear energy industry and NRC regulators are adequately prepared to prevent accidents and to fully address the risks of serious events in the future.

Sincerely yours,



Barbara Boxer  
Chairman  
Committee on Environment and  
Public Works



Tom Carper  
Chairman  
Subcommittee on Clean Air and  
Nuclear Safety

**McKelvey, Harold**

---

**From:** Leeds, Eric  
**Sent:** Thursday, March 17, 2011 1:06 PM  
**To:** Wiggins, Jim; Sheron, Brian; Johnson, Michael; Collins, Elmo; Satorius, Mark; McCree, Victor; Dean, Bill  
**Cc:** Evans, Michele; Uhle, Jennifer; Holahan, Gary; Howell, Art; Wert, Leonard; Lew, David  
**Subject:** FW: INPO Event Report Level 1 on Japanese Earthquake

FYI – makes it easier for staff to access. See below.

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

**From:** Gray, Kathy  
**Sent:** Thursday, March 17, 2011 12:32 PM  
**To:** Thomas, Eric; King, Mark; Thorp, John; Brown, Frederick; Leeds, Eric; Boger, Bruce; Grobe, Jack  
**Cc:** Rihm, Roger; Bowman, Eric; Garmon-Candelaria, David  
**Subject:** RE: INPO Event Report Level 1 on Japanese Earthquake

The INPO document has been posted ... [IER L1-11-1 - Fukushima Daiichi Nuclear Station Fuel Damage Caused by Earthquake and Tsunami](#)

**From:** Thomas, Eric  
**Sent:** Wednesday, March 16, 2011 1:43 PM  
**To:** King, Mark; Thorp, John; Brown, Frederick; Leeds, Eric; Boger, Bruce; Grobe, Jack  
**Cc:** Rihm, Roger; Bowman, Eric; Gray, Kathy; Garmon-Candelaria, David  
**Subject:** INPO Event Report Level 1 on Japanese Earthquake

We will post this to the INPO Documents link on the OpE Gateway as soon as possible.

Eric

*Eric Thomas*

U.S. Nuclear Regulatory Commission  
NRR/DIRS/IOEB  
OWFN-7E24  
[eric.thomas@nrc.gov](mailto:eric.thomas@nrc.gov)  
301-415-6772 (office)  
(b)(6) mobile)

44/65

**McKelvey, Harold**

---

**From:** Lantz, Ryan  
**Sent:** Thursday, March 17, 2011 1:25 PM  
**To:** Hall, Randy  
**Cc:** Markley, Michael; Hay, Michael; Collins, Elmo; Owen, Lucy; Tannenbaum, Anita  
**Subject:** RE: SONGS Tour for California senators

Randy,

Have you heard any confirmation of this from the EDOs office? The site is preparing for the visit, and proposing a slightly longer schedule (just to cover the logistics of getting from A to B to C.)

Ryan

**From:** Markley, Michael  
**Sent:** Thursday, March 17, 2011 1:07 PM  
**To:** Hay, Michael; Lantz, Ryan  
**Subject:** FW: SONGS Tour for California senators

fyi

**From:** Hall, Randy  
**Sent:** Thursday, March 17, 2011 2:01 PM  
**To:** Nelson, Robert; Markley, Michael; Giitter, Joseph  
**Cc:** Howe, Allen  
**Subject:** FW: SONGS Tour for California senators

Joe, Nelson, and Mike,

Looks like Senators Boxer and Feinstein will be visiting SONGS (Briefly) this Tuesday, March 22, with Commissioner Apostolakis and Elmo Collins.

Randy

**From:** Weil, Jenny  
**Sent:** Thursday, March 17, 2011 1:06 PM  
**To:** Schmidt, Rebecca; Powell, Amy; Hall, Randy; Lantz, Ryan; Uselding, Lara  
**Subject:** Fw: SONGS Tour for California senators

This is the current schedule proposed by Feinstein/Boxer's staff, though they might try to see if Senators' schedule allow for more than an hour at the plant, per SCE's request.

Sent via BlackBerry  
Jenny Weil  
Congressional Affairs Officer  
U.S. Nuclear Regulatory Commission

(b)(6)

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**From:** Field, Katherine (Feinstein) <[Katherine\\_Field@feinstein.senate.gov](mailto:Katherine_Field@feinstein.senate.gov)>  
**To:** Weil, Jenny; [Kathy.Yhip@sce.com](mailto:Kathy.Yhip@sce.com) <[Kathy.Yhip@sce.com](mailto:Kathy.Yhip@sce.com)>  
**Cc:** Bohigian, Tom (Boxer) <[Tom\\_Bohigian@boxer.senate.gov](mailto:Tom_Bohigian@boxer.senate.gov)>; Kaneko, Nicole (Boxer)

<Nicole\_Kaneko@boxer.senate.gov>; Kalligeros, Maria (Boxer) <Maria\_Kalligeros@boxer.senate.gov>; Nelson, Matthew (Feinstein) <Matthew\_Nelson@feinstein.senate.gov>; Clapp, Doug (Appropriations) <Doug\_Clapp@appro.senate.gov>

**Sent:** Thu Mar 17 12:38:25 2011

**Subject:** SONGS Tour

Hi Kathy, Jenny,

Both Senator Feinstein and Senator Boxer are scheduled to tour SONGS at 1:30pm on Tuesday, March 22nd. This is the schedule I put together after advancing the site with Kathy on Tuesday. I have included Senator Boxer's staff on this email as well. Can you please advise us on the schedule, logistics and security required for the visit?

## **SONGS Tour**

### **1:30pm**

- From the gate , car tour to over look of the Power Plant.
  - The View will be of the Reactors, Holding Pools and sea wallThis will take 15 minutes.
- Then proceed to the actual power plant where the reactors are.  
Security, sign in and base line radiation will be taken at this time. This should take 15 min.

### **1:45 pm**

- Tour the facility

### **2:00 pm**

- **Meeting with below, in conference room**
  - US Senator Dianne Feinstein
  - US Senator Barbara Boxer
  - George Apostolakis, Commissioner, U.S. Nuclear Regulatory Commission
  - Elmo Collins, Jr., Regional Administrator, U.S. Nuclear Regulatory Commission
  - David Applegate, Senior Science Advisor for Earthquake & Geologic Hazards, U.S. Geologic Survey
  - Pete Dietrich, Senior Vice President and Chief Nuclear Officer, Southern California Edison

### **2:30 pm**

### **Depart for San Diego**

Thank you!

Katherine Field  
U.S. Senator Dianne Feinstein  
750 B Street, Suite 1030  
San Diego, California 92101  
(p) 619-231-9712 (f) 619-231-1108

**McKelvey, Harold**

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**From:** Collins, Elmo  
**Sent:** Thursday, March 17, 2011 10:35 AM  
**To:** Howell, Linda  
**Subject:** RE: Info: Possible request wrt KI

We don't want to get too much - do we?

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

**From:** Howell, Linda  
**Sent:** Thursday, March 17, 2011 10:33 AM  
**To:** Collins, Elmo; Wilson, Peter  
**Cc:** Lew, David; Dean, Bill; Weerakkody, Sunil; Henderson, Pamela  
**Subject:** RE: Info: Possible request wrt KI

Thanks to RI!!!

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

**From:** Collins, Elmo  
**Sent:** Thursday, March 17, 2011 10:02 AM  
**To:** Wilson, Peter  
**Cc:** Lew, David; Dean, Bill; Weerakkody, Sunil; Henderson, Pamela; Howell, Linda  
**Subject:** RE: Info: Possible request wrt KI

Thank you!  
Elmo

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

**From:** Wilson, Peter  
**Sent:** Thursday, March 17, 2011 9:53 AM  
**To:** Collins, Elmo  
**Cc:** Lew, David; Dean, Bill; Weerakkody, Sunil; Henderson, Pamela; Howell, Linda  
**Subject:** FW: Info: Possible request wrt KI

Elmo,

We will be shipping out 252 KI tablets to you today via FedEx.

Hope all is well in Region IV.

Pete

Peter R. Wilson  
Acting Director  
Division of Reactor Safety, Region I  
U.S. Nuclear Regulatory Commission  
610-337-5126 (W)  
(b)(6) (C)  
610-337-0920 (fax)  
[peter.wilson@nrc.gov](mailto:peter.wilson@nrc.gov)

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

From: Hinson, Felicia  
Sent: Thursday, March 17, 2011 10:29 AM  
To: McKinley, Raymond; Wilson, Peter  
Subject: RE: Info: Possible request wrt KI

Pete,

We are sending 252 tablets to Region IV today (via Federal Express).

--Felicia

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

From: McKinley, Raymond  
Sent: Thursday, March 17, 2011 9:25 AM  
To: Wilson, Peter; Hinson, Felicia  
Subject: RE: Info: Possible request wrt KI

Yes, but we need to keep a minimum of 50 packs to accommodate two 25 person Site Teams for 14 days. We do not have a minimum standard, but I think that should be our minimum stock for planning purposes. We will send what we have above our 50 pack minimum.

Ray

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

From: Wilson, Peter  
Sent: Thursday, March 17, 2011 6:28 AM  
To: McKinley, Raymond; Hinson, Felicia  
Subject: FW: Info: Possible request wrt KI  
Importance: High

Ray and Felicia,

Do we have any spare KI that we can send to Region IV?

Thanks,

Pete

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

From: Dean, Bill  
Sent: Wednesday, March 16, 2011 10:37 PM  
To: Henderson, Pamela  
Cc: Lew, David; Wilson, Peter; Weerakkody, Sunil  
Subject: FW: Info: Possible request wrt KI

what does our stash look like and can we help region IV?

---

From: Collins, Elmo

Sent: Wednesday, March 16, 2011 2:38 PM  
To: McCree, Victor; Satorius, Mark; Dean, Bill; Wiggins, Jim; Rudisail, Steven  
Cc: Evans, Michele; Pederson, Cynthia; Lew, David; Wert, Leonard; Howell, Art; Croteau, Rick; Munday, Joel; Christensen, Harold; Jones, William  
Subject: RE: Info: Possible request wrt KI





From: McCree, Victor  
Sent: Wednesday, March 16, 2011 1:35 PM  
To: Collins, Elmo; Satorius, Mark; Dean, Bill; Wiggins, Jim; Rudisail, Steven  
Cc: Evans, Michele; Pederson, Cynthia; Lew, David; Wert, Leonard; Howell, Art; Croteau, Rick; Munday, Joel; Christensen, Harold; Jones, William  
Subject: RE: Info: Possible request wrt KI

Thanks Elmo – we had provided a "stash" of KI for Chuck to carry along with him, but he inadvertently left it in his office. I'll ask our guys (Steve – your action) to interface with yours and share as much as we can.

Vic  
From: Collins, Elmo  
Sent: Wednesday, March 16, 2011 2:33 PM  
To: Satorius, Mark; Dean, Bill; McCree, Victor; Wiggins, Jim  
Cc: Evans, Michele; Pederson, Cynthia; Lew, David; Wert, Leonard; Howell, Art  
Subject: Info: Possible request wrt KI

All

Chuck Casto had a layover here in Texas on his way to Japan. In the hurriedness of getting on the plane, he found that he might not have been equipped as he needed to be, especially wrt KI. So, Region IV gave all our KI (53 packets) to Chuck for use in Japan, along with dosimeters and pocket dosimeters. So, Region IV finds itself without an immediate stash of KI for use if we had to send a site team.

Needless to say, given the high demand for KI, it is difficult to purchase on the open market.

Your staff will likely be contacted to see if we can beg, borrow, or steal enough packets of KI in order to equip a site team.

Thank you for your cooperation and generosity.

Elmo

**Miller, Geoffrey**

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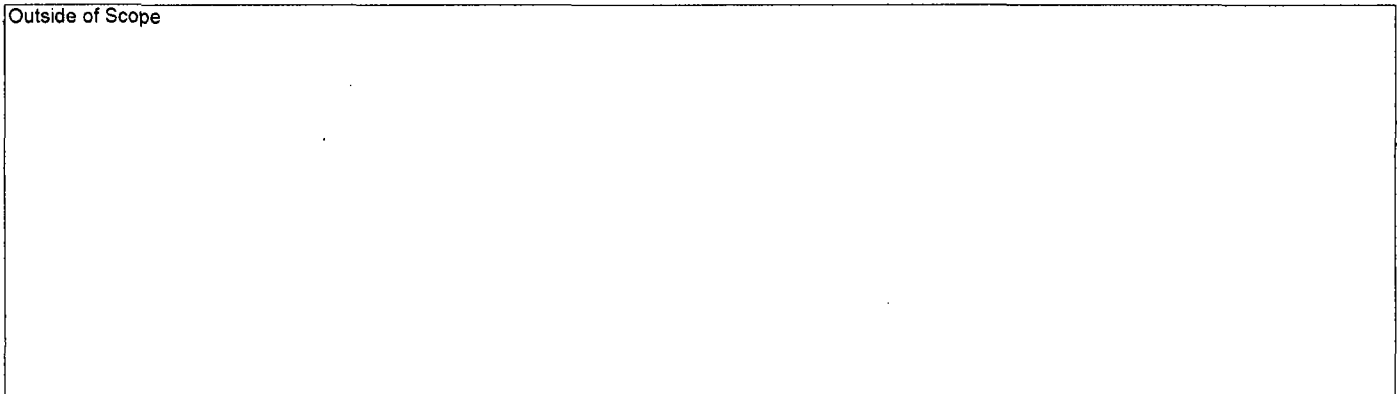
**From:** Trapp, James  
**Sent:** Monday, March 14, 2011 3:10 PM  
**To:** Miller, Geoffrey  
**Subject:** RE: New OEDO Coord?

I'm sure you know most the details. Information is very sketchy. We were optimistically cautious of a success path upto yesterday and then the wheels seemed to start to fall off. Lost RCIC at U2, lost sea water cooling at U1 and U3 and U3 had a H2 explosion. Seawater was lost by pump failures and not explosions. They asked for US support yesterday and everything was placed in motion to support.

Don't have a lot of details on flow paths, etc (stuff engineers need to know). Working on getting better information sources.

Hope all is well - Jim.

Outside of Scope



2/5

HH/68

## **McKelvey, Harold**

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**From:** Collins, Elmo  
**Sent:** Thursday, March 17, 2011 10:25 AM  
**To:** Vogel, Anton; Kennedy, Kriss; Hay, Michael  
**Subject:** FW: Event Response - Communications and Qs&As

**From:** Satorius, Mark  
**Sent:** Thursday, March 17, 2011 10:19 AM  
**To:** Leeds, Eric; Collins, Elmo; McCree, Victor; Dean, Bill; Pederson, Cynthia  
**Cc:** Virgilio, Martin; Weber, Michael  
**Subject:** RE: Event Response - Communications and Qs&As

great support - thanks Eric.

---

**From:** Leeds, Eric  
**Sent:** Wednesday, March 16, 2011 6:01 PM  
**To:** Collins, Elmo; Satorius, Mark; McCree, Victor; Dean, Bill  
**Cc:** Virgilio, Martin; Weber, Michael  
**Subject:** FYI: Event Response - Communications and Qs&As

See below – we've upped our ante and are doing our best to support the regions.

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

**From:** Nelson, Robert  
**Sent:** Wednesday, March 16, 2011 3:13 PM  
**To:** Lew, David; Wert, Leonard; Pederson, Cynthia; Howell, Arthur  
**Cc:** Glitter, Joseph; Leeds, Eric; Boger, Bruce; Ruland, William; Meighan, Sean; Nguyen, Quynh; Thomas, Eric; Thorp, John  
**Subject:** Event Response - Communications and Qs&As

I've been assigned as the NRR Communications Coordinator for matters dealing with our response to the events in Japan.

1. I understand that you were recently sent the Chairman's Qs&As. I understand that EOC meetings are beginning next week and the regional staff need to be prepared for stakeholder questions that will arise regarding the events & our plants. Are these Qs&As sufficient? If not, what additional areas do you want addressed?
2. Please identify a POC in your region that my team & I can coordinate with on communications issues.
3. I understand that a concern was raised about the Ops Center contacting a family member and that a protocol is needed for such contact. I'm working on it.
4. We will likely formulate a "tiger team" to prepare responses to written inquiries. I'll keep you advised.
5. Communications with the regions, particularly those requesting information regarding specific plants, should be coordinated thru my team. If you have concerns in this regard, please contact me.

*R. Nelson*

Robert A. Nelson  
Deputy Director  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation



E-mail: [robert.nelson@nrc.gov](mailto:robert.nelson@nrc.gov) | Office: (301) 415-1453 | Cell: (b)(6) | Fax: (301) 415-2102 |

**McKelvey, Harold**

---

**From:** Collins, Elmo  
**Sent:** Thursday, March 17, 2011 10:02 AM  
**To:** Wilson, Peter  
**Cc:** Lew, David; Dean, Bill; Weerakkody, Sunil; Henderson, Pamela; Howell, Linda  
**Subject:** RE: Info: Possible request wrt KI

Thank you!  
Elmo

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

**From:** Wilson, Peter  
**Sent:** Thursday, March 17, 2011 9:53 AM  
**To:** Collins, Elmo  
**Cc:** Lew, David; Dean, Bill; Weerakkody, Sunil; Henderson, Pamela; Howell, Linda  
**Subject:** FW: Info: Possible request wrt KI

Elmo,

We will be shipping out 252 KI tablets to you today via FedEx.

Hope all is well in Region IV.

Pete

Peter R. Wilson  
Acting Director  
Division of Reactor Safety, Region I  
U.S. Nuclear Regulatory Commission  
610-337-5126 (W)  
(b)(6) (C)  
610-337-6928 (fax)  
[peter.wilson@nrc.gov](mailto:peter.wilson@nrc.gov)

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

**From:** Hinson, Felicia  
**Sent:** Thursday, March 17, 2011 10:29 AM  
**To:** McKinley, Raymond; Wilson, Peter  
**Subject:** RE: Info: Possible request wrt KI

Pete,

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--Felicia

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

**From:** McKinley, Raymond  
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To: Wilson, Peter; Hinson, Felicia  
Subject: RE: Info: Possible request wrt KI

Yes, but we need to keep a minimum of 50 packs to accommodate two 25 person Site Teams for 14 days. We do not have a minimum standard, but I think that should be our minimum stock for planning purposes. We will send what we have above our 50 pack minimum.

Ray

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

From: Wilson, Peter  
Sent: Thursday, March 17, 2011 6:28 AM  
To: McKinley, Raymond; Hinson, Felicia  
Subject: FW: Info: Possible request wrt KI  
Importance: High

Ray and Felicia,

Do we have any spare KI that we can send to Region IV?

Thanks,

Pete

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

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To: Henderson, Pamela  
Cc: Lew, David; Wilson, Peter; Weerakkody, Sunil  
Subject: FW: Info: Possible request wrt KI

what does our stash look like and can we help region IV?

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To: McCree, Victor; Satorius, Mark; Dean, Bill; Wiggins, Jim; Rudisail, Steven  
Cc: Evans, Michele; Pederson, Cynthia; Lew, David; Wert, Leonard; Howell, Art; Croteau, Rick; Munday, Joel; Christensen, Harold; Jones, William  
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Thanks Elmo – we had provided a “stash” of KI for Chuck to carry along with him, but he inadvertently left it in his office. I'll ask our guys (Steve – your action) to interface with yours and share as much as we can.

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Needless to say, given the high demand for KI, it is difficult to purchase on the open market.

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Thank you for your cooperation and generosity.

Elmo

**McKelvey, Harold**

---

**From:** Howell, Linda  
**Sent:** Thursday, March 17, 2011 10:33 AM  
**To:** Collins, Elmo; Wilson, Peter  
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## **McKelvey, Harold**

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**Cc:** Virgilio, Martin; Weber, Michael  
**Subject:** FYI: Event Response - Communications and Qs&As

See below - we've upped our ante and are doing our best to support the regions.

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

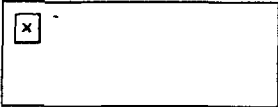
**From:** Nelson, Robert  
**Sent:** Wednesday, March 16, 2011 3:13 PM  
**To:** Lew, David; Wert, Leonard; Pederson, Cynthia; Howell, Arthur  
**Cc:** Glitter, Joseph; Leeds, Eric; Boger, Bruce; Ruland, William; Meighan, Sean; Nguyen, Quynh; Thomas, Eric; Thorp, John  
**Subject:** Event Response - Communications and Qs&As

I've been assigned as the NRR Communications Coordinator for matters dealing with our response to the events in Japan.

1. I understand that you were recently sent the Chairman's Qs&As. I understand that EOC meetings are beginning next week and the regional staff need to be prepared for stakeholder questions that will arise regarding the events & our plants. Are these Qs&As sufficient? If not, what additional areas do you want addressed?
2. Please identify a POC in your region that my team & I can coordinate with on communications issues.
3. I understand that a concern was raised about the Ops Center contacting a family member and that a protocol is needed for such contact. I'm working on it.
4. We will likely formulate a "tiger team" to prepare responses to written inquiries. I'll keep you advised.
5. Communications with the regions, particularly those requesting information regarding specific plants, should be coordinated thru my team. If you have concerns in this regard, please contact me.

*Robert A. Nelson*

Robert A. Nelson  
Deputy Director  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation



E-mail: [robert.nelson@nrc.gov](mailto:robert.nelson@nrc.gov) |

Office: (301) 415-1453 | J Cell:

(b)(6)

Fax: (301) 415-2102 |

## **McKelvey, Harold**

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**From:** Nguyen, Quynh  
**Sent:** Thursday, March 17, 2011 9:51 AM  
**To:** Landau, Mindy; Barkley, Richard  
**Cc:** Roberts, Darrell; Meighan, Sean; Dean, Bill; McNamara, Nancy; Tifft, Doug; Lew, David; Ellmers, Glenn; Nelson, Robert; Leeds, Eric; Boger, Bruce; Grobe, Jack; McCree, Victor; Satorius, Mark; Collins, Elmo; Lee, Michael; Brenner, Eliot; Thomas, Eric; Couret, Ivonne; Burnell, Scott; McIntyre, David; Wittick, Brian; Virgilio, Rosetta  
**Subject:** FOR INTERNAL USE BY STAFF: Sharepoint Site on the Fukushima Event  
**Importance:** High

Mindy,

We placed the OPA-approved documents to the NRR SharePoint Site. We understand the need to keep staff informed. It links directly to the documents.

<http://portal.nrc.gov/edo/nrr/default.aspx>

NRR ET/LT agreed that the "FAQ" SharePoint site needs limited access so we can put draft working documents there for ease of use by those directly responding to Japan-related actions. Again, Robert Nelson (NRR SES) has been assigned to lead the Q&A effort.

Thank you everyone for the continued support and understanding.  
Quynh

**From:** Landau, Mindy  
**Sent:** Thursday, March 17, 2011 8:47 AM  
**To:** Barkley, Richard; Nguyen, Quynh  
**Cc:** Roberts, Darrell; Meighan, Sean; Dean, Bill; McNamara, Nancy; Tifft, Doug; Lew, David; Ellmers, Glenn  
**Subject:** RE: Sharepoint Site on the Fukushima Event

Quynh – can we reference the cite as a resource for the entire NRC staff?

Mindy

**From:** Barkley, Richard  
**Sent:** Thursday, March 17, 2011 8:45 AM  
**To:** Nguyen, Quynh  
**Cc:** Roberts, Darrell; Meighan, Sean; Dean, Bill; Landau, Mindy; McNamara, Nancy; Tifft, Doug; Lew, David  
**Subject:** RE: Sharepoint Site on the Fukushima Event

Thanks very much Quynh!

**From:** Nguyen, Quynh  
**Sent:** Thursday, March 17, 2011 8:31 AM  
**To:** Barkley, Richard  
**Cc:** Roberts, Darrell; Meighan, Sean  
**Subject:** RE: Sharepoint Site on the Fukushima Event

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

It's important to note that there is Limited Contributor rights for document control. Only those blessed by OPA are "useable." Keep checking as we keep adding.

**From:** Barkley, Richard  
**Sent:** Wednesday, March 16, 2011 5:59 PM  
**To:** Wertz, Trent; Virgilio, Rosetta; Sheehan, Neil; Nguyen, Quynh  
**Subject:** Sharepoint Site on the Fukushima Event  
**Importance:** High

Word is there is a Sharepoint site on the Fukushima event that can be annexed by employees.

I can't find the link – Have any leads?? Thanks!

I promised to share it with the Region I staff.

Richard S. Barkley, PE  
Nuclear & Environmental Engineer  
(610) 337-5065 Work

(b)(6)

Cell

**Fuller, Karla**

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**From:** Fuller, Karla  
**Sent:** Tuesday, April 12, 2011 2:06 PM  
**To:** Farrington, John  
**Subject:** FW: Japan Team Leaders  
**Attachments:** IMG\_0012.jpg; IMG\_0018.jpg

John,

Thought you might want to see these.  
Karla

Karla D. Smith Fuller  
Regional Counsel/  
OCWE Champion  
U.S. NRC, Region IV  
612 E. Lamar Blvd.  
#400  
Arlington, TX 76011  
817-860-8271(work)  
817-276-4494(fax)  
[Karla.Fuller@nrc.gov](mailto:Karla.Fuller@nrc.gov)

~~THIS E-MAIL MAY CONTAIN ATTORNEY-CLIENT PRIVILEGE OR WORK PRODUCT INFORMATION. DO NOT DISCLOSE WITHOUT AUTHORIZATION.~~

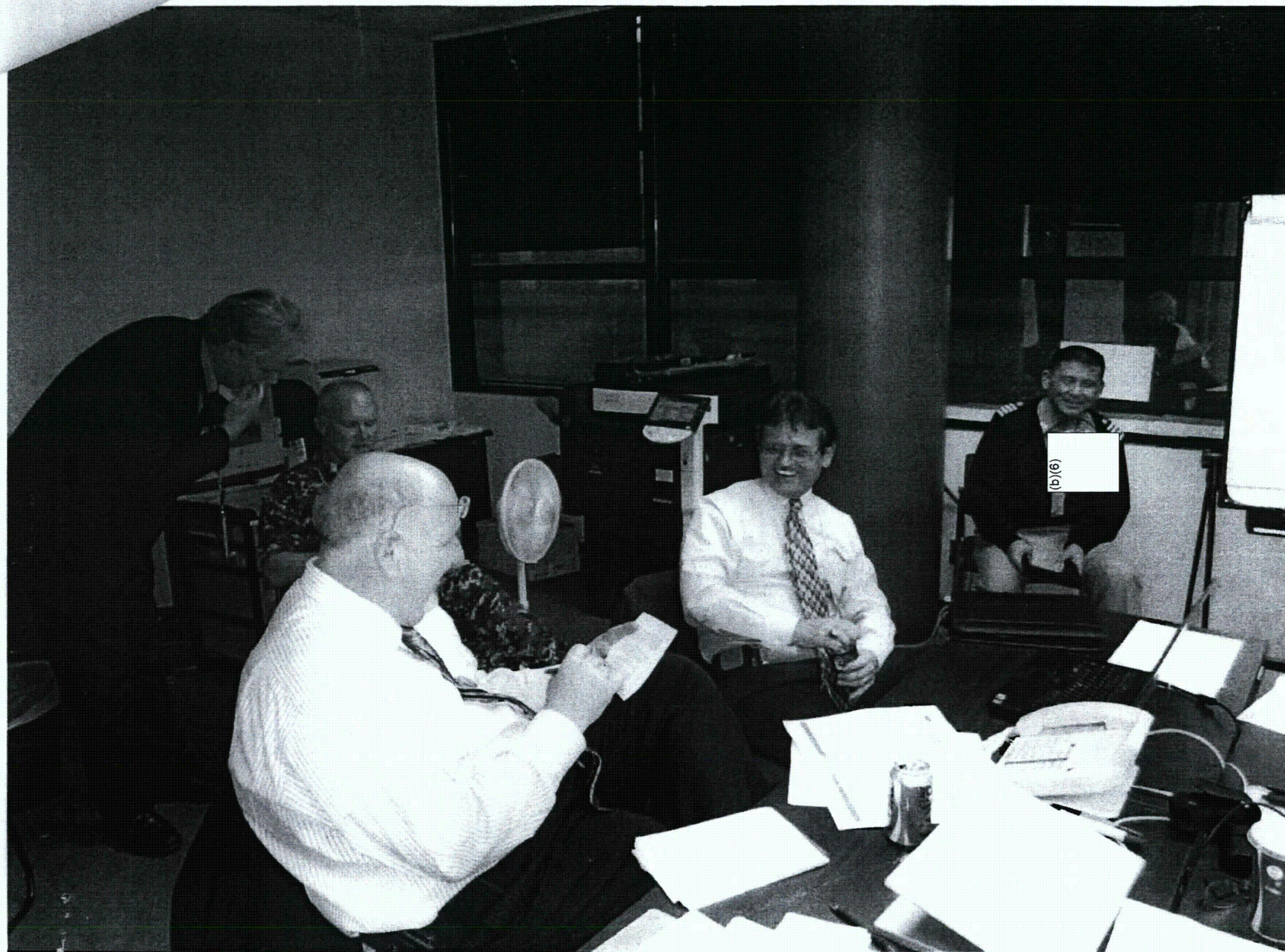
**From:** Hay, Michael  
**Sent:** Monday, April 11, 2011 11:02 PM  
**To:** R4; Bermudez, Hector; Deschaine, Wesley; Heath, Shawanna; Lanksbury, Roger; Masnyk Bailey, Orysia; Munday, Joel; Parker, Bryan; R2CCI1; R2DCI; R2DCP; R2DFFI; R2DRMA\_RMB; R2DRMA1\_No Contractors; R2DRP\_ALL; R2DRP\_INHOUSE; R2DRS; R2EICS; R2OI; R2ORA; R2SEC; Scott, Christian  
**Subject:** Japan Team Leaders

Hello folks from Japan. Here are two pics of our fearless leaders in action. One pic is of Elmo and Chuck in the NRC conference room. The other is Chuck getting ready for a helicopter ride to brief high level military folks with Elmo.

Take care,  
Mike Hay

44/174











**McKelvey, Harold**

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**From:** Sosa, Belkys  
**Sent:** Thursday, March 17, 2011 2:49 PM  
**To:** Davis, Roger; Baggett, Steven; Snodderly, Michael; Collins, Elmo  
**Subject:** Fw: Congressional Correspondence  
**Attachments:** Sen. Boxer and Carper.pdf

Fyi

Sent from an NRC Blackberry  
Belkys Sosa

(b)(6)

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**From:** Champ, Billie  
**To:** Batkin, Joshua; Monninger, John; Sharkey, Jeffry; Sosa, Belkys; Bubar, Patrice; Nieh, Ho  
**Cc:** Vietti-Cook, Annette; Jaegers, Cathy; Clayton, Kathleen; McKelvin, Sheila  
**Sent:** Thu Mar 17 14:40:45 2011  
**Subject:** Congressional Correspondence

I have attached for your information a letter from Senators Boxer and Carper dated March 17, 2011 re: Risks posed to nuclear reactors in the U.S.

*Billie A. C-Lopes*  
*March 17, 2011*

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BARBARA BOXER, CALIFORNIA, DEMOCRAT

MAX BAUCUS, MONTANA  
THOMAS R. CARPER, DELAWARE  
FRANK R. LAUTENBERG, NEW JERSEY  
BERNARD L. CANDOR, MARYLAND  
BERNARD SANDERS, VERMONT  
SHELDON WHITEHOUSE, RHODE ISLAND  
TOM UDALL, NEW MEXICO  
JEFF MERKLEY, OREGON  
KRISTEN GILLIBRAND, NEW YORK

JAMES M. INHOFE, OKLAHOMA  
DAVID VITTER, LOUISIANA  
DINO BABANICO, WYOMING  
JEFF SESSIONS, ALABAMA  
MIKE CRAIG, IDAHO  
LARRY ALEXANDER, RHODE ISLAND  
MIKE JOHNSON, MISSISSIPPI  
JOHN BOOZMAN, ARKANSAS

## United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

WASHINGTON, DC 20510-6175

BETTYA POWERS, CHIEF OF STAFF, DIRECTOR  
BETH ANN MARK, MANAGING STAFF DIRECTOR

March 17, 2011

The Honorable Gregory Jaczko  
Chairman  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Dear Chairman Jaczko:

The loss of life and physical damage that Japan sustained in last week's devastating earthquake and subsequent destructive tsunami is catastrophic and heartbreaking. Our thoughts and prayers, as well as those of the American people, go out to all citizens of Japan and especially to the families of the thousands of disaster victims.

As this tragedy continues to unfold, we encourage the Nuclear Regulatory Commission and other U.S. agencies to continue to coordinate fully with the Japanese government to assess the status of public safety in light of the reactors' failures and to provide all technical assistance required.

The earthquake and tsunami that struck Japan are chilling reminders that we are all vulnerable to unexpected disasters, whether they are an act of nature or a terrorist attack. While we cannot predict with any certainty when or where the next major disaster will occur, we know that adequate preparation and response planning are absolutely vital to minimize injury, death, and destruction when it does happen.

As the Committee with oversight responsibilities on nuclear safety, we believe it is important to assist Japan to ensure that this nuclear disaster is contained as quickly and effectively as possible. For the long term, the multiple simultaneous failures of backup coolant systems at nuclear reactors in Japan are a clear warning that we must step up efforts to ensure that every precaution is taken to safeguard the American people from a similar incident at a U.S. nuclear facility.

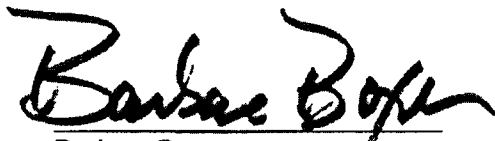
Therefore, we call on the NRC to conduct a comprehensive investigation of all nuclear facilities in the United States to assess their capacity to withstand catastrophic natural or man-made disasters including scenarios that may be considered remote like the recent events in Japan. These domestic nuclear reactors must be fully evaluated to ensure that they are as safe and resilient as possible, that worst case scenarios are examined and addressed, and that personnel training and equipment for emergency responses are in place and up-to-date. Special and immediate attention should be given to those U.S. nuclear reactors that share similar characteristics as the failing reactors in Japan, including similar designs or located near a coastline or seismic fault line.

In addition to updating the EPW Committee on a regular basis, we also request that the NRC supply information to the committee as soon as possible regarding the following issues:


1. Please identify all U.S. nuclear facilities subject to significant seismic activity and/or tsunamis.
2. U.S. nuclear power plants are designed to be safe based on historical data of the area's maximum credible threat (including earthquakes and tsunamis). What extra safety features does the NRC currently require for facilities that have a credible threat of an earthquake and/or tsunami? In light of the recent events in Japan, we would also like the NRC to re-examine the assumptions used to determine the maximum credible threat and suggest additional options that could provide a greater margin for safety at plants nationwide that might be subject to challenges similar to those currently being seen in Japan following the earthquake and tsunami.
3. Which U.S. nuclear power plants share similar design features with the affected Japanese reactor facilities? Do these facilities have design vulnerabilities that should be addressed to ensure their cooling systems do not fail when confronted by stresses including those similar to what we have seen in Japan following the earthquake and tsunami?
4. How comprehensive is the radiation monitoring system in Japan? Would the U.S. take a similar monitoring approach if a serious accident were to occur here? What increased risk is associated with exposure to mixed oxide fuel?
5. Given what has happened at the Japanese facilities, please describe how the NRC currently ensures the safety of spent fuel pools at U.S. facilities and identify additional steps the NRC could take to better address the vulnerabilities of spent fuel pools at plants in the U.S.
6. Has the NRC modeled what could happen if the U.S. had multiple nuclear accidents simultaneously? If so, how would the NRC respond to such a disaster?

Safety is always our number one priority, and therefore it is vital that the NRC immediately evaluate the risks posed to nuclear reactors in the United States. We look forward to working with you to ensure that the nuclear energy industry and NRC regulators are adequately prepared to prevent accidents and to fully address the risks of serious events in the future.

Sincerely yours,



Barbara Boxer  
Chairman  
Committee on Environment and  
Public Works



Thomas R. Carper  
Chairman  
Subcommittee on Clean Air and  
Nuclear Safety

Owen, Lucy

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From: (b)(6)  
Sent: Thursday, March 17, 2011 3:26 PM  
To: Collins, Elmo; Howell, Art  
Subject: Re: New Seismic Data

I think I've got what I need, thanks.

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

From: Elmo Collins  
To: (b)(6)  
To: Art Howell  
Subject: RE: New Seismic Data  
Sent: Mar 17, 2011 3:41 PM

Ellis

I'm looking to identify the best contact. I'll get back to you soon

Elmo

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

From: (b)(6)  
Sent: Thursday, March 17, 2011 11:02 AM  
To: Collins, Elmo; Howell, Art  
Subject: New Seismic Data

Elmo\Art,

I'm at Palo Verde and they are trying to figure out how to respond to the MSNBC report on Research's draft report recharacterizing the Seismic Risk of Nuclear Plants. The report ranks Palo Verde 18 highest risk and SONGS down around 49.

Is there someone I can call to help understand this?

Thanks,

Ellis  
Sent from my Verizon Wireless BlackBerry

Sent from my Verizon Wireless BlackBerry

**McKelvey, Harold**

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**From:** Sosa, Belkys  
**Sent:** Thursday, March 17, 2011 2:16 PM  
**To:** Collins, Elmo; Davis, Roger  
**Subject:** Fw: Ltr from Sens Boxer, Feinstein  
**Attachments:** Boxer Feinstein LETTER.pdf

Hi Elmo, I hope all is well.

Please note that the trip to Diablo and SONGS will also include Senator Boxer. If you have any information on these plants that can help Cmr Apostolakis prepare for the site visit, we would really appreciate it. I'll send you the details of the Senators agenda ASAP. I'm waiting for OCA to provide.

Thks

Sent from an NRC Blackberry

Belkys Sosa

(b)(6)

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**From:** Powell, Amy  
**To:** Blake, Kathleen  
**Cc:** Davis, Roger; Sosa, Belkys  
**Sent:** Thu Mar 17 14:04:10 2011  
**Subject:** Ltr from Sens Boxer, Feinstein

Kathleen,

Here is the letter that I referenced on my call this afternoon with Belkys and Roger.

Amy

Amy Powell  
Associate Director  
U. S. Nuclear Regulatory Commission  
Office of Congressional Affairs  
Phone: 301-415-1673