(62 Documents)

Group BH

(Records Released In Their Entirety)

Ross, Robin

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

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

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

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

Thank you, Craig

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

Thanks.
Jack Grobe, Deputy Director, NRR

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

Just got this from TEPCO.

Thank you, Craig

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

BH/1

Dear Friends,

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

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

Contacts:

TEPCO Washington Office 202-457-0790

Kenji Matsuo, General Manager

Yuichi Nagano, Deputy General Manager,

Masayuki Yamamoto, Manager, Nuclear Power Programs

==========

Press Release (Mar 14,2011)

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

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

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

- Offsite power is available.

- At 8:19am, Mar 12th, there was an alarm indicating that one of the control rods was not properly inserted, however, at 10:43am, Mar 12th the alarm was spontaneously called off. Other control rods has been confirmed that they are fully inserted (reactor is in subcritical status)

- Status of main steam isolation valve: closed

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

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

- At 5:22am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 5:22am, Mar 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.

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

- Restoration work in reactor cooling function that was conducted to achieve reactor cold shutdown has been completed and cooling of the reactor has been commenced at 1:24 am, Mar 14th.

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

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

- Offsite power is available.

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

- Status of main steam isolation valve: closed

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

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

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

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

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

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

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

- Offsite power is available.

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

- Status of main steam isolation valve: closed

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

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

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

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

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

- Offsite power is available.

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

- Status of main steam isolation valve: closed

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

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

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

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

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

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

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

Taylor, Renee

From: Borchardt, Bill
Sent: Sunday, March 13, 2011 4:07 PM
To: Ross-Lee, MaryJane; Tappert, John; Brown, Frederick
Subject: Fw: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown

Fyi
Bill Borchardt
Via blackberry

----- Original Message -----
From: Grobe, Jack
To: Leeds, Eric; Borchardt, Bill; Virgilio, Martin; Weber, Michael
Sent: Sun Mar 13 15:59:42 2011
Subject: Fw: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown

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

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

Just got this from TEPCO.

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Sent: Sunday, March 13, 2011 3:48 PM
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BH/2

Contacts:

TEPCO Washington Office 202-457-0790

Kenji Matsuo, General Manager

Yuichi Nagano, Deputy General Manager,

Masayuki Yamamoto, Manager, Nuclear Power Programs

==========

Press Release (Mar 14,2011)

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

From: frederick.schiffley@exeloncorp.com
To: Grobe, Jack
Cc: craig.nichols@ge.com; mhcrowthers@pplweb.com; olimpia@entergy.com; Jaczko, Gregory; Borchardt, Bill; Virgilio, Martin; Weber, Michael; Leeds, Eric
Subject: Re: Japan
Date: Sunday, March 13, 2011 2:59:01 PM

Jack,

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

Regards,

Ted

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

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

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

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

Jack,

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

Regards,

Ted

Ted Schiffley

BH13

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

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****

From: RST01 Hoc
To: Ulses, Anthony; Trapp, James
Subject: Rx Water Level Instrumentation
Date: Monday, March 14, 2011 1:21:45 AM
Attachments: Rx Water Level Instrument.pdf

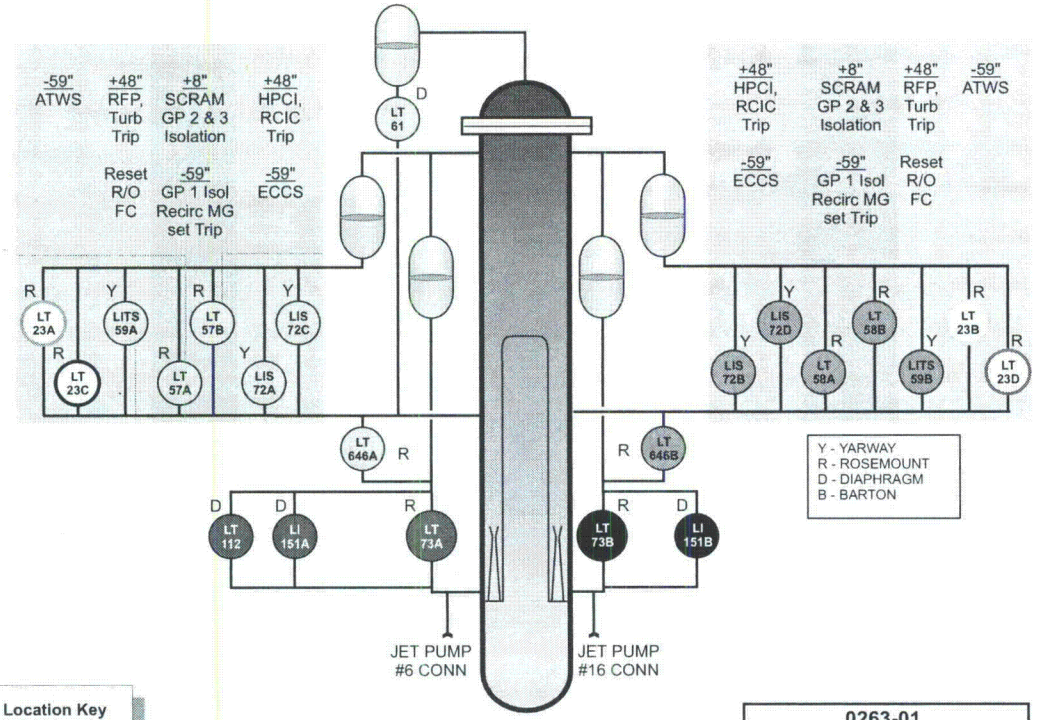
Tony/Jim,

We tried sending this via fax but think it was probably difficult to read. Hopefully you can see this on your blackberry.

Brett Rini
RST Coordinator

From: RST01B Hoc
Sent: Monday, March 14, 2011 1:20 AM
To: RST01B Hoc; RST01 Hoc
Subject: Rx Water Level Instrumentation

BHH



Transmitter Panel Location Key

220X - 5	225X - 75A
220X - 6	225X - 75C
220X - 7	225X - 75B
220X - 8	225X - 75D

0263-01
Control Room Reactor Water Level Instrument

Date: 03/30/00	Revision: 1
P&ID: N/A	

From:	Cherry, Ronald C
To:	Alan Remick; Aleshia Duncan; Duncan, Aleshia D; Trapp, James; James Trapp (BB); Mears, Jeremy M; Morales, Russell A; Nesheiwat, Julia; Ulses, Anthony; Uchida, Koichi
Subject:	FW: 08:40 Mar 15 - Running Update on Japan Emergency (running file attached)
Date:	Monday, March 14, 2011 7:43:40 PM
Attachments:	2011-03-15 running updates on japan emergency with times 0840 - Mar 15.docx

This email is UNCLASSIFIED.

08:40 Mar 15 - Running Update on Japan Emergency (running file attached)

0840

-

08:14 March 15, 2011 (Core Exposed at #2 Fukushima Daiichi) NHK on line: A NISA official at a press conference before 8:00 am noted that the fuel core was exposed about 2.7 meters above the water level in reactor No. 2 of Fukushima Daiichi. The length of fuel core exposed is about half the entire length. Right after the sound of an explosion was heard, the amount of radiation was measured at 965.5 microSv. Afterward, the amount decreased to 882 microSV, according to the NISA official.

08:04 March 15, 2011 (GOJ: Blast Heard At #2 Reactor at Fukushima Daiichi): Kyodo reported the sound of a blast was heard Tuesday morning at the troubled No. 2 reactor of the quake-hit Fukushima No. 1 nuclear power plant (Fukushima Daiichi), the government said. The incident occurred at 6:10 a.m. and is feared to have damaged the reactor's pressure-suppression system, the Nuclear and Industrial Safety Agency said, citing a report from the plant's operator Tokyo Electric Power Co. NHK on line reported at 08:04 NISA (Nuclear Safety Agency) noted that at 6:10 there was a sound of explosion in the reactor No. 2 of Fukushima Daiichi at a press conference. CCS Edano assured that no dramatic increase of radiation around the facility. CCS Edano revealed that there was some damage in an equimpent connected to the reacter containment vessels called supression pool. It is possible that the function to contain radiation is not working efficiently, Edano indicated.

Aaron P. Forsberg
Economic Officer
U.S. Embassy Tokyo
Tel. (03) 3224-5035
Fax (03) 3224-5019
E-mail: ForsbergAP@state.gov

This email is UNCLASSIFIED.

BH/S

0840

08:14 March 15, 2011 (Core Exposed at #2 Fukushima Daiichi) NHK on line: A NISA official at a press conference before 8:00 am noted that the fuel core was exposed about 2.7 meters above the water level in reactor No. 2 of Fukushima Daiichi. The length of fuel core exposed is about half the entire length. Right after the sound of an explosion was heard, the amount of radiation was measured at 965.5 microSv. Afterward, the amount decreased to 882 microSV, according to the NISA official.

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0815

08:00 March 15, 2011 (Oil Stockpiles) Nikkei on line (02:18): The GOJ plans to lower the required level for legally mandated private-sector oil stockpiles amid uncertainty in supplies of gasoline and other fuels. Minister of Economy, Trade and Industry Banri Kaieda said Monday night that oil wholesalers and other private-sector dealers will be able to reduce their required oil stockpiles from a 70-day supply to a 67-day supply. The reduction is the equivalent of 1.26 million kiloliters. The lower requirement will be maintained for a month, with 3,000 drums to be readied to get the oil to where it is needed. It will mark the fifth time Japan has released oil from its reserves. The last time was in September 2005 as part of an international response to Hurricane Katrina in the U.S.

Concerns of shortages of gasoline, kerosene and other fuels have emerged, in part because refineries have been shut down. Fuel oil is also in greater demand for generating power. The Ministry of Economy, Trade and Industry informed trading companies and other oil importers that it is considering allowing them to let their oil reserves fall below the legally mandated limit. The government will take additional steps to stem the disruption spreading through areas not directly damaged by the disaster. The government sees the cost of rebuilding from the disaster adding up to a record-high figure, even more than the roughly 3 trillion yen budgeted for the recovery from the 1995 Great Hanshin Earthquake. A senior policymaker in the ruling Democratic Party of Japan predicted "no less than 10 trillion yen" in supplementary-budget spending on the recovery. The Ministry of Finance plans to cope by cutting spending in next fiscal year's budget while issuing more bonds and raising some taxes. For now, the government is considering mobilizing nearly all of the 203.8 billion yen in remaining fiscal 2010 contingency funds. The cabinet approved an appropriation of 30.2 billion yen of this amount Monday for food and other emergency supplies.

07:04 March 15, 2011 Tuesday (Onagawa Nuclear Power Plant): According to the Asahi Newspaper, a rise in radiation at Tohoku Electric Company's Onagawa Nuclear Power Plant in Miyagi Prefecture was observed on March 14. The paper reported that the rise is expected to be the result of incidents at the

Fukushima Nuclear Power Plant. According to the Tohoku Electric Co., radiation in the air in the vicinity of the Onagawa Nuclear Power Plant, about 120 km north from the Fukushima Plant, rose to 21 micro sv per hour on March 13. It later dropped to 7 micro sv on March 14, but this is still much higher than normal levels.

07:02 March 15, 2011, Tuesday (Radiation Release) NHK on line: The radiation released from three reactors of Fukushima Daiichi nuclear plant is reaching neighboring prefectures. The Ibaraki prefecture has found that on the 15th the amount of radiation has increased in the prefecture border town of Kita Ibaraki city, 80 km south of the nuclear plant. At 4:00 am, 4.8 microSv/h was measured, which is 100 times more than normal level. This is one tenth of the amount usually received through a chest x-ray so Ibaraki prefecture determined it has no effect on the health of people. Around Sendai city, members of US forces were exposed a very small amount of radiation. With wind, it is believed that radiation is carried to neighboring prefectures from Fukushima Daiichi nuclear plant.

0700 March 15, 2011 Tuesday (Congen Sapporo team): CONGEN Sapporo consular team departed at 0700 in one official vehicle en route Hakodate ferry to Aomori. Destination Misawa Air Base to RON on 3/15, then to Morioka in Iwate on the 16th to link up with Tokyo team.

06:53 March 15, 2011, Tuesday (TEPCO Rolling Blackouts) Kyodo wire: TEPCO has announced on the 15th that beginning at 7:00 am they will start rolling blackouts in a part of their coverage area. They will continue at least until the end of April. There is concern that confusion among people due to interrupted transportation systems and industrial plant operation will be protracted. On the 14th, the first day of rolling blackouts, TEPCO only initiated one blackout in the late afternoon, and only 110,000 households were impacted. However, TEPCO believes that due to the "rebound effect," demand for electricity will increase, and they might be initiated earlier. TEPCO estimates the demand will be up to 37 million kW between 6:00 pm and 7:00 pm while the supply capacity is 33 million kW.

06:46 March 15, 2011 Tuesday (Fukushima suppression pool): NHK gave live coverage to CCS Edano's second press briefing of the morning in which he said that the government learned from TEPCO just a minute earlier that the suppression pool seems to have been partially destroyed. He stopped short of going into the details.

06:36 March 15, 2011 Tuesday (planned blackouts): NHK reported at 06:25 on TEPCO's announcement to implement planned power outages in part of Group 3 starting shortly before 07:00 this morning. A TEPCO representative specifically mentioned cities in Tochigi, Gunma, and Kanagawa, adding that some other areas may also be subject to power outages.

06:25 March 15, 2011 Tuesday (foreign rescue teams): NHK reported at 6:15 on the arrival of rescue teams from foreign countries and international organizations, including the United States and a UN disaster assessment team. The newscaster also reported on Russian FM Lavlov's visit to the Japanese Embassy in Moscow to offer flowers and to sign the condolence book.

06:33 March 15, 2011 Tuesday (USFJ: One Fire Truck Arrived, Second En Route): USFJ confirmed that the fire truck arrived in the Fukushima Dai Ichi Nuclear Power Plant area at 0500. At 0525, a second USFJ fire truck departed the Yokosuka Naval Base with a local Japanese police escort headed for the Fukushima area. The truck is expected to arrive at approximately 09:30-10:00, where it will be handed over to JSDF and TEPCO representatives.

06:29 March 15, 2011, Tuesday (NRC Jazcko Press Conference) Jiji Washington: At NRC Chairman Jazcko's press conference on the 14th, he said the GOJ has requested necessary material and equipment for the cooling system at the TEPCO Fukushima Daiichi nuclear (no. 1) power plant and said that (they will) provide all necessary assistance. He also said that he will dispatch an additional expert team. NRC has already dispatched two experts to Tokyo. Regarding the failure of the cooling system of reactors #1,2,3 at Fukushima Daiichi Nuclear Power Plant, Chairman Jazcko said that the hydrogen blast is a serious situation. He also stressed that the focus now is to take every necessary step to keep the reactors cool.

06:20 March 15, 2011 Tuesday (Fukushima reactor): According to the morning edition of the Yomiuri Newspaper, TEPCO announced on March 15 that a neutron beam was detected at the front of the gate of the No. 1 Fukushima Nuclear Power Plant on March 14 around 21:00. Yomiuri reported the level of radiation was unclear, but it is possible that the neutron beam was emitted from fuel of the 3rd reactor, where a hydrogen explosion occurred on the morning of March 14.

06:11 March 15, 2011 Tuesday (Reagan crew radiation exposure): According to several morning newspapers, the US Navy Seventh Fleet announced that low-level radiation was detected in seventeen helicopter personnel on the USS Ronald Reagan deployed off Sanriku for relief assistance. The Mainichi Newspaper reported that they were exposed to radiation leaked from the No. 1 Fukushima Nuclear Power Plant as they were engaged in relief operations in the vicinity of Sendai. Radiation was not detected after re-cleansing, Manichi reported.

06:03 March 15, 2011 Tuesday (Press: Wikileaks Release): The Guardian released an alleged Embassy Tokyo cable quoting LDP Lower House Diet Member Taro Kono speaking critically of the nuclear industry as one component of an article suggesting a "possible cover-up" in Japan's handling of the Fukushima nuclear power plant emergency.

0600

05:47 March 15, 2011 Tuesday (Readout of IAEA Briefing): Mark Scheland from UNVIE/IAEA provided the following summarized readout of the briefing with IAEA Director General Amano:

Amano made his tech briefing remarks available. He began by noting the unprecedented nature of the natural and human disaster, a theme which he repeated many times in his remarks. He stated that there are many unknown elements, and repeated many times that the Agency must refrain from speculation about the unknown. He carefully pointed out up front that the explosions had been hydrogen explosions, therefore chemical and not nuclear explosions, that containment of nuclear materials appeared to be intact, and that there had been only a limited release of radioactivity. The primary goal at the moment is to cool the reactors.

The Q&A lasted over an hour, so I won't go thru the full session. The highlights that Amano repeated throughout the briefing:

He is confident that Japan is providing all the information it has, and doing everything possible to restore the safety of the nuclear reactors. IAEA established contact with Japanese immediately after earthquake, contact has been continuous since then.

After a nuclear accident, 3 things are required: shutdown, containment, and cool down. Japan shut down its reactors successfully and has contained radiation to very limited release. Problem is with cool down.

IAEA's role is to share authenticated information with Member States and coordinate assistance; while the IAEA's information process may be slower than media reports, it has the merit of being authenticated directly from Japanese nuclear officials, it is not speculation.

A few specific Q&As of note:

Is this the end of the nuclear renaissance?

- Too soon to foresee, this unprecedented natural disaster does not change the need for a stable source of energy and the need to mitigate climate change.

Is this a Chernobyl-like catastrophe?

- Very unlikely. This is a huge natural catastrophe, not one of human or design error. There is no chain reaction in the reactor, it has been shut down. The design of this reactor is different from Chernobyl's, particularly the containment vessel. This reactor is designed to withstand severe accident.

Define the radiological release?

- Flory: Monitoring done by operators on premises. Dose per hour measurement has been ranging from 3-50 microsieverts per hour. Peaked at 1000 microsieverts per hour on 3/12, was down to 40 by end of day. Average natural background is .3 microsieverts per hour. No indication that the level measured poses a high risk to human health.

Is there a meltdown?

- Lyons: Don't have any indication that fuel is melting at this point.

What is the damage to the core?

- Lyons: Unknown, no one is in the core to see. But this is not an urgent question. The question is how best to cool the reactor. DG pointed out that at TMI in the U.S. it took months/years to understand the core damage.

Is there a concern about reactors being built along fault lines?

- Certainly need to evaluate, at this stage cannot see what implications will be.

05:45 March 15, 2011 Tuesday (Edano press briefing): CCS Edano gave a press briefing at 05:40 on the launch of a Kan-led joint government-TEPCO task force. METI Minister Kaieda and the TEPCO president will be assisting the PM in dealing with the No. 1 Fukushima nuclear power plant crisis.

05:45 March 15, 2011 Tuesday (Press: aftershock predictions): According to the Asahi Newspaper, the Japan Meteorological Agency (JMA) announced on March 14 the probability of an aftershock measuring over magnitude 5 on the Japanese seismic intensity scale within three days (by March 17) is 40 percent, and that within three days after March 17 is 20 percent, down from 70 percent and 50 percent, respectively, as evaluated by the JMA on March 13.

05:23 March 15, 2011 Tuesday (Press: PM Kan announcement): PM Kan made announced the launch of a government-TEPCO Fukushima No. 2 reactor task force headed by himself and assisted by METI Minister Kaieda to overcome this critical situation.

05:12 March 15, 2011 Tuesday (Press: morning headlines): The five major newspapers (Yomiuri, Asahi, Nikkei, Sankei, and Mainichi) carried front page news that fuel rods in the No. 2 reactor at the Fukushima No. 1 Nuclear Power Plant are exposed and that the possibility of a core meltdown, which could lead to the leakage of a large amount of radioactivity into the atmosphere, cannot be ruled out.

05:03 March 15, 2011 Tuesday (Aftershock jolts Kanto): NHK reported at 05:00 that there was an earthquake at 4:59 registering 3 on the Japanese scale in Ibaraki's southern area, Tokyo's 23 wards, and southern Saitama. According to Japan Meteorological Agency, the earthquake had a magnitude of 4.1 at a depth of 40 km.

04:25 March 15, 2011 Tuesday (Press: Fukushima reactor valves opened): NHK gave live coverage to a TEPCO press briefing in which the power company said that the water has poured into the No. 2 reactor after two valves were opened at 01:10, but that the water level remained low as of 3:30. Denying the possibility of the fuel rods melting, TEPCO said they will closely monitor water levels. Kyodo reported that seawater began to be pumped into the No. 2 reactor following the valve's opening.

04:05 March 15, 2011 Tuesday (Press: Foreign rescue teams): NHK again reported on the arrival of rescue teams from 13 counties, including the U.S., South Korea, China, and Russia. The report noted that 150 U.S. rescue workers have begun operations in Iwate's Ominato in cooperation with some 60 British rescuers. It also stated that some 130 members from France are headed for Sendai, and that the U.S. has deployed eight vessels, including the *USS Ronald Reagan*.

03:52 March 15, 2011 Tuesday (Press: evacuee numbers): NHK reported at 03:45 that as of 2000 on March 14, the number of evacuees in the Tohoku and Kanto regions totals 449,046, including 315,013 in Miyagi, 70,909 in Fukushima, and 41,362 in Iwate.

02:49 March 15, 2011 Tuesday (Press: NRC): Jiji Press in Washington DC reported that the Nuclear Regulatory Commission issued a statement on March 14 that the NRC received a formal request from the Japanese government to address incidents at the Fukushima Nuclear Power Plant. In the statement, the NRC stated it received a request for assistance with the malfunctioning cooling system of the reactor and that the NRC is examining how to address it.

02:27 March 15, 2011 Tuesday (Press: Fukushima reactor): Jiji Press reported that the nuclear vessel of the 2nd reactor at the Fukushima No.1 Nuclear Power Plant was thought to have been "boil-dried" (i.e., all cooling water had boiled off) for over two hours. After the suspected "boil-dry," sea water was injected into the nuclear vessel, but the water level sharply dropped around 23:00 on March 14 and the nuclear fuel rods were exposed again. The report said there was a high probability that a partial nuclear fuel meltdown occurred. After 0:00 on March 15, a valve of the container vessel was opened to lower pressure inside the container.

0400

03:50 March 15 2011 Tuesday (One Firetruck en route from Yokota to Fukushima Dai Ichi): USFJ reported that a single fire truck left Yokota AFB at 12:40 AM with a police escort; it is expected to arrive in the Fukushima area between 3:40 AM – 5:40 AM, depending on road conditions. USFJ will hand the truck over to JSDF for operating purposes when they arrive.

A second fire truck has been located at Yokosuka to send to Fukushima, but Tokyo Electrical Power Company (TEPCO) told USFJ J5 officers that four fire trucks are already on site and Yokota's truck will be the fifth when it arrives. MOFA SOFA officials asked USFJ to not send the second truck as there is neither space nor need for additional fire trucks at this time. US Embassy and USFJ offered to both MOFA and the Kantei to allow the Yokosuka truck to begin moving toward Fukushima in order to be available for backup support if needed; as of 3:50 am, the request is being considered.

03:35 March 15, 2011 Tuesday (Sendai Airport): NHK reported at 03:30 on the GOJ's decision to reopen Sendai Airport exclusively to government helicopters at 07:00 this morning to speed up its reconstruction efforts.

02:45 March 15, 2011 Tuesday (Press: Foreign rescue teams): NHK reported at 02:40 on the arrivals of foreign rescue teams at various places in the Tohoku region, including the arrival of the U.S. team at Ofunato in Iwate Prefecture on the evening of March 14. The story included video footage of Ambassador Roos announcing "Operation Tomodachi" to assist Japan. The broadcaster also said that in addition to the U.S., such countries as South Korea, China, and France have sent search and rescue personnel to quake-hit areas, adding to the total of 94 countries/regions and international organizations that have offered assistance to Japan.

02:30 March 15, 2011 Tuesday (Press: public transportation): Jiji Press reported that train service will be affected by rolling power outages on March 15. Full train service will not resume, but there will be more trains operating than on March 14.

02:20 March 15, 2011 Tuesday (Press: death toll): NHK reported at 00:19 that some 1,900 persons have been confirmed dead and 15,000 were unaccounted for in the Tohoku region.

02:18 March 15, 2011 Tuesday (Press: Foreign Minister Matsumoto): Jiji Press reported that Foreign Minister Matsumoto arrived at Charles de Gaulle Airport in Paris on March 14 (local France time) to attend the G8 Foreign Ministerial meeting.

02:10 March 15 2011 Tuesday (METI Relaxes Petroleum Reserves): Ministry of Energy, Trade and Industry, Agency for Natural Resources and Energy (METI/ANRE) requires private refiners in Japan to maintain petroleum product stocks equivalent to at least 70 days of consumption. As of late 14 March 2011, METI/ANRE is now only requiring private refiners to maintain petroleum product stocks equivalent to 67 days of consumption, a three day decrease. The obvious hope is to ease some of the market concern regarding Japan's energy supply (e.g. rolling blackouts, transportation of goods, etc.), and ensure some of the burden on the impacted areas are lifted.

According to METI, the Cabinet Secretariat has informally contacted various utilities (i.e. gas, electric, water, etc.) and cell phone companies to request that they do not/not send bills to those most impacted by the tsunami.

02:00 March 15, 2011 Tuesday (Press: IAEA assistance): Jiji Press reported on an AFP story in Vienna that the International Atomic Energy Agency (IAEA) Director General Amano noted on March 14 that the Japanese government officially requested the IAEA to dispatch a team of experts to assist incidents at TEPCO's Fukushima Nuclear Power Plant.

02:00 March 15, 2011 Tuesday (Press: President Obama): Kyodo News reported that President Obama expressed that the US will continue to offer any assistance it can to Japan as it recovers from "multiple disasters," noting that he is heartbroken by the devastation in Japan from the earthquake.

0200

02:00 March 15 2011 Tuesday (OpenNet Outage Postponed): Embassy Tokyo's planned outage of the OpenNet system has been postponed and has not yet been rescheduled.

01:55 March 15, 2011 (fuel rods): NHK reported at 01:55 on a TEPCO press conference in which the company said that the No. 1 reactor's fuel rods have been exposed due to a failure to pour coolant into the containment vessel after the valves closed. The level of radiation registered six times the standard level at 21:37 on Tuesday, March 14, forcing the company to report a state of emergency to the government, according to TEPCO.

01:50 March 15, 2011 Tuesday (foreign media coverage): NHK reported at 01:40 on prominent coverage of Japan's massive earthquake and subsequent tsunami by foreign media outlets, including a French broadcaster and Britain's *Independent.*

01:03 March 15, 2011 Tuesday (fuel rods): NHK reported at 01:00 that all of the nuclear fuel rods at the Fukushima No. 1 reactor are again exposed, adding that the level of radiation reached 3,130 micro sievert at 21:37 on Tuesday, March 14. At 01:05, NHK reported that TEPCO announced that the company is trying to open pressure valves, but an NHK analyst pointed out the possibility that high heat may melt the fuel rods.

23:55 March 14, 2011 Monday (Possible aftershock): NHK reported at 23:50 that the Japan Meteorological Agency announcement that there is a 40% chance that an earthquake registering five or more on the Japanese scale will occur within three days.

23:53 March 14, 2011 Monday (Evacuee count): NHK reported at 11:53 that a total of 457,283 people are at evacuation centers.

23:35 March 14, 2011 Monday (power outages): NHK reported at 11:30 on an announcement by TEPCO that the company is likely to implement planned power outages in eight prefectures and Tokyo from 6:20-10:00 tomorrow, which will again cause train disruptions.

23:34 March 14, 2011 Monday (IAEA Tech Team): Japanese Ambassador to the IAEA Nakasone informed USMISSION UNVIE that Japan has accepted the IAEA's offer to send a technical team to Japan. More details expected at a briefing for member states scheduled for 1600 Vienna Time (1100 EDT; 2400 Japan Time).

23:25 March 14, 2011 Monday (Nuclear rods): NHK reported at 11:20 that the water level at the Fukushima No. 2 reactors rose 2 meters from the bottom at 21:34 as a result of injected sea water, thereby overcoming "imminent danger." The fuel rods were exposed for a total of 2 hours and 20 minutes from 18:20 p.m. At 00:02 March 15, 2011 Tuesday, NHK reported on Tokyo Electric Power Company's announcement that at around 23:00 the Fukushima No. 2 reactor's fuel rods were again exposed because the pressure valve closed, making it impossible to inject coolant.

23:17 March 14, 2011 (Russian energy offer): Jiji Press reported during a teleconference between Prime Minister Kan and Russian President Medvedev on the afternoon of March 14, Medvedev stated that Russia is prepared to provide energy assistance as well as humanitarian assistance. Kan replied that he will consult (with Russia) if needed. In related story, Jiji Press in Moscow reported at 22:43, March 14, on a story from Interfax that Russian Deputy Prime Minister Sechin revealed on March 14 that the Government of Russia had sent a letter to the Japanese Government to propose talks on providing 200,000 ton liquefied natural gas to Japan
in April and May 2011.

23:00 Monday March 14, 2011 (shift changes): John Mark Pommersheim relieved Ray Hotz as Senior Team Leader at the Mission Japan Emergency Command Center (JECC); Marc Snider and Abbey Rathweg-Weitz assumed leadership of the Consular Command Center. The JECC can be reached at +81-3-3224-5530; the Consular Command Center should be reached via the Embassy switchboard at +81-3-3224-5000.

23:00 Monday March 14, 2011 (death toll): NHK reported at 23:00 that the death toll has topped 1,800, with 15,000 people still unaccounted for.

22:48 March 14, 2011 Monday (possible JSDF radiation exposure): Jiji Press reported that MOD revealed on the afternoon of March 14 that one of four SDF personnel who were involved in an explosion at the 3rd reactor at the Fukushima No 1 Nuclear Power Plant might have been exposed to radioactivity.

2200

21:25 March 14, 2011 (METI Announce Release of Three Days' Oil): NHK reported at 20:30 p.m. that METI Minister Kaieda announced the government plans to release three days' worth of oil stockpile.

21:05 March 14, 2011 Monday (TEPCO Announces Radioactive Leakage): NHK reported on TEPCO's announcement that radioactivity has been detected around the Fukushima Dai Ichi #2 nuclear reactor, indicating the high possibility that the fuel rods are exposed and overheating.

2100 March 14, 2001 Monday (MEF Establishing Liaison in Tohoku): Marines from the III Marine Expeditionary Force (MEF) are rapidly deploying critically needed supplies and aid to areas that need it most. The III MEF has dispatched an advance team to the Tohoku region to establish a forward operational and liaison presence. On March 14, a High Speed Vessel (HSV) departed from the Naha Military Port to deliver a Forward Arming and Refueling Point (FARP) and other disaster relief equipment. The 31st Marine Expeditionary Unit (MEU), comprised of 2,200 marines and sailors embarked on the Navy's USS Essex Amphibious Readiness Group (ARG), is also en route to the disaster area and is expected to arrive in the coming days.

20:05 March 14, 2011 Monday (Possibility of fuel rods exposed at No.2 reactor): NHK reported TEPCO's announcement that because of the failure in pumping sea water in the Fukushima Dai Ichi No. 2 reactor, it is likely that the level of the cooling water has drastically decreased, exposing all the fuel rods in the reactor. At 20:18, NHK added that sea water has started flowing into the reactor. The situation is still critical because of the possibility of fuel melting, NHK reported.

1910 March 14, 2001 Monday (GOJ Requests Pump Trucks from USFJ): The Prime Minister passed an urgent request for the US military to provide a truck with capacity to pump water at a high pressure to assist TEPCO at its Fukushima nuclear plant. The Ambassador judges that this should be the number one national priority of support for the USG to the GOJ in the current situation. General Field is aware of the request and is giving it priority consideration. USFJ/J4 and J5 are in touch with TEPCO points of contact identified by Deputy Chief Cabinet Secretary Kawai.

1840 March 14, 2011 Monday (Commander Field on rescue operations): U.S. Commander of US Forces in Japan General Field said U.S. rescue teams from the private and public sectors have arrived in Japan and are preparing to participate in rescue operations. NHK also reported rescue teams from 13 countries have been dispatched to Japan.

1840 March 14, 2011 Monday (Effect of quake on the Japanese economy): NHK reported the major impacts on the Japanese economy in the aftermath of the quake. Japanese stocks plunged today, falling below 10000, and leading manufacturers have decided to close down their plants for a long period. To turn around the situation, the BOJ injected a record 15 trillion yen into the short-term money market and has decided to provide funds totaling 6.8 trillion yen.

1835 March 14, 2011 Monday (Updates from Consulate Nagoya):

Consulate Operations:

-- Consulate Nagoya has received no reports of missing or harmed Amcits in its consular district. Police in Aichi, Gifu and Mie Prefectures have promised to report any cases involving Amcits to the Consulate directly.
-- All Consulate staff and dependents are accounted for. Consulate facilities (located on the 6th floor of a commercial building) are undamaged. Our DHS/SCI office within Nagoya Customs at the Port of Nagoya is also undamaged but their email/internet connection is currently down.

Transportation:
-- Centrair is operating on schedule with the exception of 1 Lufthansa flight and 5 flights from other airlines from Centrair to Sendai which were canceled. Several flights with AMCITS onboard were diverted from Narita to Centrair on March 11. Rail and vehicle transport routes out of Nagoya are open. Some bullet trains on the Tokaido line have been canceled due to crew shortages in Tokyo.
-- Nagoya Port Authority Operations department staff confirmed there has been no damage to the Nagoya port area following the 3/11 Tohoku earthquake and following (>1 meter) tsunamis that hit Ise Bay. Officials also confirmed that Mikawa and Yokkaichi ports are also undamaged and operational.

Infrastructure:
-- Chubu Electric Power's (Chuden) Hamaoka nuclear power plant is undamaged and operating. The company's hydraulic power plant in Tenryu, Nagano Prefecture suspended operations after the earthquake as a precaution.
-- Chuden has started supplying the electricity to Tokyo and Tohoku regions but the amount of electricity is limited due its different frequency. Since most eastern Japan uses 50 hertz power, Chuden (producing at 60 hertz) can only provide one tenth of the Kanto region's predicted 10 million kilowatt shortage. They are currently providing the maximum kilowatts possible.

Manufacturing Operations:
-- Boeing 787 Mitsubishi /Fuji/Kawasaki Heavy Industries production is running normal. As a precaution, Boeing has repositioned 12 Boeing employees and their families from Utsunomia to Nagoya until the Fukushima nuclear situation stabilizes.
-- All Toyota plants in Japan are closed today. They have yet to announce plans for reopening their facilities. Toyota's subsidiary Central Motor Company has a Yari plant in Miyagi and Kanto Auto Works has a plant in Iwate Prefecture producing Yaris for the North American and Japanese markets. Media reports those facilities were heavily damaged by the quake.
-- Honda, Suzuki and Mitsubishi also suspended all of their operations in Japan. Honda has a plant in Suzuka, Mie. Suzuki has its headquarters in Hamamatsu, Shizuoka. Mitsubishi has plants in Aichi and Gifu.

1809 March 14, 2011 Monday (Foreign Schools Closed in Tokyo): Major foreign schools in the Tokyo area, including the American School in Japan and the British School, announced they will be closed through the upcoming spring break, which ends on March 28.

18:00 March 14, 2011 Monday (Leading firms suspend operations): An NHK reporter said leading department stores were closed today. Manufacturing firms, including electricity and auto makers, shut down their plants. It is currently unclear when operations will resume.

1746 March 14, 2011 Monday (Readout from METI Briefing on Nuclear Situation): Jim Trapp from NRC received a briefing from METI on the current situation at the Fukushima nuclear power plants the afternoon of March 14.

Japanese participants:
- Hidehiko NISHIYAMA, Deputy Director General, METI
- Hisanori NEI, Deputy Director General, Nuclear and Industrial Safety Agency, METI

- Masami KOYAMA, Principal Deputy Director, International Affairs Office, Nuclear and Industrial Safety Agency, METI
- Tomiko ICHIKAWA, Director, Economic Policy Division, Economic Affairs Bureau, MOFA
- Kazumi YAMADA, Deputy Director, International Nuclear Energy Cooperation Division, Disarmament, Non-Proliferation and Science Department, MOFA

New Information Provided:

- The core cooling water path that was cooling the Fukushima Unit 1 was lost possibly early this morning. The cause of the loss was indicated to be a decrease in the level of a salt water cooling water pond that was being used as the suction source for the cooling water pumps and a possible problem with the cooling pond makeup equipment. There was no change in the status of recovery of ac power at any of the units and there was a possibility that dc power was either lost or being challenged at all three units. Tokyo Electric Power Company (TEPCO) was attempting to restore core cooling. The government authorities indicated that the containment barrier remains intact. An estimated time of recovery for core cooling recovery was not known at this time.
- The core cooling path that was in place cooling the Fukushima Unit 2 was also lost, possibly as early as this morning. The cause of the loss of cooling water flow was indicated to be a problem with the Reactor Core Isolation Cooling (RCIC) water pump. The cause for the pump failure was not known. The government authorities indicated that the containment barrier remains intact. TEPCO was in the process of attempting to restore cooling. An estimated time for recovery for core cooling recovery was not know at this time.
- Early this morning, the Japanese government informed the U.S. Embassy that the cooling water providing core cooling at the Fukushima Unit 3 reactor was lost but was reported to have been recovered. At ~ 11:00, the Unit 3 Reactor Building experienced a hydrogen explosion, similar to that experienced at Unit 1 yesterday (6 plant workers were reported to have been injured by the blast). The government authorities believe that the blast did not result in a compromise of the primary containment integrity. The cooling water source for Unit 3, similar to that being used at Unit 1, was also reported as having been lost sometime today.
- The conditions of all three units has degraded. For a successful outcome, core cooling at all units must be restored. Currently, the reactor coolant system and primary containment fission product barrier remain intact. There is likely significant damage to the fuel cladding fission product barrier at all three units.

Additional monitoring data was provided. However, there were no significant reported changes in offsite dose measurements.

17:17 March 14, 2011 Monday (Arriving International Rescue Teams): NHK on line reports a large number of international rescue teams are arriving at various disaster sites. According to MOFA, the following teams have arrived in Japan and are headed to the earthquake sites: Korea, Singapore, Germany, Switzerland, China, US, New Zealand, GB, Australia, Mexico and Taiwan. French and Russian teams are enroute to Japan. Korean and Chinese teams have already started rescue efforts in Miyagi prefecture and Iwate Prefecture respectively. 91 countries and regions plus 6 international organizations such as WFP and Red Cross are also offering assistance. (Editor's note: A Save the Children rep was interviewed on CNN on site.)

17:00 March 14, 2011 Monday (NHK Fatality Update): NHK 1800 dead confirmed—no further details.

16:50 March 14, 2011 Monday (NISA Press Conference on Fukushima Dai Ichi, #2 Reactor): The radiation level has not changed greatly, about two meters. According to Japan's Meterological Agency, the wind will blow to the west (over the ocean). Therefore, the government order of a 20 KM radius

evacuation area will stand. The pressure within the reactor is now at 7 mega pascal gage. As of 16:34 an initial vent was opened to reduce internal pressure, releasing air from the high pressure vessel to reactor containment vessels, and from the containment vessels outside through water. An NISA official believes they must now use seawater in their reactor cooling system.

1640 March 14, 2011 Monday (Japanese Note Extensive US Media Coverage): Meanwhile, NTV reported on U.S. media's extensive coverage of the devastation in Japan in breaking news by focusing on the situation in the Fukushima No.1 nuclear power plant. NTV said that U.S. media organizations, including FOX News and CNN, are closely monitoring developments in Japan, showing U.S. newspaper headlines claiming "partial meltdown" or "nuclear crisis." The broadcaster also reported on an IAEA plan to hold an emergency meeting later today on the Fukushima nuclear plant situation in response to queries from its member nations. TV-Asahi reported that Japanese Ambassador Fujisaki appeared live on CNN, saying the GOJ is seriously coping with the issue and taking necessary measures.

16:31 March 14, 20111 Monday (CCS Edano Announces Preparations to Inject Seawater to Cool #1 Reactor): NHK online reported that CCS Edano announced preparations to inject seawater to cool the Fukushima Dai Ichi #2 Nuclear Reactor. Water levels inside the reactor continue to fall.

16:30 March 14, 2011 Monday (U.S. closely monitoring nuclear incident in Fukushima): TV-Asahi reported this morning that the USG is closely monitoring the developments of the nuclear incident in Fukushima, saying that President Obama has been briefed of the development on Saturday as well as on Sunday. The network said that the USG will send experts to Fukushima No.1 nuclear power plant to carry out on-site investigations, where they are expected to survey the amount of radiation leaks and provide necessary advice to the Japanese government.

16:20 March 14, 2011 Monday (TEPCO Notifies NISA of Need to Take Emergency Measures to Cool Reactor #2 at Fukushima Dai Ichi To Prevent Explosion From Heat Build-Up): NHK on line reports that according to NISA (Nuclear Safety Agency), TEPCO has notified the government, in accordance with the Radiation Disaster Measure Article 15, that the cooling system of the Reactor #2 at the Fukushima Dai Ichi power plant has failed. TEPCO is now considering measures to secure reactor safety, mindful of the possibility of same kind of hydrogen blast that occurred in reactors #1 and #3.

15:40 March 14, 2011 Monday (Supplementary Budget Bill): NHK reported at 15:40 that New Komeito Party President Yamaguchi agreed to smoothly enact legislative measures and an extra budget bill to extend financial support to quake-stricken areas. The government has decided to defer on a delay in the unified local elections.

15:33 March 14, 2011 Monday (Tohoku Electric Power Thermal Power Plant Oil Tank Explodes): NHK on line reported that the Disaster HQ of Fukushima Prefecture reported that at 14:40 on March 14th, the heavy oil tank in Tohoku Electric Power Thermal Power Plant exploded in Minami Soma-City. No details yet. The fire department is enroute to the site.

15:22 March 14, 2011 Monday (TEPCO Fukushima Dai Ichi Plant #2 Reactor Cooling System Stops): Jiji.com reports that TEPCO reports that at March 14, 13:25, the reactor cooling system of the second reactor of the Fukushima Dai Ichi Plant has stopped. The cooling water level is decreasing. TEPCO is considering releasing air from the container vessels to relieve rising pressure.

15:05 March 14, 2011 Monday (Rolling Blackouts Start in Tokyo) The Tokyo Electric Power Company (TEPCO) announced it had lost approximately 20 percent of its power generating capacity as a result of

the earthquake and tsunami. In response to this shortage of power, TEPCO has begun a series of planned rolling blackouts for various parts of the Tokyo area. TEPCO has urged its customers to try to limit their electricity use. The Embassy has taken steps to reduce power use at the Chancery and Housing Compound and will distribute information to employees and families on how to reduce their electricity demand.

15:01 March 14, 2011 Monday (Cosmo Oil LPG Tank Still Burning – No End Projected): Nikkei on line reports that Cosmo Oil Co., Ltd. Said their effort to put out the fire at Chiba plant still continues. The LPG tank has been burning since the earthquake hit on the 11th. According to Cosmo Oil's press officer, there is no prospect of putting the fire out. The estimated damage is still unknown.

14:59 March 14, 2011 Monday (IHI Fukushima Plants Aircraft/Space Parts Plants Close): Nikkei on line reports that IHI has closed two plants in Soma-city, Fukushima prefecture due to earthquake damage. The two plants were only plants producing aircraft engine parts, gas turbines and other space craft related parts. As of now there is no prospect of recovery. The impact on the company performance is still under investigation.

14:30 March 14, 2011 Monday (Electricity Supplies Continuing): NHK reported at 14:00 on the announcement by TEPCO that it did not enforce the scheduled power shutdown this morning and that electricity supplies are continuing right now for designated area groups No.3 and 4, which originally planned to undergo power blackouts this afternoon. According to the network, the firm said power supplies may be halted for some areas this evening because electricity demand is expected to rise due to lighting and heating. In a related development, the network reported at 14:20 on instructions issued by Russian PM Putin on Sunday to begin coordination for a possible increase of liquefied natural gas (LNG) supplies for Japan from the Sakhalin 2 natural gas field project.

14:50 March 14, 2011 Monday (People running for food, batteries): NHK reported at 14:00 that many consumers are rushing to supermarkets and convenience stores to purchase food, batteries, and water and other beverages apparently out of fear of shortages of such key products, adding that those items were reportedly sold out at many outlets.

13:30 March 14, Monday (IEAA Inspection Team): Nikkei online reports MOFA has learned on March 14th that IAEA is sending inspection team responding to the hydrogen blast of Fukushima Nuclear Power Plant No. 1. It is expected that the team will inspect the radiation leaks, safety measures and cause of the accident.

13:30 March 14, 2011 Monday (Asian Stocks Slump on Japan Earthquake Concern; Nikkei Tumbles): Asian stocks fell, sending a regional benchmark stock index toward its steepest drop since June, as Japan worked to contain a nuclear disaster following the nation's biggest earthquake. The MSCI Asia Pacific Index fell 3.1 percent to 130.88 as of 12:58 p.m. in Tokyo, headed for its steepest drop since June 7 and lowest close since Dec. 1. All 10 industry groups on the gauge declined, led by consumer stocks. Japan's Nikkei 225 Stock Average led declines, even as some shares remained untraded because sell orders overwhelmed the Tokyo Stock Exchange. By 13:50, the Nikkei had fallen 633.49 points, almost 6.5%.

13:00 March 14, 2011 Monday (Different Reports on Strength of this Morning's Strong Earthquake): The earthquake felt at 10:02 a.m. in Tokyo is being reported by Kyodo as being magnitude 6.2. The U.S. Geological Survey web site, however, reports it at 5.8. This quake occurred much closer to Tokyo, at 36.455°N, 140.965°E, than last Friday's.

12:55 March, 14 2011 Monday (Planning for Blackouts in Tohoku): NHK online reports Tohoku Electric Power is considering the introduction of rolling black out. As of 14th, 1.11 million households lost power. Tohoku Electric Power is concerned once the power comes back, the usage of power will increase dramatically, in particular for heating. Two nuclear power plants and thermal power plants have suspended the operations after the earth quick within Tohoku Electric Power district.

12:00 March 14, 2011 Monday (Wind Direction toward the South): According to Japan meteorological Agency, as of midday, the wind is blowing south around Fukushima first nuclear power plant. Due to the earthquake damage, the wind observation station was damaged around the nuclear power plant. However about 50 km south of the plant in Iwaki city, 3 m south wind was observed around 11:30. It is expected that this wind direction will continue.

12:00 March 14, 2011 Monday (7 Workers Missing at Fukushima #1): According to NHK Online, Number 1 Fukushima Nuclear Power plant had an hydrogen explosion. Three workers were injured, and 7 workers are missing (13:15 note: they were later accounted for and the number reported injured rose to 11. End note.) Within the 20 km radius, NHK reports there are still around 600 residents remain.

12:00 March 14, 2011 Monday (Edano stresses safety of reactor storage): CCS Edano said at a 11:30 press conference that a hydrogen explosion apparently occurred at the 3rd reactor at No.1 plant at 11:01 am, but that the chances are slim that a large volume of radioactive material was released into the air as a result of the explosion. NISA reportedly said any abnormal level of radiation was not recorded at the plant after the explosion. According to Edano, NISA advised some 600 residents, who are still in the restricted area, to remain inside their homes. Edano said the nuclear storage itself appears to be safe, given that seawaters are still being poured into them, and that pressure inside the storage remains stable. TEPCO reportedly said that six workers were injured as a result of the blast.

Meanwhile, commercial broadcasters invited experts to their morning news program to listen to their assessment of the damage at the Fukushima No.1 nuclear power plant and the possible of impact of radioactive material leak. All of the experts clearly stated that the level of the radiation leaked at the plant is not high, much lower than X-rays, and poses no immediate threats to the human body. Some of the specialists said that although the word "hibaku" may remind many people of atomic bombing and may sound awful, the current level of exposure must be instead called "osen (exposure or contamination)."

11: 30 Some 2,000 bodies found on quake-hit Miyagi's coastal areas – Kyodo News reports that some 2,000 bodies were found Monday on two shores in Miyagi Prefecture following Friday's devastating earthquake and massive tsunami, as Japan continued to struggle to grasp the whole picture of the disaster.

11:15 March 14, 2011 Monday (Explosion at Fukushima No. 1): NHK reported that what appears was a hydrogen explosion took place at 11:01 a.m. at the 3rd reactor at the Fukushima No. 1 nuclear power plant. Smoke has reportedy been spotted. Video footage is from a distance and the image itself is not very clear but new smoke appears visible. NISA reports that the outer structure housing the 3rd reactor complex was damaged but that the reactor itself is safe.

11:00 March 14, 2011 Monday (Edano press conference): Chief Cabinet Secretary Edano said in an 11:00 a.m. press conference that workers have gone back to operation at the 3rd reactor at Fukushima No. 1 plant after pressure inside the storage has begun to drop. He said operations to pour seawater

have also resumed. He added that pressure at the 1st reactor remains stable. On power outages, Edano said the administrative process is already in progress but that power shutdown is still not implemented. He said, however, that shutdown will be enforced in the not-so-distant future.

11:00 March 14, 2011 Monday (Cooling functions back at two reactors at Fukushima No. 2): NHK webpage reported earlier (at 9:00 a.m.) that cooling functions have been restored by 7 a.m. this morning at the 1st and 2nd reactors at TEPCO Fukushima No.2 nuclear power plant. According to the report, pressure inside the storage housing the 1st reactor is beginning to drop. It added that TEPCO is continuing efforts to restore the cooling functions at the 4th reactor. Meanwhile, the network also reported that a total of 615 residents are still remained in areas near No.1 plant as of 10 am, saying that they are apparently elderly or bed-ridden patients.

11:00 March 14, 2011 Monday (U.S. nuclear specialists to visit Japan): *Mainichi* daily newspaper reported that U.S. Nuclear Regulatory Commission announced on Saturday that two agents have been dispatched to Japan. According to the story, they are experts on boiling water reactors, a type that is being used at 1st reactor at Fukushima No. 1 plant. The U.S. experts are reportedly ready to "provide as much cooperation as possible."

10:30 March 14, 2011 Monday (Reservists to be mobilized): NHK television reported that the Ministry of Defense is planning to mobilize SDF reservists for disaster relief operations. According to the network, some 6,500 reservists have already offered to volunteer. They are expected to officially begin engaging in operations in about a week.

10:51 March 14, 2011 Monday (615 Fukushima residents still in evacuation area): NHK Online reports there are still 615 residents near the Fukushima No. 1 power plant according to the Fukushima prefecture survey. Currently SDF is on the way to rescue them, and as soon as they are rescued they will be transferred to a medical facility for radiation exposure screening.

10:00 March 14, 2011 Monday (international assistance): summary of international assistance provided during 10 a.m. call today:

a. ROK: SAR team of 5 people, 2 rescue dogs arrived at Hanamaki Airport, moved to the south of Sendai, will begin ops in the morning, 14 Mar JST. No further information on ROK offer of aid.

b. UK: 77 British personnel arrived on Misawa AB to support the SAR mission in Iwate Ohunato area,

c. Australia: SAR team arrived at Yokota AB, will operate in Minamisanriku-cho.

d. Singapore: No Update on SAR team of 5 members, 5 dogs, in Fukushima.

e. NZ: 55 member SAR team scheduled to arrive at Narita at 1630 14 Mar JST

f. France: SAR team of 131 members will arrive at Narita on March 14 local time and move to Misawa AB;

g. China: MOFA confirmed that the team arrived in Iwate Prefecture.

h. India has offered relief supplies through the Japanese DATT in India.

1030

10:08 March 14, 2011 Monday: The American School in Japan announced that it will close school for the coming week, and not reopen until after spring break, on March 28.

09:30 March 14, 2011 Monday: NHK reported that workers were temporarily evacuated from the 3 rd reactor at TEPCO Fukushima No.1 nuclear plant, as pressure inside the rector was temporarily rising. Meanwhile, the network also reported on the TEPCO announcement this morning that scheduled power outages for districts in the Group 1 area, originally planned to start at 09:00, were canceled, given that demand for electricity was not so strong.

09:00 March 14, 2011 Monday: The Emergency Action Committee met for 44 minutes, with Nuclear Regulatory Commission technical team in attendance. Further details to be reported in forthcoming situation report. Nuclear update summary is that it appears TEPCO has core cooling operating at the three troubled reactors in Fukushima.

08:38 March 14, 2011 Monday: Japan Emergency Command Center at U.S. Embassy Tokyo goes live. Personnel include: Paul Horowitz, Senior Team Leader; Lynda Hinds, Emergency Action Officer, Aaron Forsberg, Editor; Claire Berger Operations Assistant. The JECC will continue to operate 24/7 in three shifts. Sitreps will be sent to Washington by 1630 and 0200 local time. Key contact information:

JECC Email (inbound collective): JapanEmbassyTaskForce@state.gov
Tel: Emergency Action Officer +81 3 3224 5530
Fax: +81 3 3224 5131.

0840

08:38 March 14, 2011 Monday: Katherine Dudley, Tracy Masuda, and Tokuko Shironitta relinquish duty of Embassy Task Force in Daly Hall. The Mission Japan Emergency Command Center which is located in the U.S. Embassy is now live. The Command Center can be reached at 03-3224-5530.

08:28 March 14, 2011 Monday: According to Kyodo news, the Kantei is running an English language website (http://www.kantei.go.jp/foreign/index-e.html) where users may access the latest quake-related information at a section entitled, "Countermeasures for 2011 Tohoku district - off the Pacific Ocean Earthquake." The section compiles the necessary quake-related information including statements from Prime Minister Naoto Kan and Chief Cabinet Secretary Edano, plus links to relevant agencies such as the Japan Meteorological Agency.

08:23 March 14, 2011 Monday: According to a Reuters report posted at 07:06, in response to a GOJ request, ROK announced it will provide 1-1.5 million tons of liquefied natural gas (LNG) to Japan per month starting in April.

07:45 March 14, 2011 Monday: Japanese Internet news pages report that a level 3 (Japanese shindo seismic scale) was felt in inland Akita.

07:45 March 14, 2011 Monday: According to the IAEA official home page, Japanese authorities have informed the IAEA that radioactivity levels at the site boundary of the Onagawa nuclear power plant have returned down to normal background levels. The first (ie lowest) state of emergency was reported at the plant earlier on Sunday after an increased level of radioactivity was detected at the site boundary. Investigations at the site indicate that no emissions of radioactivity have occurred from any of the three units at Onagawa. The current assumption of the Japanese authorities is that the increased level may have been due to a release of radioactive material from the Fukushima Daiichi nuclear power plant.

07:27 March 14, 2011 Monday: According to the Yomiuri online edition and other Japanese media reports, TEPCO announced that because the electric power demand has risen since its announcement of cancelling the Group 1 blackout, it is possible that it may resume the blackout of Group 1. The Group 1 blackout was originally scheduled to occur from 6:20 am to 10 am.

07:25, March 14, 2011 Monday: Yomiuri online reported that JR East's operations will be very limited today because of the difficulty in securing train crews. The lines planned for operation in the Tokyo Metropolitan area are: the Jyouetsu (Tokyo-Niigata) and Nagano (Tokyo-Nagano) shinkansen lines, the Yamanote line, the Chuo Express (Tokyo-Tachikawa), the Keihin Tokoku (Kamata-Akaban), the Tokiwa Express (Ueno-Matsudo), and the Tokiwa Kanko (Ayase-Matsudo). Note: Some of this information has been reported in previous updates.

07:18 March 14, 2011 Monday: Nikkei reported that the yen exchange rate hit 80 yen early this morning on the foreign exchange markets, bringing it to the same appreciation level of November 9, 2010. At one point, the rate rose to 80.60 yen. Japanese stock prices are expected to drop as a result of the earthquake.

06:49 March 14, 2011 Monday: Embassy Task Force received phone call from Darrell Jenks, Director of FSI Yokohama, who has decided to advise his teaching staff not to travel to work, based on the guidance of Chief Cabinet Secretary Edano and TEPCO to avoid unnecessary travel. FSI Yokohama will be closed today.

06:40, March 14, 2011 Monday: Current weather reports forecast for selected areas of Japan for March 14 daytime:

Sendai: A mix of clouds and sun during the morning; cloudy skies this afternoon. High around 60F. Winds WSW at 10 to 20 mph.

Fukushima: Mostly cloudy skies. High 44F. Winds W at 15 to 25 mph.

Tokyo: Some sun this morning with increasing clouds this afternoon. High 66F. Winds SW at 10 to 15 mph.

06:40, March 14, 2011, Monday: NHK reported that the TEPCO will study the electric power demands before deciding to implement the Group 2 blackout, scheduled from 9:20 am for 3 hours.

06:33, March 14, 2011 Monday: Nikkei Online reported at 5:51 a.m. that the Number 2 Fukushima nuclear power plant number 1 reactor has recovered its cooling function and started cooling the reactor.

06:30, March 14, 2011 Monday: NHK just announced that TEPCO will not implement the scheduled blackout of Group 1, which was to start at 6:20 am, as it was able to secure enough electric power from other power plants.

06:20, March 14, 2011 Monday: TEPCO is scheduled to start rolling blackouts at 6:20 Monday morning. TEPCO advises residents in the Kanto area (comprising the seven prefecture, Gunma, Tochigi, Ibaraki, Saitama, Tokyo, Chiba, and Kanagawa) to avoid traveling, to conserve electricity as much as possible even outside of the Kanto area, and to avoid driving because traffic signals may be out. The shutdown of several plants in the Kanto and Tohoku (northern Japan) regions is causing the shortage of electricity. For more information in English about the rolling blackouts and train schedules, please see http://yokosonews.com/news/kanto-rolling-blackout-march-14/.

05:53 March 14, 2011 Monday: Embassy Task Force received phone call from Washington DC task force regarding a White House press release. Washington DC officer said PDAS Donovan would reach out to Ambassador directly for clearance.

05:49 March 13, 2011, Monday: Mainichi and other Japanese media outlets reported the results from Sunday's Nagoya City assembly election. Out of the 75 seats, Tax Cut Japan won 28 seats, becoming the largest party in the assembly. The opposition Liberal Democratic Party and New Komeito won 19 and 12 seats, respectively, and the DPJ claimed only 11 seats. The voting rate rose 4 percentage points from 39.97 to 43.96 from the last election.

05:47 March 14, 2011 Monday: Embassy Task Force contacted PolMil Team who confirmed USFJ was aware that the blackouts may affect some bases. USFJ was trying to determine which bases were on the affected grids and whether or not they have back-ups available. Added usfj-cat-j5@usfj.mil to mail distribution.

05:40 March 14, 2011 Monday: According to TEPCO's website, 13 out of 23 wards in Tokyo will be affected by the rolling blackouts, starting this morning. The wards affected are Taito, Shinagawa, Meguro, Ota, Setagaya, Toshima, Kita, Arakawa, Itabashi, Nerima, Adachi, and Katsushima. NHK reported neighboring areas may experience partial blackouts as well. Minato Ward, where the U.S. Embassy is located is not included in the wards slated for blackouts. Included are some of the cities in the Kanto areas where U.S. bases are located, but it is not clear if the bases will be affected by the blackouts. More detailed information can be found in Japanese at http://www.tepco.co.jp.

05:15 March 14, 2011 Monday: CCS Edano announced that the rolling blackouts will start as scheduled at 6:20 am this morning. He asked the public to reduce the amount of electric power usage as much as possible and not to go out if unnecessary, stressing the importance of saving energy and avoiding confusion. The priority for the government is to minimize any burden on those patients who need continuing treatments at the hospitals. Edano said there are no substantial updates on the status of the nuclear plants at this time.

04:49 March 14, 2011 Monday: Asahi reports that JR East Japan announced it will only operate Joetsu (Tokyo-Niigata) and Nagano (Tokyo-Nagano) Shinkansen lines, Yamanote-line, Chuo Express line (Tokyo-

Tachikawa), Keihin Tohoku line (Kamata-Akabane), and Tokiwakankou line (Ayase-Matsudo) today due to the rolling blackouts. All other lines will be stopped all day today. The train schedule is subject to be changed considerably, according to JR East.

04:37 March 14, 2011 Monday: MSJapan reported that a Level 3 (Japanese standard) earthquake was detected in Fukushima.

04:19 March 14, 2011 Monday: According to Asahi, Shuto, East and Central Highways would be operating as usual even during blackouts in certain areas. The Electronic Toll Collection for highways and roads system will also be in operation. Some of the service and parking areas may be closed.

04:14 March 14, 2011 Monday: Kyodo reported that international efforts to help quake-struck Japan got into high gear Sunday with the arrival of rescue teams from China and New Zealand, while the number of countries and world organizations offering aid has reached more than 90.

04:13 March 14, 2011 Monday: – CNN cited an unspecified Japanese press report that 42 people were rescued Sunday in Minami Sanriku.

04:00 March 14, 2011 Monday: Katherine Dudley, Tracy Masuda, and Tokuko Shironitta assume duty of Embassy Task Force.

03:59 March 14, 2011 Monday: NHK reported at 03:30 that there is no possibility of securing the safety of all 6 nuclear reactors at Fukushima. For Fukushima Power Plant No. 1 (Dai-ichi) Reactor #1, TEPCO is still pumping seawater into the reactor and the reactor containment vessels. The level of water in reactor #2 of Plant No. 1 is low but TEPCO says the water is covering the fuel core. However, the pressure within the reactor containment vessel is relatively high, and TEPCO is releasing air out of the vessels and considering injecting seawater into the vessels. TEPCO thinks it is still possible that reactor #3 could experience a hydrogen explosion. TEPCO is releasing air from the container vessels of reactor #3 in order to lower the pressure and is considering ways to eliminate the hydrogen within the containment vessels. As for Fukushima Power Plant No. 2 (Dai-ni), TEPCO is still trying to reduce the temperature of reactors #1, #2 and #4.

03:56 March 14, 2011 Monday: According to the Nikkei's March 14 morning edition, the Bank of Japan (BOJ) will inject at least 1 trillion yen (about 12.2 billion USD) into the money market before its policy board meeting at 13:00 on Monday March 14 to ensure that funding operations at financial institutions remain smooth, according to BOJ Governor Shirakawa. The BOJ is concerned that banks may curb lending, leading to funding shortages.

03:48 March 14, 2011 Monday: The Japanese Ministry of Foreign Affairs (MOFA) stated on its website that as of 08:00 on Saturday, March 12, Japan has received offers of assistance from the following countries and regions (in no particular order): Australia, Taiwan, United States of America, Republic of Korea, China, Mexico, Thailand, New Zealand, Israel, Singapore, Indonesia, Azerbaijan, India, Russia, Turkey, Germany, France, Belgium, Ukraine, Slovakia, United Arab Emirates, Switzerland, Hungary, Poland, Jordan, United Kingdom, European Union, Chile, Spain, Greece, Hong Kong, Pakistan, Denmark, Serbia, Uruguay, Mongolia, Ecuador, Iran, Kyrgyz Republic, Malaysia, Argentine, Philippines, Canada, Italy, Sweden, Kosovo, Iceland, Norway, Romania, and Slovenia.

02:50 March 14, 2011 Monday: Yomiuri reported at 02:32 that conflicting information was leading to confusion about the rolling blackout to begin at 06:20 on March 14. Initially, it was believed that all 23 wards in Tokyo would be exempt from the blackout, but at a press conference at 20:20 March 13, TEPCO President Shimizu announced that some wards in Tokyo would not be exempt. Ward officials have hurriedly begun to prepare for the blackouts, in order to give residents advance warning. The following wards WILL be exempt from the blackout: Chuo-ku, Chiyoda-ku (where the Diet and most GOJ offices are located), Minato-ku (where the Embassy and Embassy housing compound are located), Shinjuku-ku, and Shibuya-ku.

02:54 March 14, 2011 Monday: Sankei News reported at 01:58 on March 14 that Gunma prefecture conducted a survey on the amount of radiation in the air in Maebashi city from 17:00 on March 12 to 17:00 on March 13. The data collected was normal, leading to the judgment that Gunma prefecture was safe from radiation. Gunma prefecture plans to continue their observation twice a day.

02:38 March 14, 2011 Monday: Confirming the Reuters story we noted at 21:38 on March 13, the French Embassy, according to a contact there, is informing its citizens that if in Tokyo without a strong reason to be there, they should leave the Kanto area for a few days. The French contact also stated that staff members at the French Embassy were not departing Tokyo.

02:00 March 14, 2011 Monday: NHK online reported that according to the Tourism Agency, all 2500 missing tourists were Japanese, and traveling in Aomori, Iwate, Miyagi, Fukushima, and Ibaraki prefectures when the earthquake hit. As for foreign tourists, all members of groups from China and Taiwan were accounted for. For now, there have been no reports of tourists from other countries who are missing.

01:59 March 14, 2011 Monday: Asahi reported 24:58 that the National Police Agency announced that the death toll is now 1,597, and injuries number 1,923. By prefecture, the deaths are: Miyagi (643), Iwate(502), Fukushima (401), Ibaraki (19), Chiba (14), Tokyo (6), Kanagawa (3), Aomori (3), Tochigi (3), and Hokkaido (1). Kyodo news reports that the Miyagi police chief estimates that total deaths will likely surpass 10,000. According to Asahi, the number of demolished buildings is 2,837.

01:52 March 14, 2011 Monday: On March 13 at GMT 16:13, Reuters cited a Kyodo report that a cooling system pump has stopped at the Tokai #2 nuclear power plant in Japan's Ibaraki prefecture. The plant, about 120 km (75 miles) north of Tokyo, suffered a nuclear accident in 1999. Mainichi said the reactor had been automatically shut down due to the earthquake, and now another emergency generator was being used to cool off the reactor. Kyodo reported that the nuclear safety section of the prefectural government said there was no problem with cooling the reactor. Embassy Task Force notes that this is the first we have heard about troubles related to cooling efforts at the Tokai plant.

01:26, March 14, 2011 Monday: NHK online reported March 13 at 23:59 that according to the Ministry of Health, Labor, and Welfare (MHLW), 1.4 million households in 16 prefectures (from Hokkaido to the Chubu area) were out of running water. MHLW also warned that more households will lose water due to the rolling blackout that will go into effect March 14 at 0620. MHLW ordered water operators to analyze the affected areas and notify the public as soon as possible.

01:14, March 14, 2011 Monday: A Consular Task Force team investigated conditions and assisted U.S. citizens at Haneda Airport in Tokyo and reported as of 2100, March 13, that it was mainly business as usual, with no significant delays, no crowds, and no stranded passengers observed. Consular team was

told that Japanese Airlines (JAL) and All Nippon Airways (ANA) are temporarily offering expanded service out of Yamagata and Fukushima to make up for lack of train service.

01:11, March 14, 2011 Monday: NHK reported at 2423 that the Transportation Ministry (MLIT) is urging the public to refrain from commuting to work in the morning. The Ministry fears there will be mass confusion in the train stations because the train companies will reduce the number of trains and partially suspend operation.

01:06, March 14, 2011 Monday: The Consular Crisis team in Sendai, Miyagi prefecture, sent the following report at 24:47: We spoke with policeman Saito Akihiko at a police outpost in Sendai city. He and his colleague on duty were calm and had time to answer our questions. They estimated waves came inland 3-5 kilometers. Downtown Sendai, they said, is about 15 kilometers inland. They said they were unable to contact Yamamoto Town Hall, just a few miles away near the coast. City buses were running while noise from sirens of emergency vehicles was constant. A fire was burning downtown, casting smoke over the city. Lights were on downtown, but not outside. Sendai City Education Advisor Ian Williams told us all but one U.S. citizen Sendai City JETs were accounted for. Approximately 300-400 people are currently sleeping in the Prefectural Office lobby, including some in wheelchairs, and are being fed well. A local source said the first tsunami struck at 15:19 and the heaviest around 15:30. Yamagata prefecture is quickly becoming a favored escape route from the region. Local Japanese news is reporting that Grande 21, a gymnasium that can be converted into an ice rink, will be used as a temporary holding facility for any bodies.

24:56, March 14, 2011 Monday: American Airlines reports that it is slightly adjusting its routes (planes will fly further out over the ocean, farther away from Honshu and Fukushima) and will carry contingency fuel in case more reroutes are required.

24:14, March 14, 2011 Monday: According to Asahi.com at 23:10, TEPCO hinted that it is possible that a meltdown of the core of reactors #1 and #3 at Fukushima Power Plant #1 (Dai-ichi) is in progress. TEPCO still needs to confirm the real water level, but the water level is lower than the top of the fuel core. According to NHK online, the Nuclear Safety Agency held a press conference around 23:20, and said that the water level in the #3 reactor of Fukushima #1 (Dai-ichi) was 2.2 meters below the top of the fuel core, leaving only about half of the fuel core in water. NHK also reports that the valve to lower the pressure within the reactor had been temporarily closed for repair, but as of 21:00 is now working.

24:10, March 14, 2011 Monday: Mainichi News Online reported March 13 at 22:43 that Ibaraki prefecture announced on March 13 that Ibaraki Airport will reopen on March 14. Four out of Ibaraki's five air routes will resume operation--Skymark Airlines to Kobe, Sapporo, and Nagoya as well as China's Spring Airlines to Shanghai will resume. Not resuming will be Asiana Airlines to Seoul. Ibaraki Airport was kept off limits because the ceiling of the terminal building fell during the earthquake.

23:56, March 13, 2011 Sunday: Iwate prefectural government contact told Sapporo Consulate General that one Amcit JET was missing: Dickson Montgomery who was assigned in Rikuzen Hakata, a small town on the Iwate coast.

23:55, March 13, 2011 Sunday: State Dept. Task Force asks that offers from the U.S. private sector to assist with relief efforts be forwarded to OFDA at the following email: rmtpactsu_elc@ofda.gov. Please copy the State Dept. Task Force ("zTask Force 1 Mailbox" in the GAL) for their situational awareness.

23:41, March 13, 2011 Sunday: A Washington-based American Airlines executive reports that he is contacting the FAA and the NSC regarding the power plant situation. All of its flights to/from Tokyo (except Los Angeles) fly over the affected area, therefore AA has "heightened concern."

23:20, March 13, 2011 Sunday: According to NHK News, TEPCO reports that the pumping system for sending water to reactors #1, #2, and #4 of Fukushima Nuclear Power Plant #2 (Dai-ni) is not working due to tsunami damage, and the cooling system is therefore not functioning. NHK reports that TEPCO will change the pumping system monitors of each unit sometime in the early morning hours.

23:15, March 13, 2011 Sunday: NHK reports that not all traffic lights have power generators, according to the police. During the rolling black-outs, policemen will be directing traffic, but not at all intersections. During the blackout period, the police are discouraging the use of cars and motorcycles. If you must drive them, they recommend to driving slowly and cautiously in those areas.

22:35, March 13, 2011 Sunday: Jiji.com reports that the Japanese Self Defense Force (SDF) has rescued 6,500 people on the March 13 alone and that 9,700 people were rescued since the earth quick hit. US carrier Ronald Reagan also joined the rescue efforts in the afternoon on the 13th. The number of SDF rescue forces will increase from the current 50,000 to 100,000 people within a week.

22:35, March 13, 2011 Sunday: Asahi has announced the schedule (Japanese only for now) for rolling black-outs starting tomorrow at 6:20AM. We believe that no black-out is planned for central Tokyo. See the link: http://www.asahi.com/national/update/0313/TKY201103130277.html

22:16, March 13, 2011 Sunday: NHK reported that President Shimizu of Tokyo Electric Power Company (TEPCO) said at a press conference at 8:30 pm that TEPCO is considering using seawater to cool off the reactor Unit #2 of Fukushima Daiichi Nuclear Power Plant.

22:15, March 13, 2011 Sunday: According to Jiji press reports, Fukushima prefecture will start radiation exposure screening at all evacuation stations, hopefully as early as the 15th. The prefectural requested more instruments and staff to measure radiation from the central government. They are planning to establish 80 teams of investigators to check for radiation exposure. There are about 470 or 480 evacuation stations in the prefecture. The teams will visit all of those sites and conduct screening for those who request it.

22:00, March 13, 2011, Sunday: Mike Daschbach, Andrew Ou, and Eriko Marks assume duty at Joint Task Force.

21:44, March 13, 2011, Sunday: According to Yahoo Japan, TEPCO announced it was getting ready to flood Fukushima NPP No. 1, reactor No. 2 with sea water to help cool it down. This brings to three the number of reactors TEPCO is trying to cool using sea water (NPP No. 1, Reactors No. 1, 2 and 3).

21:41, March 13, 2011, Sunday: According to Yahoo Japan, 1,710,000 households are still without power, and an additional 440,000 households were without gas service. Power and gas companies were distributing portable kerosene burners and cans of kerosene at evacuation facilities.

21:39, March 13, 2011, Sunday: According to Mainichi, 1,500 are dead and 340,000 are displaced. Most of the unaccounted for are from the towns of Minami-Sanriku in Miyagi Prefecture (10,000 unaccounted, total population 17,000) and Otsuchi in Iwate Prefecture (10,000 unaccounted, total population 16,000).

21:38, March 13, 2011, Sunday: According to Reuters, France recommended its citizens leave the Tokyo region of Japan on Sunday, citing the risk of further earthquakes and uncertainty about the situation at its damaged NPPs. "It seems reasonable to advise those who do not have a particular reason to stay in the Tokyo region to leave the Kanto (Tokyo) region for a few days," a statement on the French embassy website in Japan said. "We strongly advise our nationals not to travel to Japan and we strongly recommend delaying any voyage planned," it added.

21:22, March 13, 2011, Sunday: According to Kyodo news, TEPCO announced that radiation released from the NPPs will NOT affect humans.

21:20, March 13, 2011, Sunday: *According to Kyodo news, TEPCO will avoid rolling blackouts in central* Tokyo.

21:09, March 13, 2011, Sunday: Both Alan Remick from Department of Energy (DOE) and Joe Hughart from Health and Human Services (HHS) have arrived at the Hotel Okura and will be heading over to the Ministry of Foreign Affairs (MOFA) shortly for meetings with their Nuclear and Industrial Safety Agency (NISA) counterparts. MOFA Nuclear Division's Kazumi Yamada confirmed she shared the seven questions from DOE with NISA this evening, ahead of the planned meeting.

21:00, March 13, 2011, Sunday: According to Manichi, the DPJ and LDP have agreed to reconvene the Diet after a "natural break" from March 14-18 (there was a call for a formal break in Diet activity, defined by resolution). Among the top issues on the Diet agenda are the possible need for emergency legislation permitting a short-term tax increase to pay for the costs of recovery operations, as well as other measures to temporarily increase GOJ revenue and a three-month extension of the tax cut package scheduled to expire in March.

21:00, March 13, 2011, Sunday: According to Manichi, Japanese company executives are expressing concern that the rolling blackouts scheduled to begin on March 14 may seriously affect many industries, possibly including such "lifeline" services as supermarkets. Automobile companies such as Honda and Suzuki which have factories in the Kanto area are also likely to be heavily affected. Large department stores such as Mitsukoshi are also considering temporarily closing their stores, as they will not be able to depend upon generator power for such long periods.

21:00, March 13, 2011, Sunday: According to Yahoo News, Tohoku Power Company (covering North-East Japan) announced that it will not be conducting rolling black-outs on March 14.

20:41, March 13, 2011, Sunday: According to NHK news, TEPCO announced that as a result of the damage to both nuclear and conventional power plants, starting at 06:00 on March 14 until 22:00, TEPCO will institute three hour rolling black outs among the five "zones" under its control. As March 13 is not a work day, many factories were not in operation, as such, rolling blackouts were not necessary. With the resumption of the workweek, however, during the peak usage of 18:00-19:00, TEPCO expects a demand of 41 million kilowatts. Depending on the electricity demand and the state of efforts to restore power production capacity, the blackout plan could continue even after March 15. This is the first time TEPCO has implemented a "blackout plan" since it was founded in 1951. Separately, according to Kyodo news, TEPCO may allow for rolling blackouts until the end of April 2011.

20:33, March 13, 2011, Sunday: GOJ spokesman Yukio Edano said he has urged Japanese ministries and offices abroad to actively provide information about Friday's earthquake and ensuing tsunami to foreign

nationals in and outside Japan. The Prime Minister's Office (Kantei) has set up a website http://www.kantei.go.jp/foreign/index-e.html where users may access the latest quake-related information and GOJ official statements. Foreign Press spokesman Noriyuki Shikata is also regularly posting updates on his Twitter account, @norishikata.

20:15, March 13, 2011, Sunday: Rough translation summary of Prime Minister Kan's 19:50 press conference:

- Many power plants have been damaged, leading to a difficult power situation in all of northern Japan, including Tokyo. The two main power companies are working to resolve the situation, but there is not enough power. In order to avoid large-scale power outages, which would lead to great social and economic damage and could affect gas, water, and medical infrastructure, I (Kan) have allowed for rolling power outages starting on March 14.

- Thanks to the efforts of all, including the Japan Self-Defense Force (JSDF) and the National Police Agency (NPA), over 12,000 have been rescued. Over 50,000 JSDF have been dispatched, with plans for 100,000. 2,500 police and 1,100 fire department personnel have been sent to localities, as well as over 200 specialized search and rescue personnel.

- Various taskforces are being set up, and there may be a need for new legislation to respond to the crisis.

- Food, water, and blankets are a priority, and the various methods of transport for these necessities are being secured.

- Kan characterized the crisis as the worst crisis since World War II.

20:15, March 13, 2011, Sunday: Rough translation summary of CCS Edano's 19:50 press conference:

- Regarding Fukushima reactor No. 3, the water level has apparently stopped rising despite the continued pumping of sea water. When asked, he acknowledged that this could be a result of faulty gauges, but that in any case, the fuel rods could still be in an exposed state. He continued that work is continuing to fix the valve mechanism and to release some of the pressure in the reactor, and that there have been no changes in the radiation level. Overall, he cautiously concluded that although there is still a possibility of an explosion similar to the reactor No. 1 explosion, the situation, "might be slightly better than yesterday."

- When asked about the possibility of raising the consumption tax, Edano said that all possibilities to respond to the crisis are being considered, but that the GOJ is not at a stage to discuss specific measures. Edano also said that the GOJ may need to work with the Liberal Democratic Party (LDP) for changes to the legislative framework.

- Edano said that 10,000 people are missing in Miyagi, with searches continuing from the air.

- Edano said that there are problems getting enough food to coastal areas (most likely referring to the most directly affected areas), and that this is a high priority.

- Confirmed the planned power outages.

20:15, March 13, 2011, Sunday: Department of Energy (DOE) nuclear expert Alvin Remick has arrived in Tokyo and is headed to the Ministry of Foreign Affairs (MOFA) to join a 21:15 meeting with his Nuclear and Industrial Safety Agency (NISA) counterparts.

20:00, March 13, 2011, Sunday: Prime Minister Kan is currently holding a press conference, an overview of the statements will be provided in the next update.

19:58, March 13, 2011, Sunday: From the U.S. Consulate in Sapporo, two AMCITs in Sendai reported that an announcement was made that persons in the area should seek immediate shelter because a radiation cloud from the damaged nuclear reactors was approaching. There is currently no further information on what Japanese government organization made the announcement.

19:47, March 13, 2011, Sunday: French Political Counselor (Remi Lambert) attended a meeting of European Union (EU) country representatives at 15:00 this afternoon. There was much discussion of possible next steps but NO decision from other member countries to follow the German lead to authorize the departure of dependents and non-essential staff (Lambert had not spoken with his Ambassador, however, since returning from the meeting). Many EU countries representatives called for calm and urged caution in deciding on future steps, with some countries, such as the United Kingdom representative, arguing there was no need for staff or citizen evacuations from the Tokyo area at the present time. (Some argued that Germany was in a "special situation" due to several factors, including the vehemence and scare tactics of its anti-nuclear media.)

19:45, March 13, 2011, Sunday: Mission Japan Emergency Command Center (JECC) will go live at 08:30, March 14 JST (1930 March 13, EDT) and will supersede previous contact information for Embassy Tokyo's 24-hour response. This does not change Embassy Consular Center or its contact information and is a parallel structure. We will send this information to OPS formally and in final form on March 15. We are providing this in advance so that OPS is aware of the impending change.

19:28, March 13, 2011, Sunday: Reactor Situation Overview – According to Yomiuri news, after the "Great East Japan Earthquake," all 11 reactors at the Fukushima and Onnagawa NPPs (both in the heaviest hit region) were automatically shutdown. Out of the 11 reactors, only 3 reactors (Fukushima reactor No. 3 and Onnagawa reactor Nos. 1 and 3) were shut down in "Low Temperature Mode," meaning that the reactor temperatures were under 100 degrees Celsius with pressure at atmospheric levels. Efforts to cool down the other reactors are ongoing.

19:20, March 13, 2011, Sunday: 1,000 Confirmed Dead; 310,000 Displaced - According the National Police Agency, the number of confirmed dead from the earthquake and tsunami has passed 1,000 and is expected to continue to rise. So far, at least 3,300 houses have been found completely destroyed, with another 21,000 partially or mostly destroyed.

18:58, March 13, 2011, Sunday: The Japan Meteorological Agency said there is a 70% chance of an aftershock of Magnitude 7 or greater occurring before the afternoon of March 16, with a 50% chance of such an aftershock between March 16 and March 19, according to Asahi.com. An increase in 0.2 in magnitude means that the amount of energy released in the earthquake is doubled, which makes the energy released in the earthquake 45 times stronger than the Kanto earthquake of 1923 and 1450 times stronger than the 95 Hanshin quake.

18:39, March 13, 2011, Sunday: According to NHK, TEPCO reported a partial meltdown may have begun in reactor No. 3 at the Fukushima NPP No. 1, as indicated by the presence of cesium in the atmosphere. According to TEPCO, the level of sea water in reactor No. 3 was low between approximately 1:00 PM and 3:00 PM, leaving two meters of the fuel rods exposed and causing a build-up of hydrogen gas. TEPCO is considering actions to reduce the hydrogen buildup and maintain the water level in the reactor.

18:36, March 13, 2011, Sunday: Minister Katayama told press the GOJ is considering delaying unified local elections (scheduled for next month) in areas affected by the earthquake and tsunami. Nagoya Consulate reported Nagoya City elections are proceeding as planned today.

18:35, March 13, 2011, Sunday: According to Kyodo news, Democratic Party of Japan (DPJ) and the Liberal Democratic Party (LDP) to discuss tax hike to secure funds for quake relief.

18:30, March 13, 2011, Sunday: Japan Meteorological Agency Press Conference - Although the tsunami warnings have been lifted as of 17:55, this does not mean that all wave activities have ceased. The Meteorological Agency advised residents to continue to exercise caution in coastal areas. In the case of another after-shock with a magnitude over 7, especially if the epicenter is off the coast, tsunami warnings are likely to be renewed.

18:30, March 13, 2011, Sunday: The GOJ lifted all tsunami warnings at 17:55.

18:30, March 13, 2011, Sunday: Consulate Nagoya reported all employees on the Boeing 787 team have been accounted for and operations are normal. To the Consulates best knowledge, all 3,000 or so Amcits in the Consular District are safe and accounted for.

18:24, March 13, 2011, Sunday: A Delta Airlines manager told us that Delta is "back to almost normal schedule."

18:18, March 13, 2011, Sunday: German Embassy on Voluntary Departure - According to German Political Counselor (Heike Fuller), the German Embassy has moved to voluntary departure at German government expense for Embassy families and non-essential Embassy personnel. According to Ms. Fuller, most if not all families who are eligible are availing themselves of this offer. The German school is closed all next week; many German business people have already departed. A German team is headed to the Sendai/Tome area soon to help with rescue/welfare and whereabouts. Germany has 80-100 nationals in the wider, immediately affected area.

18:12, March 13, 2011, Sunday: DART Teams Arrive - MOFA confirmed 150 members of two Disaster Assistance Response Teams (DARTs) from USAID arrived at Misawa Air Base in Aomori Prefecture on their way to conduct rescue operations in Ofunato, a severely damaged coastal city in neighboring Iwate Prefecture. The U.S. squads, with six rescue dogs each, will work with Tokyo Fire Department rescue workers, the ministry said.

18:04, March 13, 2011, Sunday: Media reported that, due to the appearance of several cases of radiation exposure amongst evacuees from the 20 km zone around Fukushima No. 1 Nuclear Power Plant (NPP), the Fukushima Prefectural Government has decided to check/screen/frisk ALL evacuees for radiation exposure. The Prefectural Government has asked the GOJ for assistance to screen the large number of evacuees spread-out over about 480 evacuation facilities/areas.

17:51, March 13, 2011, Sunday: Onnagawa Reactor Stable - NHK reported the high radiation levels previously detected at the Onnagawa Reactor, located about 100km northeast of the Fukushima Plant #1, may have been a result of radiation from the Fukushima reactors. According to Tohoku Power, the Onnagawa Reactors were shut down automatically after the earthquake and remained at a stable temperature. In addition, the levels of radiation measured from detectors located in the waste outlets of the Onnagawa Reactors are quite low - 5.7 micro Svs, or about 1/10th the amount usually received during a chest x-ray.

30 More People Found with Radiation Exposure - Yahoo News Japan reports that 30 more people have been found with possible exposure to radiation, including 19 workers evacuated by helicopter from a hospital in Fukushima Prefecture, 9 people evacuated by bus from the same town, and 2 officials who were dispatched to monitor radiation levels in Niigata Prefecture. Approximately 100 people had been evacuated by bus from Fukushima, but only a portion were scanned for radiation, raising the possibility that the number of people potentially exposed to radiation could increase.

17:51, March 13, 2011, Sunday: The outgoing USARJ liaison officer to the JGSDF Northeast Army (NEA) in Sendai stated there is a dwindling availability of food and water, absence of utilities, absence of CBRNE capability in the NEA, and signs of structural damage in downtown Sendai (i.e. vulnerability to aftershocks, need for more construction engineering assets).

17:46, March 13, 2011, Sunday: Defense Minister Kitazawa, General Field, General Oriki, and Embassy's Political Minister Counselor Luke are slated to fly up to Sendai on Monday (March 14) to mark the inauguration of the Disaster Relief Joint Task Forces Headquarters, at the Northeastern Army Headquarters in Sendai. They also plan to get an aerial view of some of the disaster hit areas in the region.

17:42, March 13, 2011, Sunday: Update on coverage of USFJ response:

- Media reported that helicopters from NAF Atsugi are headed for Rikuzen-takada City in Iwate Prefecture to start transporting over 640 displaced/stranded persons to hospitals and/or proper shelter facilities
- TV News showed footage of the USS RONALD REAGAN on-scene and explained food delivery ops had begun with JMSDF helicopter & JS TOKIWA. the news analyst mentioned that the RONALD REAGAN was diverted from its original course en route the Middle East.
- Media covered the movements/intentions of USS BLUE RIDGE (from Singapore), USS ESSEX (with USMC from Okinawa), USS TORTUGA (after picking up heavy-lift helos from ROK), USS COWPENS, USS JOHN S. MCCAIN, and other ships.
- The tone of the commentary was that these actions show the U.S. seriously cares and is putting great effort in the ops to help Japanese.

17:26, March 13, 2011, Sunday: Mitsubishi and Suzuki will be closing all of their car factories on March 14 and 15. Although their factories in Aichi, GIfu, and Okayama were not damaged, their supply lines from NE Japan were affected. Sony announced it will send 30,000 radios to affected areas as well as 300,000,000 yen (about $3.6 million) in aid.

17:00, March 13, 2011, Sunday: Rough translation summary of CCS Edano's 17:00 press conference:

- In response to the high possibility of power shortages after March 14, the GOJ is creating a new Office of Energy Needs, which will be headed by DPJ Diet Member Renho.
- Volunteer work will be coordinated through a new Volunteer Coordination Office, which will be headed by Diet member Kiyomi Sujimoto. Edano remarked that Sujimoto is well qualified for his role due to his personal experience in the great Kansai Earthquake.
- Edano pledged to increase efforts to ensure that foreigners living in Japan will get the latest news.
- A second meeting to assess the economic effects of the earthquake will be held starting in the afternoon of March 13th, to run until the evening.

17:00, March 13, 2011, Sunday: Kyodo news misreported, as covered in our 15:39 report, Edano's statement regarding a hydrogen blast at the No. 3 reactor. There was NOT a blast at the No. 3 reactor. Edano stated that there was only the possibility of a blast at the No. 3 reactor, similar to the blast seen at the No. 1 reactor.

16:57, March 13, 2011, Sunday: The Commercial 767 flight carrying Urban Search and Rescue (USAR) personnel has landed in Misawa at 0622z. USA 2 (a cargo flight) has arrived via DoD C-17 in Misawa at 0005z. USA 1 (a cargo flight) departed Andrews Air Force Base in a DoD C-17 and is currently airborne. DoD is reporting an updated estimated arrival time of 13 March 1438z (Local time in Japan 2338). An aerial refueling is scheduled for this flight, which will help shorten their flight time.

16:45, March 13, 2011, Sunday: CCS Edano is currently holding a press conference, an overview of the statement will be provided in the next update.

16:25, March 13, 2011, Sunday: Local media reported that two USN helicopters, operating from USS RONALD REAGAN, are working with JMSDF to deliver 30,000 meals to Kesennuma Town, Miyagi Prefecture. Meals are aboard JMSDF AOE, JS TOKIWA, and USN & JMSDF helos are doing round-robin flights to get the large amount of food ashore.

16:19, March 13, 2011, Sunday: GOJ spokesman Chief Cabinet Secretary Edano reported that TEPCO began pumping sea water into the No. 3 reactor at Fukushima #1 Power Plant (as they began doing Saturday night in the No. 1 reactor). He added that an explosion, like the one that occurred in the No. 1 reactor on Saturday, was possible but said the reactor container could resist such a blast and a meltdown is not expected.

16:02, March 13, 2011, Sunday: According to NHK news, Miyagi Police Headquarters representative Naoto Takeuchi announced the death toll in Miyagi Prefecture will almost certainly reach 10,000. Takeuchi said that as of the afternoon of March 13, Miyagi officials had taken in 379 bodies.

1547, March 13, 2011, Sunday: According to Kyodo news, a U.S. rescue team arrived at Misawa base in Aomori.

1542, March 13, 2011, Sunday: The following are the latest bullets from the Bilateral Joint Ops Coordination Center:

- Japan Air Staff Office - Takada City 640 persons need evacuation, approved by Joint Staff Office J3 for USFJ execute SAR mission from Atsugi with 8 helicopters H-60
- USS Ronald Reagan has rescued someone and is aboard ship...awaiting details

- Joint Staff Office reports helos from Reagan have done 20 missions to/fm Japanese ships and delivered food and supplies to 3 different towns
- At Yokota 3 Helicopters H60 standing by for mission assignment
- More forces flowing in to Marine Corps Base Iwakuni

1539, March 13, 2011, Sunday: According to Kyodo news, CCS Edano announced in a press conference that a hydrogen blast possibly occurred at the No. 3 reactor of Fukushima number one NPP. Edano reported that part of the No. 3 reactor could be deformed but claimed it is not in a meltdown situation. If an explosion occurs, said Edano, the No. 3 reactor can resist the explosion, as was the case when the No. 1 reactor exploded. Edano said if such an explosion occurs there would be no detrimental effect on evacuees.

1532, March 13, 2011, Sunday: According to TBS news, Tohoku-Denryoku reported that, as of 10am, there were close to 1,780,000 homes without power in all of Miyagi Prefecture and parts of Aomori, Iwate, and Fukushima. Moreover, there were nearly 270,000 homes without power, mostly in the Ibaraki Prefecture. Japan gas reported that 445,000 homes do not have a supply of gas.

1529, March 13, 2011, Sunday: According to Kyodo news, the current Diet session has been suspended.

1524, March 13, 2011, Sunday: According to Kyodo news, the opposition LDP has urged the Kan government to step up rescue efforts.

1520, March 13, 2011, Sunday: According to NHK news, METI Minister Kaieda implored citizens to conserve energy due to the diminished power supply caused by the shutdown of several nuclear power plants after Friday's earthquake. He has consulted with business groups, including Keidanren, to minimize industrial usage of electricity. Kaieda asked the public to refrain from using energy as much as possible, including for heating and lighting at night. If these measures prove insufficient, the government may have to resort to rolling power shutdowns.

1516, March 13, 2011, Sunday: According to TBS news, radiation measured at 21 micro Sv per hour was detected at Onagawa nuclear power plant in Miyagi Prefecture, which is 400 times the normal radiation level. However, the radiation measurement at the exhaust tower was normal, and therefore, it is expected to be caused by the Fukushima plant.. According to NHK, Tohoku Electric Power Company denied it was caused by Onagawa NPP and explained that all three reactors at Onagawa were already cooled and shut down safely.

1511, March 13, 2011, Sunday: American Airlines has informed the Embassy that it would like to continue service to Japan but the lack of information is causing AA to "seriously reconsider" whether to suspend service.

1510, March 13, 2011, Sunday: According to Sankei news, the National Police Agency announced that there were 801 deceased, 733 missing, and 1,442 seriously injured.

1457, March 13, 2011, Sunday: According to Kyodo news, there was radioactivity measured at 400x normal level observed in Miyagi.

1448, March 13, 2011, Sunday: According to Sankei news, NISA announced today that there were approximately 160 people exposed to radiation around the Fukushima Daiichi nuclear power plant.

All of the individuals are expected to be tested.

1432, March 13, 2011, Sunday: According to Kyodo news, METI Minister Kaieda will hold a press conference at 15:00.

1432, March 13, 2011, Sunday: According to Jiji News Service, the Bank of Japan on Monday, March 14 is expected to provide a several trillion yen short-term cash infusion to stabilize financial markets. The stock market plummeted in the aftermath of the earthquake, and financial turmoil is expected to continue in the short-term. Banks are undertaking special measures to provide cash to account holders. The BOJ is expected to continue its zero interest rate policy.

1418, March 13, 2011, Sunday: According to Kyodo news, police reported that the number of people dead or missing exceeded two thousand, while the death toll neared 800. There were close to 1,167 people missing in Fukushima Prefecture and approximately 600 deceased in the Iwate and Miyagi Prefectures. Local officials said that local governments are unable to contact tens of thousands of people, and at least 20,820 buildings have been at least partially destroyed in the quake-hit areas. Twenty two people have been exposed to radiation near the Fukushima number one plant. In Iwate Prefecture (north of Miyagi), nearly five thousand homes had been submerged by the tsunami, and the local office reported that only 5,900 of 23,000 people had taken shelter. Japan's Maritime Self Defense Force reported early Sunday sightings of wood fires at seven locations in Miyako.

1414, March 13, 2011, Sunday: According to Kyodo news, PM Kan is discussing the nuclear plant crisis with the head of TEPCO.

1410, March 13, 2011, Sunday: According to Kyodo news, a radiation monitor was set up in Ibaraki Prefecture (south of Fukushima Prefecture), and there are no abnormal readings thus far.

Correction to the 13:00 report : According to Kyodo news, the number of people deceased or unaccounted for exceeded 2,000, according to policy, and the official death toll neared 700. In Fukushima Prefecture, there were 1,167 people missing and over 600 dead in Fukushima and Miyagi prefectures. (Earlier report incorrectly stated Miyazaki rather than Miyagi Prefecture.)

1405, March 13, 2011, Sunday: According to Kyodo news, PM Kan asked Toshiba Corporation to send experts to assist with the nuclear plant crisis.

1403, March 13, 2011, Sunday: According to Sankei news, PM Kan will meet with LDP leader Tanigaki to discuss how to address the unfolding situation.

1403, March 13, 2011, Sunday: According to Kyodo news, the local elections in April in the quake-hit region will be postponed.

1402, March 13, 2011, Sunday: According to Kyodo news, the U.S. aircraft carrier Ronald Reagan is arriving off the coast of Northeast Japan to assist in relief operations in cooperation with Japan Self Defense Forces.

1350, March 13, 2011, Sunday: According to TBS news, TEPCO reported that the cooling system has not been functioning at Fukushima's #2 reactor. TEPCO will begin to emit steam that contains slight

radiation from the container vessel to reduce the pressure, although the timing has not been specified. All operating reactors from #1 to #3 of Fukushima number one NPP are having the same problems.

1347, March 13, 2011, Sunday: DCM comments based on a conversation with DCCS Kawai:

"Messaging: Reports from the Foreign Media such as CNN about the situation at Fukushima are different from what CCS Edano briefed the Ambassador. Kawai assured me that Edano's brief was correct. I replied that foreigners watching CNN broadcasts were becoming quite concerned and asking for advice from the embassy. I told him that we had issued a statement urging AmCits to follow the advice of GOJ authorities. He said that was the right approach. I said that the GOJ needed to be more proactive in public messaging. He said MOFA had briefed foreign media. I said that was not enough. He promised to call MOFA and ask them to call in CNN to brief them. I also said if the CNN reports were inaccurate, then the GOJ should say so publically. He said he'd ask MOFA to do this.

Better communication. I said the Ambassador appreciated Edano's promise for better information flow among our nuclear experts and greater access to information on the situation at Fukushima. I said we needed to start this dialogue immediately. He informed me that Deputy Energy Sec Poneman had just spoken to JNRC Commissioner Kondo and Kondo had conveyed information on the status of the reactors at Fukushima. I thanked him and encouraged him to do all he could to maintain this follow of information between nuclear experts on a real time basis. He promised to do so."

1342, March 13, 2011, Sunday: According to TV Tokyo, there is limited water and helicopter rescues have been continuing since yesterday at Kesennuma City, Miyagi Prefecture.

1338, March 13, 2011, Sunday: According to MOFA, China's National Earthquake Bureau (rough translation) sent a team of 15 persons to conduct search and rescue operations. The team arrived at Haneda today at 12:30pm and is en route to Tokyo. Their final destination has not yet been determined. The PRC military is not involved; this is purely a civilian operation at this point. MOFA indicated that an official announcement will post on MOFA's homepage soon.

1335, March 13, 2011, Sunday: According to TBS news, Germany and Switzerland sent rescue teams that will be arriving at Narita airport at an unspecified time. China and the United Kingdom also sent assistance teams.

1334, March 13, 2011, Sunday: According to TV Tokyo, there is no water, electricity or food in Rikuzen-Takata, Iwate Prefecture. People have begun cutting down trees for heat and food. Several buildings sheltering refugees were flooded causing many deaths. The Ground Self Defense Force is now on site for rescue operations.

1332, March 13, 2011, Sunday: According to NHK news, the following are conditions at Aomori Prefecture: Casualty reports in Aomori Prefecture are limited to three dead and one missing in Hachinohe (on the Pacific coast) as a result of tsunamis; all four are Japanese nationals. Toll roads are open within the prefecture but not going south into Iwate or Akita Prefectures. There are 42,000 households without power in Misawa and Hachinohe. There are 1,300 households without gas in Hachinohe. NTT reports no restrictions on phone use, but many circuits are overloaded due to heavy call volume.

1259, March 13, 2011, Sunday: According to Yomiuri news, approximately 10,000 residents of Minami Sanriku in Miyagi Prefecture remain missing. In Iwate Prefecture, the mayor of Otsuchi said that more than 10,000 residents also remain missing. Many of the residents of Yamada with a population of 19,000 in Miyagi are missing. In Fukushima Prefecture, the number of missing has risen to 1,167.

1232, March 13, 2011, Sunday: Official message from Ambassador Roos to American Citizens in Japan: "The U.S. Government is communicating closely with the Japanese Government on events as they unfold. We have and will continue to mobilize all appropriate resources. The U.S. Government and all necessary experts are fully engaged in analyzing the issues, including the Fukushima reactor issues, in close consultation with the Japanese Government. We are committed to providing you with all necessary information as we receive it. There is no double standard – what we advise our Embassy personnel will be provided to all Americans.

Please understand that there will continue to be substantial misinformation in the public. We urge American citizens in Japan to follow the instructions of Japanese civil defense authorities. The Japan Nuclear Industrial Safety Agency (NISA) has recommended that people who live within 20 kilometers of the Fukushima Nuclear Power Plant in Okumacho evacuate the area immediately. No other evacuations have been recommended."

1223, March 13, 2011, Sunday: According to Nippon TV, Japan Meteorological Agency changed the magnitude of the earthquake from M8.8 to M9.0.

1215, March 13, 2011, Sunday: According to Kyodo news, the number of people deceased or unaccounted for exceeded 2,000, according to policy, and the official death toll neared 700. In Fukushima Prefecture, there were 1,167 people missing and over 600 dead in Fukushima and Miyazaki prefectures. Moreover, local governments are unable to contact tens of thousands of people, according to police and local officials. In Miyagi, close to 4,400 people remained trapped as of Saturday night in schools, hospitals, and hotels in the towns of Onagawa and Ishinomaki, as well as at the Onagawa nuclear plant. Nearly 10,000 people in Minamisanriku remain unaccounted for. PM Kan issued an instruction to double the number of Self-Defense Force personnel in the quake areas to 100,000. The government issued a decree late Saturday designating the disaster eligible for increased state subsidies for reconstruction.

1205, March 13, 2011, Sunday: According to TBS news at 1200, the Fukushima Government reported that 22 people had been affected by radiation from Fukushima number one nuclear power plant. The Fukushima Government has requested that the central government dispatch experts on decontamination.

1155, March 13, 2011, Sunday According to Kyodo news, TEPCO notified Japan's nuclear safety agency that the radiation level at the Fukushima No. 1 nuclear power plant exceeded the legal limit and that hourly radiation at the site was measured at 882 micro sievert, in excess of the allowable level of 500. The agency also said the company acknowledged that the No. 3 lost its cooling functions, while 19 people at a nearby hospital were found to have been exposed to radioactivity, in addition to three cases of exposure recorded Saturday. The utility supplier notified the government early Sunday

morning that the reactor had lost the ability to cool the reactor core. The reactor is now in the process of releasing radioactive steam, according to top government spokesman Yukio Edano. It was the sixth reactor overall at the Fukushima No. 1 and No. 2 plants to undergo cooling. The government and nuclear authorities said there was no damage to the steel container housing the troubled No. 1 reactor, noting that the blast occurred as vapor from the container turned into hydrogen and mixed with outside oxygen.

1138, March 13, 2011, Sunday According to NHK, the following are conditions in Miyagi Prefecture: NHK local bureau reported lists of medical facilities and schools/community centers where water is available in Sendai, as well as bank branches that will open on Sunday to allow limited cash withdrawals up to 100,000 yen. Local fire department rescue efforts continued through the Saturday night/Sunday morning, including by boat and helicopter, with a focus on people stranded at Sendai airport and on the roofs of buildings in flooded communities.

1138, March 13, 2011, Sunday According to NHK, the following are conditions in Iwate Prefecture: Tohoku Electric Power reported 500,000 households with no power, but supply is gradually being restored to Morioka, Hanamaki and other inland population centers. 750,000 households are without water in inland Iwate. All commercial flights to Hanamaki Airport in southern Iwate are cancelled, but the airport will be used for relief efforts. Toll road highways are restricted to emergency vehicles only.

1136, March 13, 2011, Sunday Chief Cabinet Secretary Edano announced at a press conference at 1100 that a cooling water supply system was out of order at the number three reactor at Fukushima's number one nuclear power plant, and the water level in the container vessel was becoming lower. It is expected that a nuclear fuel rod had been exposed. The safety valve of the vessel opened as of 0905 and water started was injected into the vessel with boracic acid. TEPCO started at 0920 to emit water vapor which contains slight radiation from the container vessel. TEPCO monitors the radioactive level of the environment. The level of the gate at 05:30 has been shifted such as 44.6 microSv, 37.0 at 6:00, 1204.9 at 8:23, 76.9 at 9:20, 70.3 at 9:30. Kyodo press also reported, based on Edano's press announcement, that the radiation level at Fukushima plant briefly reached 1,204 micro sievert. The level is not stable, but the emission of contaminated air is under control and not expected to be a health risk. The GOJ will organize in cooperation with local governments to establish stations to assess radiation levels for residents.

1129, March 13, 2011, Sunday As of Saturday at 2051, Japan Railway Bureau Security (MIKAMI) reports that with the exception of the tsunami affected area, rail and metro service are generally back in service.

1123, March 13, 2011, Sunday According to NHK, TEPCO announced at 10:50 that the level of radiation surpassed the legal limit at Fukushima's number one reactor and submitted to the government an emergency alert at 9:01am. According to NHK, TEPCO assesses that the process of removing air from the pressurized containers of the reactors that lost their cooling functions led to the increase in the level of radiation.

1109, March 13, 2011, Sunday According to NHK, NISA reported as of Sunday 10:00 that the number three reactor lost all of its cooling function and is in a "critical state," as are the plant's first and second reactors. NISA reported it has yet to confirm whether or not the process of pouring water into the reactor has taken place. Regarding the number one reactor, the process of pouring sea water into the

reactor is almost complete, but NISA inspectors need to perform an on-site inspection to determine if that is the case.

1100, March 13, 2011, Sunday According to NHK, the Japanese government rates the accident at the Fukushima Number One nuclear power plant at a level 4 on an international scale of 0 to 7. A level 4 on the International Nuclear and Radiological Event Scale includes damage to fuel and release of significant quantities of radioactive material within an installation. It's the same level as a critical accident at a nuclear fuel processing plant in Tokai Village in Ibaraki Prefecture, south of Fukushima, in 1999.
Two radioactive substances, cesium and radioactive iodine, were detected near the Number One reactor at the plant on Saturday. Their presence indicates nuclear fission of uranium. NISA said that fuel in the reactor partially melted. It's the first such accident in Japan.

1050, March 13, 2011, Sunday As of 12 March at 2042, all morning flights at Narita are scheduled to depart on-time or with slight delays as they try to accommodate as many passengers as possible. Flights are also arriving into Narita as well with just a small handful of delays which were scheduled to arrive last night. As of right now only AA176 to DFW @ 1200 has been cancelled and as far as I know there are no extra flights being added to accommodate extra passengers. So far the evening flights are scheduled to depart at or around the scheduled times. According to the Haneda airport website, flights are departing with the two morning US departures being slightly delayed. The evening flights appear to be scheduled to depart on-time.

1042, March 13, 2011, Sunday According to Kyoto news, Chinese emergency response team expected to arrive in Japan on Sunday afternoon.

1037, March 13, 2011, Sunday According to Kyoto news, TEPCO announced that radiation levels exceeded the legal limit at Fukushima's number one reactor.

1026, March 13, 2011, Sunday According to NHK news, there was a 6.4 earthquake (Japanese standard) off the coast of Ibaraki.

1000, March 13, 2011, Sunday According to a NISA press conference, the number one reactor at Fukushima is not in a "serious situation" and the number three reactor should be controlled, providing the necessary steps are taken.

1000, March 13, 2011, Sunday Jason Lawrence and Jeremy Mears have assumed charge at Tokyo Task Force. Direct all email to them vice Lee and Ryan as of 1000.

0950, March 13, 2011, Sunday According to NHK news, CGS Edano announced in his press conference at 0800 that a total of 210,000 living in the areas surrounding nuclear reactors one and two are in the process of being evacuated.

0945 TV Tokyo called, stating that they were aware of a U.S. rescue going to Sendai and wanted to accompany the team to video their efforts. The call was directed to Lori Schumaker in PAS.

0943 Phone call from Mark Dieker from Fukuoka Consulate, presenting use of aircraft from Futenma that has landed at Iwakuni. Dieker will send an email and contact POL-MIL. Tokyo Task Force also informed POL-MIL duty officer.

0940 According to multiple news reports, Defense Minister Kitazawa said he is increasing the number of Self-Defense Forces dispatched to assist in the rescue effort to 100,000 and will visit the disaster area along with SDF Chief Orike.

0904 Chief Cabinet Secretary Edano conducted an interview with NKH. During the interview (rough translation), he called for cooperation and assistance from the private sector, especially for medical and tracking assistance. He noted that it was too early to forecast how long the evacuation in the area surrounding Fukushima plant would take. He commented on funding for the disaster relief, in the medium and long term, a supplemental budget would be necessary. In the current budget, there is approximately 200 billion yen (approximately $2.5 billion USD) available, but they also needed to allocate money in next year's budget for the efforts. Edano pledged to send temporary shelters to whoever needed them. Regarding the plan to unify local elections, Edano said that they will likely be postponed, but such a postponement cannot be decided upon unilaterally by the ruling party and asked for the cooperation of all parties.

0844 According to Nikkei online, the Japanese National Police Agency reported 689 dead in 12 prefectures included Iwate, Fukushima, Miyagi, Ibaraki, Chiba, Tokyo and others. 639 people are still missing in 6 prefectures. 1,570 people are injured.

0837 The U.S. Nuclear Regulatory Commission (NRC) is dispatching two individuals to join a rescue team in Japan, potentially the DART team, to arrive at Misawa on 13 March. The NRC team will be forward deploying radiation detection equipment, although the Japanese government has not clarified whether or not it will need them. The USFJ has requested that the NRC team be put in touch with J3 and J2 upon their arrival.

0830 According to a Kyodo news advisory on their English-language website, another nuclear reactor is in the process of releasing radioactive steam, according to Chief Cabinet Secretary Edano.

0810 Chief Cabinet Secretary Edano conducted a press conference, reporting (approximate translation) that they completed the process of filling Fukushima Number One with sea water but have not been able to confirm that the temperature was lowered. Edano added that 9 citizens in the vicinity of the site were exposed to radiation, 5 of which had been exposed to radiation under 1800 cpm and the remaining 4 had been exposed above 1800 cpm, to include one individual who was exposed at approximately 40,000 cpm. In addition, 114 citizens are still within 10 kilometers of the nuclear site, consisting of incapacitated individuals at hospitals. Approximately 180,000 people who were within 10-12 kilometers of the site are being evacuated.

0804 A conference call concluded at 0644 between the OPS CENTER, ACS Chief Bill Christopher, ECON Chief Mark Wall, DHS, NRC, CBP, TSA, HHS, EAP/J and others. The purpose of the conference call was to come up with advice to Americans for a travel alert. There will be a follow-up conference call to discuss advice that can be given to Americans in Japan, those wanting to travel to Japan, and to airlines. ACS chief reported that the 4 GE employees and the rest of that group were surveyed and found NOT contaminated. DOS confirmed that they were NOT on the no fly list.

0756 According to a Kyodo news advisory on their English-language website, 15 people near the Fukushima Power Plant have been exposed to radiation.

0737 According to Jiji Press, the Meteorological Agency lowered the tsunami warning in Aomori, Fukushima and Iwate Prefectures by one level.

0729 The National Police Agency reported official statistics of 688 deaths, 1570 injuries, and 642 missing persons in 12 prefectures in Tohoku and Kanto region, according to Sankei news.

0656 According to Sankei Online, NISA reports that up to 160 people may have been exposed to radiation from Fukushima Number One Power Plant. All 160 people will be tested for radiation exposure.

0639 According to NHK online news (approximate translation), at approximately 0600, reactor III at Fukushima reported a state of emergency. TEPCO said that the equipment sending water to the reactor had stopped and that they have been unable to send water via another method. TEPCO declared a state of emergency based on the special measures law on nuclear disaster counter-measures. This was the 6th reactor for which they have issued this state of emergency as a result of the earthquake.

0625 Luis Mendez from Task Force-I at the State Department, asked for an update on GE employees. Embassy Task Force contacted Tim Cipullo, who only had a brief email update from consular about the employees. Task Force contacted Richard Roberts who indicated that Bill Christopher was on a conference call at the moment with Washington and would address the issue directly with them.

0620 According to a 0530 article on Jiji news, the government announced a Cabinet decision designating the earthquake as a severe disaster. In doing so, the government will be able to allocate funds directly to disaster relief in the affected areas.

0610 Embassy Task Force received a call from Heather Dresser of EAP/J requesting an Embassy Econ Officer participate in a conference call immediately regarding the nuclear issue. Embassy Task Force contacted Mark Wall at home and given the call-in information for the conference call.

0600 According to an online NHK report (approximate translation), disaster relief teams from South Korea and Singapore arrived in Japan on 12 March. On the morning of the 13th, U.S. disaster relief teams were also expected to arrive at Misawa base in Aomori prefecture in addition to the U.S. military sending nuclear aircraft carrier Ronald Reagan and other vessels to the disaster area and will assist them by providing supplies using helicopters and landing craft. As of the 12 March, a 40-person German search and rescue team had departed. The United Kingdom had also dispatched a 63-person search and rescue team and dogs on the evening of the 12 March. France announced that they are sending 2 teams which were expected to depart for Japan on the 12th as well. China also indicated they would send a 10-person rescue team to Japan. The United Nations decided to dispatch a disaster evaluation and coordination team which would arrive after 13 March. Russian President Putin held a ministerial meeting and expressed Russia's desire to assist Japan, given that it was a regional partner, and instructed that they begin to make preparations to begin increasing the supply of LNG to Japan, as reported previously below.

0545 At a press conference broadcast in Japanese that began at approximately 0540, NISA's representative said that they completed the initial stages of pumping sea water into the containment vessels of the reactor to stabilize the situation, although additional cooling efforts still remain. In addition, they have vented additional elements of the reactor to release pressure.

0543 The Japanese Ministry of Foreign Affairs (MOFA) invited local diplomatic missions at 1139 on 12 March to attend a briefing on the Fukushima Daiichi Nuclear Power Plant, presented by Mr. Makio Miyagawa, Director-General, Disarmament, Non-Proliferation and Science Department, Ministry of Foreign Affairs, on 13th March 2011 at 1000 at MOFA.

0456 According to Kyodo news, Russia will boost natural gas shipments to Japan if requested by Tokyo. Russian Deputy Prime Minister Igor Sechin announced that Russia can send up to 150,000 tons of LNG to Japan.

0454 NHK TV reports that they continue to pump sea water into the reactor.

0445 Kyodo News reports that nuclear agency officials said the severity of the radioactive leak this time is around the same level as a 1999 accident at a nuclear fuel processing plant run by JCO Co. in Tokaimura, Ibaraki Prefecture, in which a nuclear fission chain reaction could not be contained for nearly a full day.

0430 According to Nihon television news, NISA indicated that 3 citizens have been exposed to radiation, having been tested with survey monitors. In addition, 50-100 people who were evacuating the area may also have been exposed to radiation and are being tested.

0400 According to NHK (informal translation), the Ministry of International Trade and Industry (METI) Nuclear and Industrial Safety Agency (NISA) announced that the accident at Fukushima Number One Power Plant is a "level 4," which was as bad as the accident which occurred 12 years ago at Tokaimura, Ibaraki Prefecture.

0400 Jerome Ryan and Ti-Ying Lee have assumed charge at Tokyo Task Force. Direct all email to them vice Hotz as of 0415

0351 Kyodo News reports Japan's nuclear safety agency admitted the reactor had partially melted—the first such case in Japan

0345 Consular Reports CA-Task Force will convene a conference call including Tokyo Cons/Econ participation to discuss Fukushima issue. Timing of the call will depend on resolution of a question that has arisen regarding potentially contaminated GE employees and whether the possibility of contamination may have place them on no-fly list. CA Task Force is addressing resolution of that issue.

0320 Consular Team to Sendai : A four-person (2 Conoff, 2 LES Consular Specialists) Embassy Tokyo Consular away team will depart for Sendai March 1. Expected departure planned for noon. Final departure time contingent on milair lift arrangements. Embassy vehicle support will meet team there.

0315 South Korean rescue team arrives at Haneda: A South Korean rescue team has arrived at Tokyo's Haneda Airport. It is the first foreign assistance since the strongest ever earthquake hit Japan's northeast. A team of 5 South Koreans and 2 rescue dogs belonging to Korea's National Emergency Management Agency arrived at Haneda Airport on a civilian flight shortly before 3PM on Saturday. State Secretary for Foreign Affairs, Chiaki Takahashi, received the team at the arrival lobby, and shook hands with the members. Takahashi said he is grateful to President Lee Myung Bak, and asked members to take care, as aftershocks are continuing in the affected areas. The leader of the rescue dog team said they are a small but experienced unit, having worked in Indonesia and Haiti after they were hit by major

earthquakes. He said the team will do its best. More units may be dispatched from South Korea, depending on the situation (Source: NHK)

0300, March 13, 2011, Sunday

0225 Sea water used for cooling down the reactor (NHK Report)

The Tokyo Electric Power Company is using sea water as an emergency coolant in its quake-damaged reactor at Fukushima Number One Power Plant. The massive earthquake on Friday caused a breakdown of cooling systems that could cause temperatures in the reactor to rise to uncontrollable levels. Chief Cabinet Secretary Yukio Edano disclosed on Saturday that the company is pouring sea water into the containment vessel of the reactor. Sea water is readily available as the plant is close to the sea. Edano said the company is mixing boric acid with the water to help absorb neutrons to slow nuclear fission. Edano added that government's Nuclear and Industrial Safety Agency has endorsed the procedure. Self-Defense Force troops, who are actually in charge of the cooling process, are using pump trucks and other methods to inject the sea water. They say the work started on Saturday evening will be completed on early Sunday.

Sunday, March 13, 2011 01:03 +0900 (JST)

0215 Ibaragi Prefecture (next to Fukushima prefecture) announced it has 552,000 iodine tablets in stock and is coordinating with the Ministry of Economy, Trade and Industry (METI) on the possible distribution in Fukushima.

(Source: Sankei)

0200, March 13, 2011, Sunday

0140 The Urban Search and Rescue (USAR) Teams arriving in Japan will also be accompanied by five journalists from three US media organizations. The organizations are noted below. The Public Affairs Officer herding the media is Chief Dave Stone. His contact number is CountyBC@aol.com and his US mobile number is 323-246-7733. (He believes this number will work in Japan. Names/affiliations of the journalists coming with the USAR team:CBS - Whitney DeHart, AFP - Nicholas Kamm, CNN - Brian Todd, CNN - Dugald McConnell, CNN - Douglas Schantz (ABC dropped out at the last second but will be working to meet up with the USAR teams in the field.)

0130 Seawater Cooling Efforts at Fukushima No 1 – At a press conference beginning at approximately, 0130 March 13, NISA states that sea water cooling efforts at Fukushima No 1 are continuing. Gist (not formal translation) is that pressure inside the reactor is down; radiation did not rise; appears more stable. The four workers injured in the turbine explosion earlier in the day are still being treated.

0100, March 13, 2011, Sunday

0045 USAID Press Release

US Search and Rescue Teams Depart for Japan

WASHINGTON, D.C. – At the request of the Government of Japan, the U.S. Agency for International Development (USAID) has deployed Urban Search and Rescue (USAR) teams from Fairfax County and Los Angeles County to assist in the rescue effort in the aftermath of the earthquake and tsunami in Japan.

The USAR team from Fairfax County has now departed Washington, DC via commercially chartered aircraft. The flight will stop in Los Angeles to meet that rescue team and then continue on to Japan. The U.S. rescue teams, comprised of approximately 150 personnel and 12 canines trained to detect live victims, are scheduled to arrive on the morning of March 13 in Misawa, Japan. Upon arrival, the teams will immediately begin the search for live victims alongside the Japanese and international search and rescue teams.

USAID's Disaster Assistance Response Team (DART) is already in Japan and working to coordinate the overall U.S. Government response effort. USAID will continue to provide additional support to the Government of Japan as needed.

For more information about USAID's emergency humanitarian assistance programs, please visit: www.usaid.gov.

0040 JR (Japan Railroad) lines announced the cancellations for several bullet train lines (shinkansen) and regular lines for March 13 - Tokoku Shinkansen, Yamagata Shinkansen, Akita shinkansen, Mito line, Nikko line, Toriyama line, Narita line, Kashima line.

2330 International Atomic Energy Agency (IAEA) says that Japanese government plans to distribute stable iodine, a treatment to prevent radiation poisoning, to residents near the Fukushima No 1 and No 2 nuclear power plants

(Source CNN)

2315 NHK is reporting that efforts to cool the No 1 reactor at Fukushima with seawater are expected to be completed at 0100 local time, March 14. (1100 hrs, EST, March 13)

2250 Kan vows to protect residents: Prime Minister Naoto Kan says he will do his utmost to safeguard the health of residents near the unstable Fukushima No.1 nuclear power plant. At a news conference on Saturday, Kan said unexpectedly powerful tsunami waves interfered with the operation of back-up systems when the plant's operations were halted. The prime minister said he had decided to expand the evacuation area around the nuclear plant from 10-kilometer radius to a 20-kilometer radius. Kan added he would take all necessary measures and do his utmost to keep residents from harm.

(Source: NHK)

2245 Fukushima No 1 Summary from Tokyo LES Staff: At a press conference at 9:30 pm, CCS Edano said that there was no damage in a container vessel at No.1 reactor of Fukushima Np.1 NPP. REPCO started to use seawater to cool No. 1 reactor although the reactor may get damaged.

2220 Transportation Update: According to regular Tokyo American Airlines contacts report diverted aircraft from yesterday's operations either have or are landing at NRT this evening. Only two of

American's usual 6 daily flights are in operation with both are departing from NRT in the 2000 hour. At present, American expects to be back to normal with Monday's flight operations.

Operational update as follows:
AA 61 DFW NRT (Sapporo Diversion) arrived at NRT 1837
AA 169 LAX NRT (Sapporo Diversion) arrived at NRT 2000
AA 175 DFWNRT (Osaka Diversion) arrived at NRT 1839
AA 153 ORDNRT (ANC Diversion) arrived at NRT 2050
AA 135 JFKHND (ANC Diversion) arrived at HND 1919
AA 167 JFKNRT (Yokota / HND Diversion) arrived at NRT 2055

The following flights departed NRT tonight (Sat 12 March):
AA 60 NRTDFW ETD: 2010
AA168 NRTJFK ETD: 2000

Tomorrow (Sunday 13 March) we are planning to operate the following schedule:
AA 134 HND JFK ETD: 064
AA 154 NRT ORD ETD: 1805
AA 60 NRT DFW ETD: 1805
AA 170 NRT LAX ETD: 1600

The only cancellation will be AA 176 NRT DFW due to no equipment at NRT.

There are still approx 5,000 passengers stranded at NRT, however, the airport operations have stabilised and American expect this number to drop significantly by Monday. The biggest challenge that remains is transportation access to the airport with major highways still closed and public transportation limited although improving by the hour. American normalised operations by Monday or Tuesday at the latest.

2210, March 12, 2011, Saturday

2200 Ray Hotz (hotzre2@state.gov) assumes charge of Embassy Tokyo Sitrep Room (Daly Hall) until.

2155 Twitter tweets (in Japanese) report 3 persons have been exposed to radiation and that 90 will be tested by authorities.

2150 Transportation update - According regular Tokyo ECON contacts and Internet sites, both Haneda and Narita airports are open. While many flights to and from the Untied States have been canceled, some are proceeding (e.g., the Hawaiian Airlines flight from Honolulu to Haneda). It appears train service to and from the airports (but especially to Narita) is erratic. Concern regarding the situation at Fukushima Number One and Number Two Nuclear Power Stations overshadows that regarding other consequences of the earthquake and tsunami. The operator for the United/Continental flight to Sendai from Guam, the only U.S. airline serving Sendai, plans to reroute the flight to Narita, according to a Tokyo-based United Airlines source.

2145 Reuters report on Fukushima:

TOKYO (Reuters) - Tokyo Electric Power Co plans to fill a leaking reactor at the Fukushima Daiichi power plant with sea water to cool it down and reduce pressure in the unit, Japan's top government

spokesman said on Saturday.

"The nuclear reactor is surrounded by a steel reactor container, which is then surrounded by a concrete building," Chief Cabinet Secretary Yukio Edano said.

"The concrete building collapsed. We found out that the reactor container inside didn't explode."

Japan earlier in the day warned of a meltdown at the reactor at the plant, damaged when a massive earthquake and tsunami struck the northeast coast, but said the risk of radiation contamination was small.

"We've confirmed that the reactor container was not damaged. The explosion didn't occur inside the reactor container. As such there was no large amount of radiation leakage outside," he said.

"At this point, there has been no major change to the level of radiation leakage outside (from before and after the explosion), so we'd like everyone to respond calmly," Edano said.

"We've decided to fill the reactor container with sea water. Trade minister Kaieda has instructed us to do so. By doing this, we will use boric acid to prevent criticality."

Edano said it would take about five to 10 hours to fill the reactor core with sea water and around 10 days to complete the process.

Edano said due to the falling level of cooling water, hydrogen was generated and that leaked to the space between the building and the container and the explosion happened when the hydrogen mixed with oxygen there.

2140 Youtube now carries the 8:40 p.m. press conference by CCS Edano: http://www.youtube.com/watch?v=qd0bvBhZvKo

2119 SITREP #1 (TOKYO 766) Sent. Attached separately

2118 Japan Self Defense Force Update in Hokkaido/Tohoku:

ConGen Sapporo contact at Japan Marine Self Defense Force liaison office in Northern Army Headquarters told me this evening about current movements of JSDF in Hokkaido. JGSDF 2nd Division (based in Asahikawa, Hokkaido) is sending their rescue teams to Iwate Prefecture three times from Mar. 12 (today) to Mar. 14. The teams will be sent through private-sector ferry from the port of Otaru. He normal destination of the ferry is Niigata, but JSDF requested to stop at Akita. The JGSDF 2nd Division's rescue teams will head towards JGSDF base in Iwate via road.

According to local media reports, JGSDF 7th Division (based in Chitose), 5th Brigade (in Obihiro) and 11th Brigade (in Sapporo) are now preparing to send rescue teams. Teams will be dispatched as needed.

2105, March 12, 2011, Saturday

2050 Key points from Press Statements of Prime Minister Kan Press C and Chief Cabinet Secretary Edano (very preliminary transcription of gist – not proofread for technical accuracy).

PM Kan highlighted the government's emphasis on rescue, noting he has asked Defense Minister to mobilize the Self-Defense Forces, for example. He appreciates POTUS and other offers of support. PM Kan did not get into substantive detail on the nuclear issue.

CCS Edano noted the explosion at Fukushima Number One Nuclear Power Station destroyed the structure outside of the reactor, not the reactor core. He attributed the explosion to oxygen outside the

reactor structure. He also said that radiation levels outside were no higher after the explosion than before it. He noted authorities are attempting to cool the reactor core using chemicals and seawater.

2020 News channels report the downgrade in tsunami warning from "major" tsunami warning (Otsunami keiho) to regular tsunami warning (tsunami keiho).

2019 Iwate Prefecture conditions update:

CONGEN SAPPORO reached by cell phone a teacher in Ichinoseki, who reports her high school was damaged in the quake but there were no injuries. All services – electricity, water, gas – are non-operational everywhere in the town. There are long lines for food and water. She went by car today from Ichinoseki to Morioka, where her family lives. Her parents there lost electricity service, but not water or gas. Electricity has been restored just this evening to her parents' house, but is still out in most of the town. Morioka overall is in much better shape than Ichinoseki, but the train station is closed completely.

2018 Asahi News reports that TEPCO informed Fukushima Prefecture that its 10 posts to monitor radiation (location unspecified) are down. Fukushima Prefecture has its own monitoring posts and is collecting information using its own posts.

1930 Ambassador's Press Conference (statement delivered to press at auditorium, no Q/A)

Ambassador John V. Roos
Statement to the Media
U.S. Embassy
March 12, 2011
Tokyo, Japan

Good evening, everybody and thank you so much for being here tonight. Before I begin, I would just like to ask everyone to observe a moment of silence for the victims of this terrible tragedy.

This evening I am joined by some of the key members of my team: Lieutenant General Burt Field, Commander, U.S. Forces Japan; Captain Justin Cooper, our Defense Attaché here at the Embassy; John Beed, USAID Counselor; and, Consul General Paul Fitzgerald.

It goes without saying that we feel great sorrow, and our hearts go out to the people of Japan and to all of those who have been affected by the events of the last few days. Japan is our close ally and partner. President Obama spoke with Prime Minister Kan soon after the earthquake. On behalf of the American people, he conveyed our deepest condolences, especially to the victims and their families, and offered our Japanese friends whatever assistance is needed. I have been in constant contact with our government in Washington and the government here in Japan, including during this evolving situation with the Fukushima nuclear power plant. The United States is absolutely committed to helping Japan in any way possible to respond to and recover from the tragedy of the past few days and as Japan continues to deal with its effects.

Let me provide you with some information with regard to the current efforts of the United States.

First, let me take a moment to address American citizens here in Japan with regard to which we attach the highest priority. At this point, we have received no confirmed reports -- thank God -- of U.S. citizens killed or seriously injured. Our Embassy and our five consulates in Japan are working to obtain information on the status of all United States citizens and to provide assistance as necessary.

We know that many people are worried about the welfare of their friends and families who are here in Japan. We understand also that some telephone landlines have been interrupted. Of course, we are recommending that people continue to contact loved ones here in Japan by email, text, SMS message, or social media.

The State Department also has established a consular Task Force that will be responding to concerns about specific U.S. citizens in Japan. People may email the taskforce at japanemergencyusc@state.gov. And I'll repeat that, japanemergencyusc@state.gov.

Our consular officers in the Embassy and consulates have been responding around the clock to inquiries. This is something that they are trained to do very well, and all American citizens should feel free to utilize their services. They are also reaching out to the American citizen community, trying to push out information about what to do and what the Japanese authorities are also making available.

For additional information for American citizens in Japan, please check the State Department website (www.travel.state.gov). For information on the advisability of travel to Japan at this time, please continue to check the same website. The Embassy has also distributed to registered American citizens warden messages updating them on current conditions as we're able to obtain current information. The same information is being posted at our website. I am personally getting as much information out as possible on my Twitter account.

We urge American citizens in Japan to follow the instructions of Japanese civil defense authorities.

I'd like to talk a little bit now about the military assistance we are providing.

In response to Japanese government requests for assistance, U.S. military forces are mobilizing to conduct humanitarian assistance and disaster relief efforts throughout Japan. The Japan Self-Defense Forces are among the most prepared and capable in the world in dealing with a disaster response situation, and the U.S. military is prepared to augment their efforts with all available assets and equipment upon request.

Because of the longstanding and close working relationship between the U.S. military and its Japanese counterparts on a daily basis, the United States military has humanitarian assistance capabilities positioned in the affected regions that are ready to support emergency relief efforts and minimize human suffering.

U.S. military assets include a wide range of equipment, air, sea, and ground capability and expertise. Initial actions which have been undertaken by the U.S. military include the following:

Yokota Air Base was instrumental in recovering airline traffic in the hours immediately following the earthquake.

We immediately moved U.S. Air Force and Marine helicopter and transport aircraft from Okinawa to our U.S. military bases on Honshu.

The USS Ronald Reagan was heading east and was immediately turned around to support our efforts here in Japan. They arrive tonight.

We are moving Marine command and control units ready to work with Japan's Self-Defense Forces to coordinate our efforts on the ground.

We have units from all of our services, with a multitude of capabilities, from medical to communications to civil engineering poised and ready to support where needed.
The bottom line: our military is working closely with their Japanese counterparts to support where requested and needed.

The U.S. military's response, though, is part of a broader U.S. government support to Japan's request for humanitarian assistance. This effort includes coordination by the U.S. Department of State and the U.S. Agency for International Development, in constant consultation with Japanese authorities and the U.S. Pacific Command.

USAID immediately deployed a Disaster Assistance Response Team to Japan to respond to the humanitarian crisis in collaboration with the Government of Japan. In addition, USAID activated a Washington, D.C.-based Response Management Team to support the USAID/Disaster Assistance Response Team and coordinate the U.S. government humanitarian response. In accordance with a request from the Government of Japan, USAID mobilized and deployed two maximum level Urban Search and Rescue teams numbering more than 150 personnel. The teams have highly advanced capacities for providing hazardous material detection, emergency medical care, and water rescue assistance.

Finally, with regard to the Fukushima nuclear power plant specifically, our nuclear experts are directly in touch with Japanese experts, and we are offering our full assistance, in addition to our military and other assistance I just described, in any way we can with this ongoing situation.

The situation here in Japan is obviously still very fluid, and we are closely monitoring developments. We will of course update you as we learn more about the various aspects of this situation. But I want to be absolutely clear: the United States of America will support our close friend, our partner, and our ally in any way we can in the difficult days, weeks, and months ahead.

Thank you very much.

# # #

20:10, March 12, 2011, Saturday

2008 NHK reports that a Hyper Rescue Team sent from Tokyo Fire Department decided not to go to Fukushima Number One Nuclear Power Station because an explosion has already occurred; their

mission was to assist in cooling down the reactor at that station. The team is reportedly returning to Tokyo.

20:05 Toyota Corporation is suspending operations at all factories in Japan on Monday to check status of employees and their families, according to NHK news.

2000 GOJ and Fukushima Prefecture confirm area of evacuation for Fukushima Number Two Nuclear Power Station remains 10 km.

1950 GOJ and Fukushima Prefecture now ordering a night evacuation for all personnel in an area 20 KM radius around Fukushima Number One Nuclear Power Station, which photos show has no roof or walls (it is a skeleton only).

1950 Estimates of casualties: Newspaper Sankei Shimbun reported National Police Agency estimates of 621 dead; 645 missing.

> According to earlier reports by the National Police Agency, the death toll as of 1700 was at 574 (12 prefectures in Tohoku and Kanto). Injured persons were at 1105. The police in Sendai have reported seeing 200 - 300 bodies from a distance but cannot get close enough to confirm or to retrieve the bodies. The number of victims by prefectures are as follows:
> Hokkaido:1
> Aomori: 3
> Iwate: 232
> Miyagi: 157
> Fukushima: 144
> Yamagata: 1
> Tokyo: 4
> Ibaragi: 15
> Tochigi: 3
> Gunma: 1
> Chiba: 10
> Kanagawa: 3
>
> Damages to buildings are still difficult to assess in heavily struck areas such as Miyagi, Iwate and Aomori. Fully destroyed homes are reported as follows:
>
> Fukushima: 2413
> Ibaragi: 26
> Yamagata: 36
>
> Damages to roads are reported to be 307 roads in Ibaragi and 162 roads in Chiba.
>
> Evacuation areas are reported as follows:
>
> Iwate: 120 locations, 24,200 evacuees
> Ibaragi: 420 locations, 58,300 evacuees
> Aomori: 240 locations, 18,700 evacuees
> Fukushima: 420 locations, 104,900 evacuees

Tochigi: 150 locations, 9,500 evacuees
Miyagi: The scope of evacuation status has not been achieved as of yet.

19:15, March 12, 2011, Saturday

1909 Fukushima Prefecture will expand areas of mandatory evacuation for both Fukushima Number One and Number Two Nuclear Power Stations from 10 km to 20 km, according NHK News.

1905 Translations of Edano and NISA Press conferences prepared by Tokyo PAS

Chief Cabinet Secretary Edano
5:45 p.m. live press conference

We have been informed that there has been some sort of explosion not in the reactor but in one of the buildings of the Fukushima No.1 nuclear plant. GOJ officials, including Prime Minister Kan and METI Minister Kaieda, are making utmost efforts to grasp, analyze, and respond to the situation there. We are receiving accurate information about the level of the radiation leak, and we will release the latest information after 6:00 p.m.

The current level of radiation is within the level that is assumed to be leaked when taking actions to control the reactor including cooling it and reducing the pressure inside it.

We are making utmost efforts to obtain accurate information about the situation.

We have issued an order for the evacuation of people within a radius of 10km rather than 3km.

We urge the entire nation to conserve energy against a potential energy shortage caused by earthquake-related damages.

The Nuclear and Industrial Safety Agency
6:00 p.m. live press conference

We are trying to confirm a report from TEPCO that there was the sound of an explosion and white smoke from the vicinity of a nuclear reactor building of the Fukushima No.1 nuclear plant at around 3:36 p.m. We will decide on our specific actions in response to this situation. However, we don't yet have any detailed information.

Q: News broadcasts apparently show that the reactor building has almost collapsed. Could you elaborate on that?
A: We need to collect more information to decide on further action.

Q: Is there a possibility that the reactor itself is seriously damaged?
A: We need to collect accurate information about the damage.

1900 MEDIA CLIPS COMPILED BY TOKYO PAS

Short takes from major dailies' evening editions (3/12/11)

Top headlines are as follows:

Northeastern coast devastated. (Asahi)

More than 1,200 killed or missing. Miyagi, Iwate coasts devastated. (Yomiuri)

Over 1,500 killed or missing. Gigantic tsunami leaves catastrophic damage. (Mainichi)

Tsunami damage enormous. (Nikkei)

More than 1,000 killed or missing. Sanriku coast devastated. Radiation leaks at nuclear plant in Fukushima. (Tokyo Shimbun)

U.S. to send 150-strong relief team

ASAHI (Page 5) (Abridged)
Eve., March 12, 2011

In the aftermath of yesterday's devastating earthquake that hit the eastern parts of Japan, a number of countries have expressed their condolences and are moving to extend a helping hand.

U.S. President Obama called Prime Minister Naoto Kan. In yesterday's press conference too, he said this tragedy is "heartbreaking" when asked about the eastern Japan earthquake. He said he was brought up in Hawaii and Japanese culture was close to his heart, and he stressed that the United States is ready to extend a helping hand to Japan.

The United States Agency for International Development (USAID) announced yesterday that it will send search and relief teams consisting of about 150 members, including firefighters.

U.S. dispatches naval ships with relief supplies onboard

MAINICHI (Page 4) (Full)
Eve., March 12, 2011

Kazuhiko Kusano, Yoso Furumoto

WASHINGTON—U.S. President Obama held a press conference yesterday at the White House, during which he said the massive earthquake off the coast of Japan's northeastern districts could become a catastrophic disaster. U.S. naval ships and relief teams are already on their way to the disaster-stricken areas. Obama said he called Prime Minister Naoto Kan and offered to carry out every possible measure to support Japan. Naval ships and relief teams are being already headed for the disaster-stricken areas, and the Obama administration is now ready to make all-out efforts with its military and civilian resources.

In the meantime, at the Japanese government's formal request, the U.S. military is making arrangements for a plan to implement humanitarian assistance activities with Japan. The U.S. military is expected to provide relief supplies and transport disaster-stricken people as its immediate mission.

According to the Pacific Fleet of the U.S. Navy, the USS Tortuga, a landing craft homeported at Sasebo, left port last night with heavy-lift helicopters onboard. The USS Blue Ridge, the 7th Fleet's flagship, now in Singapore, will also head for waters near the scene as soon as it is loaded with relief supplies.

U.S. in a hurry to make preparations for help

NIKKEI (Page 2) (Abridged)
Eve., March 12, 2011

Sachiko Deshimaru, Washington

In the aftermath of yesterday's massive earthquake that hit the eastern parts of Japan, the U.S. government is accelerating its preparations to extend assistance. The U.S. Department of Defense has revealed that the USS Ronald Reagan, a nuclear-powered aircraft carrier, is now heading for the east coast of Japan's mainland. U.S. President Obama held a press conference yesterday, during which he said the earthquake could become a catastrophic disaster and that the tragedy is heartbreaking. "I believe Japan will recover for sure," he said.

Matsumoto, Clinton hold talks

NIKKEI (Page 2) (Full)
Eve., March 12, 2011

Foreign Minister Takeaki Matsumoto held talks with U.S. Secretary of State Clinton over the telephone this morning. The telephone conference was held at the suggestion of the U.S. government. Concerning the massive earthquake that hit Japan's eastern districts yesterday, Clinton told Matsumoto that the United States is ready to take every possible measure of support, and she offered to keep in touch. Matsumoto expressed his gratitude, saying, "Our alliance [partner's] help is encouraging." They also confirmed that Japan and the United States will work together to deepen their bilateral alliance. Later in the day, the Foreign Ministry announced that as of today at 8 am, a total of 50 countries and areas, including the United States, have offered to help.

(11031202imbs)

1845 Conflicting weather forecasts makes predicting wind direction from Fukushima difficult.

Japan's Meteorological Agency predicts that wind from Fukushima on Sunday morning local time will blow from the West to East (i.e., out to sea), which would be very good news; for Sunday afternoon, it predicts from South to North (i.e., toward Sendai and away from Tokyo). It predicts the same for Monday. However, the wind direction forecast according to Weather News (a Japanese company), the prediction is from Southwest to Northeast for Sunday morning and from West to East (i.e., from land to sea) for Sunday afternoon and from SW to NE for Monday morning.

1810 NHK News reports Radiation Emergency Medical Assistance Team arrived 5 km from the areas of Fukushima Number One, and that two hospitals are ready to accept patients.

18:10, March 12, 2011, Saturday

1810 NISA Press conference gist:

TEPCO notified NISA that there was the sound of an explosion with vertical shaking at 1536 near the nuclear reactor number one building and turbine building of Fukushima Number One Nuclear Power Station. They do not have any information on the cause of this explosion. They are now gathering information. No comment on radiation so far.

1800 Conditions in Iwate Prefecture reported from ConGen Sapporo

Iwate Assembly member and longtime post contact gave following report on conditions in Iwate Prefecture: Ichinoseki is fine with minor damage, no deaths. Morioka (inland) is suffering from lack of electricity and some other lifeline damage, but is also okay as compared to the coastal area, where the damage will be 3-4 times of what is being reported now. Judging from the fact that a bridge is destroyed, he thinks that the Tsunami has to have been far higher than 10 meters. He is only hoping that JET and other Americans as well as other foreign residents in the area managed to catch Tsunami warning in time and evacuated. The local elections in prefectures on the Pacific side will be postponed by 2-3 months.

1755 Conditions in Sendai reported from ConGen Sapporo

CONGEN Sapporo LES received information from a contact in Sendai 1715. Water and gas supply continues, and she had just observed one side of Sendai Station lighting up, but the rest of downtown Sendai is in blackout condition, which means no heat for those with electric heat. Grocery and convenience stores were open to long lines of customers this morning but are now closed. People are in the streets looking for food. Rumors are circulating about food distribution. Information is coming into the city via battery operated radio. Smart phones are working but regular cell phones are not; it's possible to place and receive calls from Tokyo and even internationally but calls within Sendai are not going through.

1750 Chief Cabinet Secretary Yukio Edano said at a press briefing at 1750 that there has been some kind of explosion at Fukushima Number One Nuclear Power Station, although it has not been confirmed whether it involved a nuclear reactor or not. The GOJ will release the latest numbers regarding radiation after 1800. As for Fukushima Number Two Power Station, the authorities have expanded the mandatory evacuation area from 3 km to 10 km, he said. Authorities are standing by with iodine to provide to local residents, he said.

1748 Fukuoka Update for Kyushu/Yamaguchi

1. Kitakyushu-based Star Flier Airline has cancelled 14 flights due to the closure of the Haneda Airport runway(s). SDF Western Army has decided to dispatch 5000 SDF members as well as 800 vehicles to Tohoku. The SDF 4th Division has already dispatched a team to Tohoku to

investigate the level of damage. SDF Western Air Defense Force also sent 110 personnel from Tsuiki Base as well as from Kasuga Base.

2. Kyushu Electric Power has dispatched three nuclear power plant employees to Fukushima Nuclear Power Plant based on the cooperation treaty. Also, it has started to supply 150,000 kw electricity to Tokyo Electric Power from 00:00am on March 12.
3. Due to the earthquake off Tohoku, ferry boats, high speed boats and some fishing boats were forced to wait for berth assignment in Oita and Kagoshima. Some of the passengers in poor health condition were transported from ships to land by Coast Guard vessel.
4. 24 medical teams (119 people) with rescue experience and skill from six Kyushu prefectures departed for Tohoku on March 12 in three SDF airplanes. Also, two units of rescue teams from Fukuoka City and Kitakyushu City have been dispatched to Tohoku. Fukuoka Prefectural Government has begun preparations for receiving casualties from the earthquake. A "Doctor Heli" designed for transportation of the injured has already left for Tohoku as well.
5. In Miyazaki, 41,600 households were directed to evacuate to avoid Tsunami. In Miyazaki, a 1.6m high Tsunami was observed at 03:33am on March 12. Oita Prefectural Government also issued an evacuation order to 90,000 households.

1747 TSA Representative Tokyo has conducted full reporting to Transportation Security Operations Center, Washington, DC over the last 36 hours. Current reports from Japan Civil Aviation Bureau indicate that Sendai International Airport is totally closed, with approximately 1000 personnel stranded. Domestic airports Hanamaki and Ibaraki have suspended are service, but they are accepting arrivals.

Tokyo (Haneda) International Airport and Narita International Airport are fully operational, but are recovering from the backlog of flights and dealing with approximately 14,000 stranded passengers.

Commercial diversions to Yokota Air Base in the last 36 hours have reportedly been resolved with departures to final Japan destinations, but that information is not confirmed. TSAR Tokyo has requested DAO assistance in establishing liaison with Yokota Airfield Operations in order to evaluate commercial diversions and response in coordination with US Embassy ECON Transportation.

Railway service is still degraded, but recovering.

All Post personnel should contact TSAR Tokyo with any questions concerning transportation security related issues, or other related challenges.

1745, March 12, 2011, Saturday

Radiation detected: NHK TV reports that Fukushima Prefecture authorities have detected radiation on the grounds of Fukushima Number One Nuclear Power Station in the amount of 1015 microsievert. This is twice the level at which the government requires a power company to issue a notification to the government. It is a level that, in one hour, can expose a person (under normal circumstances) to the equivalent of the maximum amount of radiation advised for one year.

Asahi TV reported that TEPCO said that an explosion reported below occurred at a turbine building not a reactor itself at 3:30. Four TEPCO employees were injured. Tokyo Fire Department has dispatched a "hyper rescue team" to Fukushima per Ministry of Internal Affairs and Communication's (MIC) request. NISA will have a press conferee after consultation with Kantei. Time has not been decided.

1710, March 12, 2011, Saturday

NHK reported at 1700 sounds of explosion and smoke at Fukushima Number One nuclear power station. Injuries are also reported by TEPCO.

SITREP re Fukushima nuclear power facilities to this point follows:

0900 Media reported the Fukushima nuclear plant #1 had begun venting steam from reactor #1 to reduce the pressure within the vessel. The Nuclear and Industrial Safety Agency (NISA)said the release of the low-level radioactive steam into the air did not pose a health risk to residents outside of the 10-kilometer evacuation area.

1200 Ambassador set up a call between DOE Deputy Secretary Poneman and Japan Atomic Energy Commission Chairman Shunsuke Kondo. DepSec Poneman provided the following readout:

> Here are the notes from the call Amb Roos and I had with Chairman Kondo. I cannot comment on the technical aspects, but simply am relating what I heard:
>
> Fundamental problem at Fukushima was that failure of backup diesel generators led to lack of power to pumps needed to send water through the core and, in the absence of a heat-sink, the reactor overheated. (BTW They do not wish to pump seawater into the suppression chamber.)
>
> The most serious situation is at Unit 1. The radiation levels there have risen to the point where they believe that the coolant water level has dropped below the tops of the rods and the core is damaged. They are venting the pressure from Unit 1 to avoid a containment leak. They have sufficient water to add for the next 40 hours. Once they vent Unit 1, the additional coolant will heat up, thus building up the pressure again, which they will then need to vent again.
>
> They have generators on site, but they cannot use them since they have no heat sinks either. So they are using batteries and power supply trucks instead.
>
> Since the pressure and temperature are going down in the other units, they think the water flow is still effectively cooling those cores.
>
> They view using seawater to cool the cores as a last resort.
>
> I offered any kind of help we have available, e.g., engineers, equipment, etc. Kondo-son expressed his appreciation and said he would ask colleagues, but that as of now they have not identified any such needs. I told him to call me any time, 24/7, if they needed any support from us. We agreed to stay in touch.
> * Chairman Kondo's full sitrep is at the bottom of this report.

1300 The Nuclear and Industrial Safety Agency (NISA) reported Cesium was detected near Fukushima Power Plant #1 and there is a possibility of a meltdown. Media began to carry reports to this effect.

1500 Ministry of Foreign Affairs (MOFA)'s Tamaura said MOFA got an official request from Nuclear and Industrial Safety Agency for assistance from USFJ to transfer cooling water to the Fukushima Plant.

1510 NHK reported the operation at Fukushima No.1 plant to lower pressure of the containment vessel was suspended due to high radiation levels were too high at one of the vales to open it. The operation was suspended because of the possibility that workers could be exposed to radiation.

1528 Media reported cesium has been detected around Unit #1, indicating a meltdown may have begun.

1535 USFJ, DOE, Pol-Mil, Econ, and Front Office held a conference call on the current situation at the Fukushima facilities and the GOJ request for assistance. The request came from NISA and was conveyed through MOFA. The GOJ requested large amounts of water to be delivered to the Fukushima nuclear power plant to help cool the reactors. Initial word is that USFJ does not have this capability, though CNFJ is working to see if any appropriate resources are available.
Tom Murphy reported the NRC has just dispatched reactor safety expert Tony Ulses from Dulles Airport and Jim Trapp (sp?) a BWR inspector is to depart in approximately seven hours. Both will arrive at Narita Airport and have helicopter transportation arranged to fly them directly to Fukushima. A 10-person NRC/DOE team is supposed to depart the United States within 24 hours.
1700
NHK and other news sources report sounds of explosions and smoke at Fukushima Number One.

1620, March 12, 2011, Saturday

The government's Nuclear and Industrial Safety Agency says 2 radioactive substances, cesium and radioactive iodine, have been detected near the Number One reactor at the Fukushima Number One nuclear power station.

The agency says this indicates that some of the metal containers of uranium fuel may have started melting.
The substances are produced by fuel fission.

University of Tokyo Professor Naoto Sekimura says only a small part of the fuel may have melted and leaked outside.

He called on residents near the power station to stay calm, saying that most of the fuel remains inside the reactor, which has stopped operation and is being cooled.

Source: NHK

1550, March 12, 2011, Saturday

Update from Consulate Fukuoka:

Fukuoka Duty officer received no/no calls overnight or during the day today.

JMA reports Miyazaki harbor in southern Kyushu recorded a tsunami of 1.6 meter at 0333 12MAR. This was the largest tsunami recorded in Kyushu since the earthquake yesterday; local news has not reported any damage or casualties there or anywhere else in our district. The 43-story Sheraton Grande Ocean Resort hotel in Miyazaki near the harbor evacuated the basement and first floor in response to the tsunami warning, but confirmed to Duty Officer they had no damage and are now back to regular operations.

Hakata harbor (approx 2 km from the Consulate) recorded a 30 cm tsunami at 0212 12MAR.

JMA website maps indicate that as of 1350 12MAR, tsunami warnings/cautions were no longer in effect for Fukuoka and Saga prefectures and all Honshu prefectures facing the sea of Japan, but remain in effect for all other seafronts in Kyushu.

The Western Army has now started to deploy part of 16,391 troops that are approved for deployment from Kyushu/Okinawa (of these, about 1,563 are from Okinawa) to the affected region. This includes the bulk of the WA's 4th and 8th Divisions along with some elements of its 5th Engineer Brigade and emergency medical teams from JGSDF med units in Fukuoka and Kumamoto. WA is scheduled to have a meeting at 1600 and its US Army Liaison officer will connect with Zama at 1700 to further US-Japan coordination.

As has been reported elsewhere, the only damage suffered by the US military so far has been some structural damage at Misawa.

Source: Consulate Fukuoka

1545, March 12, 2011, Saturday

Radiation levels at Fukushima No. 1 are 70-times the normal level at the facility's main gate and 1000-times the normal level in the main control room. The article does not attribute this information to any official source.

Source: Sankei

Update from Consulate Sapporo:

We have tried to contact many people and organizations in several prefectures in Tohoku through cell phone, land lines, and email, but so far our only contact has been one SMS at 2230 last night from a journalist in Morioka who said he was involved in trying to confirm the whereabouts and safety of his fellow newspaper employees. That has been our only contact with anyone in the region and successive attempts to reach that journalist have been unsuccessful. There are no flights operating from Sapporo Chitose airport to any airport in Tohoku. The train station in Hakodate is not operational, so train travel between Sapporo and Hakodate is not possible. Iwate Prefecture's website is down and they sent out notices on facebook and twitter stating this, but the only updates since then are a single tweet saying a certain railway will still not be operational through tomorrow, March 13.

Source: Consulate Sapporo

1524, March 12, 2011, Saturday

Delta Airlines has informed us that the Narita control tower went out of commission as of 12:07 today - no further information or confirmation available at this time.

Source: Tokyo CONS

1520, March 12, 2011, Saturday

Pacific coast of Hokkaido has been downgraded from "large tsunami warning" to "tsunami warning." The northeast coast of Honshu (Pacific coast of Aomori, Iwate, Miyagi and Fukushima Prefectures remain under a "large tsunami warning."

Source: NHK

1510, March 12, 2011, Saturday

The operation at Fukushima No.1 plant to lower pressure of the containment vessel has been suspended due to high radiation levels at the site.

Pressure of the reactor container is rising as its cooling system became dysfunctional due to a blackout and power generator breakdown. This has raised concern about possible damage to the container.

The power station's operator, Tokyo Electric Power Company, began to vent air from the reactor container at 9AM on Saturday.

Under the plan, 2 valves close to the container would be opened manually, but radiation level on the second valve was found higher than expected.

The operation has been suspended because of the possibility that workers could be exposed to radiation. The utility is reportedly studying how to open the valve by replacing workers at a short interval, or using electric remote control.

The Nuclear and Industrial Safety Agency says if radioactive substance is released in the air, safety of residents evacuated beyond a 10-kilometer radius from the No.1 reactor will be ensured.

Source: NHK World

1500, March 12, 2011, Saturday

Cesium was detected near Fukushima Power Plant #1 and there is a possibility of a meltdown, according to the Nuclear and Industrial Safety Agency (NISA)

Source: Jijitsushin

1450, March 12, 2011, Saturday

Damage from the earthquake has caused water supply stoppages to 1.1 million homes in 18 prefectures from Hokkaido to Chubu.

Source: NHK

1408, March 12, 2011, Saturday
The Tokyo Electric Power Company (Tepco) is warning of blackouts and urges customers to limit use of electricity, especially during peak evening hours. Peak usage from 6 pm to 7 pm is expected to reach 38 million kilowatts but Tepco can only supply 37 million kilowatts.

Source: Kyodo

Update on casualties and missing:
430 people have been confirmed dead and at least 200 others are believed to be dead.
On top of that, more than 740 people are missing in several prefectures in the country's northeast.

Source: NHK

1340, March 12, 2011, Saturday

New Zealand is intending to send a Search and Rescue team as the Japanese authorities have requested. At this point no consideration has been given to other forms of assistance.

Source: Embassy of New Zealand in Tokyo

1335, March 12, 2011, Saturday

The Nagano Shinkansen Line, which went down following the early morning aftershock, will be up and running as of 4 pm this afternoon.

Source: FNN

1223, March 12, 2011, Saturday

Update from Misawa AB as of 11 am

- No news from us on the nuclear plant one way or another
- We are still without commercial power across the area (generator power at key facilities on base). We are also without heat where we don't have power. No known way ahead on power.
- Have not hear base use as evac center, but we are looking at out potential capabilities.
- Have heard talk of use of base as aerial port for respupply.
- No good comms yet with Misawa City Mayor, but they are in about the same situation
- East coast near Hachinohe has water damage, but don't know how much yet.

- No casualties to AMCITs that we are aware of yet from our base. We're still tracking down a few last dependents
- We've offered potable water to the city since word is theirs is bad, but they said they have enough for now.
-Otherwise we are still busy trying to recover our own base and just starting to think about external logistic support.
- Airfield is operational.

1143, March 12, 2011, Saturday

The National Police Agency has released information on damage to major infrastructure in the affected regions. Serious damage has been reported on roadways at 422 locations, 22 bridges are damaged, and five levees have been severely damaged.

Source: NHK

1118, March 12, 2011, Saturday

Osaka kobe update- Expanded EAC meeting this am. No confirmed deaths of amcits in our consular district, minor if any damage reported. According to local news reports, several small (less than 1 meter) tsunamis have come ashore. Airports are open for arrivals and departures and trains functioning normally and on schedule. Initial assessment is that there is no damage to consulate building or housing compound. Consulate will open for normal business Mon am. All official Amcits are accounted for, are safe and have been contacted.

Source: Consulate Osaka Kobe

Naha reports that a tsunami warning remains in effect for Okinawa. According to JMA, highest observations for our district for second waves that hit between 0148 and 0700 was Amami shi Kominato at 1.2 meters. However the main island and Ishigaki reported only .2-.6 meters. No media reports of damage on Amami shi Kominato. No calls have been received overnight or Saturday morning on the FSN or officer duty phone. With Tokyo's help we have been able to successfully change our phone message notifying callers of the duty phone number for emergencies.

Source: Consulate Naha

1106, March 12, 2011, Saturday

The new Hakata-Kagoshima Shinkansen line has opened on schedule today despite the earthquake but all celebrations and events related to the opening have been cancelled.

Source: Consulate Fukuoka

1052, March 12, 2011, Saturday

Update on casualties and missing:

256 people have been confirmed dead and at least 200 others are believed to be dead.
On top of that, more than 740 people are missing in several prefectures in the country's northeast.

Source: NHK

1041, March 12, 2011, Saturday

The cooling system failed at three reactors at Fukushima No. 2 nuclear power plant, according to Tokyo Electric Power Co. This is in addition to radiation leaks reported at the Fukushima No. 1 plant.

The company notified the government that failsafe system at the No. 2 plant stopped functioning as the temperature of the coolant water topped 100 degrees Celsius.

Source: Kyodo

1035, March 12, 2011, Saturday

As of 11 am Tokyo time, the Embassy Tokyo Consular Crisis Center will return to the Consular Section in the Chancery building.

0925, March 12, 2011, Saturday

Instructions have been given to evacuate those who are in and around the Fukushima #2 nuclear plant.

0921, March 12, 2011, Saturday

The Japan Meteorological Agency has extended their tsunami warning. Tsunamis higher than 1 meter to 3 meters have been observed.

Source: NHK World website

Update regarding nuclear reactor in Fukushima:
The area 3km evacuation area has been expanded to a 10km radius.

Source: NHK World website

A 1.5 meter tsunami at Toba City, Mie Prefecture and a 1.0 tsunami at the Port of Nagoya was reported by the principal officer from Consulate Nagoya.

0854, March 12, 2011, Saturday

Update regarding nuclear reactor in Fukushima:
The Tokyo Electric Company has wanted the Japanese government of an emergency situation at a second nuclear plant in quake stricken Fukushima Prefecture. This warning follows the one earlier in the day for Plant number 1. The Government's Nuclear and Industrial Safety Agency said that equipment failures have made it impossible to cool three of the plant's four reactors. It said the

situation poses no immediate threat of radioactive leakage. The agency is considering whether it needs to issue an evacuation advisory to people living near the plant.

Source: NHK World website

0844, March 12, 2011, Saturday

Update on the nuclear reactor in Fukushima:
According to the Nuclear and Industrial Safety agency, announced an "emergency status" for nuclear plant number 2 (in addition to the previous emergency status announced earlier for nuclear plant number 1). There is no immediate radiation leak. They are in the process of determining if evacuation is necessary. Source: NHK website

0838, March 12, 2011, Saturday
Update regarding dead and missing in quake:
The dead and missing in the quake Japan-wide is estimated at more than 1000. 185 confirmed dead.
Source: Kyodo News

Update regarding travel of the Prime Minister:
Prime Minister Naoto Kan left Tokyo by helicopter Saturday morning for northeastern Japan to inspect the disaster area. Source: Kyodo News

0830, March 12, 2011, Saturday
Update regarding status of Narita Airport:
According to the Narita Airport Authority is providing the following advice:

1) Passengers need to stay in the terminals that have been confirmed to be safe
2) Regarding flights, please contact airlines directly
3) Please remain calm and list to airport staff carefully.
4) If you have any questions or concerns please do not hesitate to contact staff for assistance.

Source: Narita Airport Authority website.

0816, March 12, 2011, Saturday
Update regarding nuclear reactor in Fukushima:
According to Heather Dresser (EAP/P), a backup generator (truck) is being brought to the plant. Once it arrives, staff can do "a release and restart of the cooling system (which was not damaged). It just cannot currently function without power." Source Ms. Hiyakawa of the Japanese Embassy in Washington.

0807, March 12, 2011, Saturday
Update regarding transportation to Narita Airport
Twitter chatter about Narita Airport in past half hour indicates that some trains are running to Shinagawa and that Qantas has advised Australian travel companies that Narita will reopen today.

0751, March 12, 2011, Saturday
Update regarding dead and missing in quake:

The dead and missing in the quake Japan-wide is estimated at more than 1000. In Sendai Prefecture 200 to 300 dead were confirmed along the coastline. Source: Nikkei.com

0733, March 12, 2011, Saturday
Update regarding Fukushima Nuclear Power Reactor Number 1:
According to the Nuclear Safety Agency, the measured radioactivity at the front gate was more than 8 times normal. The level of radioactivity measured at the central control room which is located closer to the nuclear reactor was measured at more than 1000 times normal. Source: Nihon TV News.

0711, March 12, 2011, Saturday
Update regarding unaccounted for Americans:
ConOff spoke with Cameron Peek by phone. Peek is AmCit working in Miyagi Prefectural Office. He said there is no change on the status of the unaccounted for eight AmCit U.S. teachers.
Just after 0600, Peek sent an email to all JET English teachers in the prefecture and included the names of the unaccounted for Americans, asking for any information on their whereabouts.
At 1200, Peek will go off shift. He will be replaced by Luke Haple, a British citizen. Haple's email is cir2@pref.miyagi.jp. Peek's email is cir1@pref.miyagi.jp.

0648 hours, March 12, 2011, Saturday
Prime Minister Kan (reports from Japanese news):
Has departed Tokyo; will travel by helicopter to inspect the power plant area.

Transportation:
Train service resuming about 0700.
Overhead freeways in Tokyo: traffic is moving.

0633 hours, March 12, 2011, Saturday
From Cody Walsh
Embassy Tokyo/Pol-Mil
All,
Please see updates below as of 0615 local time.

2) Search and Rescue team
    a. OFDA requirements (CIQ, transport, fuel, water, etc.) for in-country HA/DR activities were passed on to USFJ and the GOJ . See attached.
    b. The GOJ can meet CIQ requirements, but cannot promise to fulfill other requirements
    c. MOFA confirmed that the GOJ will officially accept the USG's offer to provide assistance and will welcome the search and rescue teams to the affected areas provided that USFJ is able to fulfill other requirements (i.e. transport, fuel, water, etc.)
    d. USFJ is working with PACOM and other appropriate bodies to evaluate capacity to support the remaining requirements

Rescue Dogs
    e. Embassy Tokyo asked the GOJ on possibilities for lifting quarantine requirements for the rescue dogs. OFDA's LA team is requesting this information before they commit to bringing the dogs.

f. The GOJ is requiring paperwork and provided forms for the "special quarantine requirements for rescue dogs" to be completed
g. The paperwork has been passed on to OFDA to complete and return via Embassy Tokyo's USAID representative

3) Usage of USAF Bases
   a. No updates since USFJ's response below

4) USS Ronald Regan
   a. No updates since USFJ's response below

5) USN Transport Support
   a. No updates since USFJ's response below

0623, March 12, 2011, Saturday
Update: Nuclear Power Plant Fukushima
Source: NHK Japanese Public News
Government of Japan is still planning to release vapor from reactor #1. However, this requires electricity. Because the electricity is not available, the government cannot complete the release. Pressure is now 100x normal.

0526, March 12, 2011, Saturday
Fukushima nuclear plant update:
(Source: Yahoo, re-reporting from Japanese newspaper Sankei Shimbun): At 0300, Minister of Economy and Industry Kaeda 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, not expected to have any effect on citizens. Prime Minister Kan is expected to visit Saturday morningto inspect. Reactor #2 showed no abnormalities, but may change.

0457, March 12, 2011, Saturday
Two American Airlines flights (AA 61 and AA 169) diverted to Sapporo/Chitose with approximately 220 passengers each reported to have been deplaning at 0300 hours. A few minutes ago, confirmation of deplanement came through. The passengers on the planes had been reported to have been held for six hours before that due to lack of customs/immigration clearance, though hotel rooms had been secured for all crew. (Source: internal email chain)

0435 hours, March 12, 2011, Saturday
Additional details on nuclear plant in Fukushima from short news article from NHK, Japanese public news, relayed at request of DOE A/S:
It is 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.

The company, Tokyo Denryoku, says the situation of the residents is secured, because they are sheltered.

From Lynda Hinds, Front Office:
As discussed during the Japan Earthquake Task Force Interagency Conference Call this morning, the GOJ has officially made four requests for assistance:

1) Recue teams and rescue dogs
    a. Embassy Tokyo has communicated to the GOJ that we have two search and rescue "heavy" teams with water rescue capability from OFDA (LA and Fairfax teams) totaling 200 people.
    b. A flight has been chartered from Phoenix to transport the teams to Japan. We are still waiting for information on a specific ETA.
    c. We are still waiting for the GOJ to respond on requirements including location for dispatch, required capabilities, number of units the GOJ can handle, and equipment needs
    d. Ministry of Foreign Affairs (MOFA) is following up on GOJ requirements with the Chief Cabinet Secretary's office
2) Usage of U.S. Air Force bases
    a. The GOJ requested the use of two air bases (Misawa and Yokota) as collection and distribution ports for receiving foreign (3rd country) assistance
    b. USFJ has provided the GOJ with authorization to use both Misawa and Yokota Air Bases
    c. The GOJ will be using Misawa AB as the primary site for collection and distribution given its proximity to the affected areas
    d. Yokota AB and two Japanese civilian airports (Fukushima and Hanamaki airports) will be used to support if additional capacity is needed
    e. The GOJ's ASDF air bases in Hachinohe and Matsushima are heavily damaged and inoperable
    f. The foreign countries that will likely be using Misawa and Yokota will be Australia, New Zealand and the ROK
3) GOJ helicopter landing authorization, medical assistance and refueling on CVN 76 (USS Ronald Regan)
    a. The GOJ's requests landing/lift-off authorization for helicopters belonging to the JSDF, Fire and Disaster Management Agency, National Police Agency, and Japan Coast Guard on the U.S. aircraft carrier Ronald Regan, which is en route to the disaster area off the coast of Miyagi
    b. In addition, FDMA requests assistance for refueling of the helos and medical support for injured civilians on the CVN 76
    c. The GOJ is still confirming the specific type of helicopters in question, number of helos, and estimates of fueling needs
    d. As soon as the CVN 76 arrives, the Japanese side would like to start the helicopter operations on the CVN 76
    e. JSDF would like to be in charge of coordinating the helicopter operation involving helicopters from JSDF, Police agency, Fire and Disaster Management Agency and Japan Coast Guard
    f. The GOJ understands that between the JSDF and USFJ, there is the ACSA so believe that there will be no fees involved for refueling for JDSF helos
    g. The GOJ would like to confirm if there will be any fees involved for refueling helicopters belonging to Police Agency, Fire and Disaster Management Agency and Japan Coast Guard

4) USN vessel support for transportation of JGSDF forces
    a. The GOJ (JDSF) requested a U.S. Navy vessel to transport approximately 700 troops from Otaru to Akita for relief efforts
    b. The GOJ has found a ferry from a private company that would be able to transport them at 1900 local tomorrow evening (12 MAR), but would like to leave before then, if possible.
    c. The GOJ is yet to provide additional details regarding specific locations for their transport requirements

0407 hours, March 12, 2011, Saturday
Nuclear plant update Fukushima:
Japanese news reports will let out some air to release pressure, which will also let out some radiation—says small amount. They will announce beforehand time of release.

New quake: magnitude 6 reported in Nagano prefecture by Japanese news.

0333 hours, March 12, 2011, Saturday
Contact regarding efforts to locate Miyagi U.S. citizen English teachers:
ConOff in Tokyo spoke by phone with AmCit (?) Cameron Peek, working at the Miyagi Prefectural Office on overnight shift, by phone. Peek gave details on his attempts to contact the unaccounted for AmCits: Three, BREUN, OI, and FALES, are in the Kesennuma/Motoyoshi area, where there is a high likelihood of tsunamis; it is also an area where many fires have been reported. This area has been recommended for evacuation—it is very unlikely they would be at their homes. Two, ANDERSON and EMERSON, were in a coastal area. One, MOLNAR, was in Sendai City, semi-coastal.
The earthquake occurred at about the time teachers would have been heading home for the day. Hence, it is possible they would have been prevented from going home by their teachers.
Peek intends to ask teachers who have/have already been contacted to look for unaccounted-for teachers after sunrise.

Fukushima nuclear plant update:
Japanese news reports that internally the pressure level is higher, therefore the risk of radiation level is higher, and authorities are debating releasing air outside to relieve pressure, which would release radiation.

0227 hours, March 12, 2011, Saturday
1800 houses reported destroyed in the town of Minami-Soma in Miyagi Prefecture. Due to this, total deaths is now expected to go over 1000. (MSN)

Gas plant explosion reported by MSN in Miyagi Prefecture, town of Takajo. Still on fire.

0215 hours, March 12, 2011, Saturday
Nuclear plant in Fukushima latest from Nikkei news:

Pressure is exceeding normal standards—therefore, radiation leak may still occur. Residents within three kilometers are asked to go to a shelter. The cooling system water level is going down. However, the U.S. is supporting; Secretary Clinton called and said U.S. airborne has brought cooling materials to the plant.

Update to numbers of AmCits in four main affected prefectures, now including Fukushima prefecture:
Aomori 420
Iwate 183
Miyagi 207
Miyagi-Sendai 483
Fukushima (Tokyo consular district) 64
Total: 1357

0154 hours, March 12, 2011, Saturday
Tokyo DCM/CG agree we wish to clarify registered AmCit numbers for northern Japan. While Consulate Sapporo estimated 4,300 for its entire district, the most affected prefectures, are Miyagi, Iwate, Fukushima, and Aomori. Registered Amcits in most highly affected prefectures:
Aomori 420
Iwate 183
Miyagi 207
Miyagi-Sendai 483
Fukushima (Tokyo consular district)
Total:

Nuclear plant in Fukushima:
Tokyo Denryoku, the company running the plant, reports as of 2300 that no radiation leak has been confirmed. Two people have been injured.
Japanese news: Government announcement of emergency remains in place despite no leakage of radiation.

Embassy children in Tokyo:
0111 hours, all school buses reported arrived by CLO. CLO has a list and believes all children are accounted for.

Obama/Kan:
Japanese news reports President Obama and Prime Minister Kan spoke at 0015 local time and discussed how the U.S. will support Japan.

0134 hours, , March 12, 2011, Saturday
Transportation, subways: Japanese media reports that some subway lines (appears to be four of thirteen) are provisionally scheduled to run all night in order to help people get home (normally, they shut down after about 12:30 a.m.). However, fewer trains than normal have been running.

AmCits in Miyagi Prefecture:

Consul in Sapporo consulate reports he has heard from an AmCit contact for U.S. citizen teachers in Miyagi prefecture (most heavily affected prefecture. Consul writes, "bottom line - all but 8 AMCIT JETS [government of Japan sponsored English teachers] accounted for."
The actual message:
Consul General Ries, Consul Lyons,
Please refer to the attached excel document. We have made this list of the
71 JETs in Miyagi. As of 0:00 on Saturday the 12th, we have established contact with 60 people who have said they were safe. Of the remaining 11 whom we have not contacted, 8 are American.
We have established shifts for one of the two CIR Prefectural Advisors to be at the Prefectural Office at all times, and will continue these shifts until we establish contact with all 11 people.
I will re-update you before my shift ends at 12:00 pm tomorrow. If you would like earlier updates / updates at regular, please let me know. It is no trouble at all."

0116 hours, March 12, 2011, Saturday

Nikkei News reports latest casualty figures are 660 dead/missing, 627 injured.
MSN: 531 missing, 627 serious injuries in northern prefectures.

Numbers of AmCits in primary affected area in Northern Japan from American Citizen Services registry from Consul Tom Lyons in Sapporo:
Here are our warden numbers from CCD - I'd say add about 15% to each to account for unregistered folks.
Registrants without a Warden Zone 520
Hokkaido 905
Hokkaido-Sapporo 907
Aomori 420
Akita 220
Iwate 183
Miyagi 207
Miyagi-Sendai 483
Other (Traveler, etc.) 21
Short Term Registrant Zone (This Zone is assigned for Subjects who are Registering with the Post for Trips that are shorter than the number of days set by Post.) 175
Total registrants: 3771
Total registrants +15%: 4337

0054 hours, March 12, 2011, Saturday

135 now official death report according to Japanese public news.
U.S. and Korea were doing joint training, and ship "Ronald Reagan" is heading to assist Japanese Self Defense Navy offshore of affected area to supply oil and assist in rescue (source: MSN)
A four car train in Miyagi prefecture cannot be contacted; believed washed off of the tracks and into the ocean by tsunami. (NHK Japanese public news)

0037 hours, March 12, 2011, Saturday

From Consul in Sapporo: "I just received a call from Maj. Eric Nebeker, the USARJ Liaison to JGSDF Northern Army. Northern Army is requesting a U.S. Navy vessel to transport approximately 700 troops from Otaru to Akita for relief efforts. Preferably, they would like to show 'a U.S. ship with Japanese faces' to show the strength of the alliance during these times. They have found a ferry from a private company that would be able to transport them at 1900 local tomorrow evening, but would like to leave before then, if possible."

0030 hours, March 12, 2011, Saturday

Government of Japan Minister of Defense has mobilized 8000 troops to dispatch—article not clear as to where they are being sent.
Cool-down procedures at Fukushima nuclear plant are not working; state of emergency official.
(NHK, Japanese public news)

0025 hours, March 12, 2011, Saturday
From Sapporo, relaying information from Misawa AB Ops Center:

Commercial power that feeds the base is down, unknown time to restore. Critical infrastructure is working on generator power. There is minor damage to infrastructure but all buildings are good to go. No major injuries or deaths have been reported. We have 92% accountability of all our military and civilians. Our airfield is 100% functional but base support facilities are hampered by the power outage.

As for off-base, the entire area surrounding Misawa Air Base is without power. We have few reports from the local leadership but they have been very concerned about coastal areas and the tsunami. Water is not potable in the city water supply but they can boil for 20 min.

The biggest issue for both base and city will be heat. Outside air temp is 28 degrees Fahrenheit tonight. On base, we have centralized steam plants and the plants are good, our distribution system is hampered by the power outage but recoverable. In town, individual homes don't have that benefit so it's going to get cold quickly for them. Shelters are being set up in the schools as we understand it.

0018 hours, March 12, 2011
Residents within three kilometers of the nuclear power plant in Fukushima prefecture (northern Japan) have been told to evacuate (Yahoo News)

0009 hours – March 12
From Yahoo! Japan news:
300 drowned bodies reported found in Miyagi prefecture
400 houses no electricity in Tohoku (northern Japan)
Official reports total confirmed 98 deaths, 351 missing as of 2300 hours
Ministry of Foreign Affairs has officially asked the U.S. military for help: top official called Ambassador. Also asked help from China, Russia, and 25 other countries.

0008 hours – March 12, Saturday
From Osaka consular officer:
Based on a duty calls from amcits claiming that airlines were not handling stranded passengers well, just giving them money and sending them away, and a contact at one of the airlines who said several planes

from the US were being diverted to Kansai Int Airport with potentially hundreds of amcits we went out to the airport to see if there were any Americans with health or immigration issues and to see if it was as bad as we had heard.

What we saw was the opposite. KIX appeared orderly and we witness no ugly customer service incidents. The arrival and dep board showed only a few delays and cancellations. Most people were calm. Airline counters were appropriately staffed with some lines, but nothing to suggest confusion.

We spoke with two different airline's staff who both said that yes there had been some delays but that passengers were being rebooked and those that needed were being directed to hotels or being allowed to stay overnight in open vip lounges. We went to the lounges next. I counted about fifty people of mixed nationalities relaxing or sleeping. KIX did not appear busy by chicago ohare standards. In fact, definitely not comparable to a midwest snowstorm delay at all.

Customs and immigration official said they had no issues with amcits.

Maybe much ado about nothing, but I saw efficiency and order.

2240 hours – March 11
Miyagi prefecture police reported finding between 200 and 300 dead bodies. No further details.

2235 hours – March 11
Japanese news reports a fishing boat with 100 people onboard is lost at sea and presumed sunk.

Japanese news also reports that 48 people in Ofunato, Iwate prefecture, are missing.

2146 hours– March 11
Japan media reports 61 deaths:

Tokyo:	3
Iwate:	26
Miyagi:	8
Fukushima:	12
Ibaraki:	5
Tochigi:	1
Chiba:	3
Kanagawa:	2
Unknown:	1

Japanese Customs Bureau told Emboff that Narita will fully open at 0600 local time Saturday.

2135 Tsunami warning from Japan Meteorological Agency includes major tsunami warning for most of the pacific coast of Honshu and Hokkaido islands.

2135 – March 11
Narita closed until at least 11pm (rumors are it will be longer). Some planes departing, but none arriving.

Narita airport reports that access roads into the airport are mostly closed. Public transportation to and from the airport is not operating. Blankets are being distributed to stranded passengers.

Haneda is up and running. Many U.S. planes diverted to Sapporo, Kansai (KIX), and Yokota AFB. Most of those flights are reportedly slowly making their way to Haneda. Roads to the airport are jammed, and public transportation to/from the airport is not running.

2113– March 11
Japanese news reporting current casualty totals:
Dead: 50
Missing: 39
Injured: 244+

2036– March 11
Japanese news reports 39 deaths.

General Affairs Ministry Fire Agency reported 97 fires in 9 prefectures, with 23 fires in Sendai City, near the epicenter.

Landsides have trapped an unknown number of people in Fukushima, and 12 people are reported missing.

2016– March 11
JET English teachers in Japan have been requested to report their status to the main office in Tokyo by Monday (3/14) afternoon.

In Miyagi prefecture, there are 71 JET teachers, 45 of whom are confirmed safe. There are no reports of deaths or injuries.

1951– March 11
Tokyo Reuters (via Yahoo)
Japanese nuclear power plants and oil refineries were shut down and a major steel plant was on fire.

Kyodo News
Sony closed 6 factories
Air force jets surveying the damage on Japan's northeast coast.

1935– March 11
Japanese TV:
32 confirmed deaths
A new strong earthquake warning was put out for Tohoku (northern main island Honshu), Kanto (includes Tokyo, Niigata prefecture

Fire was put out at Miyagi prefecture nuclear plant.
Fukushima prefecture nuclear plant announced its safety.
Sendai city airport: numerous people are waiting to be rescued from the to of the building.

Japan Times/Kyodo News:
The government on Friday quickly sent the Self-Defense Forces to Miyagi Prefecture following a request from Gov. Yoshihiro Murai.
All ships docked at the Maritime Self Defense
Yokosuka base forces (U.S.?) were ordered to sail to waters off Miyagi, and after eight fighter jets took off from four bases of the Air Self-Defense Force (Japan) to check the quake damage.
The government of Japan set up a task force at the crisis management center of the Prime Minister's Office to control the situation.

1919– March 11
28 confirmed dead.
Bullet train from Tokyo to Osaka now running.
Bus started running around 16:00—local buses, but not highway buses.
Tsunami in Tokyo: arrived, slightly over one meter.
(Tokyo TV news)

1901 hours– March 11
(Kaneshiro in Okinawa:) We've also been monitoring national press from Okinawa. In addition to the deaths you reported in Tokyo, our running count of additional confirmed deaths reported by NHK and TBS as of 1850 is:

Tochigi prefecture – 1 dead
Fukushima prefecture – 1 dead
Iwata prefecture – 10 dead
Chiba prefecture – 1 dead
Miyagi prefecture – 3 dead; 100 people trapped in a collapsed bldg in Ishinomaki
Ibaraki prefecture – 1 dead

Also, we noted:

Yokohama City – 10 people trapped in a collapsed building
Tokyo – 22 active fire sites
Iwate – 1 landslide

1900– March 11
Hawaii, Oregon, Washington, Washington, California, parts of Alaska: tsunami warning. Projected to hit at 800 hours eastern time first in Hawaii.

1858 – March 11
TV News reported:

Fire in the basement of the Onagawa Plant #1 of Miyagi as been reported. There is no nuclear leakage is detected yet. (Cubas)

1854 hours – March 11
FUKUOKA – 1854, March 11, 2011

METI reported at the safety meeting at 5:10 that emergency generators do not work in the reactor 1 and 2 of the Fukushima Nuke Plant #1. Nuclear reaction/activity automatically stopped by the quake. But disintegration heat has been leaking and generator for cooling it is necessary.

As of now METI reported the followings:

Stopped by quake or stopped for regular inspection:
(Miyagi) Tohoku Electric Power Onagawa Nuclear Plant #1~#6 reactors
(Fukushima) TEPCO Fukushima #1 Nuclear Plant #1~#3 reactors (#1 and #2 reactors have possible leakage.);
(Fukushima) TEPCO Fukushima #2 Nuclear Plant #1~#4 reactors
(Ibaraki) Japan Nuclear Power Tokai #2 Nuclear Plant
(Aomori) Tohoku Electric Power Higashi Doori Nuclear Plant
(Shizuoka) Chubu Electric Power Hamaoka #3 Nuclear Plant
(Niigata) TEPCO Kashiwazaki Kariwa Nuclear Plants #2~#4

Working:
Hamaoka #4, #5 reactors
Kashiwazaki Kariwa #1, 5, 6, 7 reactors
Hokkaido Electric Power #1, 2, 3 reactors
Aomori Reprocessing Plant

NAHA – 1840, MARCH 11: Naha has accounted for our staff, including our FSN who is traveling in Tokyo. A very minor tsunami hit the Amami Islands (in our district) at 1810 and the main island of Okinawa shortly afterwards. OPG reports no damage. We also checked with the Amami city government (in our district) and they also report no damage. Tsunamis are still projected to hit southern Okinawan islands but estimates are that they will be minor. According to the police, Naha airport remains open and there is no plan to close the airport.

USFJ UPDATE ON MIL INSTALLATIONS AND PERSONNEL IN JAPAN AND REQUEST TO AFN BROADCAST OUR WARDEN MESSAGE: USFJ has also stood its command center and has been receiving reports from mil installations across Japan. As of 1835 they report:

-- no fatalities or casualties to SOFA personnel in Japan
-- minor damage to only one installation (Misawa AB)

Also, we reached out to the Armed Forces' Network (AFN) in Okinawa and asked them to broadcast our warden message across Japan. Naha has also launched the Naha congen facebook page that waiting for clearance in order to get messaging out.

1850 – March 11
26 deaths confirmed as of 1830
Numerous missing and injured
Iwate prefecture: supermarket collapse
Cosmo Oil Refinery in Chiba prefecture
Tokyo: 2 deaths, 45 injured
New tsunami warning in the south: Fukuoka prefecture
From Tokyo north, no more trains today, railway announced

1849 hours – March 11
Nagoya Update:

Two small tsunamis (less than a foot) hit Nagoya at around 1645JST. No injuries or property damage. All staff and dependents are accounted for- including Tokyo/Pol Andrew Ou who is down here TDY.

Prefectural police in Aichi, Mie and Gifu report no/no Amcits affected by the earthquake. (Jonas Stewart)

1843 – March 11
Magnitude was 8.9 original quake
13 foot tsunami damaged buildings and washed away homes along the northeastern coast
No radiation leaks have been detected from japan's nuclear power stations, Prime Minister Kan says.
Japanese gov't: tremendous damage
Tsuamis up to 10 meters high slammed coast, three reported killed

1841 – March 11
Background: SAPPORO: - record of times and contents of emails

1524: We just had another earthquake – looks to be in about the same location as the one Wednesday, but stronger. We felt this one in Sapporo, though it was just some mild rocking – compared with nothing during the Earthquake on Wednesday.

The big issue with this earthquake is the Tsunami – expected to be up to 10 meters. Unconfirmed reports that the runway at Sendai airport is cracked. No other damage/casualty estimates at this time.

We have attempted to call contacts in Sendai, but phones will not go through.

1550: On TV they are showing large tsunamis hitting in Kesennuma, northeast of Sendai. Looks pretty bad – cars and buildings washing away. Still no word from Sendai – phones still unable to get through.

1613: Magnitude of the earthquake has just been updated to 8.4. Local news just showed waves overcoming farmer's fields in Nattori, which is between Sendai and the coast. Sendai is the largest populated area in the most affected by the quake/tsunami.

Sendai is approximately 10 miles inland; however, Sendai's airport is between Nattori and the coast, meaning that it is likely underwater.

1621: We have reports of a tsunami of 3.5M on the southern tip of Hokkaido and flooding throughout Southern Hokkaido, but no reports of damage or casualties; They have updated the tsunami warning to "Major Tsunami Warning" for all of the East Coast of Japan north of Shizuoka and Nagoya area.

1803: Sapporo has just learned that the official estimate is so far 10 dead in Sendai, with numbers obviously expected to rise significantly. Fires are still burning in Sendai. We have heard that the government has mobilized the Self-Defense Force to respond.

Sapporo has sent out a warden message through ACS+ and posted the message on Facebook and Mixi (a Japanese version of Facebook).

We will remain alert to hear reports of AMCITs in need of assistance.

1812: Just got word from a JET that works at the Miyagi Prefecture office:

...We are currently trying to establish contact with the 72 JETs in Miyagi (not including Sendai JETs) and so far have confirmed that 40 of them are okay. 19 or the remaining 32 are American and I will let you know when we have confirmed their safety...

Comment from Sapporo - JETs and other English teachers likely make up the majority of AMCITs in the Sendai area, the area hit hardest by the quake.

1840 – March 11

All - Naha has accounted for our staff, including our FSN who is traveling in Tokyo. A very minor tsunami hit the Amami Islands (in our district) at 1810 and the main island of Okinawa shortly afterwards. OPG reports no damage. We also checked with the Amami city government (in our district) and they also report no damage. Tsunamis are still projected to hit southern Okinawan islands but estimates are that they will be minor. According to the police, Naha airport remains open and there is no plan to close the airport.

USFJ UPDATE ON MIL INSTALLATIONS AND PERSONNEL IN JAPAN: USFJ has also stood its command center and has been receiving reports from mil installations across Japan. As of 1835 they report:

-- no fatalities or casualties to SOFA personnel in Japan
-- minimal damage to Misawa AB; no other damage to mil installations in Japan

1836 – March 11

News just came that the Prime Minister will declare a state of emergency regarding the nuclear radiation leak at the Fukushima plant shortly. (Cubas)

1835 – March 11

As of 1446, nuclear:
29 facilities no troubles reported.
11 stopped due to earthquakes
8 stopped for inspection
9 continue to function
(Tokyo TV)

1834 hours – March 11
While the earthquake was felt in the Osaka area there does not appear to have been any damage. We received reports that a half meter tsunami warning is in effect but don't have an update on that at this time. All personnel are accounted for. Staff at the Consulate felt the building sway but some family members at the housing compound between osaka and kobe did not feel it. Lastly, an airport contact said large numbers of people from nagoya and tokyo area were heading to Kansai area airports to catch flights. (Snider)

1831 hours – March 11
TV news just reported radiation leak from the #1 plant. (Cubas)

1829 hours – March 11
Evacuation suggestion, not yet an order, Kagoshima, Oita and Miyazaki prefectures, in Kyushu.

Miyazaki port had 1.4 m tsunami, extensive flooding along the coast. Similar effects on some remote southern islands.
(Cubas)

1824 hours – March 11
Prime Minister Kan to speak in about 10 minutes on nuclear situation.

40+ injured in Tokyo, 4 unconscious

8 buried in debris in Fukushima prefecture.

1820 hours – March 11
53 or more fires in 8 prefectures.

Disaster Central (Japanese) is damaged and not functioning.

1808 hours – March 11
Total deaths confirmed thus far: 13
By prefecture:
5 Fukushima
1 Ibaraki

5 Iwate
1 Honda Factory
1 Chiba

Missing: 8, Fukushima prefecture

Tokyo: Kudankaikan building collapse or partial collapse, 25 injured.

Tokyo Big Site (conference/tourist area: 4 injured)

Still no public transportation

Ibaraki airport: ceiling fell

U.S. CostCo shopping center in Machida (Tokyo outskirts) collapsed; 9 injured

1759 hours – March 11
Update on TV news:

Fukushima prefecture had second earthquake, 5:48 p.m. magnitude 5.8

Five deaths confirmed in Iwate prefecture as of 5:00 p.m.

No electricity in the Tohoku area; Tohoku is most of the main island of Honshu, northern area. About five prefectures.

Large whirlpool shown off the coast of Ibaraki prefecture.

1749 hours – March 11
Preliminary reports are around fires and tsunamis. Here in downtown Tokyo we're not seeing exterior damage on buildings. Our Embassy residential units have some interior damage – furniture toppled, etc.

We have posted a warden message and are trying to get word out via Twitter.

We're trying several means to contact you by phone.

We continue to have aftershocks.

We have no reports of official personnel, dependents, or American Citizens injured at this time.

Rail and subway are down.

There is another warning now for a major aftershock.

Paul Fitzgerald
CG

1711 hours – March 11
Summary from Japanese news:
5:30 p.m. Jpan time
50cm tsunami in Toyama Prefecture

10 meter Tsunami reported not confirmed
Entire East coast of Japan on tsunami watch

Public transportation not running:
Not running: all trains, including bullet trains
No reports of train accidents

One confirmed death

Refinery in Chiba on fire

8.4 magnitude flashed on news report.

From:	King, Mark
To:	Thorp, John; Thomas, Eric; Boger, Bruce; Brown, Frederick
Cc:	Burnell, Scott
Subject:	Earlier 2007 briefing material --Briefing on Effects of Japanese Earthquake -- from July 2007
Date:	Monday, March 14, 2011 7:50:48 AM

CAUTION : The following info is from an **INTERNAL** NRC - NRR/ DIRS/IOEB (Operating Experience Branch) briefing given on the earlier Japanese earthquake back in **July 2007.**

From ***slide 18*** of 41 –

US Reactor Seismic Design

• Existing US reactors were designed based on calculation of site-specific Safe Shutdown Earthquakes (SSE)
(Appendix A to 10 CFR Part 100), with additional requirements for a minimum amount of protection even for low hazard areas.

• Only 2 US nuclear plants with active faults located nearby. Both have automatic seismic trips.
– **Diablo Canyon** (CA) – fault 5 km away
• Fault identified after plant was licensed
• Plant retrofitted to withstand an earthquake with a magnitude of 7.5

– **San Onofre** (CA) – fault 8 km away (hypothesized fault) • Plant designed to withstand an earthquake with a magnitude of 7.0

• Other plants in the US have seismic instruments and requirements for manual shutdown at specified levels.

INTERNAL NRC BRIEFING INFORMATION LINK
http://nrr10.nrc.gov/rorp/docs/effects-of-japanese-earthquake-distribution-mj-072407.pdf

BH/6

From: Grobe, Jack
To: "craig.nichols@ge.com"
Subject: Re: TEPCO Earthquake Information Update as of March 14, 1700(JST) - Fukushima Daini NPS
Date: Monday, March 14, 2011 9:10:36 AM

Craig

Don't know who puts these together, but I would suggest that numbers include units. For example is the 100 when referring to to suppression pool temp F or C ..... I think C. Thanks.
Jack Grobe, Deputy Director, NRR

----- Original Message -----
From: Nichols, Craig (GE Power & Water) <craig.nichols@ge.com>
To: Grobe, Jack
Sent: Mon Mar 14 08:53:12 2011
Subject: FW: TEPCO Earthquake Information Update as of March 14, 1700(JST) - Fukushima Daini NPS

Jack, FYI

Thank you, Craig

From: 松尾 建次 [mailto:matsuo.kenji@wash.tepco.com] On Behalf Of matsuo.kenji@tepco.co.jp
Sent: Monday, March 14, 2011 8:56 AM
To: matsuo.kenji@tepco.co.jp
Subject: TEPCO Earthquake Information Update as of March 14, 1700(JST) - Fukushima Daini NPS

Dear Friends,

Fukushima-Daini (2F) unit 4 recovered reactor cooling.

Now 4 units in 2F site have cooling function.

Update of Fukushima-Daini NPS (as of March 14 17:00am) :

Unit 2:

- Restoration work in reactor cooling function that was conducted to achieve reactor cold shutdown has been completed and cooling of the reactor has been commenced at 7:13 am, Mar 14th.

- Afterwards it was confirmed that the average water temperature of suppression chamber was constantly below 100 degrees at 3:52 am.

Unit 4:

- Restoration work in reactor cooling function that was conducted to achieve reactor cold shutdown has been completed and cooling of the reactor has been commenced at 3:42pm, Mar 14th.

BH/7

Radiation monitoring after 1F-3 hydrogen exprosion:

At approximately 11:01am, an explosive sound followed by white smoke occurred at the reactor building of the Unit 3. It was believed to be a hydrogen explosion.

As of 4:00 pm, the measured value of radiation dose at the monitoring post in Fukushima Daini Power Station remains at the ordinary level. No radiation impact to the external environment has been confirmed.

Contacts:

TEPCO Washington Office 202-457-0790

Kenji Matsuo, General Manager

Yuichi Nagano, Deputy General Manager,

Masayuki Yamamoto, Manager, Nuclear Power Programs

==========

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

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

- Offsite power is available.

- At 8:19am, Mar 12th, there was an alarm indicating that one of the control rods was not properly inserted, however, at 10:43am, Mar 12th the alarm was spontaneously called off. Other control rods has been confirmed that they are fully inserted (reactor is in subcritical status)

- Status of main steam isolation valve: closed

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

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

- At 5:22am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 5:22am, Mar 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.

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

- Restoration work in reactor cooling function that was conducted to achieve reactor cold shutdown has been completed and cooling of the reactor has been commenced at 1:24 am, Mar 14th.

- Afterwards it was confirmed that the average water temperature of suppression chamber was constantly below 100 degrees at 10:15 am.

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

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

- Offsite power is available.

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

- Status of main steam isolation valve: closed

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

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

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

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

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

- Restoration work in reactor cooling function that was conducted to achieve reactor cold shutdown has been completed and cooling of the reactor has been commenced at 7:13 am, Mar 14th.

- Afterwards it was confirmed that the average water temperature of suppression chamber was constantly below 100 degrees at 3:52 am.

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

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

- Offsite power is available.

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

- Status of main steam isolation valve: closed

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

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

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

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

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

- Offsite power is available.

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

- Status of main steam isolation valve: closed

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

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

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

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

- Restoration work in reactor cooling function that was conducted to achieve reactor cold shutdown has been completed and cooling of the reactor has been commenced at 3:42pm, Mar 14th.

At approximately 11:01am, an explosive sound followed by white smoke occurred at the reactor building of the Unit 3. It was believed to be a hydrogen explosion.

As of 4:00 pm, the measured value of radiation dose at the monitoring post in Fukushima Daini Power Station remains at the ordinary level. No radiation impact to the external environment has been confirmed.

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

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

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fyi

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

I came back.

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

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

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

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

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

@yamachika

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

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

@yamachika

BH/8

From: RST01 Hoc
To: Trapp, James
Subject: FYI: UNIT 4 - Request for Assistance from Tokyo Electric & Power
Date: Monday, March 14, 2011 10:11:36 PM

FYI

From: Cooper, Justin D [mailto:CooperJD@state.gov]
Sent: Monday, March 14, 2011 9:43 PM
To: USFJ-CAT-CHIEF
Cc: LIA02 Hoc
Subject: Request for Assistance from Tokyo Electric & Power

Just received call from Mr Katano from Tokyo Power & Electric:

- Unit 4 Fukushima now has fire on site
- Request help to extinguish
- Nuclear Fuel / Oil on fire
- Request assistance with firetrucks to extinguish fire
- Request assistance with helicopters as well
- Extinguish requires water / boron / boric acid
- They will designate safe area for responders

Justin D. Cooper II
Captain USN
Defense Attache
Senior Defense Official
U.S. Embassy, Tokyo, Japan

Ph: 03-3224-5375

1-10-5, Akasaka
Minato-ku, Tokyo 107-8420

This email is UNCLASSIFIED.

BH/9

McKelvey, Harold

From: Collins, Elmo
Sent: Wednesday, March 16, 2011 11:27 AM
To: Kennedy, Kriss; Howell, Art; Pruett, Troy; Vegel, Anton; Caniano, Roy; Cain, Chuck
Subject: Fw: INPO SER and Chairman's Q&A as requested
Attachments: 23QuestionsOPA3_16.docx; INPO Event Report (IER) L1-11-1.pdf

Importance: High

From: Meighan, Sean
To: Dean, Bill; Lew, David; Wert, Leonard; Casto, Chuck; McCree, Victor; Satorius, Mark; Pederson, Cynthia; Collins, Elmo; Howell, Art
Cc: Leeds, Eric; Grobe, Jack
Sent: Wed Mar 16 11:57:55 2011
Subject: INPO SER and Chairman's Q&A as requested

Please find attached the two documents requested.

Very Respectfully

Sean C. Meighan
Technical Assistant
Nuclear Reactor Regulation
Division of Operating Reactor Licensing
U.S. Nuclear Regulatory Commission
301-415-1020

BH/10

From: INPO EmergencyResponseCtr (INPO) <INPOERC@INPO.org>
Sent: Wednesday, March 16, 2011 7:14 AM
To: RST01 Hoc
Cc: Hutcherson, George (INPO)
Subject: Information for 0900 INPO Call
Attachments: Sequence of Events.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

The attached document is provided as background for the 0900 conference call. Dave Moss, INPO Emergency Coordinator, will initiate the call to NRC from INPO.

Cyrus Anderson
EP Coordinator
INPO Emergency Response Center
770-644-8022

BH/11

INPO & WANO Atlanta Centre
APPROXIMATE SEQUENCE OF EVENTS
(BEST AVAILABLE BUT UNVERIFIED INFORMATION)
3/16/2011 7:02 AM

FUKUSHIMA DAIICHI NUCLEAR SITE - TOKYO ELECTRIC POWER COMPANY

- Located approximately 260 kilometers NE of Tokyo in Fukushima Prefecture
- Unit 1
  - GE BWR Mark I containment. Unit is rated at 460 MWe
  - Commercial operation began in 1971
  - Operating – unit auto scrammed
- Unit 2
  - GE/Toshiba BWR rated at 784 MWe
  - Commercial operation began in 1974
  - Operating – unit auto scrammed
- Unit 3
  - Toshiba BWR rated at 784 MWe
  - Commercial operation began in 1974
  - Operating – unit auto scrammed
- Units 4-6
  - All are BWRs and were in Refueling Outage

Approximate Event Sequence: (all times EST)

Key Site Wide Impacts:

- An earthquake of magnitude 8.9 on the Richter Scale occurred at 14:46 JST 03/11/2011 (00:46 EST). Earthquake epicenter was approximately 110 miles from the sites, USGS reported magnitude 8.9 (HNK later has revised this up to 9.0) with a maximum acceleration of 0.35g at the epicenter (unknown values at the site). The design peak ground acceleration for Fukushima Daiichi is believed to be 0.18g.

- The earthquake and follow-on tsunami resulted in a loss of off-site power and a failure of the EDGs due to failed cooling water supply. The tsunami was larger than the design basis and the water overflowed the pumps for the cooling water system. The tsunami was 7 meters high and the plant was designed for a 6.51

meter tsunami. The tsunami carried away DG fuel oil tanks, which were above ground.

- Tsunami flooded the AC switchgear located in the basement of the turbine building, this has hampered operator response as many indications have been lost and plant lighting has been lost.

- 3/11/2011 at approximately 17:00 JST, the station initiated a preliminary notice of degraded safety function as stipulated in article 10 of the Nuclear Disaster Mitigation Law. No abnormal radiation levels were observed. (WANO TC, 11:30 JST, 3/15/2011 via WANO CC, Bob Cockrell at 07:49, 03/15/2011)

- 3/12/2011 01:30 JST (11:30 EDT, 3/11/2011) – Two emergency diesel generators for unit 1 and two for unit 2 are reported inoperable. Core cooling was stopped for both units after the shutdowns. Emergency was declared by Tokyo EPC. Evacuation of resident within 3 km (1.9 mi) of site completed. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 3/15/2011: AM EDT – Spent fuel pool levels are being monitored remotely. It is planned to use seawater to fill the pools although a method for filling the pools has not yet been developed. (input from WANO Tokyo on 3/15/2011)

- 3/15/2011: AM EDT – Control rooms for Units 1, 2, and 3 have been evacuated due to high radiation levels. The main control rooms and refuel floors at these units are experiencing several hundred mSv (10 to 20 Rem) and the site boundary is experiencing several mSv (100 to 200 mRem). (input from WANO Tokyo on 3/15/2011).

- Readings have been reported ranging from 32 mSv/hr (3.2 Rem/hr) to 400 mSv/hr (40 Rem/hr) in the vicinity of Units 1 through 4. Manning status for Unit 4 control room is unknown. (WANO London, Bob Cockrell e-mail sent March 15, 2011, 06:58 EDT)

- 03/15/2011 08:32 JST (19:32 EDT 03/15/20110 – Information was obtained that plume reached Fukushima City (60 km/37.3 miles) east of the plant. The dose

rates were 23.8 uSv/hr (2.4 mrem). Conditions at the plant gate, as reported by the monitoring car, showed a constant decrease in dose rates until 23:00 JST (10:00 EDT 3/15/2011) when the dose rate jumped by a factor of 100. (ref: e-mail from Milt Guynn to INPO ERC, March 15, 2011, 21:49)

- 3/15/2011: 09:00 JST (3/14/2011: 21:00 EDT) – According to IAEA via NEI, a dose rate of 1190 mrem was observed on site followed by 60 mrem 6 hours later. However, no details were provided regarding the exact location of these measurements. (ref: e-mail from Scott Peterson, NEI, on March 15, 2011, 10:21 am)

- 03/15/2011 11:30 JST (22:30 EDT 03/14/2011) – 800 personnel were evacuated from the site. Fifty people engaged with water injection remained on site. Water injection is continuing in units 1, 2, and 3. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/16/2011 04:00 EDT – Per news reports and NEI, all personnel on site have left the site. Follow-up input from WANO Tokyo indicates that all personnel have been evacuated for short periods of time based on radiation levels and that personnel are brought back on site when radiation levels drop. For example, personnel are currently on site to restore AC power.

- 03/16/2011 04:00 EDT – Per input from WANO Tokyo:

  - Suppression pool level indications are unavailable for all units.
  - Level indication for the reactor vessels at all four units is suspect because of the introduction of boron. It is believed that the water levels are actually much higher based on the amount of water pumped into the vessels.
  - Restoration of AC power is in preparation. It is planned to restore AC power by connecting a temporary jumper cable between the off-site 60 kV line to the Unit 3 transmission line. A connection will then be made to a temporary 6.9 kV cubicle being delivered on site during the afternoon of March 16. The 6.9 kV cubicle will then provide power to an intact 480 V cubicle for Unit 2 that feeds CRDP, SLC, I&C, and batteries. The 6.9 kV cubicle will also be use to power the intact RHR pump at Unit 4.
  - Preparation for restoring sea water pumps is ongoing.

- TEPCO does not anticipate extensive core melt down because of the amount of water that has been pumped into the core vessels in Units 1 through 3.

03/16/2011 05:30 EDT - CNN reported that 150 workers were on site.

03/16/2011 05:30 EDT - CNN reported evacuation zone for site is 30 kilometers.

UNIT 1 - EMERGENCY DECLARED

- Unit 1 was initially removing decay heat with the isolation condenser.
- Unit 1 has no makeup capability to the reactor core because AC power has not been restored to the unit. Switchgear was flooded by the tsunami and damage is preventing restoration of AC power.
- 3/12/2011, 02:00 JST (12:00 EDT, 3/11/2011) – Pressure of primary containment vessel (PCV) is increasing and the company is pursuing "PCV Ventilation" in accordance with the accident management procedure to protect the PCV. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)
- 3/12/2011, 03:00 JST (13:00 EDT 3/11/2011) – Japanese government approves PCV ventilation of unit 1. Wind currently blowing to ocean. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)
- Unit 1 reactor vessel level was reported to be 20 cm below the top of active fuel at 6:00am on Saturday morning.
- Radiation levels were reported to be about 1000 times higher in control room (assumed to be approximately 15 mR/hr) and 8 times higher at site boundary. TEPCO reports the presence of iodine and cesium isotopes in their samples, indicative of fuel damage.
- 03/12/2011 14:15 JST (00:15 EDT, 03/12/2011) – Japanese Nuclear Regulator (NISA) announced part of the fuel at unit 1 melted based on short-lived fission products being detected. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)
- Unit 1 reached the heat capacity limit of the suppression pool Saturday night. As a result, containment pressure increased and reached 8.4 kg/cm2 (120 PSI),

which is about twice the design limit. Venting of the containment was subsequently completed and containment pressure has been reduced to below design limits. Periodic venting of the containment has continued to occur. Containment pressure decreased from 7.5 to 5.5 kg/cm^2 (106.7 to 78.2 psi) in less than an hour. Radiation at the site boundary doubled. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/12/2011 15:36 JST (01:36 EDT 3/12/2011) - A hydrogen explosion occurred on Unit 1 during venting. The explosion damaged the reactor building (secondary containment.) Primary containment was not affected or compromised.

- 03/12/2011 20:20 (06:20 EDT 03/12/2011) – TEPCO started work for filling the entire containment with borated seawater after receiving approval from the government. The station is flooding the reactor vessel and containment with borated sea water using fire pumps through the core spray lines. This has restored core cooling. Containment flooding is being maintained below the containment vent path. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/13/2011 10:40 JST (20:40 EDT 03/12/2011) – A press conference by Chief Cabinet Secretary Edano announced that the reactor vessel was estimated as full. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- Portable electric generators are also on-site, but not yet connected to supply AC power as of 7:00 on Sunday morning. The tsunami flooded out the switchgear equipment.

- At Fukushima Daiichi unit 1 one worker received a radiation dose of 106 mSv (10.6 REM).

- 03/14/2011 01:10 JST (12:10 EDT 03/13/2011) – Seawater injection was stopped due to lowered level in the seawater pit. Injection was resumed at 03:10 JST (14:10 EDT 03/13/2011). (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 3/14/2011: 05:00 JST (3/13/2011; 15:00 EST) - TEPCO reported that the reactor appeared to be full with sea water.

- 3/14/2011 - Environmental radiation level is extremely high outside unit 1 reactor building and not accessible for personnel. Unconfirmed radiation level is 10 mSv/h (1 Rem). Same concern exists also in unit 2 and unit 3.

- Unit 1 fuel pool is exposed to the outside atmosphere. Due to lack of cooling capability, the temperature of the pool has increased.

- 3/14/2011: 15:00 JST (02:00 EDT) - Radiation levels in containment are greater than 10 Sv (1000 Rem) per hour in containment and 10 mSv (1 Rem) outside the building.
- 03/14/2011 17:00 (04:00 EDT) – Unit 1 reached safe shutdown as decay heat removal was restored.
- 03/15/2011 23:00 JST (03/15/2011 10:00 EDT) – Unit status: stable, continuing seawater injection. (Ref: TEPCO e-mail on 03/15/2011 at 12:19 JST via Scott Peterson e-mail on 03/15/2011 at 12:18)
-
- 03/16/2011 04:00 EDT - Update from WANO Tokyo indicates that seawater is being pumped via fire engine at 1.4 tons of water per minute (370 gallons/min) which has been determined to be sufficient enough to remove decay heat.

UNIT 2 - EMERGENCY DECLARED

- Unit 2 has been shut down and Reactor Core Isolation Cooling System has been injecting water to the reactor. Current reactor water level is lower than normal level, but the water level is steady.

- DC power is providing power for RCIC. AC power remains unavailable.

- 3/12/2011 01:30 JST (11:30 EDT, 3/11/2011) – Two emergency diesel generators for unit 2 are reported inoperable. Core cooling was stopped the shutdowns. Water level in unit 2 lowered about 2 meters but is still 3.4 meters above top of active fuel (TAF). (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/12/2011, 06:00 JST (16:00 EDT, 03/11/2011) – Primary containment vessel (PCV) rose to 8.4 kg/cm^2 (119.5 psi), about double the design pressure and the ventilation had not been started. Radiation levels in the control room rose to about 1,000 times normal. Unit 1 is the suspected source. A slight increase in radiation at the site boundary was noticed. The Prime Minister expanded the evacuation zone to 10 km (6.2 mi). (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/14/2011; 12:00 JST (03/13/2011; 2300 EDT): Reactor water level below fuel.

- 03/14/2011: 13:25 JST – (00:25 EDT) RCIC tripped and failed to restart (Tokyo WANO Center). Preparations were subsequently made to inject seawater by manually opening a safety relief valve at 18:00 JST Reactor pressure was lowered to 6.4 kg/cm2 at 18:55 JST. Water level indication went down scale but is expected to recover when pressure decrease allows seawater injection.

- 03/14/2011 15:32 JST (02:32 EDT 03/14/2011) – reactor temperature went below 100 °C (212°F). (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/14/2011 17:00 (04:00 EDT) – Decreasing water level in the reactor was reported. Level dropped from 2.4 meters above TAF to 1.2 meters above TAF. Preparations began for seawater injection. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/14/2011; around 20:00 JST (07:00 EDT) on March 14, water supply to the reactor was restored. Reactor water level raised to -370 cm. Primary containment vessel pressure reached design pressure.

-

- 03/14/2011 21:34 (08:34 EDT) reactor water level recovered up to half the core.

- Between 23:00 and 24:00 JST (10:00 and 11:00am eastern time), all safety relief valves closed attributed to a problem with an accumulator (Tokyo WANO). The valves are thought to have failed closed because DC power was depleted. With the SRVs closed, reactor vessel pressure increased and caused sea water injection from the fire water pumps to be blocked. The fuel is now uncovered.

- Core totally uncovered between 18:22 JST and 21:24 JST and between 23:12 JST and 06:00 JST.

- TEPCO reported that water is being introduced into the drywell (but not the reactor vessel). The flow rate and level are not known. A reactor pressure vessel skirt may interfere with vessel cooling, depending on configuration of the skirt. Follow up input from WANO Tokyo on 3/16/2011 indicated that the RPV skirt would allow water to flow from the drywell to the area under the reactor vessel. WANO Tokyo also indicated as of 3/16/2011 that the lower vessel head design temperature limit has not exceeded.

- A reactor building blowout panel was opened to vent hydrogen and reduce the chance of hydrogen explosion during venting. (WANO Tokyo)

- 03/14/2011 00:30 JST (11:30 EDT 03/13/2011) – A safety relief valve malfunctioned and reactor pressure increased, blocking seawater injection. Reactor water level rapidly dropped to off-scale, exposing the core. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/15/2011: 02:00 JST (3/14/2011: 13:00 EST) – Seawater injection re-established into the reactor. Amount of core coverage not yet known. (Tokyo WANO Center)

- 03/15/2011: 06:20 JST, (17:00 EDT, 03/14/2011) - JAEA reported an explosion in the vicinity of the suppression pool tube. Reactor water level was reported at 2.7 m below top of active fuel at the time. Containment pressure dropped to atmospheric. Suppression pool pressure went off-scale low . EPRI relayed information attributed to TEPCO that a defect in the unit 2 torus is preventing flooding of the drywell. The torus may have been breached.

- 3/15/2011: 8:14 JST (3/14/2011: 19:14 EDT) – Identified that pressure in the pressure suppression chamber decreased from 3 atmospheres to 1 atmosphere. Monitoring post readings (location unknown) increased from 960 mSV/hr. Previous radiation levels not readily available. Monitoring post reading at Kitaibaraki, approximately 200 km south of the station is 4.87 mSV that was approximately 100 times larger than ordinary conditions.

- 3/15/2011: Station personnel not directly supporting recovery efforts have been evacuated leaving approximately 50 staff members remaining.

- 3/15/2011: 05:00 EDT – Containment pressure stable at 4 kPA (0.58 psi)

- 3/15/2011: 11:00 JST (3/14/2011: 22:00 EDT) Radiation levels between units 2 and 3 were approximately 40 Rem/hr.

- 03/15/2011 23:00 JST (10:00 EDT) – Unit status: stable, continuing seawater injection. (Ref: TEPCO e-mail on 03/15/2011 at 12:19 JST via Scott Peterson e-mail on 03/15/2011 at 12:18)

  03/16/2011 04:00 EDT - Update from WANO Tokyo indicates that seawater is being pumped by a fire engine at 1.4 tons of water per minute (370 gal/min), which has been determined to be sufficient enough to remove decay heat.

  03/16/2011 04:00 EDT – Update from WANO Tokyo:
  - Containment is not being vented anymore
  - Integrity of the suppression chamber is not confirmed
  - Drywell pressure was 270 kPa (39.2 psi) on March 15 and varied between 20 to 220 kPa (2.9 to 31.9 psi) on March 16.
  - Suppression chamber pressure was offscale low on March 15.
  - Reactor vessel water level is at -1500mm (TAF=0), but level indication is suspect. It is believed that water level is much higher based on amount of water pumped into vessel

UNIT 3 - EMERGENCY DECLARED

- Unit 3 has been shut down. However, as High Pressure Core Injection System has been automatically shut down and water injection to the reactor was interrupted.

- Unit 3 has experienced some amount of the core being uncovered when RCIC automatically shutdown as DC power was expended (approximately 1600EST on Saturday). Initial attempts were made to refill reactor vessel with clean borated water (condensate or fire water), but later difficulties with this resulted in station commencing refill with sea water (reported by government at approximately 0200EST 3/13/2011.)

- Unit 3 reached the heat capacity limit of the suppression pool Saturday evening. Periodic venting of the containment is occurring. The maximum dose rate at the site boundary was 1204uSv/hr (120mRem/hr) during venting of Unit 3.

- At approximately 15:00 JST 03/13/2011 (02:00 EST 3/13/2011), government officials reported to the media that there is a potential accumulation of hydrogen in the secondary containment of unit 3 that could result in an explosion similar to that of Unit 1.
- 03/13/2011 16:00 JST (02:00 EDT) – government officials stated that the injection of pure water into the reactor vessel was not successful and parts of the core had been exposed. The next attempt using seawater was successful. Reactor water level recovered to 210 cm (82.7 in) above the top of active fuel. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)
- ECCS &RCIC are not available. The reactor water level dropped to -2.2m (fuel length is about 4m) from top of active fuel. As of 1100am Eastern Time on March 13th, sea water is being supplied through the core spray line with a fire engine pump. Water level has not yet been fully recovered to normal level.
- At approximately 10:01 pm EST on 3/13/11, a hydrogen explosion occurred at Unit 3. No apparent damage to the primary containment was observed. No significant changes in Monitoring Post readings have been observed. Some site personnel were injured as a result of the explosion although no direct information on the numbers or extent of injuries. Seven contractors and six self defense staff are unaccounted for at this time.
- 03/13/2011 10:40 JST (20:40 EDT 03/12/2011) – A press conference by Chief Cabinet Secretary Edano announced that venting of the containment vessel and filling with pure water and boron has commenced. The top of the core had been exposed. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)
- At approximately 10:45 pm EST on 3/13/11 it was reported that seven missing personnel have been found. Seven individuals were injured. Current dose readings at the gate were 50 mSv/hr at 11:45 local time on 3/14/11. Public within 10 km of the plant were ordered to stay in their houses and secure ventilation.
- 03/14/2011 01:10 JST (12:10 EDT 03/13/2011) – Seawater injection was stopped due to lowered level in the seawater pit. Injection was resumed at 03:10 JST (14:10 EDT 03/13/2011). Pressure in the containment vessel increased to

530 kPa (76.9 psi) at 06:50 JST (17:40 EDT 03/13/2011) and then reduced to 500 kPa (72.5 psi). (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- Primary containment pressure is at 380kPa (55.1 psi) at 11:13 and 360kPa (52.2 psi) at 11:55, showing containment integrity is being maintained.
- 03/14/2011 11:30 JST (22:30 EDT 03/13/2011) – NISA (Japanese regulator) announced that the reactor building underwent a hydrogen explosion at 11:01 JST. The pressure in the containment vessel declined to 360 kPa (52.2 psi) at 11:05 JST, but indicated containment integrity was maintained. Six workers were injured. Radiation levels about the site remained stable. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)
- 03/14/2011 12:15 JST (23:15 EDT 03/13/2011) – The unit entered safe shutdown condition. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)
- 3/14/11; 16:00 JST (03:00 EST) - Radiation levels in Containment are greater than 10 Sv (1000 Rem) per hour in containment and 10 mSv (1000 mrem) outside building.
- 03/15/2011 23:00 JST (10:00 EDT) – Unit status: stable, continuing seawater injection. (Ref: TEPCO e-mail on 03/15/2011 at 12:19 JST via Scott Peterson e-mail on 03/15/2011 at 12:18)

03/16/2011 04:00 EDT - Update from WANO Tokyo indicates that seawater is being pumped by a fire engine at 1.4 tons of water per minute (370 gal/min), which has been determined to be sufficient enough to remove decay heat.

3/16/2011 04:00 EDT – Update from WANO Tokyo:

- Reactor vessel level is -1800mm to -1900mm (TAF=0). In addition to level possible indication inaccuracies, there may be leakage from the reactor vessel. White smoke (large flume) observed from unit. Causes have not been identified, but suspect SFP water boiling or steam leak from containment.
- Personnel are preparing to spray water from the ground to the operating floor to refill the spent fuel pool.

- Radiation levels in the immediate area around Unit 3 range from 300 to 400 mSv (30 to 40 Rem)

UNIT 4

- Plant is in shutdown since Nov 30, 2010 (JANTI website) for maintenance. Similar AC and DC power conditions exist. The reactor cavity is flooded with fuel in the vessel. Vessel level being maintained at safe levels.

- 03/15/2011: 06:00 JST (03/14/2011: 17:00 EDT) – A very loud sound/explosion was noted in the reactor building. The wall panels and roof of the upper reactor building were subsequently observed to be deformed. (ref: e-mail from Bob Cockrell sent 3/15/2011, 06:58 EDT) It is speculated but not confirmed that the fuel pool may have overheated and the explosion was due to hydrogen. At the same time, radiation levels significantly increased on site.

- 03/15/2011: 09:00 JST (03/14/2011: 20:00 EDT) – A fire was reported in a recirc motor generator located in the reactor building. The fire appeared to self-extinguish during preparations to extinguish. (ref: e-mail from Bob Cockrell sent 3/15/2011, 06:58 EDT)

- 03/15/2011 11:30 JST (22:30 EDT 03/14/2011) – Government officials announced a fire had occurred. It was assumed that the heat-up of the spent fuel pool and a possible hydrogen explosion had caused the fire. Fission products were released into the atmosphere.

- 03/15/2011: Spent fuel pooling cooling is unavailable. Latest reported pool temperature is 84 degrees-C, although reliability is questionable (ref: e-mail from Bob Cockrell sent 3/15/2011, 06:58 EDT).

- 03/15/2011: WANO London reported that all fuel is currently in the spent fuel pool (ref: e-mail from Bob Cockrell sent 3/15/2011, 06:58 EDT)

- 03/16/2011 05:45 JST (16:45 EDT 03/15/2011) – TEPCO reported another fire in the reactor building that was extinguished itself within two hours. TEPCO was planning to battle the fire and add water to the spent fuel pool using helicopters, but abandoned the plan because a hole in the roof was not in line with the pool.

- 03/16/2011 e-mail update (21:00 EDT 03/15/2001) An e-mail from NEI provided updated info (Scott Peterson):
  - TEPCO may remove panels form the top of the reactor buildings over units 5 and 6 to vent hydrogen.
  - About a third of the fuel rods in reactors 5 and 6 have been removed for maintenance.
  - Seventy percent of unit 1 and one-third of the fuel rods in unit 2 have been damaged. Cooling water at both units is being maintained.
  - Weather reports indicate that the wind is now blowing from the Pacific onshore.

03/16/2011 04:00 – WANO Tokyo update:

- Cause of an alleged hydrogen explosion on 03/15/2011 has not been identified. Possibilities include water-zirconium reaction due to pool canal gate damage, fall down of concrete shield plug and/or ceiling crane from the operating floor, and steam decomposition by radiation when just under boiling temperature
- A fire was observed in early morning of March 16 (JST) near MG-set room, which is located one floor below operating floor. This is the second time that a fire in this area was observed. Fire appeared to self-extinguish within 30 minutes. Relation of fire and anomalies on Unit 4 operating floor has not been identified.
- To cool the Unit 4 spent fuel pool, it is being planned to use a high power spray pump to inject water onto the operating floor. However, obstacles (debris from Unit 3 explosion) need to be cleared from an access road, including protecting the water hose that is providing seawater injection for Unit 3.

UNIT 5

- Plant is in shutdown since Jan 3, 2011 (JANTI website) for maintenance. Similar AC and DC power conditions exist. The reactor cavity is flooded with fuel in the vessel. Vessel level being maintained at safe levels.
- 03/16/2011 at approximately 07:15 JST (18:15 EDT 03/15/2011) TEPCO reported that the water level in the unit is dropping.

UNIT 6

- Plant is in shutdown since Aug 14, 2010 (JANTI website) for maintenance. Similar AC and DC power conditions exist. The reactor cavity is flooded with fuel in the vessel. Vessel level being maintained at safe levels.

Off-Site impacts:

- 3/15/2011 at approximately 24:00, the Japanese government ordered residents living within 3 kilometers (1.9 mi) of the site to evacuate. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/12/2011, 06:00 JST (17:00 EDT, 03/11/2011) – A slight increase in radiation at the site boundary was noticed. The Prime Minister expanded the evacuation zone to 10 km (6.2 mi). (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/12/2011, 08:00 JST (19:00 EDT, 03/11/2011) –The Prime Minister, Mr. Kan, visited the site. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/12/2011, 10:00 JST (21:00 EDT, 03/11/2011) - Radiation levels at the site boundary increased to more than 70 times the normal level. PCV ventilation has started on unit 1. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/12/2011 20:00 JST (07:00 EDT 03/12/2011) – Government expanded the evacuation area from 10 km (6.2 mi) to 20 km (12.4 mi). (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/12/2011 21:00 (08:00 EDT 03/12/2011) – Radiation levels at the site boundary reached 1,015 micro Sv/hour (101.5 mRem/hr) around the time of the explosion. The radiation decreased to 860 micro Sv/hr (86 mRem/hr) at 15:40 JST (02:40 EDT 03/12/2011) and 70.5 micro Sv/hr (7 mRem/hr) at 18:58 JST (05:38 EDT, 03/12/2011). (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/13/2011 11:00 JST (22:00 EDT 03/12/2011) – dose level at the site boundary reached a peak of 1,204.2 micro Sv/hr (120.4 mRem/hr). (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- Numerous personnel contaminations observed in the surrounding area during public evacuations. Contamination levels at a max of 40,000 cpm on clothes and 100,000 cpm on the soles of shoes have been observed. As of 2200 on 13 March, 2011, 67,000 residents have evacuated out of an estimated 210,000 residents. As of 1309 on 13 March, 2011, readings of 21 micro Sv/hr were observed approximately 110 km north of the Fukushima Daiichi Nuclear Power Plant.

- The highest recorded radiation level at the Fukushima Daiichi site was 155.7 millirem at 1:52 pm on March, 13, 2011. Radiation levels were reduced to 4.4 millirem later in the day.

- 03/14/2011: 11:37 JST - Radiation levels at the station Service Hall is 50 micro Sv/h, at the gate 20 micro Sv/h, and at Offsite Center 5 km away 1 micro Sv/h, all stable without notable change. Neutron measurement showed no anomaly.

- 3/14/2011: approximately 08:00 EDT – Neutron measurements were detected at the site boundary in the area of the front gate. This was noted as a onetime observation and neutrons have not been noticed since this observation.

- 03/14/2011: 19:31 EDT – TEPCO reported 8,217 mSv/hr at the gate of Fukushima-Daiichi. In Kitaibaraki City, several tens of Kilometers away from the station, atmospheric radiation levels temporarily increased to 4.87 mSv/hr that was approximately 100 times above normal readings.

- 03/15/2011 10:20 JST (21:20 EDT 03/14/2011) – Monitoring instruments at Tokai-mura (approximately 120 km [74.6 mi] south of the site) recorded 5 micro Sv/hr (0.5 mRem/hr) at 07:46 JST (18:46 EDT 03/14/2011) and dropped to 3 micro-Sv/hr (0.3 mRem/hr) by 10:20 JST. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/16/2011 08:32 JST (19:32 EDT 03/15/2011) – An e-mail from a representative of the JAEA reported that at Fukushima city (approximately 60 km [37.3 mi] north

of the station, the dose rate is 23.8 micro-Sv/hr (2.4 mRem/hr) wind direction is north.

Fukushima Daiichi Nuclear Site Casualties

- 2 workers of cooperative firm were injured at the occurrence of the earthquake, and were transported to the hospital.
- 1 TEPCO employee who was not able to stand by his own with his hand holding left chest was transported to the hospital by an ambulance.
- 1 subcontract worker at important earthquake-proof building was unconscious and transported to the hospital by an ambulance.
- One contractor was confirmed dead as a result of the earthquake.
- The radiation exposure of 1 TEPCO employee, who was working inside the reactor building, exceeded 100mSv and was transported to the hospital.
- 2 TEPCO employees felt bad during their operation in the central control rooms of Unit 1 and 2 while wearing full masks, and were transferred to Fukushima Daini Power Station for consultation with a medical advisor.
- 4 workers were injured and transported to the hospital after explosive sound and white smoke were confirmed around the Unit 1.
- 2 TEPCO employees at the site location cannot be confirmed
- 3/14/11 0452 EST, seven workers reported injured from Unit 3 hydrogen explosion– one seriously

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FUKUSHIMA DAINI – TOKYO ELECTRIC POWER COMPANY

- Located approximately 250 kilometers NE of Tokyo in Fukushima Prefecture
- Unit 1
    - Toshiba BWR - 5. Unit is rated at 1100 MWe

  - Commercial operation began in 1982
- Unit 2
  - Hitachi BWR - 5. Unit is rated at 1100 MWe
  - Commercial operation began in 1984

- Unit 3
  - Toshiba BWR - 5. Unit is rated at 1100 MWe
  - Commercial operation began in 1985

- Unit 4
  - Hitachi BWR - 5. Unit is rated at 1100 MWe
  - Commercial operation began in 1987

- A seriously injured worker was trapped within Fukushima Daiichi unit 1 in the crane operating console of the exhaust stack and is now confirmed to have died.

- On-site and offsite AC power is available.

- Heavy damage to intake and cooling water pumps limiting availability of sea water cooling. This has preventing establishing suppression pool cooling on Units 1-4.

- 03/12/2011, 08:00 JST (19:00 EDT, 03/11/2011) Emergency status declared at all units. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011)

- 03/12/2011, 10:00 JST (21:00 EDT, 03/11/2011) – Evacuation zone of 3 km (1.9 mi) declared around the site. (WANO TC e-mail, 11:30 JST, 3/15/2011 via WANO CC e-mail, Bob Cockrell at 07:49, 03/15/2011

<u>UNIT 1 – EMERGENCY DECLARED</u>

- 03/12/2011, 10:00 JST (21:00 EDT, 03/11/2011) – Unit 1 reactor water level is decreasing.
- The unit has reached the thermal limits of suppression pool, and is looking to reduce the pressure of the containment vessel by venting (TEPCO).

- TEPCO reports that only 2 of 4 Cooling Circulating Water pumps *(pump type provided by Tokyo WANO Center on 3/15/2011)* are available for operation.

- 1600 Sunday, Unit 1 reported that they have reached cold shutdown.

UNIT 2 – EMERGENCY DECLARED

- The unit has reached the thermal limits of suppression pool, and looking to reduce the pressure of the containment vessel by venting (TEPCO).

- TEPCO reports that only 1 of 4 Cooling Circulating Water pumps are available for operation. [TC cannot find the source]

- Unit 2 reached cold shutdown

UNIT 3

- Unit has reached cold shutdown at 1215 JST March 12 with normal reactor vessel level.

UNIT 4 – EMERGENCY DECLARED

- The unit has reached the thermal limits of suppression pool, and looking to reduce the pressure of the containment vessel by venting (TEPCO).

- TEPCO reports that only 1 of 4 Cooling Circulating Water pumps are available for operation. [TC cannot find the source]

- The reactor has reached cold shutdown.

Onagawa Station

- The station is located in the Oshika District and Ishinomaki city, Miyagi Prefecture, Japan. It is managed by the Tohoku Electric Power Company.

- Unit 1
  - Toshiba BWR. Unit is rated at 524 MWe
  - Commercial operation began in 1984
- Unit 2
  - Toshiba BWR. Unit is rated at 825 MWe
  - Commercial operation began in 1995
- Unit 3
  - Toshiba BWR. Unit is rated at 825 MWe
  - Commercial operation began in 2002

A fire occurred in the turbine building at the station following the earthquake and was confirmed to be extinguished at 2255 on March 11.

UNIT 1

Cold Shutdown reached at 0058 JST on March 12 using temporary service water pumps and RHR pumps being supplied with temporary power.

UNIT 2

Not reported to be in cold shutdown yet

UNIT 3
Cold Shutdown reached at 0117 March 12.

- 13 Mar 1130 eastern time: Japanese authorities have told the International Atomic Energy Agency (IAEA) that operator Tohoku Electric Power Company has declared the first and lowest state of emergency at the Onagawa nuclear power plant. The alert was declared because radioactivity readings exceeded allowed levels in the area surrounding the plant (21 microsieverts/hour – dropping to 10 microsieverts shortly after). The source of the radiation was identified as originating from venting of the Daiichi units.

From: King, Mark
Subject: IOEB Clearinghouse Screening Summary for Wednesday, March 16, 2011
Date: Wednesday, March 16, 2011 2:20:58 PM
Attachments: Fukushima Daiichi Fuel Damage IER LEVEL 1 Final.pdf
NRC Status Update 3-16.11--0630am.pdf

NOTE: THIS SUMMARY IS OFFICIAL USE ONLY
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Issues for Resolution (IFR): None

OpE Forum Postings (COMMS): None

Management Requests: None

Follow-up/Other Tasks: Ten (10)

[Note - The information in this part of the Summary is often preliminary in nature and is provided to help IOEB staff communicate and track noteworthy items being followed up by either the Regions or HQ staff.]

1) Japan Nuclear Earthquake / Tsunami Event Updates and related information

a) NRC Status Update 3-16-2011, 6:30am.pdf. Not for public release – Official Use Only, See attached.

b) An INPO Event Report Importance Level 1 (IER Level 1)document has been issued on the "Fukushima Daiichi Nuclear Station Fuel Damage Caused by Earthquake and Tsunami." (Reminder: INPO documents are considered proprietary information, not for public distribution, see warning statement on top of page 1. See attached pdf document).

c) See link: "FAQ Related to Events Occurring in Japan" that is now available on an NRR SharePoint site - (Internal use only).

– This issue is already screened-in as Issue For Resolution [IFR]. - INFO ONLY.

2) LER 2962010004R00 - BROWNS FERRY 3: MANUAL REACTOR SCRAM DUE TO HIGH VIBRATION ON THE GENERATOR EXCITER INBOARD AND OUTBOARD JOURNAL BEARINGS.

This LER reports a manual reactor scram due to high vibrations on the main turbine generator exciter inboard and outboard journal bearings. The exciter air cooling systems was not being monitored due to inadequate procedural guidance. This lead to elevated temperatures which along with decreased clearance between the exciter rotor and bearing oil/air deflector shield caused increased vibrations. EN 46511. Pass to TRG Lead for Human Performance (Michael Boggi), Electrical Power Systems (Roy Mathew). Assigned to Jesse Robles.

3) LER 4562010001R01 - BRAIDWOOD 1: REACTOR TRIP DUE TO WATER

BH/12

INTRUSION IN BREAKERS CAUSING CIRCULATING WATER PUMP TRIPS AND RESULTING IN LOSS OF CONDENSER VACUUM

This supplement updates the root cause and corrective action for the dual unit trip caused by water intrusion from CST overflow. The causes were determined to be an inadequate design of the auxiliary feedwater standpipes that did not prevent water spills from the standpipe, and a lack of sensitivity that tolerated long-term uncontained water issues. Corrective actions included a design change to the standpipe that prevents water spills, better CST level control, and a plan to identify and correct long-term water leaks and spills. EN 46178. Pass to TRG Lead for AFW (Stanley Gardocki), Electrical Power Systems (Roy Mathew), Flood Protection (Ed Smith), and Pump and Valve (Michael Farnan). Assigned to Jesse Robles.

4) LER 4832010008R01 - CALLAWAY: INADEQUATE ANALYSIS RESULTS IN A COMPONENT COOLING WATER TRAIN DECLARED INOPERABLE

This is a supplement to a previous LER that updates the long-term corrective actions. The original LER reports an event where both trains of CCW were susceptible to failure due to a postulated break in a Radwaste Building service line. Several non-conservative assumptions were identified in the calculation that analyzed a postulated pipe break in the non-seismic portion of the service loop to the Radwaste building. A review of this analysis determined that the net positive suction head for the connected CCW pump could be jeopardized, making the CCW train connected to the service line inoperable. This conditio has been in effect since initial startup. Corrective actions include the installation of a flow orifice in the safety related seismic Category 1 portion of the CCW supply lines to the Radwaste building and installation of a check valve on the return lines. This event was classified as a Safety System Functional Failure (SSFF). Pass to TRG Leads for Station Service Water Systems/Ultimate Heat Sink (Gerard Purciarello) and Structural (Goutam Bagchi). Assigned to Jesse Robles.

5) LER 4612010003R01 - CLINTON: UNEXPECTED COMPONENT ACTUATIONS DUE TO SELF-TEST SYSTEM DESIGN DEFICIENCIES

This LER updates a previous 60 day Telephone Notification in lieu of an LER where the Division 2 Drywell Ventilation and Drywell Cooling Primary Containment Isolation Valves (PCIVs) closed for isolation Groups 11 and 17, and shunt trip devices for the breakers of several components were tripped a result of a Division 2 load driver card that spuriously actuated its loads without a valid Loss of Coolant Accident signal present. This event was most likely caused by degradation of the Division 2 Self Test System (STS) power supply and a design deficiency related to its load driver cards which do not allow the STS to meet its design specification when a power supply is degraded. This LER was previously screened by the clearinghouse. This supplement only corrects an editorial error. EN 45901. Pass to TRG Lead for I&C (David Rahn) and NRO (Omid Tabatabai). Assigned to Jesse Robles.

6) EN 46673 - CRYSTAL RIVER 3 - ADDITIONAL DELAMINATED CONTAINMENT CONCRETE DISCOVERED

See EN Text. The licensee has identified new concrete delamination they believe was caused by the tensioning process. Non destructive testing in Bay 5-6 has confirmed there is delamination. Extent of damage is not yet totally known. Licensee submitted a voluntary

non-emergency event notification last night on this issue and made a press release.

Bay 5-6 is adjacent to the spent fuel pool and contains the two fuel transfer tubes. For the current Mode, containment integrity only relies on an intact containment liner. There is currently no impact on the spent fuel pool. The inspectors walked down the outside of Bay 5-6 and did not see any noticeable cracking.

This issue was previously screened-in as an Issue For Resolution (IFR) 2010-02. Forward to Containment TRG (Jerome Bettle); Structural TRG (Goutam Bagchi) and OPA POC (Scott Burnell).

7) DRESDEN 2 – HIGH PRESSURE COOLANT INJECTION (HPCI) DISCHARGE VALVE DAMAGED

A plant maintenance technician inadvertently over-torqued and bent valve stem to the HPCI discharge valve (MOV). Stem replacement is necessary. Licensee anticipates repair activities will take approximately 12 weeks to complete. Licensee reviewing temporary modification (Temp-Mod) requirements to reclassify valve as a manually operated component; valve will be locked OPEN. There are two isolation valves (MOVs) downstream of the HPCI discharge valve to provide isolation, if necessary. Resident inspectors are tracking these activities.

Forward to TRG Leads for ECCS (Samuel Miranda), Pump & Valve (Michael Farnan), Human Performance (Mike Boggi); assigned to Russ Haskell

8) EN 46674 - FORT CALHOUN - FLOOD BARRIER PENETRATION NOT SEALED

See EN text: Forward to TRG Lead for Auxiliary Feedwater (Stanley Gardocki), Flood Protection & Missiles (Edward Smith); assigned to Russ Haskell

9) EN 46676 - NORTH ANNA 1 & 2 - LOSS OF POWER TO TECHNICAL SUPPORT CENTER VENTILATION SYSTEM

See EN Text. Send to TRG for HVAC (Nageswara Karipineni) and EP (Eric Schrader). Assigned to Dave Garmon.

10) TURKEY POINT 4 - EDG CYLINDER VALVE HANDLE DAMAGED WHILE INSTALLING TEST EQUIPMENT

During a 4B EDG surveillance test early this morning, the #19 cylinder valve handle broke while installing vendor testing equipment; causing valve to be stuck open. The EDG surveillance run was performed and EDG is currently available with vendor testing equipment installed. Spare parts to replace valve onsite and planning on repairing today. EDG will remain inoperable until valve replaced and PMT is complete (later today).

Forward to EDG TRG (Bob Wolfgang) and Human Performance TRG (Mike Boggi) assigned to Dave Garmon.

New Reactors Items: None

Research (RES) Items: None

Items Screened Out*: Seven (7) - three (3) Event Notifications (ENs) and four (4) Licensee Event Reports (LERs)

1) LER 2962010004R00 - BROWNS FERRY 3: MANUAL REACTOR SCRAM DUE TO HIGH VIBRATION ON THE GENERATOR EXCITER INBOARD AND OUTBOARD JOURNAL BEARINGS.

2) LER 4562010001R01 - BRAIDWOOD 1: REACTOR TRIP DUE TO WATER INTRUSION IN BREAKERS CAUSING CIRCULATING WATER PUMP TRIPS AND RESULTING IN LOSS OF CONDENSER VACUUM

3) LER 4832010008R01 - CALLAWAY: INADEQUATE ANALYSIS RESULTS IN A COMPONENT COOLING WATER TRAIN DECLARED INOPERABLE

4) LER 4612010003R01 - CLINTON: UNEXPECTED COMPONENT ACTUATIONS DUE TO SELF-TEST SYSTEM DESIGN DEFICIENCIES

5) EN 46673 - CRYSTAL RIVER 3 - ADDITIONAL DELAMINATED CONTAINMENT CONCRETE DISCOVERED

6) EN 46674 - FORT CALHOUN - FLOOD BARRIER PENETRATION NOT SEALED

7) EN 46676 - NORTH ANNA 1 & 2 - LOSS OF POWER TO TECHNICAL SUPPORT CENTER VENTILATION SYSTEM

**(i.e., Screened /reviewed against LIC-401 criteria for initiating an "Issue for Resolution" (IFR), which is IOEB's process for conducting further evaluation of an issue to determine what, if any, additional actions should be taken to communicate and organizationally learn from OpE.)*

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Attendees at Screening Meeting:

Jesse Robles
Russ Haskell
Dave Garmon
Mary Wegner (RES) – by phone
Mark King
Joe Giantelli
Ryan Craffey- NRO

From: OST01 HOC
Sent: Monday, April 11, 2011 1:07 PM
To: Virgilio, Martin
Subject: Toshiba/Shaw Plan
Attachments: Toshiba Plan.pdf

Marty,

Please find the soft copy attached. Please let me know if there's anything else I can help with.

Regards,
Melissa

BH/13

Bozin, Sunny

From: Ostendorff, William
Sent: Thursday, March 17, 2011 5:05 PM
To: Zorn, Jason; Nieh, Ho; Franovich, Mike; Warnick, Greg; Kock, Andrea
Subject: RE: Commission Action During the Chernobyl Accident

Great suggestion Jason!

From: Zorn, Jason
Sent: Thursday, March 17, 2011 5:04 PM
To: Ostendorff, William; Nieh, Ho; Franovich, Mike; Warnick, Greg; Kock, Andrea
Subject: FW: Commission Action During the Chernobyl Accident

FYI. More history from Tom Wellock. I made a casual suggestion to Tom that it might be a worthwhile endeavor for someone to be documenting the Commission's response to this current event so that some poor person in the future doesn't have to piece together a history of the NRC's response to the Japan event as he is doing.

From: Wellock, Thomas
Sent: Thursday, March 17, 2011 4:39 PM
To: Zorn, Jason
Cc: Vietti-Cook, Annette
Subject: RE: Commission Action During the Chernobyl Accident

Hi Jason,

Those documents on Chernobyl that I mentioned to you on Tuesday arrived today, and I promised an update. Here is what I found:

1) I indicated earlier that I found no Commissioner involvement in the NRC response until May 13 when a briefing was held. However, the new documents show that "at the direction of the Commission, an NRC Incident Tracking Team was established on May 1, 1986 to collect information and review the effects of the Chernobyl incident in support of EPA."
2) The documents also indicate that safety concerns in the United States quickly pivoted away from the civilian industry to DOE facilities that seemed more akin to the Chernobyl plant. One House hearing, for example, focused exclusively on DOE facilities. So, the civilian industry escaped intense scrutiny.
3) At the April 13 briefing by the staff for the Commissioners, there was a brief discussion favoring an NRC interface with an international study effort channeled through the IAEA. The Commissioners asked OIP to consider other initiatives that they might propose to the IAEA.
4) On May 21, 1986, the IAEA created expert groups to draft international agreements on providing information on nuclear accidents with transboundary effects and on the coordination of emergency response and assistance. Before 1986, the IAEA only published some very general guidelines for such events, and it now resolved to create more robust documents. Two conventions, including INFCIRC/336 "Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency," were approved by the IAEA in October 1986.
5) With the approval of the conventions, it might be expected that the State Department would craft an implementing document coordinating agencies involved in responding to an international accident. It might also be expected that the NRC would create a similar document detailing response plans and defining lines of authority. This did not happen at the agenc talked to staffers in OIP as to why this might have been. They noted that there was a general reluctance by the agency to involve itself too deeply in international events due to long-standing concerns about costs associated with helping another nation and fee recover his apprehension over the budget was evident even when the conventions were passed just a few months after Chernob e EDO, Victor Stello, in favoring the

BH/14

Conventions argued that the economic impact of the agreements was "negligible" and "inherently limited by our response capabilities" that would require little more of the agency than providing technical advice and performing calculations. He assured the Commission that more expensive support, such as equipment and manpower, would be borne by DOE, DOD, and the private sector.

I hope this helps.

Tom

From: Zorn, Jason
Sent: Tuesday, March 15, 2011 4:48 PM
To: Wellock, Thomas
Subject: RE: Commission Action During the Chernobyl Accident

Tom

Thanks again. I provided this to the Commissioner, and he wanted me to pass on his personal thanks for this information. He has found it extremely helpful.

Jason

From: Wellock, Thomas
Sent: Tuesday, March 15, 2011 4:24 PM
To: Zorn, Jason
Subject: RE: Commission Action During the Chernobyl Accident

I'm sure that is correct. By the time the world knew of Chermobyl, the accident was almost three days old. On this one, people can watch all three units explode over and over. But I'd add a couple other elements besides information technology:

1) The design connection to US reactors seems obvious. It isn't hard to imagine Daiichi 1 as Oyster Creek sitting on the ocean. In 1986, I think the public accepted quickly that our reactors were different from the Russians.
2) The regulatory connection seems obvious, too. Japan is an advanced economy with a mature regulatory system, and it still didn't work.
3) This accident goes right to the core of our DBA.
4) If the claims are correct that the Japanese regulators have not handled information sharing well, it reminds me all too much of the NRC's poor handling of TMI. Right now CNN's webpage headline says the accident is "nearing the severity of Chernobyl." Hysteria fills the void of uncertainty.

Tom

From: Zorn, Jason
Sent: Tuesday, March 15, 2011 3:54 PM
To: Wellock, Thomas
Subject: RE: Commission Action During the Chernobyl Accident

Tom

This is extremely helpful, and I can't thank you enough for doing the research and putting this together for me. Seems like the response to that incident was significantly different than our current response. I can't help but wonder if the instantaneous availability of information had something to do with a more measured response in 1986. I'll let you know if I have any follow up questions from the Commissioner.

Jason

From: Wellock, Thomas
Sent: Tuesday, March 15, 2011 3:49 PM
To: Zorn, Jason
Subject: Commission Action During the Chernobyl Accident

Hi Jason,

I've scouted around and there is no narrative about what the Commission did right after the Chernobyl accident. But I have pieced it together from a number of documents. I chose to look at Chernobyl over 9/11 because of the similarity of the NRC having to respond to a nuclear event outside its borders, as we are doing in Japan. To summarize my findings, the NRC played a limited, supporting role in the federal response to the accident. Here is a timeline of agency actions over the first couple weeks following the accident on April 26, 1986.

April 26: Accident occurs.
April 28: First indications of airborne contamination outside the USSR found in Sweden.
April 29: Agency requests data from Swedish Nuclear Power Inspectorate. Congressman Edward Markey writes to NRC requesting the agency establish a task force to obtain information on the accident and evaluate implications for U.S. program. Markey also wrote a letter to Secretary of State George Schultz requesting that the U.S. provide technical and medical assistance when requested by the Soviets. He also called for an international scientific panel to assess the accident.
May 1: The White House announced the formation of an interagency task force to assess the accident's impact on the environment, including the DOE, EPA, NRC, and others. Harold Denton, Director of NRR, represented the NRC. Lee Thomas, Administrator of the EPA, headed the task force. On the same day, the NRC established an Incident Tracking Team to collect information and support the Interagency Task Force. The Soviets refused offers of aid.
May 2: The NRC contacts all licensees requesting that they report anomalous readings in their radiation monitoring to the NRC. Results were to be shared with the task force and INPO.
May 5: Chairman Nunzio Paladino requested the EDO establish another team to perform a longer range study of the accident to determine what reforms might be needed in the U.S. Regulatory program.
May 13: Staff held a briefing of the Commission on the accident. While this is the first mention that I see of Commissioner involvement, there may have been earlier discussion among the Commissioners on this topic. I have requested the transcripts of earlier meetings from the Federal Records Center. They will likely arrive on Thursday.

The NRC issued three reports on the accident over the next six years, NUREGs 1250, 1251, and 1422. From these reports and the earlier actions, I think there are a couple things that are noteworthy given Commissioner Ostendorff's interest in what the Commission did during the accident.

1) Because of the delay in notification of the accident by the Soviets, the Soviet refusal of aid, Cold War relations, and the very different technology involved, the NRC played a supporting role to the EPA in the accident and even the State Department for a time. The accident was seen as an environmental threat to the United States, and so the EPA took a greater role. The early focus was on environmental monitoring. As a result, the NRC did not mobilize an emergency response as it is doing now.
2) NRC response was low key and largely reactive to requests by Markey and the White House.
3) What I find striking in the thrust of all of the reports and early responses is that they were mostly technical, focusing on differences in design, accident initiation, and implications for U.S. vendors, etc. No one seems to have asked the larger question the event raised of how the NRC should organize itself to respond to nuclear accidents outside US borders. This may have been discussed much later, but I think that the comparatively low-key non-controversial response of the federal government and the agency meant no flags were raised on this issue.

If you need me to look at 9/11 or have additional questions, let me know. I will also let you know what the Commission transcripts reveal when they arrive.

Tom

Thomas Wellock
Historian
U.S. Nuclear Regulatory Commission
O16G4
11555 Rockville Pike
Rockville, MD 20852
301-415-1965

From: Rau, Carl <cwrau@Bechtel.com>
Sent: Friday, March 18, 2011 3:21 PM
To: Jack Soma
Cc: cemercha@bechtel.com; breilly@bechtel.com; RST01 Hoc
Subject: Re: Plan forward

Agreef

Carl Rau
Sent from my iPhone

On Mar 18, 2011, at 2:10 PM, "Jack Soma" <junichi.soma.pv@hitachi.com> wrote:

Ned,

We will wait for Japanese Government direction anyway.

Jack

From: cemercha@bechtel.com [mailto:cemercha@bechtel.com]
Sent: Saturday, March 19, 2011 3:03 AM
To: junichi.soma.pv@hitachi.com
Cc: cwrau@bechtel.com; breilly@bechtel.com; RST01.Hoc@nrc.gov
Subject: Plan forward

Jack,

I just talked to Carl and we are going to proceed as planned. We will ship the material tomorrow and GE Hitachi is to take possession of it at the Yokota airport. Once I know details of departure and ETA, I will email you.

BH/15

Best Regards, Ned

"Quality is not an act, it is a habit"

From: Hawn, Randall S. (INPO) <HawnRS@INPO.org>
Sent: Friday, March 18, 2011 12:55 PM
To: RST01 Hoc
Subject: RE: SFP Recommendations

4C

Could you please make sure I get next revision to recommendations following 11:30 call. I was not added to list from this morning. NRC lead is Jim Shea

Thanks
Scott

From: Hawn, Randall S. (INPO)
Sent: Friday, March 18, 2011 8:43 AM
To: 'RST01 Hoc'
Subject: SFP Recommendations

Scott Hawn
Sr. Evaluator
Engineering & Configuration Mgmt.
770-644-8353

BH/16

Bowers, Anthony

From: PMT02 Hoc
Sent: Friday, March 18, 2011 10:46 AM
To: PMT11 Hoc
Subject: FW: ATTN PMT - URGENT - For your review
Attachments: NARAC_PlumeArrTime+DRL_2011Mar18_14Z_WestCoast_SuperCore_Appendix.docx

Importance: High

From: Dillon, Michael B. [mailto:dillon7@llnl.gov]
Sent: Friday, March 18, 2011 10:44 AM
To: PMT02 Hoc; nitops@nnsa.doe.gov
Cc: narac@llnl.gov
Subject: ATTN PMT - URGENT - For your review
Importance: High

For your review prior to sending to DOE, please review and add additional information on source term assumptions.

Tracking:

BH/17

Recipient	Read
PMT11 Hoc	Read: 3/18/2011 10:50 AM

Isotope Mix and Release Quantity

Unit #	2	3	4b	4a	TOTAL
Type	Reactor	Spent fuel	Spent fuel	Spent fuel	
NRC File Name	unit 2 33 percent 17MAR 2330	Unit 3 SFP 100 percent 17MAR 2330	Unit 4 SFP 17 MAR 2330 4 old batches	Unit 4 SFP 17 MAR 2330 one batch	
Date NARAC Received	3/18/2011	3/18/2011	3/18/2011	3/18/2011	
Time NARAC Received	8:10Z	8:10Z	8:10Z	8:10Z	
Isotope Mix	Release Quantity (Ci)	Release Quantity (Ci)	Release Quantity (Ci)	Release Quantity (Ci)	Release Quantity (Ci)
Am-241	3.64E-03	6.96E-02	3.82E-01	7.89E-03	4.63E-01
Ba-140	2.63E+05	7.45E+01	0.00E+00	2.02E+04	2.83E+05
Ce-141	6.89E+03	7.44E+00	5.31E-04	1.98E+02	7.09E+03
Ce-143	1.07E+03	0.00E+00	0.00E+00	1.06E-05	1.07E+03
Ce-144	5.92E+03	5.72E+01	3.59E+01	3.06E+02	6.32E+03
Cm-242	7.46E+01	1.25E+00	3.23E-01	9.10E+00	8.53E+01
Cs-134	4.26E+05	2.55E+06	3.67E+06	8.31E+06	1.50E+07
Cs-136	1.44E+05	1.39E+03	2.57E-08	3.35E+05	4.80E+05
Cs-137	2.96E+05	2.85E+06	7.26E+06	5.93E+06	1.63E+07
I-131	2.69E+06	1.85E+03	0.00E+00	4.58E+06	7.27E+06
I-132	2.23E+06	2.76E-04	0.00E+00	4.65E+03	2.23E+06
I-133	3.86E+05	0.00E+00	0.00E+00	1.77E-04	3.86E+05
I-135	6.70E+02	0.00E+00	0.00E+00	0.00E+00	6.70E+02
Kr-83m	7.62E-09	0.00E+00	0.00E+00	0.00E+00	7.62E-09
Kr-85	1.86E+05	7.56E+05	1.76E+06	1.69E+06	4.39E+06

Kr-85m	6.17E+00	0.00E+00	0.00E+00	0.00E+00	6.17E+00
Kr-88	5.80E-03	0.00E+00	0.00E+00	0.00E+00	5.80E-03
La-140	4.64E+03	2.61E+01	0.00E+00	7.07E+03	1.17E+04
La-141	5.25E-04	0.00E+00	0.00E+00	0.00E+00	5.25E-04
Mo-99	1.65E+04	0.00E+00	0.00E+00	2.23E-01	1.65E+04
Nb-95	3.04E+03	3.92E+01	5.49E-01	3.82E+02	3.46E+03
Nb-97	4.37E+00	0.00E+00	0.00E+00	0.00E+00	4.37E+00
Nd-147	9.37E+02	3.78E-02	0.00E+00	1.85E+01	9.56E+02
Np-239	3.27E+04	0.00E+00	0.00E+00	2.03E-01	3.27E+04
Pm-147	2.80E+00	6.27E-01	1.01E+00	1.65E+00	6.09E+00
Pr-143	2.22E+03	3.01E-01	0.00E+00	6.35E+01	2.28E+03
Pr-144	3.73E+03	5.72E+01	3.59E+01	3.06E+02	4.12E+03
Pu-238	1.49E-02	2.03E-02	6.82E-02	7.36E-03	1.11E-01
Pu-239	1.70E-02	7.18E-04	1.92E-03	1.43E-03	2.11E-02
Pu-241	5.59E+02	2.38E+01	5.78E+01	5.16E+01	6.93E+02
Rb-86	5.42E+03	2.58E+02	9.62E-06	2.06E+04	2.63E+04
Rb-88	2.87E-03	0.00E+00	0.00E+00	0.00E+00	2.87E-03
Rh-103m	3.42E+04	3.22E+01	1.35E-02	6.61E+02	3.49E+04
Rh-105	4.85E+03	0.00E+00	0.00E+00	7.44E-05	4.85E+03
Ru-103	3.44E+04	3.23E+01	1.36E-02	6.62E+02	3.51E+04
Ru-105	2.70E-02	0.00E+00	0.00E+00	0.00E+00	2.70E-02
Ru-106	1.01E+04	1.15E+02	9.60E+01	5.29E+02	1.08E+04
Sb-127	2.08E+04	7.57E-05	0.00E+00	1.31E+02	2.09E+04
Sb-129	1.05E-01	0.00E+00	0.00E+00	0.00E+00	1.05E-01
Sr-89	1.55E+05	2.70E+03	7.41E+00	4.22E+04	2.00E+05
Sr-90	1.25E+04	4.19E+03	1.06E+04	8.70E+03	3.61E+04
Sr-91	3.26E+02	0.00E+00	0.00E+00	0.00E+00	3.26E+02
Sr-92	3.54E-05	0.00E+00	0.00E+00	0.00E+00	3.54E-05
Tc-99m	1.59E+04	0.00E+00	0.00E+00	2.15E-01	1.59E+04
Te-127	2.96E+04	9.98E+02	9.43E+01	9.19E+03	3.99E+04
Te-127m	6.67E+03	1.03E+03	9.71E+01	9.33E+03	1.71E+04

Te-129	1.72E+04	5.99E+02	5.97E-02	1.52E+04	3.30E+04
Te-129m	2.65E+04	9.20E+02	9.18E-02	2.33E+04	5.07E+04
Te-131	2.68E+03	0.00E+00	0.00E+00	1.59E-04	2.68E+03
Te-131m	1.19E+04	0.00E+00	0.00E+00	7.05E-04	1.19E+04
Te-132	2.95E+05	4.01E-05	0.00E+00	6.76E+02	2.95E+05
Xe-131m	2.54E+05	6.49E+02	0.00E+00	2.27E+05	4.82E+05
Xe-133	2.91E+07	4.42E+01	0.00E+00	2.68E+06	3.17E+07
Xe-133m	4.61E+05	5.86E-09	0.00E+00	1.40E+02	4.61E+05
Xe-135	1.23E+05	0.00E+00	0.00E+00	0.00E+00	1.23E+05
Xe-135m	3.56E+02	0.00E+00	0.00E+00	0.00E+00	3.56E+02
Y-90	1.93E+02	9.97E+02	2.53E+03	2.08E+03	5.80E+03
Y-91	2.06E+03	1.45E+01	9.81E-02	1.99E+02	2.28E+03
Y-91m	4.11E+01	0.00E+00	0.00E+00	0.00E+00	4.11E+01
Y-92	3.11E-04	0.00E+00	0.00E+00	0.00E+00	3.11E-04
Y-93	4.00E+00	0.00E+00	0.00E+00	0.00E+00	4.00E+00
Zr-95	2.88E+03	2.25E+01	2.49E-01	2.87E+02	3.19E+03
Zr-97	7.64E+01	0.00E+00	0.00E+00	0.00E+00	7.64E+01
TOTAL	**3.73E+07**	**6.18E+06**	**3.81E+07**	**7.97E+06**	**8.95E+07**

Bowers, Anthony

From: PMT02 Hoc
Sent: Friday, March 18, 2011 10:57 AM
To: Hoc, PMT12
Subject: FW: ATTN PMT - URGENT - For your review
Attachments: NARAC_PlumeArrTime+DRL_2011Mar18_14Z_WestCoast_SuperCore_Appendix.docx

Importance: High

From: Dillon, Michael B. [mailto:dillon7@llnl.gov]
Sent: Friday, March 18, 2011 10:44 AM
To: PMT02 Hoc; nitops@nnsa.doe.gov
Cc: narac@llnl.gov
Subject: ATTN PMT - URGENT - For your review
Importance: High

For your review prior to sending to DOE, please review and add additional information on source term assumptions.

Tracking:

Recipient	Read
Hoc, PMT12	Read: 3/18/2011 10:57 AM

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APPENDIX FOR:
NARAC Plume Model Projections - Trans-Pacific SuperCore Analysis
Hypothetical Cases
Estimated Arrival Times, Deposition Levels, and Dose Projections on US Soil
Issue Date: 1440 UTC March 18, 2011

Objective

The objective of this appendix is to provide additional detail on the NRD provided "SuperCore" source term.

NRC Source Summary

The NRC "supercore" source term includes release rates for specific nuclides for the following source terms:

1. Unit 2: 33% meltdown (no containment)
2. Unit 3: 50% spent fuel release (no containment)
3. Unit 4: 100% spent fuel release (no containment)

Release Duration

All source material was released over a 24-hour period starting at:

- 0000 UTC on 5 Jan 2011 for the Eastward Case
- 0630 UTC on 18 March 2011 for the NorthEastward Case

Releases were based on the NRC RASCAL code which provides release rate data for 48 hours, but the total release quantity is the same in the NRC and the NARAC versions of this source term.

Note that some additional contributions which will occur from Units 3 and 4 spent fuel sources beyond 48 hours are not included in the NRC Supercore source term.

Isotope Mix and Release Quantity

Unit #	2	3	4b	4a	TOTAL
Type	Reactor	Spent fuel	Spent fuel	Spent fuel	
NRC File Name	unit 2 33 percent 17MAR 2330	Unit 3 SFP 100 percent 17MAR 2330	Unit 4 SFP 17 MAR 2330 4 old batches	Unit 4 SFP 17 MAR 2330 one batch	
Date NARAC Received	3/18/2011	3/18/2011	3/18/2011	3/18/2011	
Time NARAC Received	8:10Z	8:10Z	8:10Z	8:10Z	
Isotope Mix	Release Quantity (Ci)	Release Quantity (Ci)	Release Quantity (Ci)	Release Quantity (Ci)	Release Quantity (Ci)
Am-241	3.64E-03	6.96E-02	3.82E-01	7.89E-03	4.63E-01
Ba-140	2.63E+05	7.45E+01	0.00E+00	2.02E+04	2.83E+05
Ce-141	6.89E+03	7.44E+00	5.31E-04	1.98E+02	7.09E+03
Ce-143	1.07E+03	0.00E+00	0.00E+00	1.06E-05	1.07E+03
Ce-144	5.92E+03	5.72E+01	3.59E+01	3.06E+02	6.32E+03
Cm-242	7.46E+01	1.25E+00	3.23E-01	9.10E+00	8.53E+01
Cs-134	4.26E+05	2.55E+06	3.67E+06	8.31E+06	1.50E+07
Cs-136	1.44E+05	1.39E+03	2.57E-08	3.35E+05	4.80E+05
Cs-137	2.96E+05	2.85E+06	7.26E+06	5.93E+06	1.63E+07
I-131	2.69E+06	1.85E+03	0.00E+00	4.58E+06	7.27E+06
I-132	2.23E+06	2.76E-04	0.00E+00	4.65E+03	2.23E+06
I-133	3.86E+05	0.00E+00	0.00E+00	1.77E-04	3.86E+05
I-135	6.70E+02	0.00E+00	0.00E+00	0.00E+00	6.70E+02
Kr-83m	7.62E-09	0.00E+00	0.00E+00	0.00E+00	7.62E-09
Kr-85	1.86E+05	7.56E+05	1.76E+06	1.69E+06	4.39E+06

Kr-85m	6.17E+00	0.00E+00	0.00E+00	0.00E+00	6.17E+00
Kr-88	5.80E-03	0.00E+00	0.00E+00	0.00E+00	5.80E-03
La-140	4.64E+03	2.61E+01	0.00E+00	7.07E+03	1.17E+04
La-141	5.25E-04	0.00E+00	0.00E+00	0.00E+00	5.25E-04
Mo-99	1.65E+04	0.00E+00	0.00E+00	2.23E-01	1.65E+04
Nb-95	3.04E+03	3.92E+01	5.49E-01	3.82E+02	3.46E+03
Nb-97	4.37E+00	0.00E+00	0.00E+00	0.00E+00	4.37E+00
Nd-147	9.37E+02	3.78E-02	0.00E+00	1.85E+01	9.56E+02
Np-239	3.27E+04	0.00E+00	0.00E+00	2.03E-01	3.27E+04
Pm-147	2.80E+00	6.27E-01	1.01E+00	1.65E+00	6.09E+00
Pr-143	2.22E+03	3.01E-01	0.00E+00	6.35E+01	2.28E+03
Pr-144	3.73E+03	5.72E+01	3.59E+01	3.06E+02	4.12E+03
Pu-238	1.49E-02	2.03E-02	6.82E-02	7.36E-03	1.11E-01
Pu-239	1.70E-02	7.18E-04	1.92E-03	1.43E-03	2.11E-02
Pu-241	5.59E+02	2.38E+01	5.78E+01	5.16E+01	6.93E+02
Rb-86	5.42E+03	2.58E+02	9.62E-06	2.06E+04	2.63E+04
Rb-88	2.87E-03	0.00E+00	0.00E+00	0.00E+00	2.87E-03
Rh-103m	3.42E+04	3.22E+01	1.35E-02	6.61E+02	3.49E+04
Rh-105	4.85E+03	0.00E+00	0.00E+00	7.44E-05	4.85E+03
Ru-103	3.44E+04	3.23E+01	1.36E-02	6.62E+02	3.51E+04
Ru-105	2.70E-02	0.00E+00	0.00E+00	0.00E+00	2.70E-02
Ru-106	1.01E+04	1.15E+02	9.60E+01	5.29E+02	1.08E+04
Sb-127	2.08E+04	7.57E-05	0.00E+00	1.31E+02	2.09E+04
Sb-129	1.05E-01	0.00E+00	0.00E+00	0.00E+00	1.05E-01
Sr-89	1.55E+05	2.70E+03	7.41E+00	4.22E+04	2.00E+05
Sr-90	1.25E+04	4.19E+03	1.06E+04	8.70E+03	3.61E+04
Sr-91	3.26E+02	0.00E+00	0.00E+00	0.00E+00	3.26E+02
Sr-92	3.54E-05	0.00E+00	0.00E+00	0.00E+00	3.54E-05
Tc-99m	1.59E+04	0.00E+00	0.00E+00	2.15E-01	1.59E+04
Te-127	2.96E+04	9.98E+02	9.43E+01	9.19E+03	3.99E+04
Te-127m	6.67E+03	1.03E+03	9.71E+01	9.33E+03	1.71E+04

Te-129	1.72E+04	5.99E+02	5.97E-02	1.52E+04	3.30E+04
Te-129m	2.65E+04	9.20E+02	9.18E-02	2.33E+04	5.07E+04
Te-131	2.68E+03	0.00E+00	0.00E+00	1.59E-04	2.68E+03
Te-131m	1.19E+04	0.00E+00	0.00E+00	7.05E-04	1.19E+04
Te-132	2.95E+05	4.01E-05	0.00E+00	6.76E+02	2.95E+05
Xe-131m	2.54E+05	6.49E+02	0.00E+00	2.27E+05	4.82E+05
Xe-133	2.91E+07	4.42E+01	0.00E+00	2.68E+06	3.17E+07
Xe-133m	4.61E+05	5.86E-09	0.00E+00	1.40E+02	4.61E+05
Xe-135	1.23E+05	0.00E+00	0.00E+00	0.00E+00	1.23E+05
Xe-135m	3.56E+02	0.00E+00	0.00E+00	0.00E+00	3.56E+02
Y-90	1.93E+02	9.97E+02	2.53E+03	2.08E+03	5.80E+03
Y-91	2.06E+03	1.45E+01	9.81E-02	1.99E+02	2.28E+03
Y-91m	4.11E+01	0.00E+00	0.00E+00	0.00E+00	4.11E+01
Y-92	3.11E-04	0.00E+00	0.00E+00	0.00E+00	3.11E-04
Y-93	4.00E+00	0.00E+00	0.00E+00	0.00E+00	4.00E+00
Zr-95	2.88E+03	2.25E+01	2.49E-01	2.87E+02	3.19E+03
Zr-97	7.64E+01	0.00E+00	0.00E+00	0.00E+00	7.64E+01
TOTAL	**3.73E+07**	**6.18E+06**	**3.81E+07**	**7.97E+06**	**8.95E+07**

Bowers, Anthony

From: PMT02 Hoc
Sent: Friday, March 18, 2011 12:34 PM
To: Hoc, PMT12
Subject: FW: ATTN PMT/NIT - URGENT - for your review
Attachments: NARAC_PlumeArrTime+DRL_2011Mar18_1600Z_WestCoast_SuperCore_Appendix.docx; NARAC_PlumeArrTime+DRL_2011Mar18_1600Z_WestCoast_SuperCore_wAppendix.docx

Importance: High

From: Dillon, Michael B. [mailto:dillon7@llnl.gov]
Sent: Friday, March 18, 2011 12:32 PM
To: nitops@nnsa.doe.gov; PMT02 Hoc
Cc: narac@llnl.gov
Subject: ATTN PMT/NIT - URGENT - for your review
Importance: High

Please review additional information on source term assumptions.

Tracking:

BH/18

Recipient	Read
Hoc, PMT12	Read: 3/18/2011 12:34 PM

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APPENDIX FOR:
NARAC Plume Model Projections - Trans-Pacific SuperCore Analysis
Hypothetical Cases
Estimated Arrival Times, Deposition Levels, and Dose Projections on US Soil
Issue Date: 1600 UTC March 18, 2011

Objective

The objective of this appendix is to provide additional detail on the NRD provided "SuperCore" source term.

NRC Source Summary

The NRC "supercore" source term includes release rates for specific nuclides for the following source terms:

1. Unit 2: 25% of the total fuel was released to the atmosphere (33% of the total fuel was assumed to melt)

Reactor Parameters

Reactor power:	2350 MWt
Average fuel burn-up:	30000 MWD / MTU

Source Term

Type:	Time Core Is Uncovered
Shutdown:	2011/03/11 14:46
Core uncovered:	2011/03/15 06:00
Core recovered:	2011/03/15 07:00

Release Pathway

Type:	BWR - Release through Dry Well via direct, unfiltered pathway
Description:	total failure of containment

Fuel Damage: 33% of total inventory melted (NRC based this estimate on reactor status information provided from the plant)

Release Fraction: 25% of the total inventory released to the atmosphere (NRC based this estimate on Subject Matter Expertise on estimated deposition within the unit along the predicted release path)

2. Unit 3: 50% of the total spent fuel was released to the atmosphere

   Reactor power: 2350 MW(t)
   Avg spent fuel burn-up: 50000 MWD / MTU
   Assemblies in core: 548
   Shutdown for newest batch: 2010/12/01
   Length Time out of reactor core: approximately 105 days
   Fuel uncovered: 2011/03/14 11:00
   Fuel recovered: No
   Number of Batches in pool: 3 Batches (1 Batch Fresh, 2 Batches Old)
   Fuel Damage: 50% (no containment)

   Description:
   - 1/3 of core (1 batch) is 105 days old
   - 2/3 of core (2 batches) are 1-2 years old
   - 50% of total inventory damaged (NRC based this estimate on info from Japan that due to water level, 50% of total inventory was exposed to the atmosphere)

3. Unit 4: 100% of the total spent fuel was released to the atmosphere

   Reactor power: 2350 MW(t)
   Avg spent fuel burn-up: 50000 MWD / MTU
   Assemblies in core: 548

   NRC Unit 4a
   Length Time out of reactor core: approximately 30 days
   Fuel Damage: 100% (no containment)
   Type: Pool Storage - Uncovered Fuel

Shutdown for newest batch: 2011/02/11
Batches in pool 3
Fuel uncovered: 2011/03/16 15:00
Fuel recovered: No
Description:
- 1 core (3 batch) is 30 days old
- 100% of total inventory damaged

NRC Unit 4b
Length Time out of reactor core: approximately 1 to 2 years
Fuel Damage: 100% (no containment)
Type: Pool Storage - Uncovered Fuel
Shutdown for newest batch: 2009/08/10
Batches in pool 4
Fuel uncovered: 2011/03/16 15:00
Fuel recovered: No
Description:
- 1+1/3 core (4 batch) is 1 to 2 years old
- 100% of total inventory damaged

Release Duration

All source material was released at a constant rate over a 24-hour period starting at:

- 0000 UTC on 5 Jan 2011 for the Eastward Case
- 0630 UTC on 18 March 2011 for the NorthEastward Case

Releases were based on the NRC RASCAL code which provides release rate data for 48 hours, but the total release quantity is the same in the NRC and the NARAC versions of this source term.

Note that some additional contributions which will occur from Units 3 and 4 spent fuel sources beyond 48 hours are not included in the NRC Supercore source term.

Release Geometry

DOE NARAC assumed an initial source geometry that accounted for (a) some buoyancy and (b) initial mixing due to presence of buildings. The material was released near the reactor locations between 0 and 200 m above ground level.

Isotope Mix and Release Quantity

Unit #	2	3	4b	4a	TOTAL
Type	Reactor	Spent fuel	Spent fuel	Spent fuel	
NRC File Name	unit 2 33 percent 17MAR 2330	Unit 3 SFP 100 percent 17MAR 2330	Unit 4 SFP 17 MAR 2330 4 old batches	Unit 4 SFP 17 MAR 2330 one batch	
Date NARAC Received	3/18/2011	3/18/2011	3/18/2011	3/18/2011	
Time NARAC Received	8:10Z	8:10Z	8:10Z	8:10Z	
Isotope Mix	Release Quantity (Ci)	Release Quantity (Ci)	Release Quantity (Ci)	Release Quantity (Ci)	Release Quantity (Ci)
Am-241	3.64E-03	6.96E-02	3.82E-01	7.89E-03	4.63E-01
Ba-140	2.63E+05	7.45E+01	0.00E+00	2.02E+04	2.83E+05
Ce-141	6.89E+03	7.44E+00	5.31E-04	1.98E+02	7.09E+03
Ce-143	1.07E+03	0.00E+00	0.00E+00	1.06E-05	1.07E+03
Ce-144	5.92E+03	5.72E+01	3.59E+01	3.06E+02	6.32E+03
Cm-242	7.46E+01	1.25E+00	3.23E-01	9.10E+00	8.53E+01
Cs-134	4.26E+05	2.55E+06	3.67E+06	8.31E+06	1.50E+07
Cs-136	1.44E+05	1.39E+03	2.57E-08	3.35E+05	4.80E+05
Cs-137	2.96E+05	2.85E+06	7.26E+06	5.93E+06	1.63E+07
I-131	2.69E+06	1.85E+03	0.00E+00	4.58E+06	7.27E+06
I-132	2.23E+06	2.76E-04	0.00E+00	4.65E+03	2.23E+06
I-133	3.86E+05	0.00E+00	0.00E+00	1.77E-04	3.86E+05
I-135	6.70E+02	0.00E+00	0.00E+00	0.00E+00	6.70E+02
Kr-83m	7.62E-09	0.00E+00	0.00E+00	0.00E+00	7.62E-09
Kr-85	1.86E+05	7.56E+05	1.76E+06	1.69E+06	4.39E+06

Kr-85m	6.17E+00	0.00E+00	0.00E+00	0.00E+00	6.17E+00
Kr-88	5.80E-03	0.00E+00	0.00E+00	0.00E+00	5.80E-03
La-140	4.64E+03	2.61E+01	0.00E+00	7.07E+03	1.17E+04
La-141	5.25E-04	0.00E+00	0.00E+00	0.00E+00	5.25E-04
Mo-99	1.65E+04	0.00E+00	0.00E+00	2.23E-01	1.65E+04
Nb-95	3.04E+03	3.92E+01	5.49E-01	3.82E+02	3.46E+03
Nb-97	4.37E+00	0.00E+00	0.00E+00	0.00E+00	4.37E+00
Nd-147	9.37E+02	3.78E-02	0.00E+00	1.85E+01	9.56E+02
Np-239	3.27E+04	0.00E+00	0.00E+00	2.03E-01	3.27E+04
Pm-147	2.80E+00	6.27E-01	1.01E+00	1.65E+00	6.09E+00
Pr-143	2.22E+03	3.01E-01	0.00E+00	6.35E+01	2.28E+03
Pr-144	3.73E+03	5.72E+01	3.59E+01	3.06E+02	4.12E+03
Pu-238	1.49E-02	2.03E-02	6.82E-02	7.36E-03	1.11E-01
Pu-239	1.70E-02	7.18E-04	1.92E-03	1.43E-03	2.11E-02
Pu-241	5.59E+02	2.38E+01	5.78E+01	5.16E+01	6.93E+02
Rb-86	5.42E+03	2.58E+02	9.62E-06	2.06E+04	2.63E+04
Rb-88	2.87E-03	0.00E+00	0.00E+00	0.00E+00	2.87E-03
Rh-103m	3.42E+04	3.22E+01	1.35E-02	6.61E+02	3.49E+04
Rh-105	4.85E+03	0.00E+00	0.00E+00	7.44E-05	4.85E+03
Ru-103	3.44E+04	3.23E+01	1.36E-02	6.62E+02	3.51E+04
Ru-105	2.70E-02	0.00E+00	0.00E+00	0.00E+00	2.70E-02
Ru-106	1.01E+04	1.15E+02	9.60E+01	5.29E+02	1.08E+04
Sb-127	2.08E+04	7.57E-05	0.00E+00	1.31E+02	2.09E+04
Sb-129	1.05E-01	0.00E+00	0.00E+00	0.00E+00	1.05E-01
Sr-89	1.55E+05	2.70E+03	7.41E+00	4.22E+04	2.00E+05
Sr-90	1.25E+04	4.19E+03	1.06E+04	8.70E+03	3.61E+04
Sr-91	3.26E+02	0.00E+00	0.00E+00	0.00E+00	3.26E+02
Sr-92	3.54E-05	0.00E+00	0.00E+00	0.00E+00	3.54E-05
Tc-99m	1.59E+04	0.00E+00	0.00E+00	2.15E-01	1.59E+04
Te-127	2.96E+04	9.98E+02	9.43E+01	9.19E+03	3.99E+04
Te-127m	6.67E+03	1.03E+03	9.71E+01	9.33E+03	1.71E+04

Te-129	1.72E+04	5.99E+02	5.97E-02	1.52E+04	3.30E+04
Te-129m	2.65E+04	9.20E+02	9.18E-02	2.33E+04	5.07E+04
Te-131	2.68E+03	0.00E+00	0.00E+00	1.59E-04	2.68E+03
Te-131m	1.19E+04	0.00E+00	0.00E+00	7.05E-04	1.19E+04
Te-132	2.95E+05	4.01E-05	0.00E+00	6.76E+02	2.95E+05
Xe-131m	2.54E+05	6.49E+02	0.00E+00	2.27E+05	4.82E+05
Xe-133	2.91E+07	4.42E+01	0.00E+00	2.68E+06	3.17E+07
Xe-133m	4.61E+05	5.86E-09	0.00E+00	1.40E+02	4.61E+05
Xe-135	1.23E+05	0.00E+00	0.00E+00	0.00E+00	1.23E+05
Xe-135m	3.56E+02	0.00E+00	0.00E+00	0.00E+00	3.56E+02
Y-90	1.93E+02	9.97E+02	2.53E+03	2.08E+03	5.80E+03
Y-91	2.06E+03	1.45E+01	9.81E-02	1.99E+02	2.28E+03
Y-91m	4.11E+01	0.00E+00	0.00E+00	0.00E+00	4.11E+01
Y-92	3.11E-04	0.00E+00	0.00E+00	0.00E+00	3.11E-04
Y-93	4.00E+00	0.00E+00	0.00E+00	0.00E+00	4.00E+00
Zr-95	2.88E+03	2.25E+01	2.49E-01	2.87E+02	3.19E+03
Zr-97	7.64E+01	0.00E+00	0.00E+00	0.00E+00	7.64E+01
TOTAL	**3.73E+07**	**6.18E+06**	**3.81E+07**	**7.97E+06**	**8.95E+07**

From: Addy, Robert J (INPO) <AddyRJ@INPO.org>
Sent: Friday, March 18, 2011 6:45 PM
To: RST01 Hoc
Subject: Read: FW: NRC RST Spent Fuel Pool Fukushima Daiichi Cooling Recommendations for mitigation of dose rates rev2.docx
Attachments: Read: FW: NRC RST Spent Fuel Pool Fukushima Daiichi Cooling Recommendations for mitigation of dose rates rev2.docx

Importance: High

BH/19

From: LIA07 Hoc
Subject: Report on Meeting between Chairman Jaczko and Japanese Ambassador to the U.S. Ichiro Fujisaki
Date: Saturday, March 19, 2011 6:25:01 AM
Attachments: Doc1.docx
bechtel detailed diagram.pdf
Japan Aid.xlsx
Chairmans March 18 Doc.docx

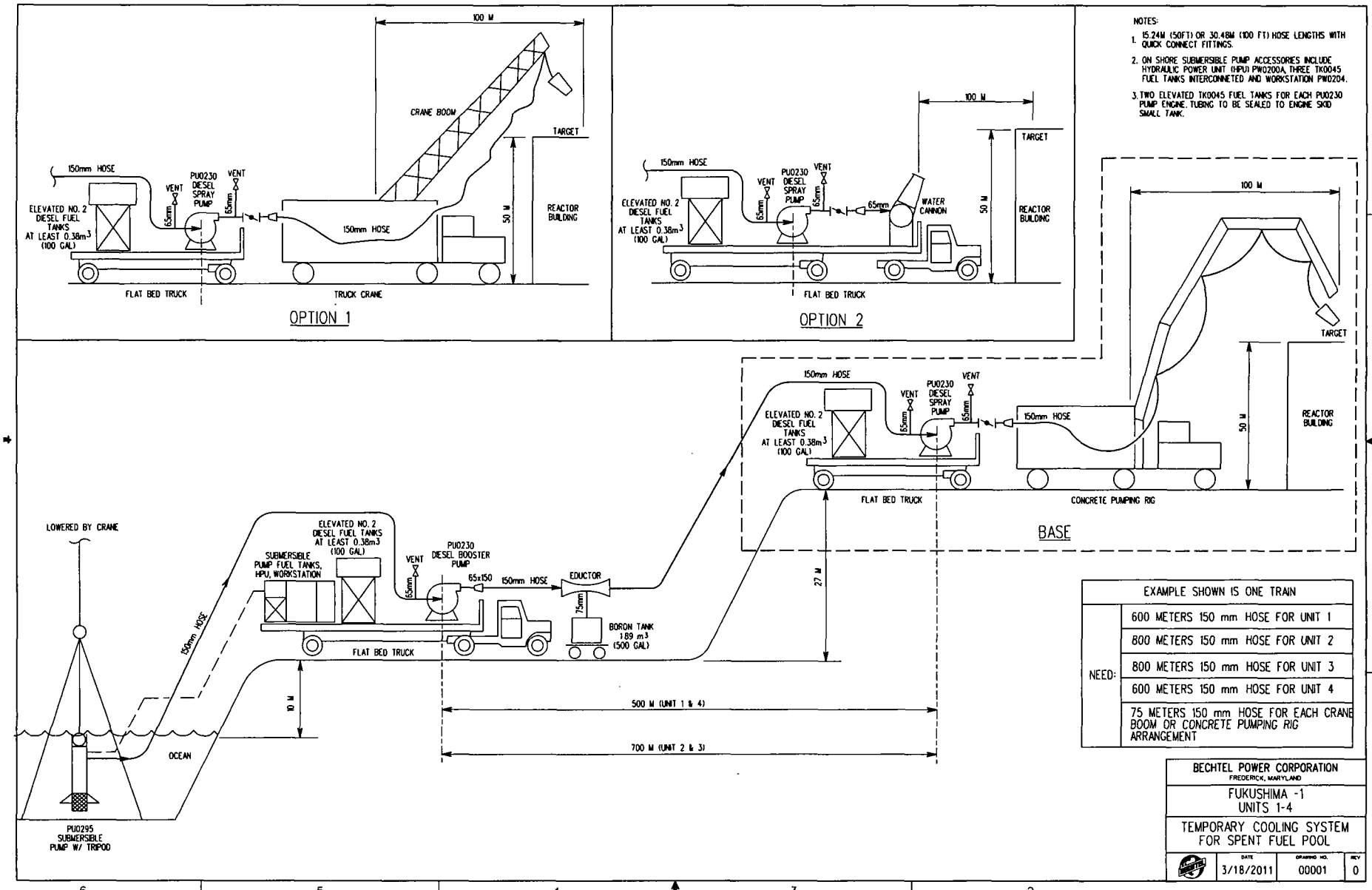
Dear Colleagues,

Attached is the report summarizing Chairman Jaczko's meeting with Japanese Ambassador to the U.S. Ichiro Fujisaki, held on March 18, 2011, at 1600 hours EST. We have also included other key documents which provide additional information pertinent to the recent events. Please note this information is "official use only" and is only being shared within the federal family. Please call the Headquarters Operations Office at 301-816-5100 with questions.

International Liaison Team
U.S. Nuclear Regulatory Commission

BH/20

Attachment Doc1.docx (12502 Bytes) cannot be converted to PDF format.



...\2 TEMP COOLING SYSTEM.dgn 3/18/2011 2:11:48 AM

ITEM NO.	MATERIAL DESCRIPTION	U.O.M	QUANTITY (4 TRAINS)	BEAVER MINING				RESOURCE EQUIPMENT LIMITED (Alternate Solution- SD Unveiled)			CHUBB FIRE & SAFETY				ALGOMMA				OMNI MANUFACTURING & WA POLY TANKS			HOWARD PORTER			RENTCO			REGIONAL TRAILERS			ESTIMATED SIZE	COMMENTS
				UNIT PRICE	AVAIL QTY	TOTAL PRICE	AVAILABILITY	Rental PRICE Per Day	TOTAL PRICE	AVAILABILITY	UNIT PRICE	AVAIL QTY	TOTAL PRICE	AVAILABILITY	UNIT PRICE	AVAIL QTY	TOTAL PRICE	AVAILABILITY	UNIT PRICE	TOTAL PRICE	AVAILABILITY	UNIT PRICE	TOTAL PRICE	AVAILABILITY	UNIT PRICE	TOTAL PRICE	AVAILABILITY	UNIT PRICE	TOTAL PRICE	AVAILABILITY		
1	6" submersible pump 518000 and ancillaries	Each	4					AUD 16,500 00	TBC	2 units available ex-perth																					REL has advised estimated sweight of two complete units is 100 Metric Tonnes	RESOURCES EQUIPMENT LIMITED (REL) has offered an alternate solution which exceed engineering requirements Two (2) units available ex-stock (see attachment for details) Engineering to review and confirm.
2	500 gpm jetting pump PU230 and ancillaries	Each	4					(Included in 1)																								
3	500 gpm spray pump PU230 and ancillaries	Each	4					(Included in 1)																								
4	500 gpm water cannon, 2-1/1 " male cam lock connection Stang industries or equal	Each	4					(Included in 1)																							BEAVER MINING Attached are the possible options of Cannon available ex-stock Melbourne. Engineering to review and advice if acceptable RESOURCES EQUIPMENT LIMITED: 2 units available ex-stock (see attachment for details) Contact: Chris Wele, Mobile 0438 414 545	
5	6" C.S. cam lock male adapter with 6" flange to mount to booster pump suction	Each	4	TBC	4		Ex-Perth, Australian Flanging	(Included in 1)																								
6	2 1/2" C.S. cam lock male adapter with 2 1/2" flange to mount to booster pump suction	Each	8	TBC	8		Ex-Perth, Australian Flanging	(Included in 1)																								
7	2 1/2" high pressure fire hose with 2 1/2" C.S. cam lock couplings Each hose length to have a male fitting on one end and female on the other.	Meter	3,353	TBC	3,353		Ex-Sydney 12X100 meter (No Couplings) 100 K30m (No Couplings)-RED 41X30m (No Couplings)-Yellow Ex-Melbourne 21X30mtr (with camlock couplings)-RED 67X30 (No Couplings)-RED Note- Aluminium camlock couplings for the fittings can be arranged based on the confirmation of what type hose is required	(Included in 1)																								
7 01	6" High pressure fire hose with 6" C.S. cam lock couplings Each hose length to have a male fitting on one end and female on the other	Meter	3,353	######	1,335	########	835M ex-perth, 1X200m ex-sydney, 3X100m ex melbourne	(Included in 1)			#######	500	########	300 meter available	########	800	########	800 meter available Ex-Melbourne, Brisbane & Sydney 100 PSI rating												Only 2435 meter available against total requirement of 3,353 meter
7 02	Bauer Couplings, 150NB Galv Steel Complete Set	Each	350	######	350	########	Ex-Perth	(Included in 1)																								
7 02	Clamp Double Bolt Galv 151 165mm	Each	75	######	75	########	Ex-Perth/Geraldton	(Included in 1)																								
8	C.S. Water Jet Eductor. 2 1/2" at 500 GPM with 1" chemical mixing inlet connection. 2 1/2" C.S. male cam lock fittings at supply and discharge	Each	4	Not Quoted				(Included in 1)																							Need more technical info
9	1" diesel fuel oil hose 20' length fitted with 1" brass male threaded fittings each end (6 metre lengths)	Meter	48	######	48	########	Ex-Stock Perth	(Included in 1)																								
10	1" brass ball valves with female thrd ends	Each	8	######	8	AUD 80.00	Ex-Stock Perth	(Included in 1)																								
11	2 1/2" C.S. Cam lock fittings with 2 1/2" hose shank ends as spares, provide as male/female sets.	Each	20	TBC	20		Ex-Perth, Australian Flanging	(Included in 1)																								
12	275gal fuel oil tank (suitable for mounting on a trailer)	Each	16					(Included in 1)																							COATES: Half a dozen diesel tanks available with Coates ex-Perth Awaiting confirmation from their management that these are available for Purchase	
12	fuel oil tank (suitable for mounting on a trailer) 800 Litre	Each	6					(Included in 1)													########	########										
12	fuel oil tank (suitable for mounting on a trailer) 800 Litre	Each	2					(Included in 1)													########	########										
12	fuel oil tank (suitable for mounting on a trailer) 600 Litre	Each	8					(Included in 1)													########	########										
13	500 gal plastic tank for boron storage	Each	4		4																											
14	Flatbed Trailer - 40 ft by 8 ft, with tongue and pin connection, front and back axle, rubber tires, front axle steerable, tongue with pin connection for towing. For delivery (not pavers)	Each	5		5																		#######	########	Ex-Perth							13.7MX2.5MX1.4M, 7600kg
14	Flatbed Trailer - 40 ft by 8 ft, with tongue and pin connection, front and back axle, rubber tires, front axle steerable, tongue with pin connection for towing. For delivery ready for delivery	Each	1		1																		#######	########	Ex-Perth							13.7MX2.5MX1.4M, 7600kg
14	Flatbed Trailer - 40 ft by 8 ft, with tongue and pin connection, front and back axle, rubber tires, front axle steerable, tongue with pin connection for towing. For delivery Ready for delivery Ready for delivery	La	3		3																					#######	########					13.7MX2.5MX1.4M, 7600kg
15	Trailer – 12 ft by 6 feet with axle front and back axle, rubber tires, tongue with pin connection for towing	Each	16		16																								########	########		13 feetX 6 feet

Attachment Chairmans March 18 Doc.docx (20673 Bytes) cannot be converted to PDF format.

From: Hoc, PMT12
Sent: Saturday, March 19, 2011 5:19 AM
To: PMT04 Hoc
Subject: FW: MARCH 18-19 MELCOR release inventories 2.doc
Attachments: MARCH 18-19 MELCOR release inventories 2.doc

From: Hoc, PMT12
Sent: Saturday, March 19, 2011 4:16 AM
To: LIA11 Hoc
Subject: FW: MARCH 18-19 MELCOR release inventories 2.doc

This is page two to our one pager, which can be attached to the briefing book for PMT. Tx greg

From: PMT11 Hoc
Sent: Saturday, March 19, 2011 4:13 AM
To: Hoc, PMT12
Subject: MARCH 18-19 MELCOR release inventories 2.doc

BH/21

MARCH 19, 2011
SOURCE TERM FOR A REALISTIC "WORSE-CASE" SCENARIO

For the past week, the source terms used for estimating radiological consequences from the Fukushima site were based on loss-of-coolant accident assumptions (from NUREG-1465, the alternative siting source term). An updated "worst-case" scenario was developed assuming each Fukushima reactor and spent fuel pool currently in jeopardy experiences a significant release, but using best-estimate accident progression assumptions. This scenario used insights from a contemporary consequence study that assumed a long-term station blackout (LTSBO) event modeled after a domestic BWR/4 Mark I nuclear power plant. For each reactor, the radionuclide source terms were generated using MELCOR and the standard isotopic abundances (Ci/MWt) were obtained from the MACCS2 manual after scaling to the Fukushima power levels. The release duration is assumed to be relatively short (one-half hour) based on a containment failure shortly after RPV breach.

The spent fuel pool inventories were based on ORIGEN results provided by GE for Unit 4, assuming a mix of 100 day and 500 day offloaded fuel. Source terms for Units 1, 2 and 3 were based on 500 day offloaded fuel. Release fractions were based on MELCOR calculations. The 8-hour release duration for Unit 4 was based on a MELCOR calculation. This 8-hour release duration was then doubled for Units 1, 2 and 3 assumptions because they did not have recently offloaded fuel, causing a slower escalation. Plume energies were developed for each spent fuel pool.

The overall timing (sequence) of releases from each unit are as follows: Unit 1 reactor at 15:36 on 3/12/2011; Unit 3 reactor at 11:15 on 3/14/2011; Unit 2 reactor at 06:15 on 3/15/2011; Unit 3 and 4 spent fuel pools at 6:15 on 3/16/2011 (assumed 24 hrs after previous reactor release); Unit 2 spent fuel pool at 6:15 on 3/17/2011 (assumed 24 hrs after previous spent fuel pool release); Unit 1 spent fuel pool at 6:15 on 3/18/2011 (assumed 24 hrs after previous spent fuel pool release).

Maier, Bill

From: Micro-Simulation Technology [info@microsimtech.com]
Sent: Sunday, March 20, 2011 11:35 AM
To: jqyuan@sjtu.edu.cn
Subject: Fukushima Event Analysis
Attachments: Fukushima PCTRAN Analysis.doc

Dear Colleagues,

Thank you for recent inquiry on the Fukushima event simulation. Attached is our preliminary analysis using PCTRAN BWR as well as related software for spent fuel pool accident and atmospheric dispersion. Since the event is still ongoing and more detail would be disclosed later on, you are welcome to contact us to discuss your observation and comment. This unfortunate event will change the outcome of future nuclear power development worldwide.

Sincerely,

Li-Chi Cliff Po, PhD
Micro Simulation Technology
USA

BH/22

Fukushima Earthquake Station Blackout Event PCTRAN Analysis

Micro-Simulation Technology
March 21, 2011

1. Description of Event

The earthquake and tsunami has caused instant loss of offsite power. The scale-9 shock far exceeds plant design limit of scale 7.5 so it also disabled all onsite diesel generators. A complete station blackout (SBO) is thus the initiating event.

Fukushima Daiichi has six GE BWR-4 with Mark I (steel liner plus concrete drywell and torus-shaped suppression pool) containment. Their rated power varies from 439 MW to 1067 MW electric. The emergency core cooling systems contains passive Reactor Coolant Isolation Cooling (RSIC) and Core Spray (CS) systems. Their respective turbines are driven by steam extraction following Main Steam Isolation Valves (MSIV) closure. Centrifugal pumps draw water from the condensate storage tank initially. When the tank inventory is exhausted, water source can be switched to the suppression pool for extended period. On the active side, the diesel generator-powered High Pressure Coolant Injection (HPCI) turns on low reactor water level. It extracts water from the condensate or suppression pool as well. When the reactor pressure is lowered, low pressure coolant injection (LPCI) system provides large flow to reflood the core.

In the neighborhood Fukushima Daini site there are four BWR5 units. All are rated at 1067 MW electric. The Mark II containment has its suppression pool connected by vertical vent pipes underneath the drywell. The emergency core cooling system is similar to BWR4 with the except ion of high and low pressure core spray (HPCS and LPCS) systems replacing HPCI and LPCS of BWR4 respectively. Using spray gets more uniform droplet distribution on top of the fuels than injection from bottom during accident.

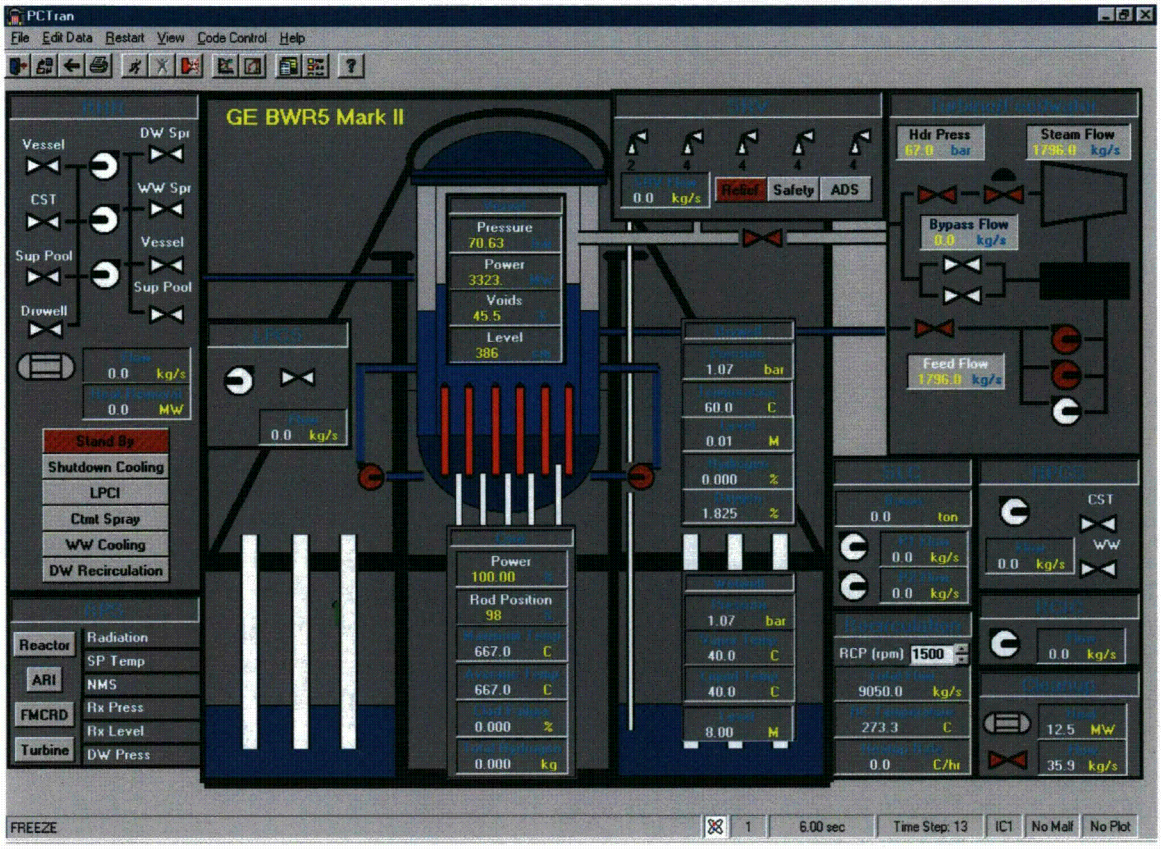


Fig. 1 Fukushima Daini PCTRAN BWR5 Mark II Mimic

During the March 11 event, the RCIC and CS lines were either destroyed by the earthquake or soon exhausted their water supply. Since no onsite AC power available, HPCI and LPCI were never initiated. When the core water lowered to expose the core, clad damage and hydrogen generation was observed. The operators decided to depressurize the reactor vessel by opening the Safety Relief Valves. Since the low-pressure core injection (LPCI) via the Residual Heat Removal (RHR) pumps was not available, coolant was further lost from the reactor to expose more fuels. A mixture of steam, hydrogen and fission gas pressurized the primary containment (i.e. the drywell and suppression pool). Since BWR4's containment is typically inerted below 4% of oxygen content, in principle there is no chance for hydrogen explosion regardless of the hydrogen concentration. However, because the containment pressure might have exceeded its 4-atmosphere design pressure, leakage from the pressure boundary cracks might have occurred. The gas mixture then filled the external Reactor Building. Detonation condition has reached and then explosions occurred. These happened repeatedly in all four units. The Reactor Building roof is an ordinary structure so it was blown off. Later water spray on top of the Reactor Buildings by either helicopters or fire engines had limited effect since water has difficulties to reach the damaged core.

2. Simulation by PCTRAN

All above sequence of events can be simulated by PCTRAN/BWR4 or 5 with quantitative accuracy. Fukushima Daiichi Unit 6 and all Daini units are rated at 3,223 MW thermal or 1,067 MW electric. There are two external recirculation pumps. Jet pumps inside the reactor downcomer enhance the core flow for better efficiency. Figure 1 is the PCTRAN mimic during full-power steady state operation.

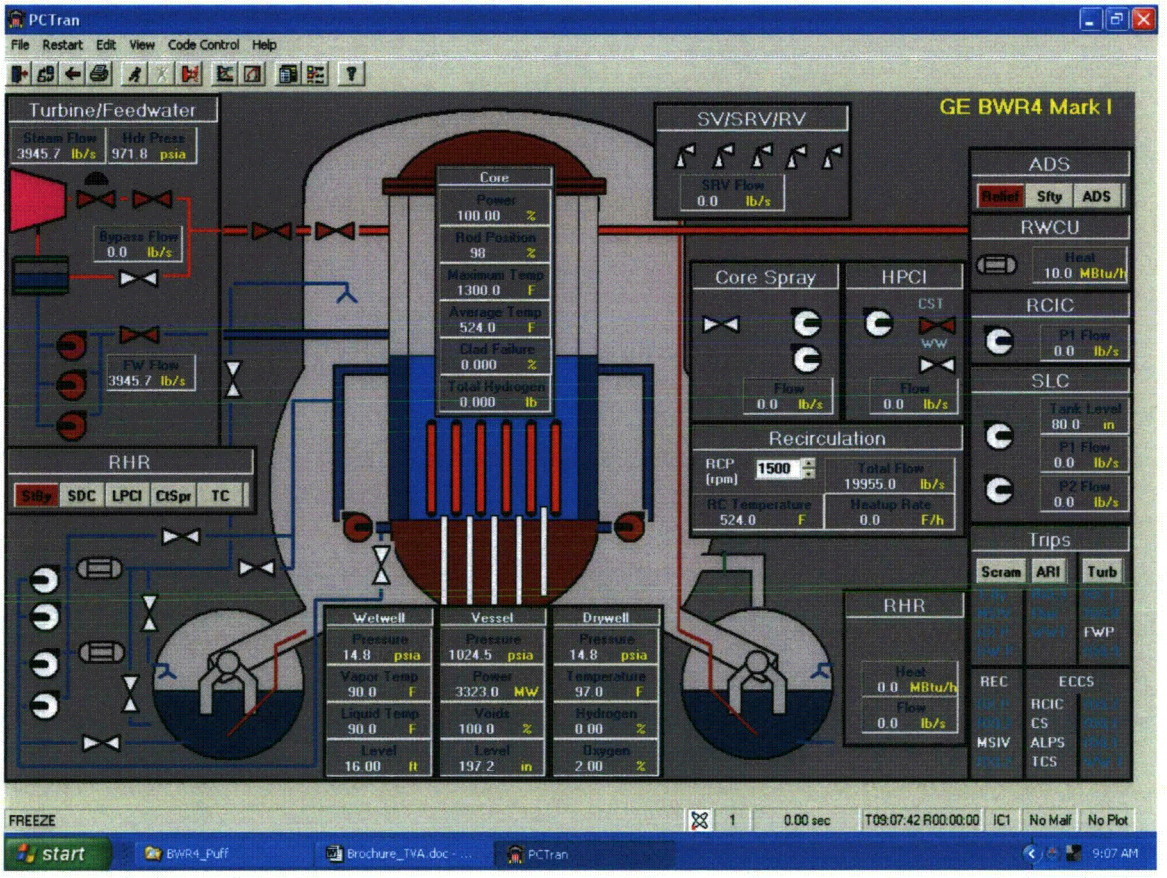


Fig. 2 PCTRAN Fukushima Daiichi Unit 6 NSSS mimic at 100% power.

Upon a SBO the MSIV's are closed and trip the recirculation pumps and main feedwater pumps. The reactor responds by scramming all control rods into the core and trip the turbine. RCIC and CS then start on low reactor water level signal. Both systems work for a while and then are disabled on assumption of damaged piping or exhausted water supply. The dome pressure then increases to lift the Safety Relief Valves (SRV) and cycle around their lowest band set point around 76 bar (1,100 psia). Both HPCI and LPCI are never available since the diesel generator has failed. The transient results are shown below:

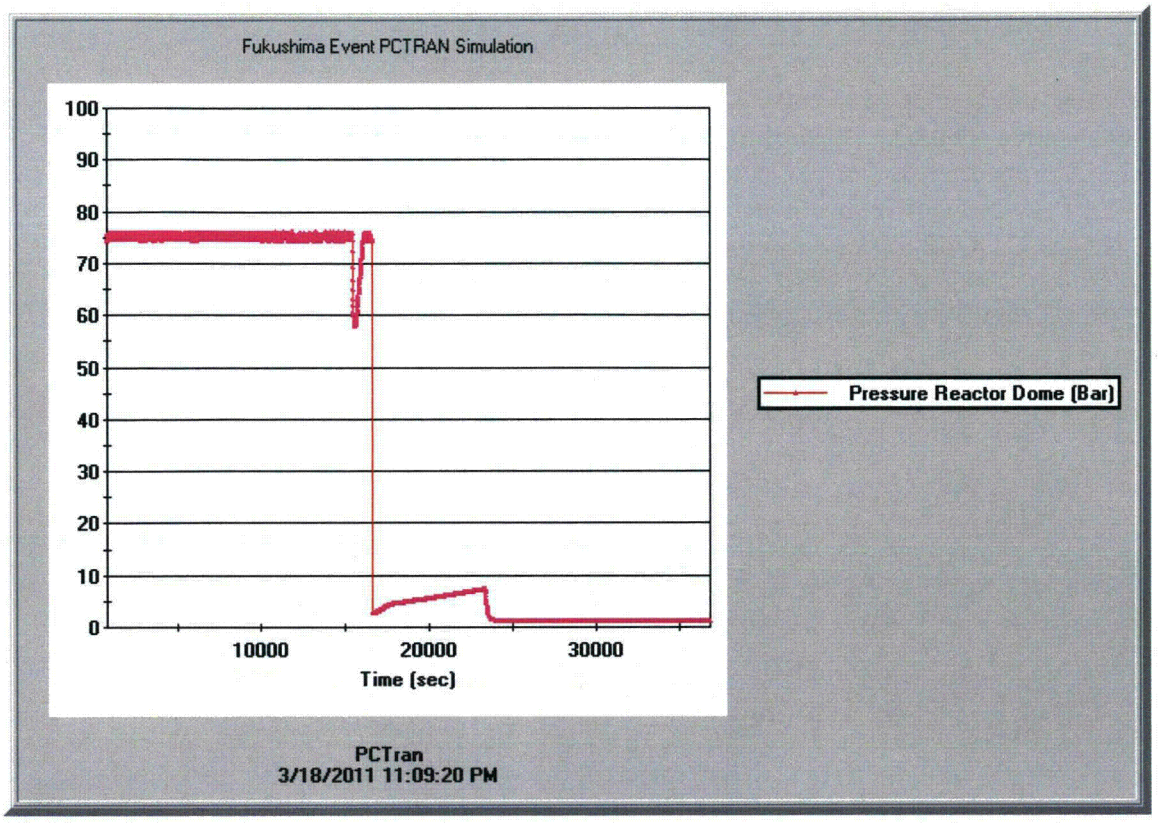


Fig. 3 Reactor dome pressure vs. time

The reactor dome pressure cycles around the SRV's set point by discharge the steam into the suppression pool. The operator decided to depressurize the vessel about 17,000 seconds prior to its failure.

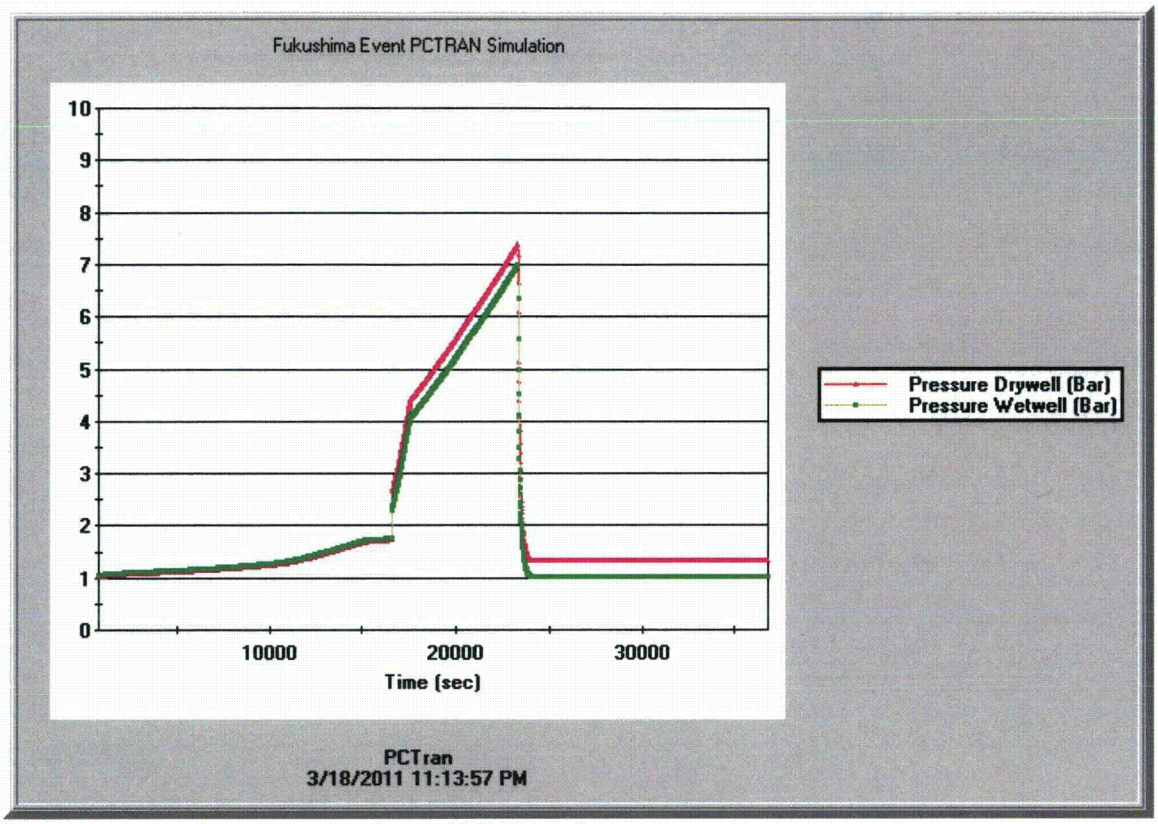


Fig. 4 Containment pressure vs. time

The drywell and suppression pool pressures increased gradually due to SRV discharge. At 17,000 seconds when operators decided to depressurize, the containment pressure surged above its design (about 4 atm) and failed at about 7 atm.

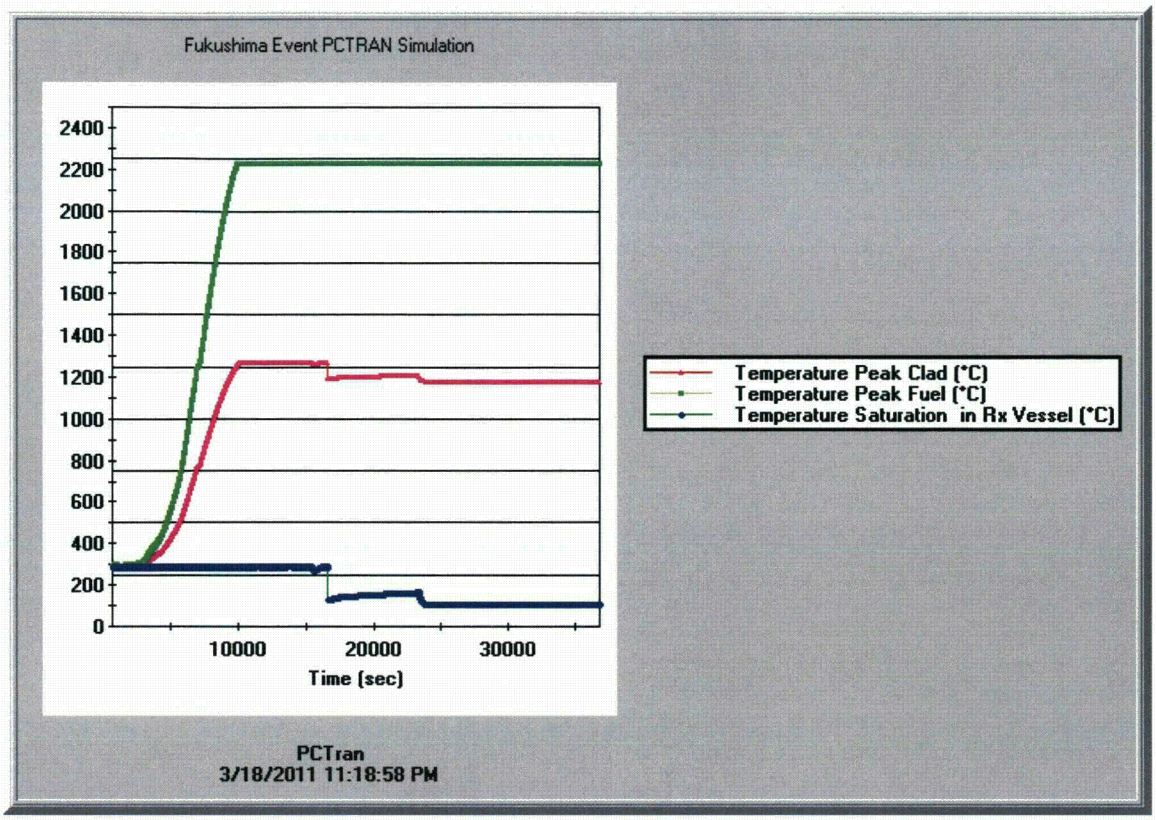


Fig. 5 Fuel and clad temperatures vs. time

The fuel was exposed around 3,000 seconds into the event. Temperatures of the fuel and cladding increased rapidly to the melting point in about 10,000 seconds.

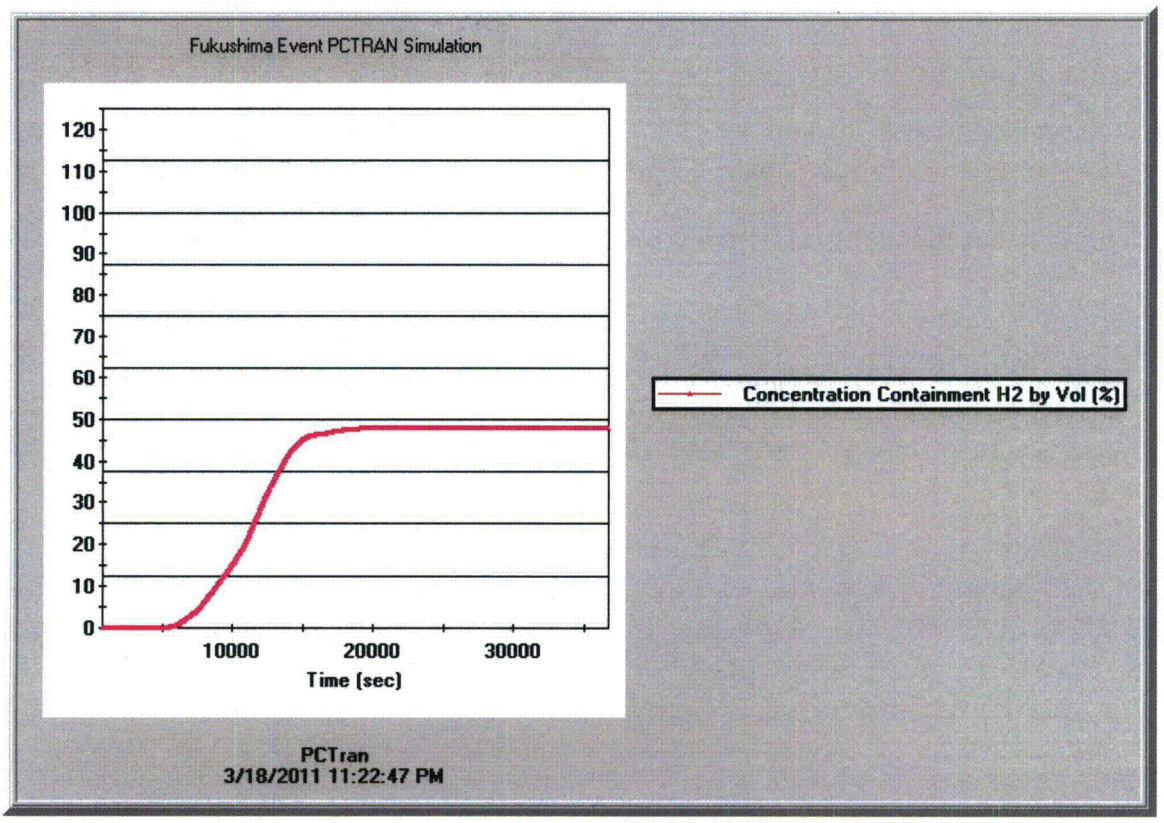


Fig. 6 Hydrogen concentration in the containment

Hydrogen was generated when the cladding temperature exceeded 900°C. It reached a maximum at about 15,000 seconds. Its leakage into the reactor building caused explosions in all four units.

3. Station Blackout for PWR

An immediate question is whether a PWR is more resilient to an earthquake/blackout than a BWR. By using our PCTRAN PWR models it is quantitatively analyzed in great details. We may conclude an affirmative "yes" - but not by much - just buy you a few more hours to resume onsite power supply. After that the consequence is the same.

PWR has its own steam generator secondary water inventory. It provides a heat sink for the core decay heat from about 30 minutes to a couple hours. PWR containment is in average four times larger than a BWR's; so that after emergency depressurization of the primary coolant system, the containment is less likely to elevate to its breach level.

This does not mean all PWR's are safe enough and nothing should be further examined. Close review and inspection of all passive and active emergency systems are still necessary.

4. Impact to Spent Fuel Pool

Another significant event is loss of cooling/coolant at Fukushima Unit 4's spent fuel pool that has caused clad oxidation and radiological release. Micro-Simulation has another simulation product "**SFP**". Since 2004 we have advocated that spent fuel pool safety was overlooked and an independent hardened cooling system is necessary. Unfortunately what happened at Fukushima Unit 4 on March 18 has proven our points.

Shown below is SFP software's main mimic during normal operation. The pool is filled with freshly unloaded and previous cycles' discharged fuels. Their combined decay heat is removed by the cooling systems.

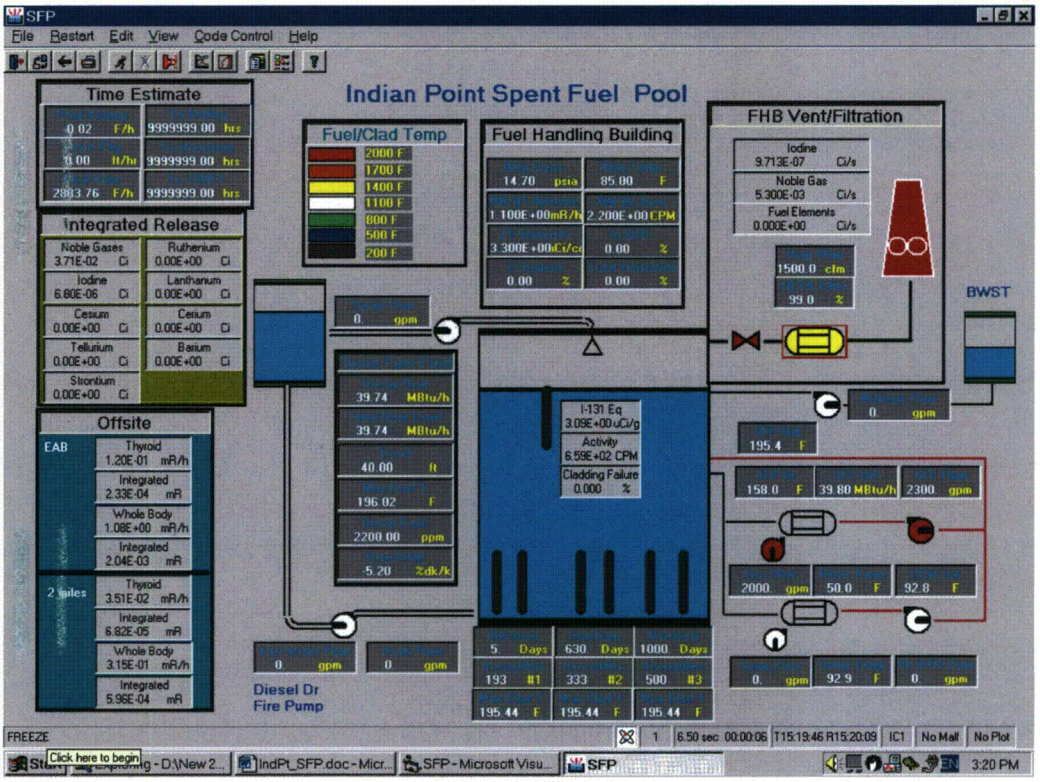


Fig 7 Spent Fuel Pool accident Simulator – Note, a supplement pool spray system on top of the pool was advocated by MST since 2004

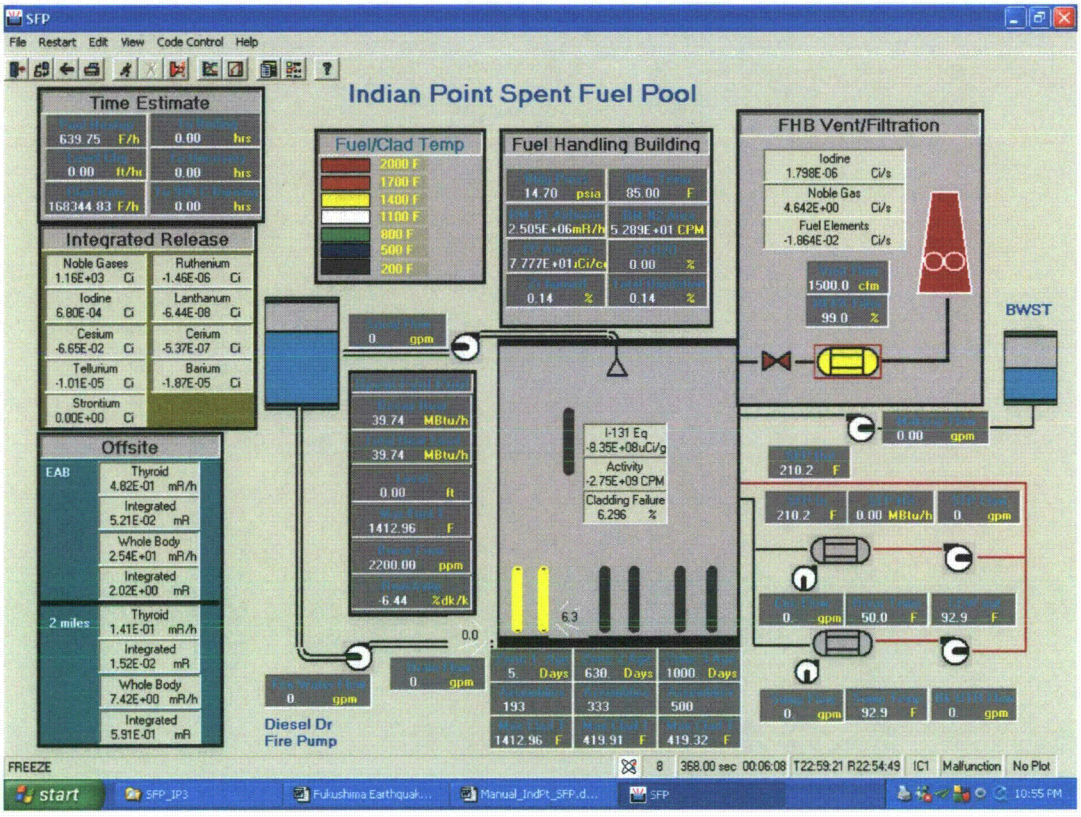
Upon a loss of cooling or coolant event, the pool may heat up to boiling. Continued boiling exposes top of the fuels. Heatup of the exposed fuel may turn into cladding oxidation and radiological gas release. Scale of a pool's radiological inventory could be even more serious than a plant's, because a pool contains much more assemblies than a core.

Since cracks can be developed at bottom of the pool – especially for Mark I and II containment the pool is located high above ground. A supplemental system should be a spray from atop of the pool with its own water storage and lines for outside makeup. Its

piping and power supply should be independent and hardened to assure effectiveness in adversity. Having this you would never need helicopters or fire engines.

So, one of the lessons learned from Fukushima spent fuel pool release is:

<u>Every nuclear power plant in the world (both PWR and BWR) should add a hardened spray cooling system.</u>



6. Conclusion and Recommendations

The Fukushima event was unprecedented because it exceeded historical maximum for earth quake. The succeeding tsunami aggregated the damage that knocked out crucial piping of passive emergency cooling systems and disabled all diesel generators. Given the initiating conditions PCTRAN is able to reproduce the plant behavior and radiological consequence.

PWR is more resilient than BWR because of its steam generator secondary water inventory and size of containment. This gives larger margin to core damage and containment failure. Further review is still necessary to improve safety level.

Spent fuel pool safety has been overlooked. A hardened and independent top spray system is necessary for all nuclear power plants.

Cheok, Michael

From: LIA01 Hoc
Sent: Sunday, March 20, 2011 9:15 AM
To: Andersen, James; Bates, Andrew; Brenner, Eliot; Bubar, Patrice; Camper, Larry; Castleman, Patrick; Chandrathil, Prema; Cheok, Michael; Dembek, Stephen; Doane, Margaret; Dricks, Victor; Franovich, Mike; Gott, William; Haney, Catherine; Hannah, Roger; Hart, Ken; Hayden, Elizabeth; Hipschman, Thomas; Howell, Linda; Jackson, Donald; Ledford, Joey; Lewis, Robert; Mamish, Nader; Marshall, Michael; Maupin, Cardelia; McConnell, Keith; Miller, Charles; Mitlyng, Viktoria; Moore, Scott; Nease, Rebecca; Nieh, Ho; Orders, William; Powell, Amy; Ramsey, Jack; Reddick, Darani; Reis, Terrence; Riemer, Kenneth; Screnci, Diane; Sheehan, Neil; Snodderly, Michael; Sollenberger, Dennis; Sosa, Belkys; Tschiltz, Michael; Uselding, Lara; Vietti-Cook, Annette; Whitney, James; McKenney, Christepher
Subject: Info from CA Briefing 20 March 2011
Attachments: March 20 one pager.doc

BH/23

Laur, Steven

From: Nguyen, Quynh
Sent: Monday, March 21, 2011 10:30 AM
To: Bahadur, Sher; Blount, Tom; Brown, Frederick; Cheok, Michael; Evans, Michele; Galloway, Melanie; Giitter, Joseph; Givvines, Mary; Hiland, Patrick; Holian, Brian; Howe, Allen; Lee, Samson; Lubinski, John; Lund, Louise; McGinty, Tim; Nelson, Robert; Quay, Theodore; Ruland, William; Skeen, David; Thomas, Brian; Westreich, Barry
Cc: Leeds, Eric; Grobe, Jack; Boger, Bruce
Subject: IN 2011-05 (ML110760432) ... It's the IN regarding the Earthquake.
Attachments: SecureZIP Attachments.zip

Importance: High

It's the IN regarding the Earthquake.

From: RidsNrrOd Resource
Sent: Monday, March 21, 2011 10:03 AM
To: Meighan, Sean
Cc: Nguyen, Quynh
Subject: FW: IN 2011-05 (ML110760432)
Importance: High

From: Hawes, Cathy
Sent: Friday, March 18, 2011 4:56 PM
To: Albert, Ronald; Beaulieu, David; Blount, Tom; Foster, Jack; Furst, David; Gray, Kathy; Hawes, Cathy; Laura, Richard; Markley, Anthony; McGinty, Tim; Murphy, Martin; OGCMailCenter Resource; Peduzzi, Francis; Quay, Theodore; RidsEdoMailCenter Resource; RidsFsmeOd Resource; RidsNmssOd Resource; RidsNrrAdes Resource; RidsNrrAdro Resource; RidsNrrDpr Resource; RidsNrrMailCenter Resource; RidsNrrOd Resource; RidsOcaaMailCenter Resource; RidsOpaMail Resource; RidsRgn1MailCenter Resource; RidsRgn2MailCenter Resource; RidsRgn3MailCenter Resource; RidsRgn4MailCenter Resource; Rini, Brett; Stuchell, Sheldon; Tabatabai, Omid
Subject: IN 2011-05 (ML110760432)
Importance: High

Attached is NRC Information Notice 2011-05: Tohoku-Taiheiyou-Oki Earthquake Effects on Japanese Nuclear Power Plants, dated March 18, 2011.
This IN can also be found in ADAMs under Accession No. ML110760432

BH/24

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, DC 20555-0001

March 18, 2011

NRC INFORMATION NOTICE 2011-05: TOHOKU-TAIHEIYOU-OKI EARTHQUAKE EFFECTS ON JAPANESE NUCLEAR POWER PLANTS

ADDRESSEES

All holders of or applicants for operating licenses for nuclear power reactors under the provision of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

All holders of or applicants for a standard design certification, standard design approval, manufacturing license, limited work authorization, early site permits or combined license issued under 10 CFR Part 52, "Licenses, Certifications and Approvals for Nuclear Power Plants."

PURPOSE

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice (IN) to inform addressees of effects of the Tohoku-Taiheiyou-Oki Earthquake on nuclear power plants in Japan. The NRC expects that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. Suggestions contained in this IN are not NRC requirements; therefore, no specific action or written response is required.

DESCRIPTION OF CIRCUMSTANCES

The following summary of events is provided based on the best information available at this time. The situation in Japan regarding recovery efforts for the Fukushima Daiichi Nuclear Power Station continues to evolve on an hourly basis.

On March 11, 2011, the Tohoku-Taiheiyou-Oki Earthquake occurred near the east coast of Honshu, Japan. This magnitude 9.0 earthquake and the subsequent tsunami caused significant damage to at least four of the six units of the Fukushima Daiichi nuclear power station as the result of a sustained loss of both the offsite and on-site power systems. Efforts to restore power to emergency equipment have been hampered or impeded by damage to the surrounding areas due to the tsunami and earthquake.

ML110760432

Units 1 through 3, which had been operating at the time of the earthquake, scrammed automatically, inserting their neutron absorbing control rods to ensure immediate shutdown of the fission process. Following the loss of electric power to normal and emergency core cooling systems and the subsequent failure of back-up decay heat removal systems, water injection into the cores of all three reactors was compromised, and reactor water levels could not be maintained. Tokyo Electric Power Company (TEPCO), the operator of the plant, resorted to injecting sea water and boric acid into the reactor vessels of these three units, in an effort to cool the fuel and ensure the reactors remained shutdown. However, the fuel in the reactor cores became partially uncovered. Hydrogen gas built up in Units 1 and 3 as a result of exposed, overheated fuel reacting with water. Following gas venting from the primary containment to relieve pressure, hydrogen explosions occurred in both units and damaged the secondary containments. It appears that primary containments for Units 1 and 3 remain functional, but the primary containment for Unit 2 may be damaged. TEPCO cut a hole in the side of the Unit 2 secondary containment to prevent hydrogen buildup following a sustained period when there was no water injection into the core.

In addition, Units 3 and 4 have low spent fuel pool (SFP) water levels. Efforts continue to supply seawater to the SFPs for Units 1 through 4 using various methods. At this time, the integrity of the SFPs for Units 3 and 4 is unknown.

Fukushima Daiichi Units 4 through 6 were shutdown for refueling outages at the time of the earthquake. The fuel assemblies for Unit 4 had been offloaded from the reactor core to the SFP. The SFPs for Units 5 and 6 appear to be intact, but the temperature of the pool water appears to be increasing. Emergency power is available to provide cooling water flow through the SFPs for Units 5 and 6.

The Japanese Government ordered an evacuation out to 20 km for the area surrounding Fukushima Daiichi. Residents out to 30 km were ordered to shelter in place.

The damage to Fukushima Daiichi nuclear power station appears to have been caused by initiating events outside of the design basis for the facilities.

BACKGROUND

10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," General Design Criterion (GDC) 2, "Design Bases for Protection against Natural Phenomena," or similar appropriate requirements in the licensing basis for a reactor facility, requires that structures, systems, and components (SSCs) important to safety be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions. The design bases for these SSCs reflect: (1) appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, (2) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena, and (3) the importance of the safety functions to be performed.

As a result of the terrorist events of September 11, 2001, the NRC issued EA-02-026, "Order for Interim Safeguards and Security Compensatory Measures" (the ICM Order) dated February 25, 2002. The ICM Order, which is designated as Safeguards Information (SGI), modified then-operating licenses for commercial power reactor facilities to require compliance with specified interim safeguards and security compensatory measures. Section B.5.b of the ICM Order requires licensees to adopt mitigation strategies using readily available resources to maintain or restore core cooling, containment, and SFP cooling capabilities to cope with the loss of large areas of the facility due to large fires and explosions from any cause, including beyond-design-basis aircraft impacts.

By letter, dated February 25, 2005, the NRC staff provided guidance for implementing Section B.5.b of the ICM Order. This guidance, designated as SGI, included best practices for mitigating losses of large areas of the plant and measures to mitigate fuel damage and minimize releases. Following issuance of the B.5.b Phase 1 Guidance, the NRC staff conducted inspections at operating reactor sites using Temporary Instruction (TI) 2515/164 (SGI) and subsequently TI 2515/168 (SGI) to ensure compliance with Section B.5.b of the ICM Order.

In December 2006, the Nuclear Energy Institute (NEI) issued NEI 06-12, Revision 2, "B.5.b Phase 2 & 3 Submittal Guideline." NEI 06-12 is designated for Official Use Only – Security Related Information (OUO-SRI). The NRC endorsed NEI 06-12, Revision 2, by letter dated December 22, 2006, also designated OUO-SRI, as an acceptable means for developing and implementing the mitigation strategies requirement in Section B.5.b of the ICM Order. NEI 06-12, Revision 2, provides guidance for implementing a set of strategies intended to maintain or restore core cooling, containment, and SFP cooling capabilities under the circumstances associated with the loss of a large area of the plant due to explosions or fire. NEI 06-12 provides guidance in the following areas:

- Adding make-up water to the SFP,
- Spraying water on the spent fuel,
- Enhanced initial command and control activities for challenges to core cooling and containment, and
- Enhanced response strategies for challenges to core cooling and containment.

The specific strategies covered in NEI 06-12, Revision 2, were developed based on the results of assessments conducted at currently licensed power reactor facilities for the purpose of enhancing plant specific mitigation capability for damage conditions caused by a large explosion or fire. These assessments identified a wide spectrum of potential plant specific strategies. NEI 06-12, Revision 2, specifies one set of strategies applicable to all pressurized-water reactors and another set applicable to all boiling-water reactors. Both sets are derived from the results of the plant specific assessments.

The B.5.b Phase 1 Guidance and NEI 06-12, Revision 2, were used by each licensee in preparing information submitted to the NRC that describes a plant specific approach to implementing mitigating strategies and supports each plant specific license condition. The NRC staff has completed its review of the information submitted by each licensee, as well as information obtained during prior NRC inspections, and has issued an OUO-SRI safety

evaluation (SE) that documents the bases for its approval of the license condition for each facility. The SE issued for each licensee includes regulatory guidance in Section 3.0 of Appendix A, "Phase 1 Assessment," that recites the generic B.5.b Phase 1 Guidance of Reference 3, as clarified in TI 2515/168, in a form that is designated OUO-SRI rather than SGI.

By publishing new requirements in the *Federal Register* dated March 27, 2009 (74 FR 13926), the NRC amended 10 CFR Part 50, 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," and 10 CFR Part 73, "Physical Protection of Plants and Materials." This rulemaking added paragraph (i) to 10 CFR 50.34, "Contents of Applications; Technical Information," and paragraph (d) to 10 CFR 52.80 " Contents of Applications; Additional Technical Information," to require submittal of a "description and plans for implementation of the guidance and strategies intended to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities under the circumstances associated with the loss of large areas of the plant due to explosions or fire as required by § 50.54(hh)(2) of this chapter." This rulemaking also added 10 CFR 50.54(hh)(2) to impose the same mitigating strategies requirements on all reactor applicants and licensees as those imposed by the ICM Order and associated license conditions. The Statement of Considerations for this rulemaking specifically noted that the requirements in 10 CFR 50.54(hh) are intended to address certain events that are the cause of large fires and explosions that affect a substantial portion of the nuclear power plant and are not limited or directly linked to an aircraft impact. In addition, the rule contemplates that the initiating event for such large fires and explosions could be any number of beyond-design basis events. Such events include natural phenomena such as those described in GDC 2 (i.e., earthquakes, tornadoes, floods, tsunami, and seiches), without regard to the GDC 2 provisions governing the severity of natural phenomena.

NRC regulations at 10 CFR 50.63, "Loss of All Alternating Current Power," require that light-water-cooled nuclear power plants be capable of withstanding for a specified duration and recovering from a station blackout.

DISCUSSION

The nuclear power industry has taken the actions listed below at each licensed reactor site. Additional information is available in the NEI Fact Sheet, "Industry Taking Action to Ensure Continued Safety at U.S. Nuclear Energy Plants," dated March 16, 2011, available at www.nei.org.

1. verification of the capability to mitigate conditions that result from severe adverse events, including the loss of significant operational and safety systems due to natural events, fires, aircraft impact and explosions
2. verification of the capability to mitigate a total loss of electric power to a nuclear power plant
3. verification of the capability to mitigate flooding and the impact of floods on systems inside and outside the plant
4. identification of the potential for loss of equipment functions during seismic events appropriate for the site and the development of mitigating strategies to address potential vulnerabilities

NRC assessment of the implications of beyond design-basis natural phenomena is continuing as more information becomes available. The NRC staff is currently developing a TI to guide staff in performing independent assessments of nuclear power plant readiness to address beyond design-basis natural phenomena under the Reactor Oversight Process. The NRC is considering additional generic communications and additional action including requesting operating plants to provide specific information relating to their facilities to enable the NRC staff to complete a regulatory assessment of beyond design basis phenomena.

PAPERWORK REDUCTION ACT STATEMENT

This Information Notice does not contain any information collections and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.).

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid Office of Management and Budget control number.

CONTACTS

This information notice requires no specific action or written response. Please direct any questions about this matter to the technical contact listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

/RA/

Laura A. Dudes, Director
Division of Construction Inspection,
and Operational Programs
Office of New Reactors

/RA/

Timothy J. McGinty, Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Technical Contact: Eric E. Bowman, NRR
301-415-2963
e-mail: Eric.Bowman@nrc.gov

Note: NRC generic communications may be found on the NRC public Web site, http://www.nrc.gov, under Electronic Reading Room/Document Collections.

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/RA/
Laura A. Dudes, Director
Division of Construction Inspection,
and Operational Programs
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/RA/
Timothy J. McGinty, Director
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ADAMS Accession Number: ML110760432 * by e-mail

OFFICE	NRR/DPR/PGCB	TECH EDITOR*	NRR/DIRS/D*	NRR/DE/D*	NSIR/DSP*
NAME	EBowman	KAzariah-Kribbs	BWestreich	PHiland (GWilson for)	RCorreia
DATE	03/17/2011	03/17/2011	03/17/2011	03/17/2011	03/17/2011
OFFICE	NRO/DCIP/CAEB*	DPR/PGCB/LA	DPR/PGCB/BC	NRO/DCIP/D	NRR/DPR/D
NAME	TFrye	CHawes	SRosenberg	LDudes (MShuaibi for)	TMcGinty
DATE	03/18/2011	03/17/2011	03/17/2011	03/18/2011	03/18/2011

OFFICIAL RECORD COPY

Schaperow, Jason

From: Schaperow, Jason
Sent: Tuesday, March 22, 2011 1:28 PM
To: Ali, Syed
Subject: RE: Spent Fuel Pool Rack Layout

Anytime.

From: Ali, Syed
Sent: Tuesday, March 22, 2011 10:53 AM
To: Schaperow, Jason
Subject: RE: Spent Fuel Pool Rack Layout

Jason:

Thanks for your help. I appreciate it.

Thanks,
Syed Ali

From: Schaperow, Jason
Sent: Tuesday, March 22, 2011 10:44 AM
To: Ali, Syed
Cc: kcw@dycoda.com
Subject: FW: Spent Fuel Pool Rack Layout

Syed,

Here is the rack layout for Peach Bottom unit 3.

From: Casey Wagner [mailto:kcw@dycoda.com]
Sent: Tuesday, March 22, 2011 10:34 AM
To: Schaperow, Jason
Subject: Spent Fuel Pool Rack Layout

BH/25

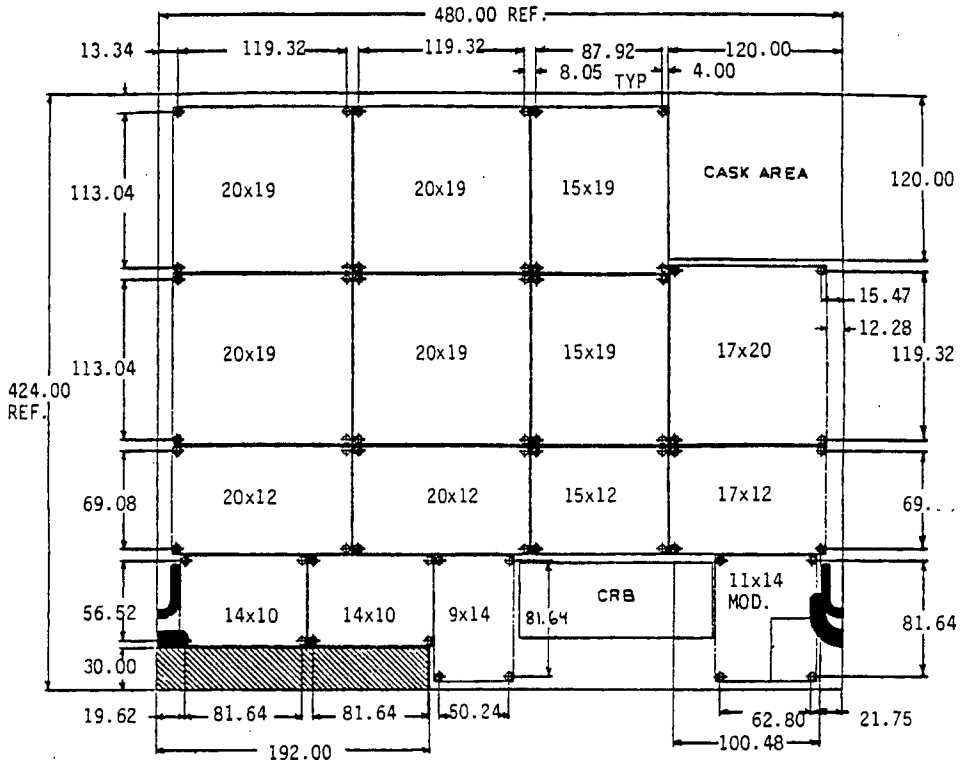


Figure 2.1 Spent Fuel Pool Rack Layout.

From: Sheron, Brian
To: Case, Michael; Richards, Stuart; Hogan, Rosemary; Kammerer, Annie
Subject: FW: tsunami hazard studies from TEPCO experts
Date: Tuesday, March 22, 2011 9:04:08 AM
Attachments: 1F_Tsunami_by_TSakai2010June.pdf

FYI.

From: Adams, Ian [mailto:Ian.Adams@Hq.Doe.Gov]
Sent: Tuesday, March 22, 2011 9:02 AM
To: Adams, Ian; Aoki, Steven; Binkley, Steve; Bob Budnitz; Sheron, Brian; Brinkman, Bill; DAgostino, Thomas; Dick Garwin; Dick Garwin; Finck, Phillip; Grossenbacher, John (INL); Hurlbut, Brandon; John Holdren; Kelly, John E (NE); Koonin, Steven; Lyons, Peter; McFarlane, Harold; Owens, Missy; Per Peterson; Poneman, Daniel; Rolando Szilard; Steve Fetter
Subject: FW: tsunami hazard studies from TEPCO experts

Attached is the first of 2 files send to the nuclear group via Bob Budnitz.

Thanks
Ian

From: Bob Budnitz [mailto:rjbudnitz@lbl.gov]
Sent: Tuesday, March 22, 2011 6:14 AM
To: Adams, Ian
Subject: tsunami hazard studies from TEPCO experts

TO: Ian Adams
FROM: Robert Budnitz (LBNL)

TSUNAMI HAZARD STUDIES FOR JAPAN AND SPECIFICALLY FOR FUKUSHIMA
[Ian, can you please distribute this to the science group? Thanks. Bob]

SENDING THE APPENDIX FILE FIRST. TWO TRIES NEEDED DUE TO LARGE FILES.

Dear Colleagues,

Dr. Antonio Godoy, a long-standing colleague and friend of mine, retired a few months ago from a post at the IAEA in Vienna were he was responsible for the program in seismic and tsunami hazards. In an email that I just received, and responding to my inquiry, Godoy explained to me that in May 2010 he sponsored an IAEA "Experts Meeting regarding the Site Selection and Evaluation for Philippines NPP" in Vienna. Two presentations at that meeting are directly relevant to the tsunami hazard at Fukushima, and the view graphs from both are attached here. Both are from experts at TEPCO, Drs. Takao and Sakai.

One of these presentations gives a general methodology overview, while the other is "Appendix A" and uses Fukushima as a case study.

There is a lot of jargon in these viewgraphs, which I am intimately familiar with but which some of our group may not be familiar with. Oh well .....

BH/26

I will try to see if any original papers exist to back up these slides, and if so whether they are available.

By the way, since his retirement Godoy has been rehired by the IAEA part-time, but has also set up a consulting practice in Vienna and in fact has done a small piece of consulting work for me at LBNL recently. He is also very close professionally to Annie Kammerer of the NRC staff, one of NRC's top seismic experts.

Bob Budnitz

Tsunami Assessment Method for NPP and Recent Studies

4

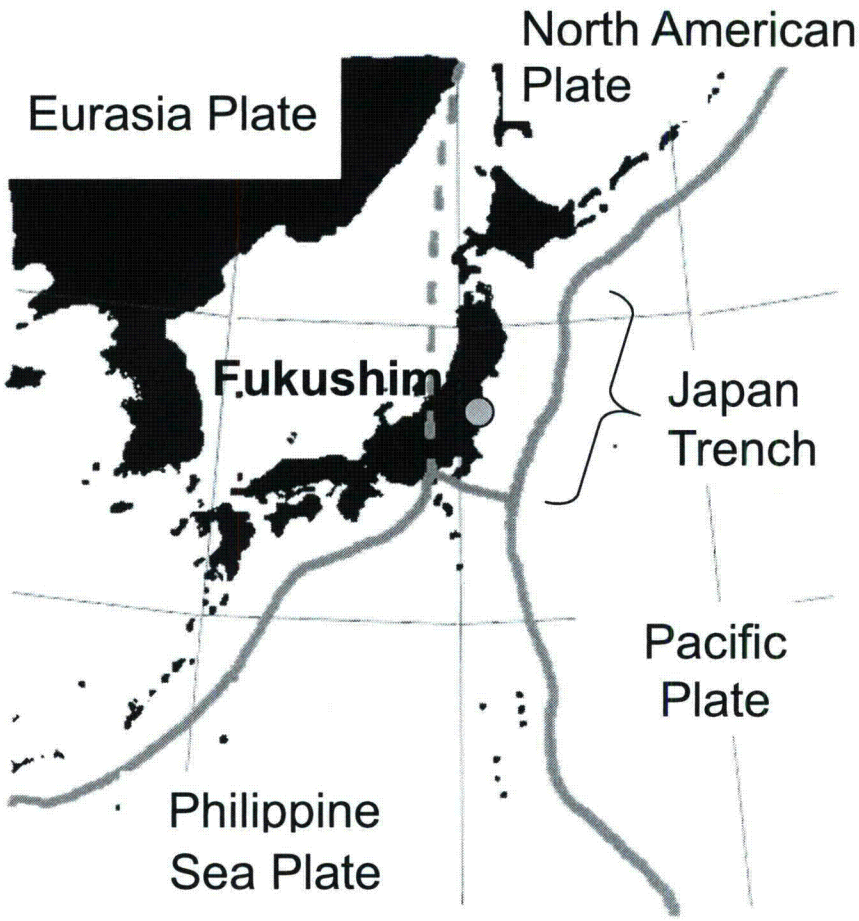
SAKAI, Toshiaki

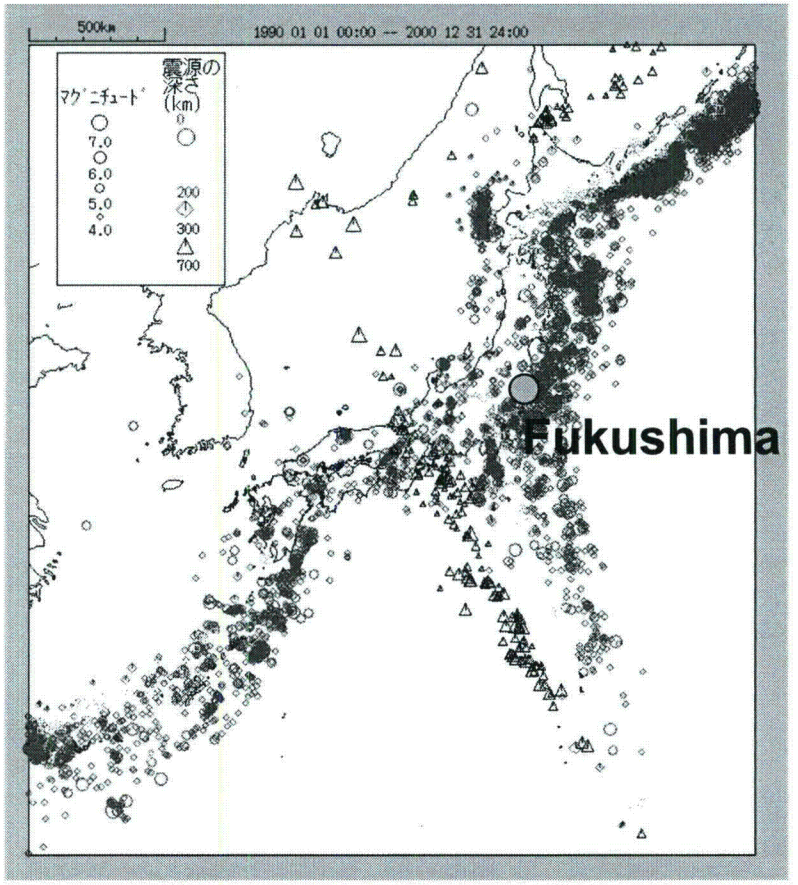
TEPCO TOKYO ELECTRIC POWER COMPANY

Appendix

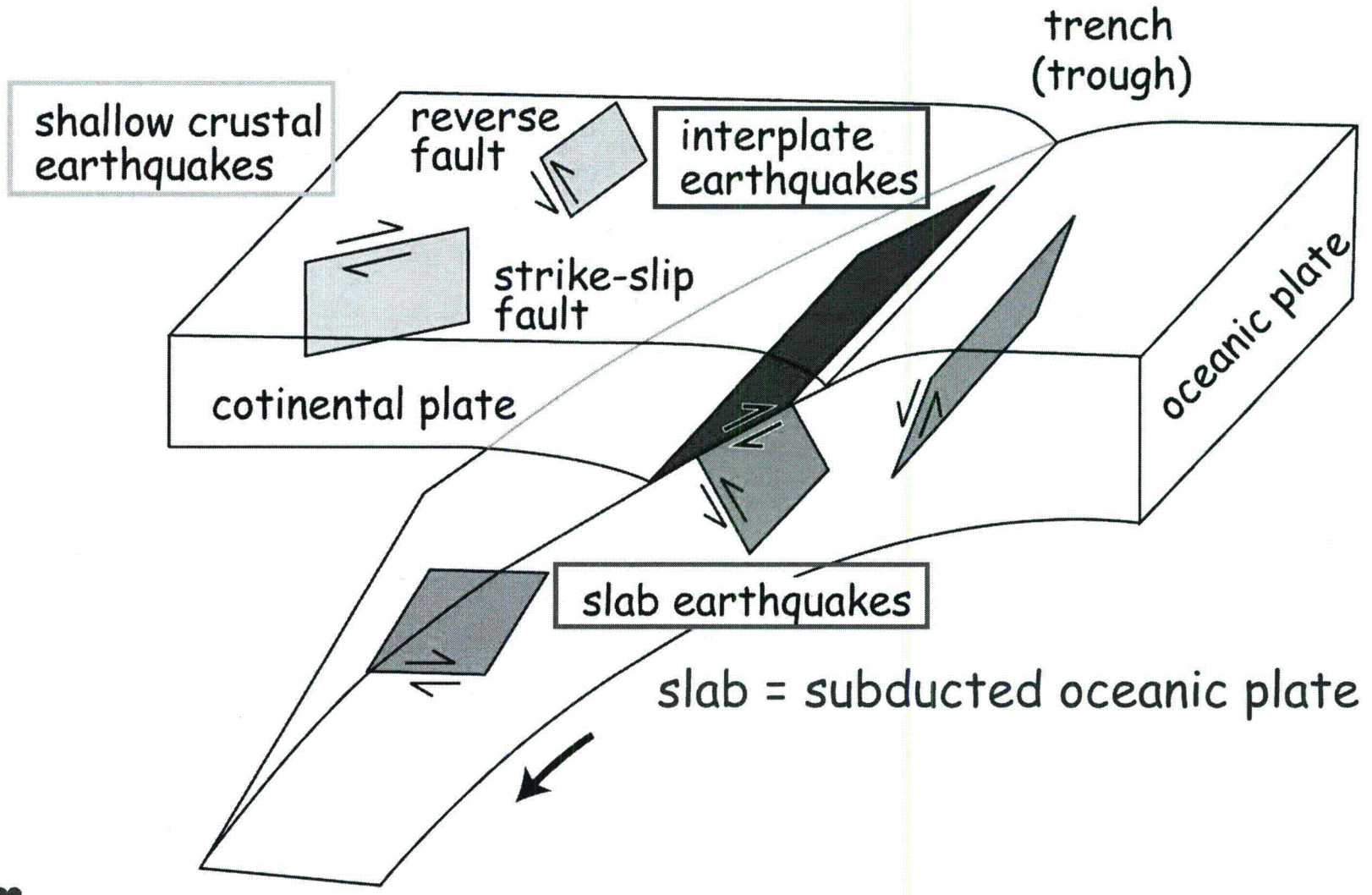
Fukushima case

A-2. Assessment example

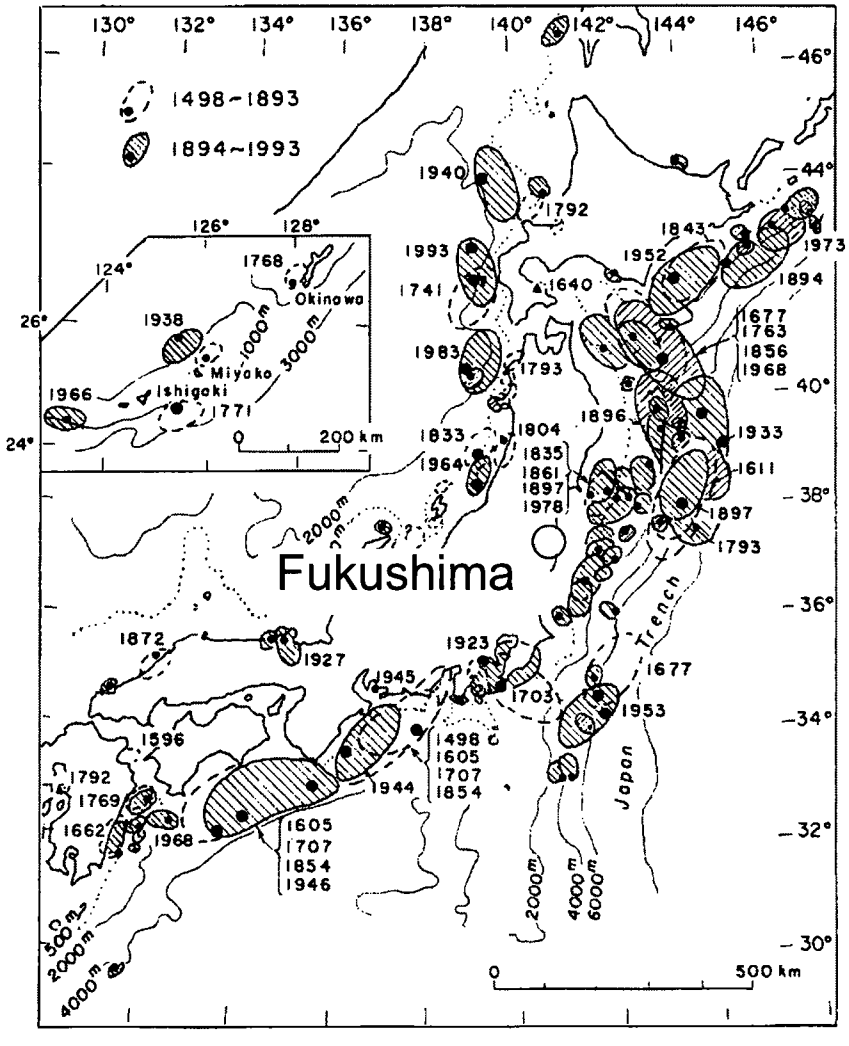




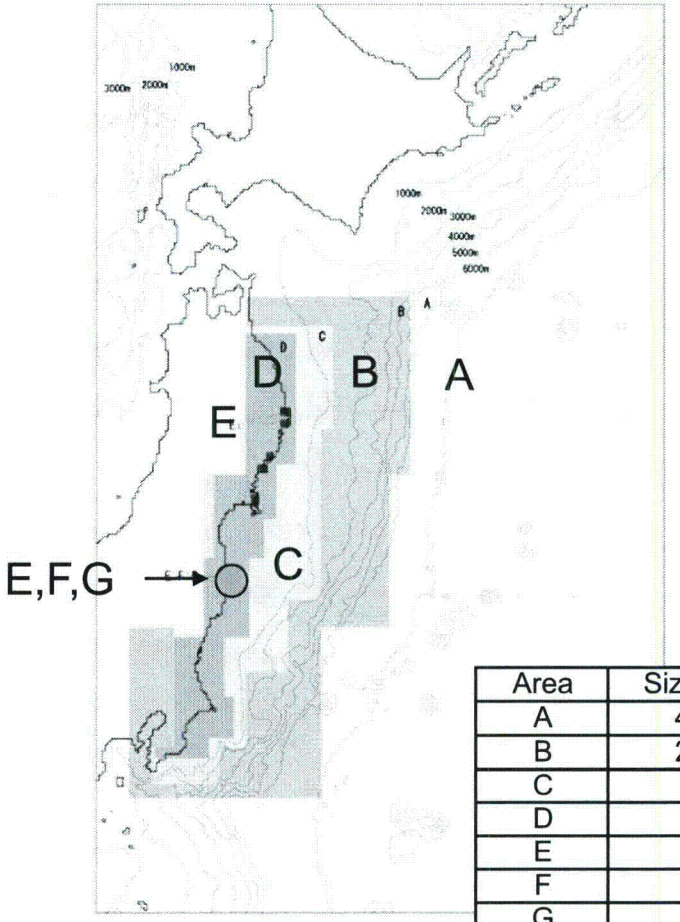
Earthquake types in and around Japan



Historical Tsunami at the Site



Numerical Model

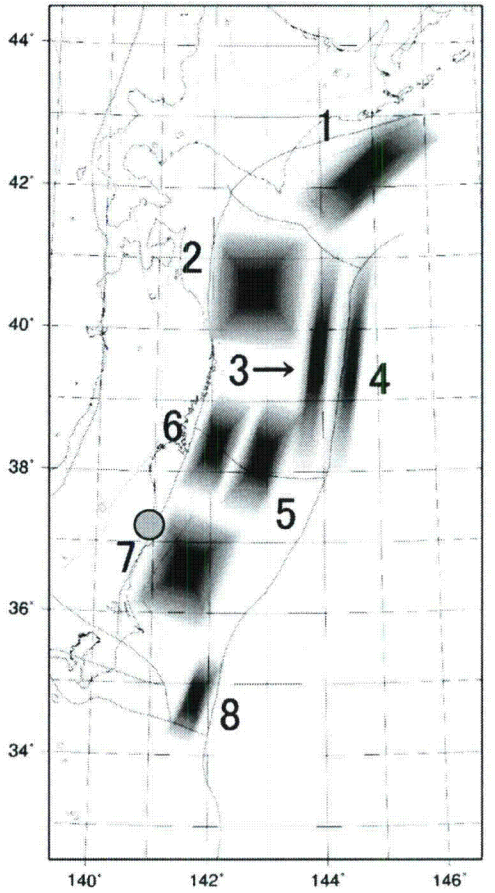


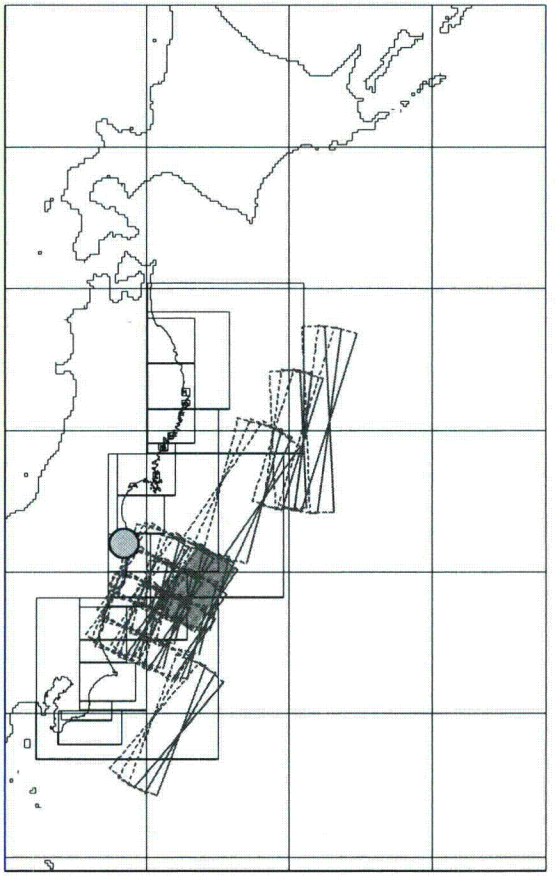
Area	Size of Grid
A	4320m
B	2160m
C	720m
D	240m
E	80m
F	40m
G	20m

Standard Fault Model and General parametric study stage

General parametric study stage

- location
- direction of fault

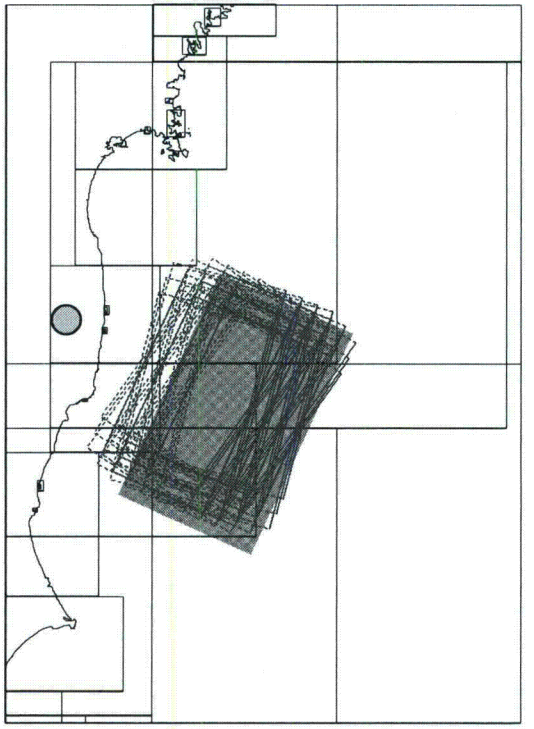




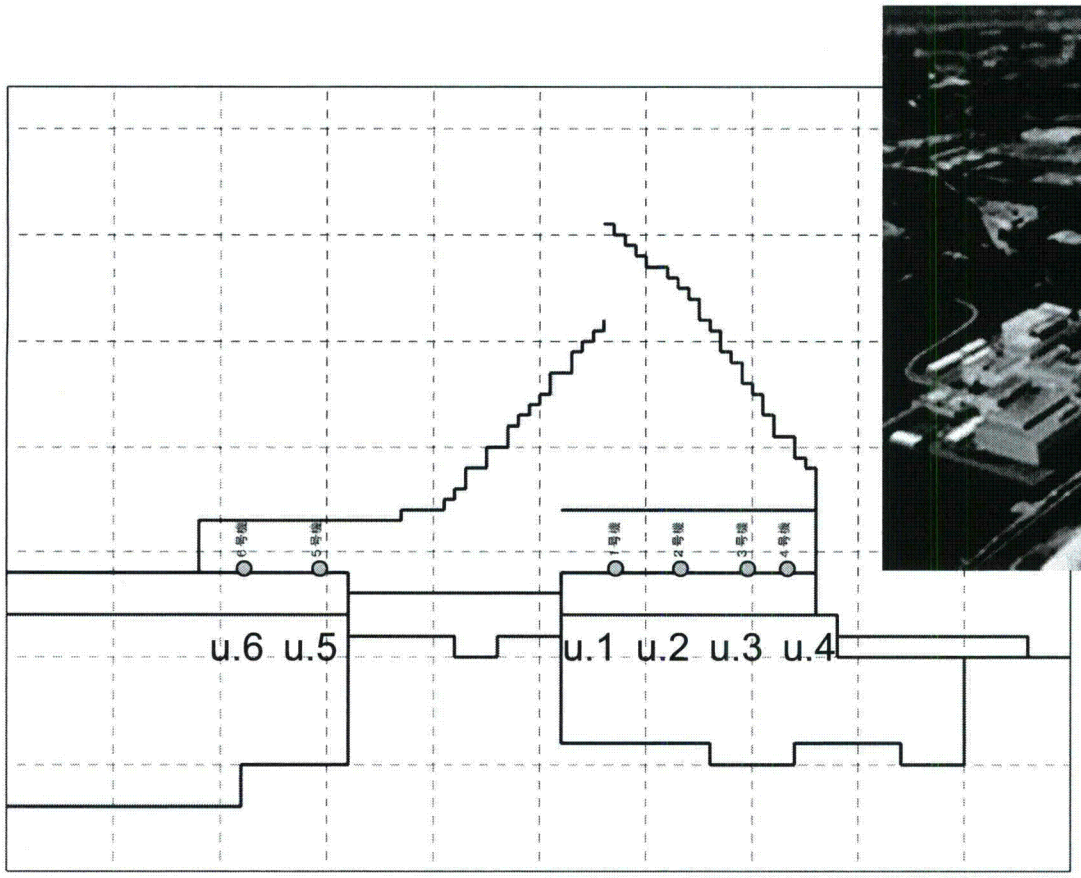
Detailed parametric study stage

Detailed parametric study stage

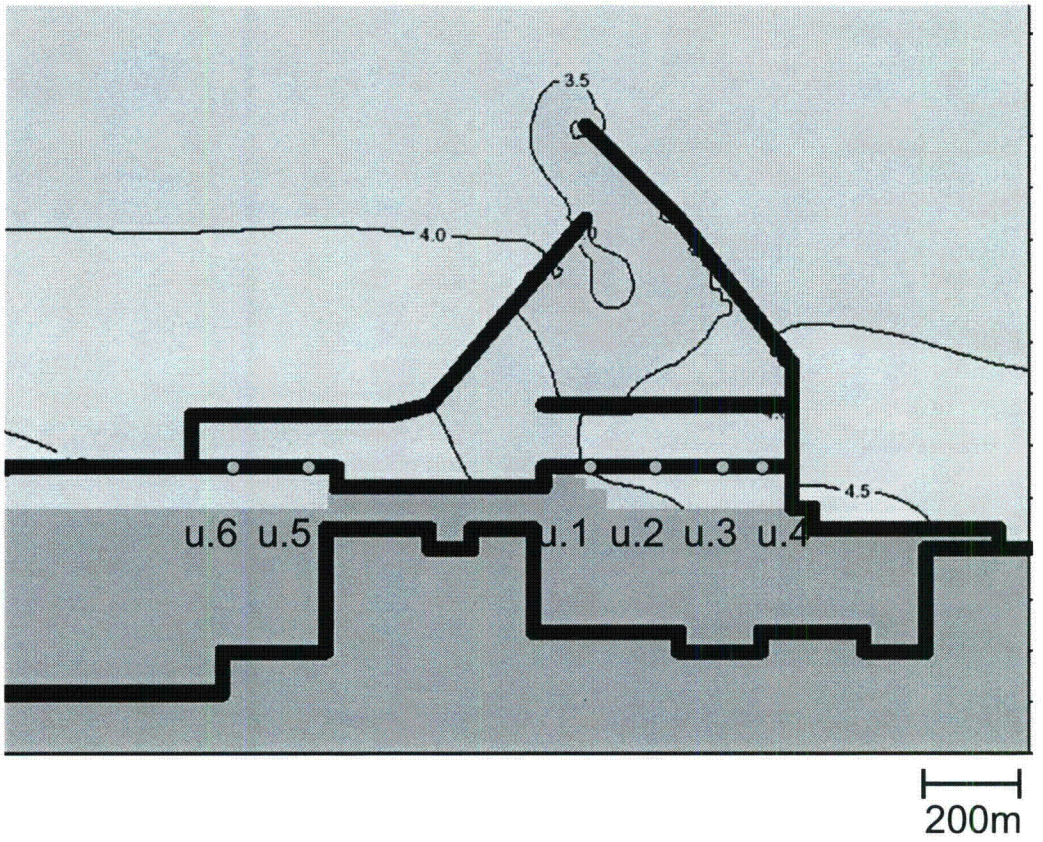
- location
- direction angle
- dip angle
- slip angle

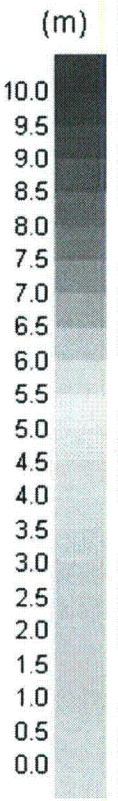


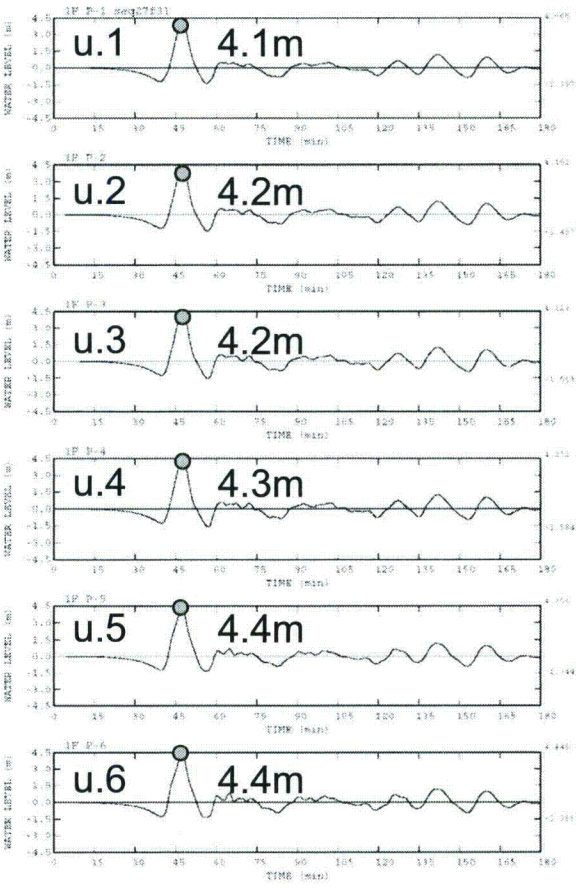
Location of Evaluation



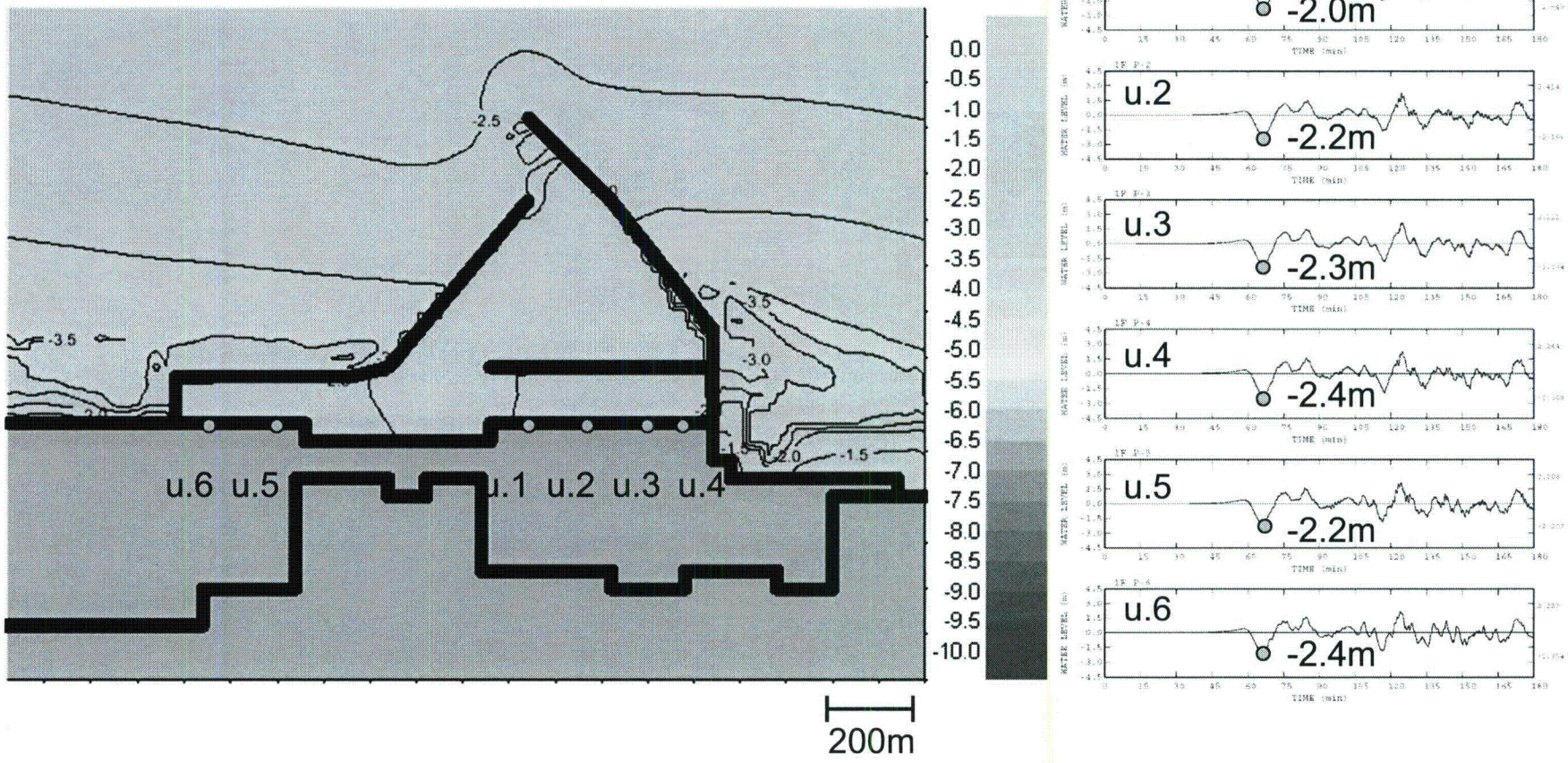
Maximum Water Level by Near Field Tsunami



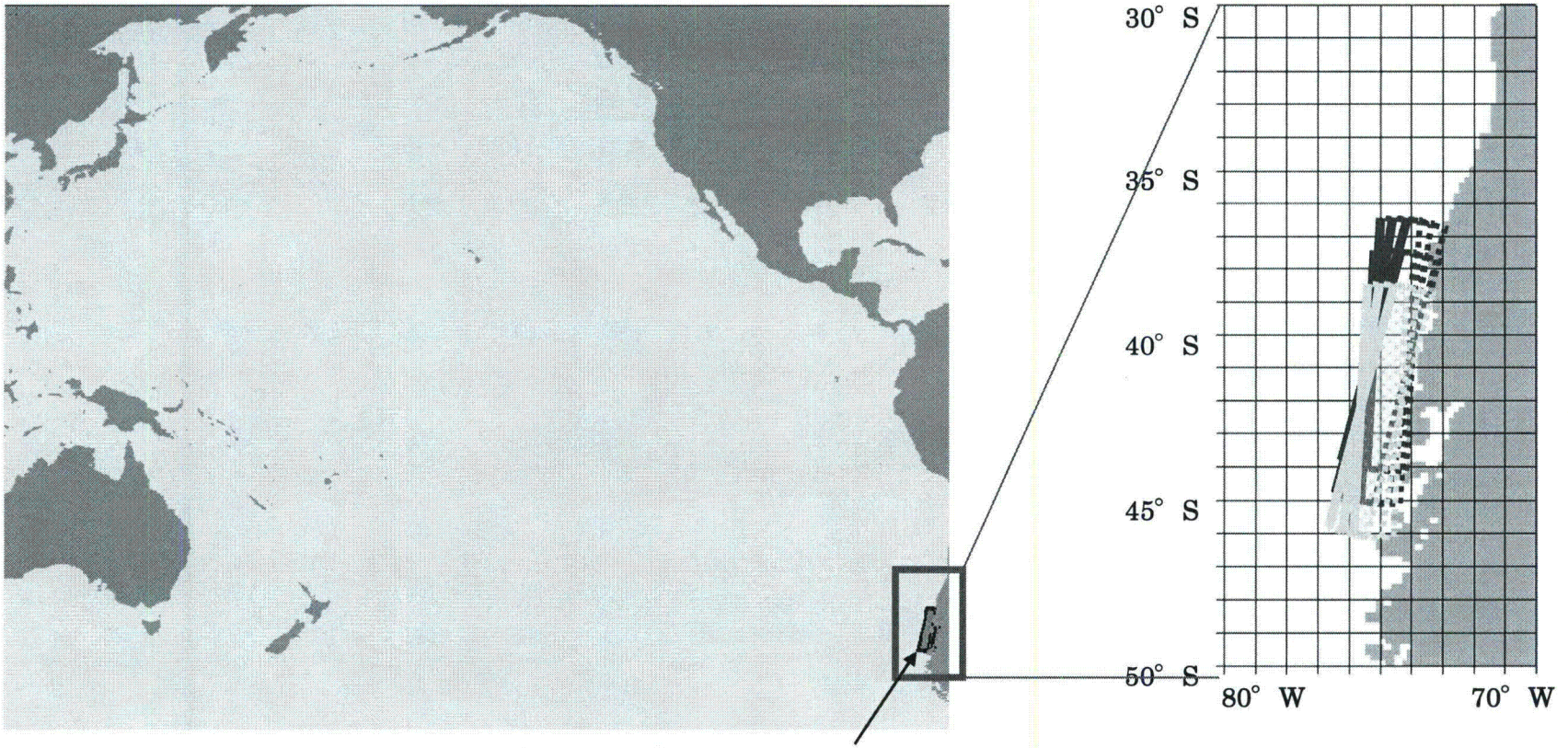




Minimum Water Level by Near Field Tsunami

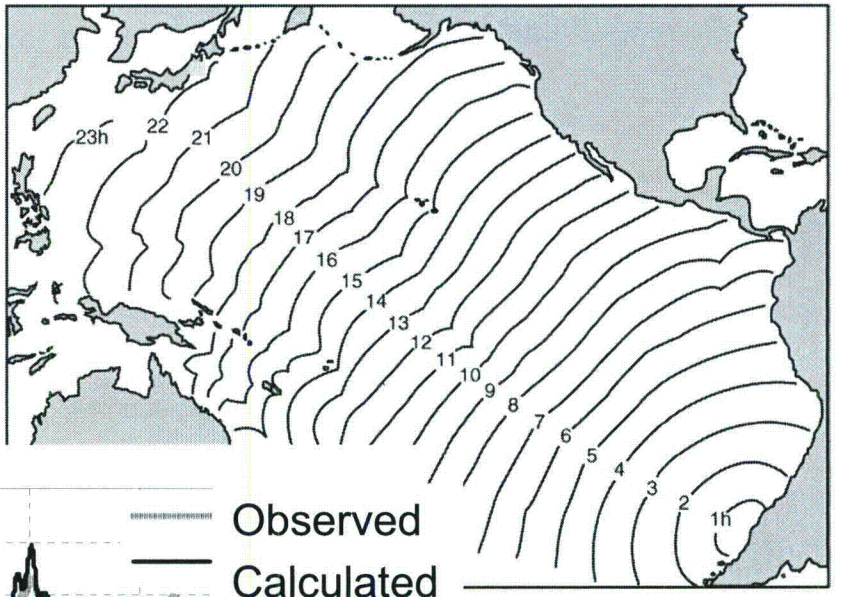


Tsunami Occurred the Area Far From Japan

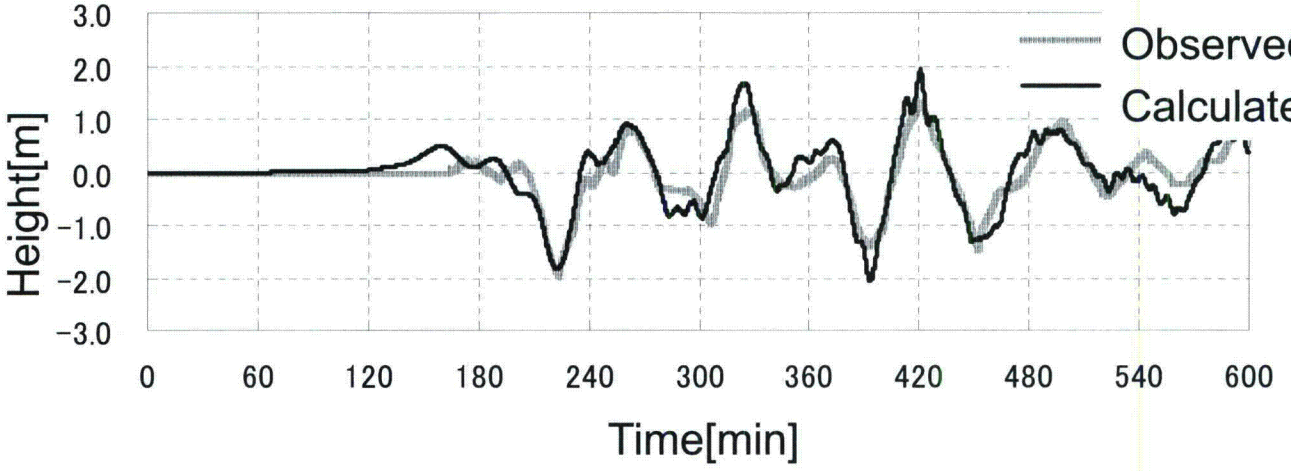


1960 Chilean earthquake

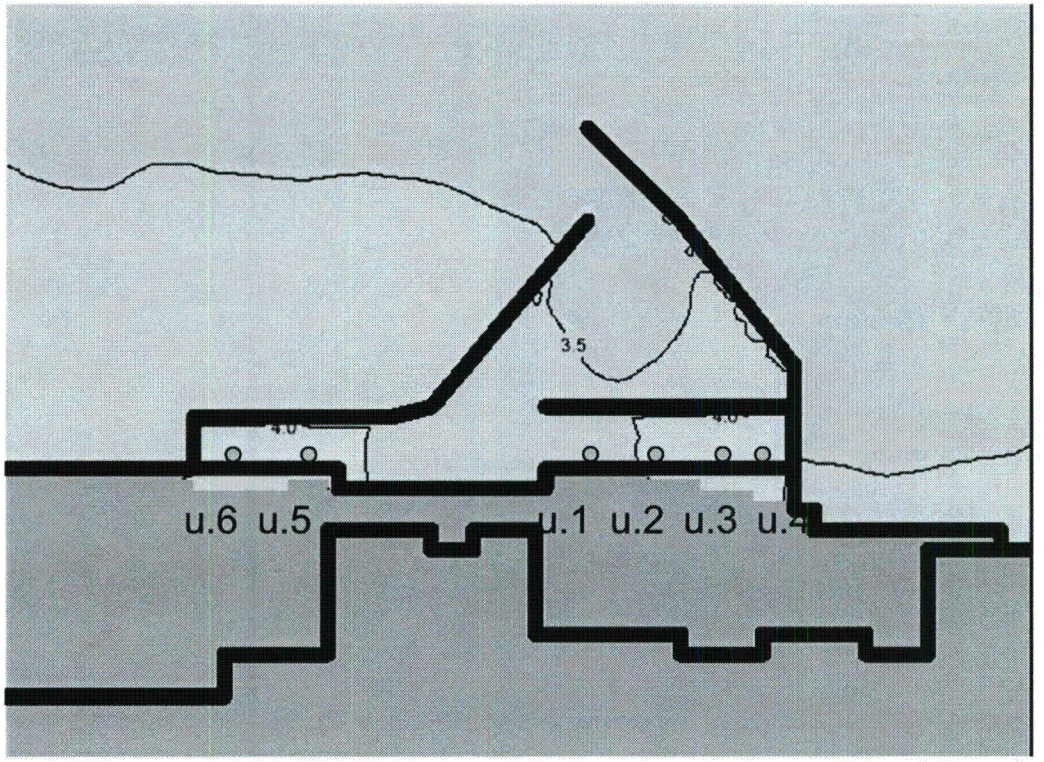
Tsunami Occurred the Area Far From Japan

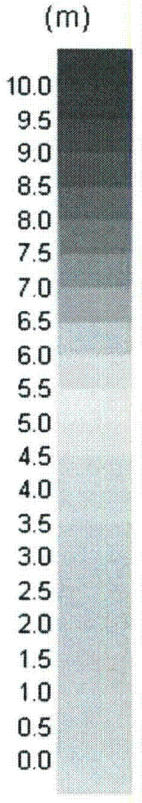


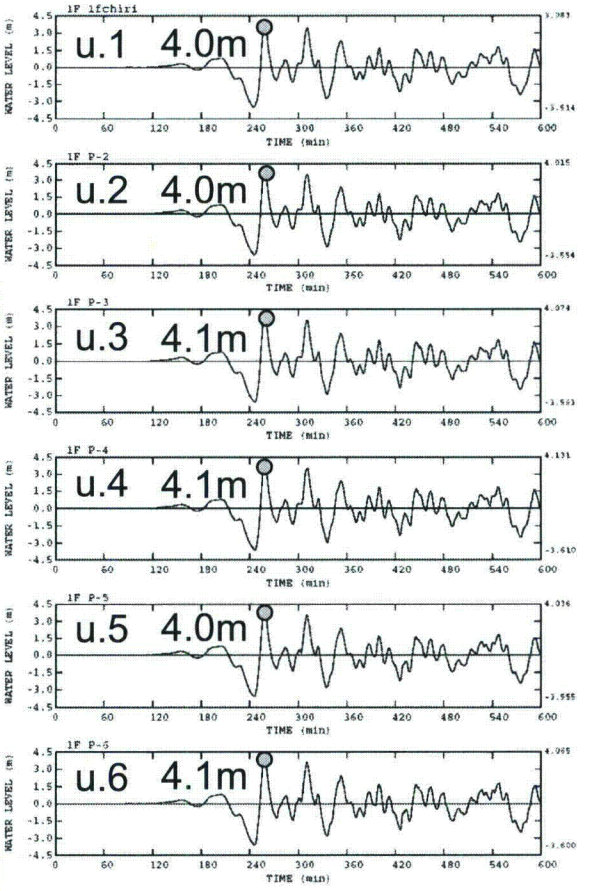
Tide record at Enoshima, Miyagi



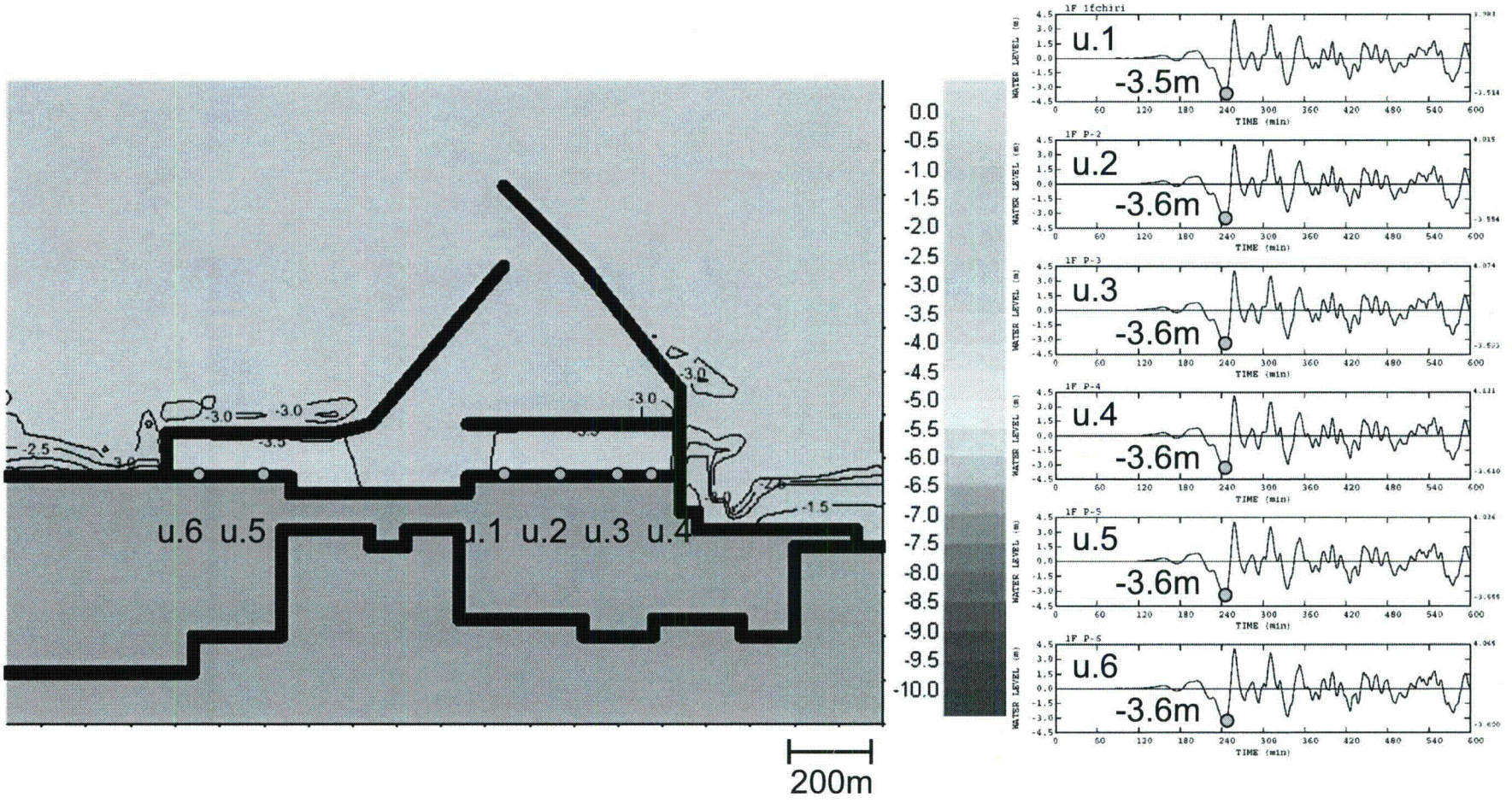
Maximum Water Level by Far Field Tsunami



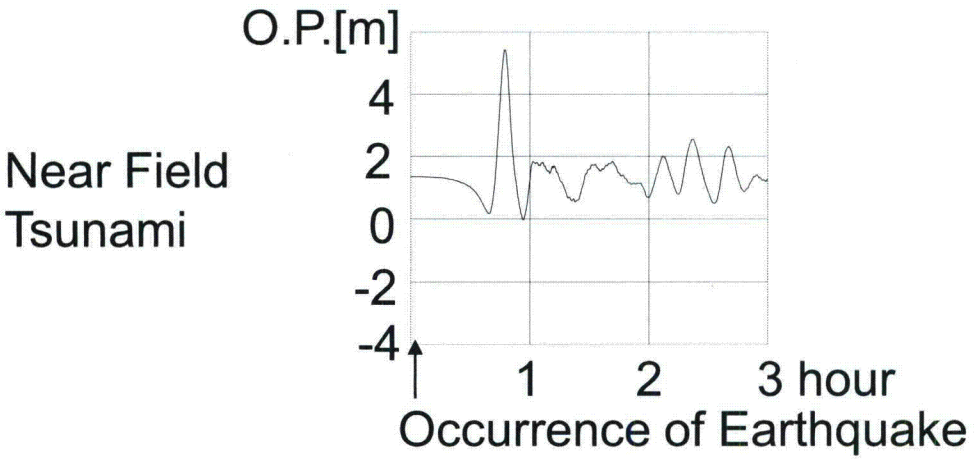


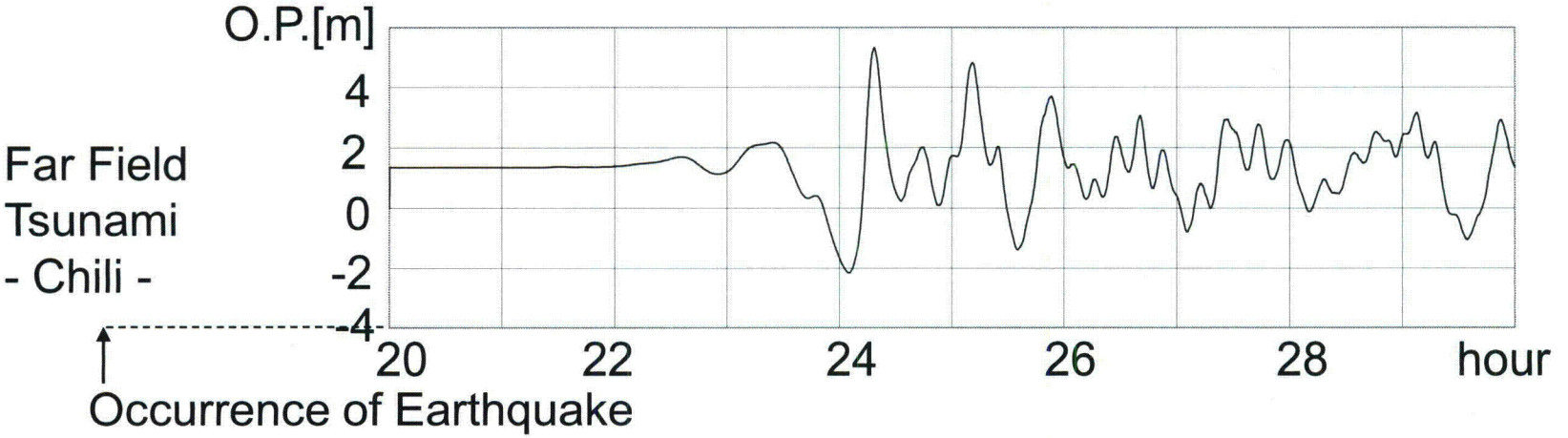


Minimum Water Level by Far Field Tsunami



Time History

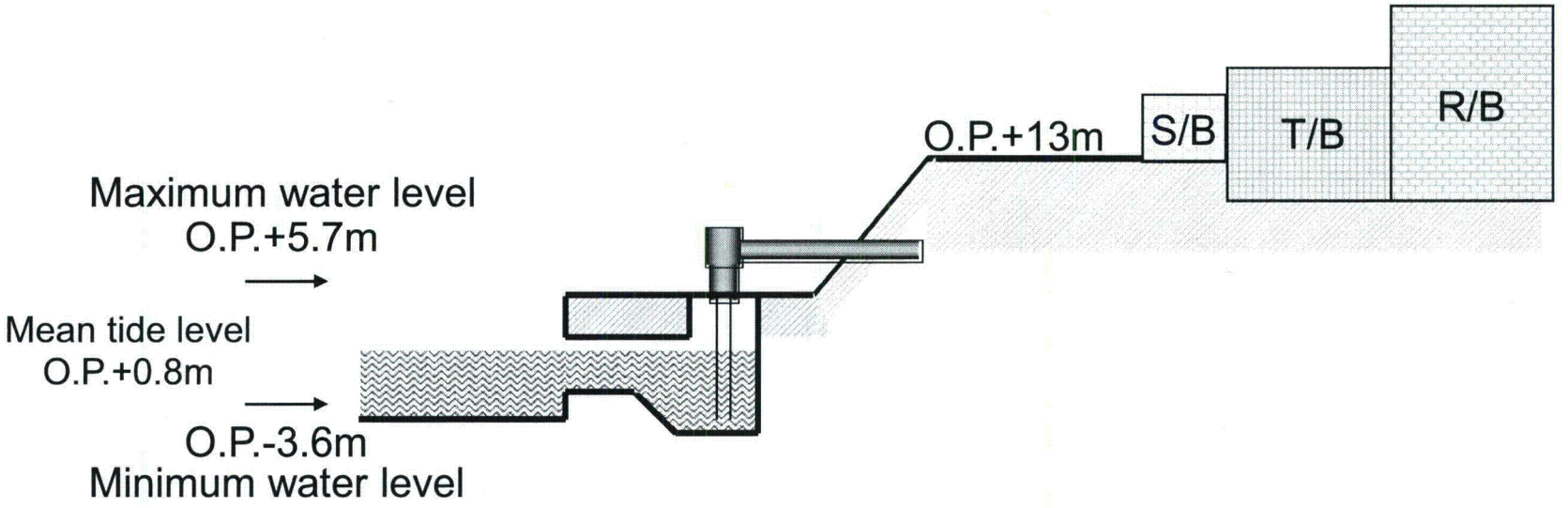




Summary of Evaluation

Maximum water level = 4.4 + O.P.+1.3 = O.P.+5.7m

Minimum water level = -3.6 – O.P.0.0 = O.P.-3.6m



From: Zimmerman, Roy
Sent: Wednesday, March 23, 2011 7:42 PM
To: ET05 Hoc
Cc: ET05 Hoc
Subject: Document1
Attachments: Doc1.docx

BH/27

Plant status about the same

Priorities: focus on largest source terms – the reactors, pump more water volume- swap over to fresh water

Unit 5 lost RHR pump to supply reactor vessel and SFP during swapover to offsite power. Tepco plans to install new pumps on the 24- today.

Casto thinks continuous release from unit 2 and possibly unit 3

Working to changeout some of our NRC team in-country. Decisions on team managers, casto, monninger and dorman will be made separately.

Interagency working group being stood up to discuss tripwire for possible changes in decision making based on concerns for chronic ongoing release. Phone call at 5:00pm today.

Expect Japan to ask for assistance to supply KI…NRC has no KI……..likely work with HHS (CDC) if request is made

US embassy in Japan is offering KI to US citizens but recommend not taking at present time……few people taking.

DOD remains interested in U.S. recommendations which are unchanged…….

About 170k US citizens in Japan
(About 150k US military)

The industry consortium had a call today …. 1 INPO rep in Japan…believe plan is to pull from GE-Hitachi and Wano for further support in Japan.

INPO interested in which federal agency will be lead for consortium coordination. Leaning is towards DOD Pacific Command (PACCOM).

We have received about 90 photos of the fukeshima site from Tepco, which shows considerable damage to the units. We will work with OIS to put the pictures up on a controlled sharepoint site tomorrow.

We plan to send a representative sample of about a dozen photos tonight to Julie Benz with National Security Council with the White House.

Japanese remain concerned about salt accumulation in reactor vessel. NRC, DOE preparing response. Last night staff sent response to questions

Staff is preparing a draft Info Notice asking industry to provide radiation data to the NRC, so we can share within the federal family.

We have received some information showing barely detectable amounts of iodine at several site locations and small amounts of cesium at Diablo canyon and Songs.

Chuck is sending in draft minutes of cabinet level mtg he attended yesterday. No other countries were present besides US. Mtg went well. Japanese expressing interest in a unmanned helicopter that Lockheed is working on. The pumping system from Austrailia would still need to be staged.....and fresh water barges for fresh water injection.

Inpo said they have access to 1 million doses of KI.....Japanese interested

Japan appreciated the severe accident guidelines and realized the challenges that lie ahead for them.

We are working on a draft info notice for consideration by day shift requesting US plants report unusual radiological data detected at their monitoring stations. We would then provide the input to federal partners as appropriate

From: Zimmerman, Roy
Sent: Thursday, March 24, 2011 10:11 PM
To: ET05 Hoc
Subject: Doc1 (2).docx
Attachments: Doc1 (2).docx

BH/28

Plant status little changed. All reactors are receiving cooling with seawater presently with exception of unit I which is using fresh water. Tepco working to get freshwater Unit 2 & 3. Unit 1.receiving power from unit 2 according to Tepco Fuel may have slumped to the bottom of the core……..slow heatup of its SFP

Unit 1&2 electrical power has been restored and electric water pump systems are being tested. in unit 2…… seawater injection to the rx core and SFP

According to METI, technicians are working to attach fire hoses to the Unit 1 spent fuel pool built- in coolant pipes and setting up a separate pump to circulate fresh water inside the reactor core.

IAEA assessment indicates AC power connected in units 1,2 and 4 and instrumentation continues to be recovered. Workers returning to units 3 and 4 after black smoke emissions from unit 3 had ceased.

in-country team has struck up a relationship with a NISA rep who provided him a variety of strip chart recorders, data points, etc. being translated now. Extremely sensitive information!! Tight hold

NRC,DOE, NAVAL REACTORS, NISA, TEPCO, JAIF(JAPAN ATOMIC INDUSTRIAL FORUM), GE-HITACHI, INPO, BETTIS, KAPL……all spoke on a conference call and agreed on an assessment of each reactor, and provided recommendations for the Japanese to consider. Recommendations include: 1) switching to freshwater injection asap and maximizing flow to the core, 2) attempting to inert primary containment with nitrogen prior to venting and use of core spray. 3) maintain venting capability and pressure suppression spray capability.4) maintain SFP level if possible 5) flood up primary containment to cover the lower portion of the reactor vessel up to the level of top of active fuel.

Lights are back on in the control rooms for Units 1 & 3

Received another thermal imagery of the units……..working with the intel community to try to get the photos delasssified so we can get GE to review the thermal images. Still working this evening to send to GE.

9:00pm call today with a Mr. Piccuto to support Admiral Willard,head of PACOM to assist with moving the fresh water barge. He is the foreign policy advisor and works for State. They would appreciate a senior level manager as soon as possible to serve a function similar to what Chuck is doing for Admiral Roos. Short turnaround.

NRR planning to issue a Reg Issue Summary on Monday to request licensees to send radiation monitoring station data to the NRC and we will provide the info to EPA.

Your talk with the Japanese ambassador in DC …we are putting together talking points to make our working relationship as effective as possible.

DOE preparing another AMS flight…….don't know the exact date

20mr /hr at the main gate according to METI (ministry of industry of trade)

PMT identified need to update the source term for modeling. A Melcor transpacific model needs to be worked, shows about 4.5rem iodine to children. Interagency agreed on a model last night. We have requested NARAC to make changes showing 70% core damage vice the 33% damage assumed previously. We are trying to ensure that the overconservativism errors in the 4.5 Rem does not get issued.

Staff will lead a logistical team in Japan to help US agencies and industry with support.

Inpo confirmed they have one million KI pills from ANBEX.

PMT contiiuing to develop reentry plans for short term reentry for retrievel of personal effects.

Bringing back casto and monninger possibly this weekend and identifying one addtl manager to backfill.

From: PMT03 Hoc
Sent: Thursday, March 24, 2011 6:10 AM
To: Hoc, PMT12
Subject: Reentry guidance.doc
Attachments: Reentry guidance.doc

BH/29

Reentry Guidance

Consideration for reentry into the evacuated areas should include the following:

- Coverage by Radiation Monitoring personnel.
- The use of minimal protective clothing (e.g., shoe covers and gloves).
- With relation to the conditions and status of the plant site, entry only when upwind of the site and consider the following:
    - No rain
    - Offshore wind (preferably strong)
    - Sunny conditions
- The use of devices such a plastic bags to contain personal property until surveyed at the outer boundary of the restricted zone.
- The use of stay times based on anticipated radiation dose rates and possibly, contamination levels.
- Minimize the number of personnel entering the area (e.g., father, not father and mother, etc.)
- The establishment of "go / no-go" radiation dose rate and possibly, contamination level threshold based on the following guidance:

EPA 400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," dated May, 1992 provides the following guidance:

Section 7.6
After the restricted zone is established, based on the PAGs for relocation, adults may reenter the restricted zone under controlled conditions in accordance with occupational standards.

Section 7.6.1
Because of the difficulties in predicting the destiny of uncontrolled surface contamination, a contaminated individual or item should not be released to an unrestricted area unless contamination levels are low enough that they produce only a small increment of risk to health (e.g., less than 20 percent), compared to the risk to health from the principle exposure pathway (e.g., whole body gamma dose) in areas immediately outside the restricted zone. On the other hand, a level of contamination comparable to that existing on surfaces immediately outside the restricted zone may be acceptable on materials leaving the restricted zone. Otherwise, persons and equipment occupying areas immediately outside the restricted zone would not meet the surface contamination limits. These two constraints are used to set permissible surface contamination limits.

The contamination limit should also be influenced by the potential for the contamination to be ingested, inhaled, or transferred to other locations. Therefore, it is reasonable to establish lower limits for surfaces where contamination is loose than for surfaces where the contamination is fixed except for skin. The expected period of fixed contamination on skin would be longer so a lower limit would be justified.

Table 7-7
Recommended Surface Contamination Screening Levels for Persons and Other Surfaces at monitoring Stations in Low Background Radiation Areas «0.1 mRhr Gamma Exposure Rate) of <2Xbkgd for unconditional release.

Further guidance provided by the Conference of Radiation Control Program Directors (CRCPD) may be considered for decontamination of personnel.

Reentry Guidance

CRCPD Publication 06-6, "Handbook for Responding to a Radiological Dispersal Device," dated September, 2006, provides the following:

Page 36
Suggested personnel release levels (assuming a pancake GM Probe)

- With contamination up to 1,000 cpm, allow individuals to leave and instruct them to go home and shower.
- If the event is large and if adequate decontamination resources are not available, the release level can be increased to 10,000 cpm with the same instructions.