
From: Hoc, PMT12
Sent: Friday, March 25, 2011 2:29 PM
To: PMT03 Hoc
Subject: for chronology

Called into the 2:00 Advisory Team call. Participants discussed finalizing a document to address contamination on cargo and baggage coming from Japan.

PPP/501

From: Hoc, PMT12
Sent: Friday, March 25, 2011 11:51 AM
To: PMT03 Hoc
Subject: FW: NRC dose estimates (Japan response)

Please add to chronology. This document NRC/NARAC agreement on the latest source term.

From: PMT02 Hoc
Sent: Friday, March 25, 2011 11:49 AM
To: PMT11 Hoc; narac@llnl.gov; cmht@nnsa.doe.gov
Cc: Hoc, PMT12; PMT02 Hoc
Subject: RE: NRC dose estimates (Japan response)

--- THIS IS A MONITORING OPERATION FOR THE FUKUSHIMA REACTOR IN JAPAN ---

This is a MONITORING OPERATION FOR THE JAPAN EARTHQUAKE TSUNAMI AFTERMATH.

NRC is in agreement on the source term approximated in Appendix 1, "List of Radionuclides Used in the NARAC Simulations," in the "NARAC Plume Model Dose Projections for the Updated NRC Plausible Realistic Scenario Based on Japan Reactor Information Hypothetical Reactor Release" issue date 1450 UTC March 25, 2011.

Please call if more clarification is needed at: 301-816-5419 (Protective Measures Team)

Please reply to this email to acknowledge receipt.

This information should not be released at this time.

NO PARTICIPATION OR RESPONSE BY CMHT IS EXPECTED

--- THIS IS A MONITORING OPERATION FOR THE FUKUSHIMA REACTOR IN JAPAN ---

From: PMT11 Hoc
Sent: Thursday, March 24, 2011 8:32 PM
To: PMT11 Hoc; narac@llnl.gov; cmht@nnsa.doe.gov
Cc: PMT02 Hoc; Hoc, PMT12
Subject: RE: NRC dose estimates (Japan response)

Attn: Ken Foster, NARAC

--- THIS IS A MONITORING OPERATION FOR THE FUKUSHIMA REACTOR IN JAPAN ---

This is a MONITORING OPERATION FOR THE JAPAN EARTHQUAKE TSUNAMI AFTERMATH.

ppp/502

Attached is a spreadsheet that summarizes the projected source terms from the three reactors, with the original Unit 1 source term being multiplied by 6 to provide for a 12 day release.

We compared this to the core inventory and this is not exceed the core inventory.

Please call if more clarification is needed at: 301-816-5419 (Protective Measures Team)

Please reply to this email to acknowledge receipt.

This information should not be released at this time.

--- THIS IS A MONITORING OPERATION FOR THE FUKUSHIMA REACTOR IN JAPAN ---

From: LIA05 Hoc
Sent: Friday, March 25, 2011 3:30 PM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Michelle Ralston;
Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: NRC OPA Talking Points from Yesterday
Attachments: Talking Points 13.pdf

Please find the attached.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

~~*****FOR OFFICIAL USE ONLY*****~~
~~DO NOT RELEASE OUTSIDE OF THE FEDERAL FAMILY~~

1299/503

OPA

TALKING POINTS

JAPAN NUCLEAR SITUATION

As of 3/24/2011 3:30 PM

Updates in Red

CONTENTS

- 1. The Safety of U.S. Nuclear Power Plants**
- 2. Monitoring Radiation in the United States**
- 3. The Situation in Japan**

PART 1: THE SAFETY OF U.S. NUCLEAR POWER PLANTS

- The NRC is always looking to learn information that can be applied to U.S. reactors and we will analyze the information that comes from this incident. President Obama has asked the agency to conduct a comprehensive review of the safety of U.S. nuclear plants; the agency will do so.
- The NRC issued an Information Notice on March 18 to all of its operating nuclear power plants describing the effects of the March 11 earthquake and tsunami on Japanese nuclear power plants. The purpose of the Information Notice is to inform the plants of the most recent information available to the NRC. The NRC expects U.S. nuclear power plants will review the entire notice to determine how it applies to their facilities and consider actions, as appropriate.
- U.S. nuclear power plants are built to withstand environmental hazards, including earthquakes. Even those plants that are located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster.
- The NRC requires that safety-significant structures, systems, and components be designed to take into account the most severe natural phenomena historically reported for the site and surrounding area. The NRC then adds a margin for error to account for the limitations on historical data. In other words, U.S. nuclear power plants are designed to be safe based on historical data to predict the area's maximum credible earthquake.
- In response to MSNBC.com report ranking US NPPs according to vulnerability to earthquakes: The NRC does not rank nuclear power plants according to their vulnerability to earthquakes. This "ranking" was developed by an MSNBC reporter using partial information and an even more partial understanding of how we evaluate plants for seismic risk. Each plant is evaluated individually according to the geology

of its site, not by a "one-size-fits-all" model - therefore such rankings or comparisons are highly misleading.

- In the 1980s and 1990s, the NRC required several changes to the BWR Mark I containments at U.S. plants to ensure they could continue to deal with severe events. The first issue involved the design's large circular tube, or "torus," which holds enough water to safely condense the large volumes of steam that could be released during a severe event. The NRC became aware in the mid-late 1970s that designers might have underestimated the forces the torus would have to withstand during an event. The NRC laid out an appropriate generic approach to resolving the issue in August 1982, and individual reactors carried out their plant-specific torus reinforcement efforts.
- The second issue involved the potential for containment failure following an extended loss of decay heat removal capability. Under the Mark I Containment Performance Improvement program that ran from the late 1980s into the early 1990s, all Mark I BWRs operating at that time installed hardened vent systems to provide an additional decay heat removal capability to protect against containment overpressure failure. The containment vent system could also be used to control hydrogen concentrations in containment. Two units, Browns Ferry 1 and 3, were in extended shutdown at that time, and hardened vents were installed before those reactors restarted. In addition most plants provided an alternate water injection capability that is independent of normal and emergency power supplies and enhanced the reliability of the automatic depressurization system to reduce the likelihood of a challenge to containment. Furthermore, in 2003, the Commission issued the "Hydrogen Rule" (10CFR50.44) that required all BWR Mark I plants to operate in an inert atmosphere to preclude the possibility of a hydrogen explosions in containment.
- The NRC recommendation related to a 50-mile evacuation zone for Americans near the affected nuclear power plants in Japan is consistent with the same kind of approach that

would be used in the United States should a comparable, although extremely unlikely, event take place here.

- In November 1976, a federal task force was formed to look at salient emergency planning issues for U.S. nuclear power plants. Out of that comprehensive evaluation came a recommendation that a 10-mile-radius EPZ would assure that “prompt and effective actions can be taken to protect the public in the event of an accident” at a plant. This was based on research showing the most significant impacts of an accident would be expected in the immediate vicinity of a plant and therefore any initial protective actions, such as evacuations or sheltering in place, should be focused there. That does not mean the protective actions could not expand beyond the 10-mile radius. Rather, emergency planners have always known such actions could be necessary if the situation warranted it. (See NUREG 0654/FEMA-REP-1.)
- Following the events of Sept. 11, 2001, NRC required all nuclear plant licensees to take additional steps to protect public health and safety in the event of a large fire or explosion. In accordance with NRC regulations, all nuclear power plants are required to maintain or restore cooling for the reactor core, containment building, and spent fuel pool under the circumstances associated with a large fire or explosion. These requirements include using existing or readily available equipment and personnel, having strategies for firefighting, operations to minimize fuel damage, and actions to minimize radiological release to the environment. In general, mitigative strategies are plans, procedures, and pre-staged equipment whose intent is to minimize the effects of adverse events. If needed, these mitigative strategies could also be used during natural phenomena such as earthquakes, tornadoes, floods, and tsunamis.

PART 2: MONITORING RADIATION IN THE UNITED STATES

- The NRC is working closely with our federal partners to monitor radiation releases from the Japanese nuclear power plants. Given the results of the monitoring and distance between Japan and Hawaii, Alaska, U.S. Pacific Territories and the U.S. West Coast, the NRC expects the U.S. to avoid any harmful levels of radioactivity. Reports of radiation being detected in the United States are all far below levels that would present a health risk. Additional questions regarding monitoring of the radioactive release should be referred to DOE at 202 586 4940.
- We are aware that minute amounts of radioactive elements have been detected at the very sensitive monitoring equipment at a number of privately owned nuclear plants. The US Government is looking at the best vehicle for reporting to the public this and any other data gathered by government. Nothing detected so far comes anywhere near a level that might concern us. We remain convinced there will be no health impact on the United States.
- The Department of Energy has been designated the lead agency for communicating information to the states regarding monitoring of radiation heading toward or over the United States. The DOE's Lawrence Livermore National Laboratory (National Atmospheric Release Assessment Center) is monitoring weather patterns over the Pacific Ocean. The Environmental Protection Agency maintains air monitoring stations throughout the country and has reinforced its monitoring effort. DOE will provide aerial monitoring. Questions about this effort should be directed to DOE at 202 586 4940.
- The Environmental Protection Agency has increased its radiation monitoring in the western U.S. Data from the EPA's RadNet is available on the EPA's website.

- [Only if specifically asked] The NRC is aware that Diablo Canyon nuclear power plant in California, among others, have detected a very low level of radiation. The site believes that the source of the radiation is likely the Fukushima Daiichi nuclear power plant in Japan. The amounts detected are barely detectable on the instruments and pose no danger to public health and safety. The NRC continues to believe, based on all available information, that no harmful levels of radiation will reach U.S. territory. This information has been shared with the U.S. Department of Energy and the U.S. Environmental Protection Agency. Additional questions regarding monitoring of the radioactive release should be referred to DOE at 202 586 4940.
- In accordance with established protocols, U.S. Customs and Border Protection (CBP) employs several types of radiation detection equipment in its operations at both air and sea ports, and uses this equipment, along with specific operational protocols, to resolve any security or safety risks that are identified with inbound travelers and cargo. Out of an abundance of caution, CBP has issued field guidance reiterating its operational protocols and directing field personnel to specifically monitor maritime and air traffic from Japan. CBP will continue to evaluate the potential risks posed by radiation contamination on inbound travelers and cargo and will adjust its detection and response protocols, in coordination with its interagency partners, as developments warrant.

PART 3: THE SITUATION IN JAPAN

- As of Sunday, March 20, 2011, the NRC continues to monitor the nuclear crisis in Japan stemming from the March 11 earthquake and tsunami. NRC's top priorities are the continued assessment of radiological conditions, dose predictions, and protective action recommendations. This effort focuses primarily on conditions in Japan around the vicinity of the Fukushima Daiichi nuclear power plant. The NRC is also working with DOE to model the flow of radiation across the Pacific Ocean toward the United States.
- A team of 40 NRC experts continues to assist Japanese efforts in Tokyo as part of a USAID-sponsored assistance effort. [If asked: One team member fell ill and returned to the US. Numbers in the team and names change; please check if asked.]
- The Commission was briefed by the NRC staff on the situation in Japan at a public meeting on Monday, March 21, 2011. A transcript for the public commission meeting held yesterday has been posted. The meeting included an overview of NRC actions related to the Japanese emergency and the possible short- and long-term activities for the NRC. The transcript can be found here: <http://www.nrc.gov/reading-rm/doc-collections/commission/recent/2011/>. And the slides from the meeting are located at: <http://www.nrc.gov/reading-rm/doc-collections/commission/slides/2011/20110321/staff-slides-03212011-meeting-rev1.pdf>.
- Chairman Jaczko gave opening remarks at the meeting. He said, in part, "We have a responsibility to the American people to undertake a systematic and methodical review of the safety of our own domestic nuclear facilities, in light of the natural disaster and the resulting nuclear emergency in Japan. Beginning to examine all available information is an essential part of our effort to analyze the event and understand its impact on Japan and implications for the United States. Our focus is always on keeping plants and radioactive materials in this country safe and secure."

A copy of his full opening remarks can be found here: <http://www.nrc.gov/reading-rm/doc-collections/news/2011/11-054.pdf>

- Based on calculations performed by NRC experts, we continue to believe that it is appropriate for U.S. residents within 50 miles of the Fukushima reactors to evacuate. Our recommendation is based on NRC guidelines for public safety that would be used in the United States under similar circumstances.
- The 10-mile EPZ reflects the area where projected doses from design basis accidents at nuclear power plants would not exceed the EPA's protective action guidelines, and we are confident that it would be adequate even for severe accidents. However, the 10-mile zone was always considered a base for emergency response that could be expanded if the situation warranted. The situation in Japan, with four reactors experiencing exceptional difficulties simultaneously, creates the need to expand the EPZ beyond the normal 10-mile radius, based on our limited data and conservative assumptions.
- The NRC is closely monitoring information about the spent fuel pools as well as radiation levels at the Japanese nuclear power plants. Given the totality of the situation, the NRC's recommendation for U.S. residents within 50 miles of the Fukushima reactors to evacuate remains unchanged. That recommendation was based on actual radiation levels in the nuclear complex.
- The Japanese government has formally asked for U.S. assistance in responding to nuclear power plant cooling issues triggered by an earthquake and tsunami on March 11.
- The NRC is coordinating its actions with other federal agencies as part of the U.S. government response. The NRC's headquarters Operations Center was activated at the beginning of the event and has been monitoring the situation on a 24-hour basis ever since.

From: LIA11 Hoc
Sent: Friday, March 25, 2011 11:48 AM
To: LIA04 Hoc; OST05 Hoc
Subject: FW: CBP/CDC Passenger/Baggage Guidance Docs Task 8057
Attachments: image001.jpg

Email chain on same topic.

R/

Ted

From: Connally, Daniel (HHS/ASPR/OPEO) [mailto:Daniel.Connally@hhs.gov] **On Behalf Of** OS Secretarys Operations Center
Sent: Thursday, March 24, 2011 2:10 PM
To: Evans, Lynn (CDC/ONDIEH/NCEH); 2011 Japan Earthquake (CDC); CDC IMS Scientific Response Section Chief -2; CDC IMS Scientific Response Section Task Tracker -2; Dixon, John E. (CDC/ONDIEH/NCEH); Brooks, Michael (ATSDR/DHAC/SRAB)
Cc: OS Secretarys Operations Center; HOO Hoc; 'eoc.epahq@epa.gov'; LIA01 Hoc; LIA11 Hoc; LIA04 Hoc; OST05 Hoc; LIA11 Hoc; Turtill, Richard; OS EMGOPS (HHS/ASPR)
Subject: RE: CBP/CDC Passenger/Baggage Guidance Docs Task 8057

Excellent, thank you for your follow up.

Very Respectfully,

Daniel Connally
Watch Officer
Secretary's Operation Center
Department of Health and Human Services
200 Independence Avenue, SW
Washington, DC 20201
Email: hhs.soc@hhs.gov
W: 202.619.7800
Fax: 202.619.7870



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From: Evans, Lynn (CDC/ONDIEH/NCEH) [mailto:gfn6@cdc.gov]
Sent: Thursday, March 24, 2011 2:07 PM

ppp/604

To: 2011 Japan Earthquake (CDC); CDC IMS Scientific Response Section Chief -2; CDC IMS Scientific Response Section Task Tracker -2; Dixon, John E. (CDC/ONDIEH/NCEH); Brooks, Michael (ATSDR/DHAC/SRAB)
Cc: OS Secretarys Operations Center; 'hoo.hoc@nrc.gov'; 'eoc.epahq@epa.gov'; 'Lia01.hoc@nrc.gov'; 'Lia11.hoc@nrc.gov'; 'Lia04.hoc@nrc.gov'; 'Ost05.hoc@nrc.gov'; 'LIA11.Hoc@nrc.gov'; 'Richard.Turtill@nrc.gov'
Subject: RE: CBP/CDC Passenger/Baggage Guidance Docs Task 8057

Attached are documents that make up the Traveler Plan Protocol and Procedures for screening travelers leaving Japan for possible radioactive contamination. These documents were prepared by an interagency workgroup (not the Advisory Team) to make sure it was appropriate and addressed many concerns.

The Advisory Team is working on another document which addresses contamination on cargo and miscellaneous items coming from Japan. This document is still being developed.

Please contact me if you need more information.

Thanks!
Lynn Evans

D. Lynn Evans, MS
CAPT, USPHS
Centers for Disease Control and Prevention
NCEH/EHHE/Radiation Studies Branch
Mail Stop F58
4770 Buford Highway NE
Atlanta, GA 30341-3717
Phone: (770) 488-3656
Fax: (770) 488-1539
Email: gfn6@cdc.gov

From: EOC Report (CDC)
Sent: Thursday, March 24, 2011 12:03 PM
To: Evans, Lynn (CDC/ONDIEH/NCEH)
Cc: 2011 Japan Earthquake (CDC)
Subject: FW: CBP/CDC Passenger/Baggage Guidance Docs

Fyi;

Lorenzo Moore
CDC EOC Duty Officer
770-488-7100
eocreport@cdc.gov

From: Connally, Daniel (HHS/ASPR/OPEO) **On Behalf Of** OS Secretarys Operations Center
Sent: Thursday, March 24, 2011 11:53 AM
To: EOC Report (CDC)
Cc: OS Secretarys Operations Center; hoo.hoc@nrc.gov; eoc.epahq@epa.gov; Lia01.hoc@nrc.gov; Lia11.hoc@nrc.gov; Lia04.hoc@nrc.gov; Ost05.hoc@nrc.gov; LIA11.Hoc@nrc.gov; Richard.Turtill@nrc.gov
Subject: CBP/CDC Passenger/Baggage Guidance Docs

CDC,

Per the request on the ESF-8 call today, can you please provide NRC HOC and EPA EOC with any guidance for passengers, baggage and other importation guidance; especially those expected to be issued today? Please include in your response all addresses in the CC line of this email.

Very Respectfully,

Daniel Connally
Watch Officer
Secretary's Operation Center
Department of Health and Human Services
200 Independence Avenue, SW
Washington, DC 20201
Email: hhs.soc@hhs.gov
W: 202.619.7800
Fax: 202.619.7870



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From: Muessle, Mary
Sent: Friday, March 25, 2011 4:15 PM
To: LIA03 Hoc
Cc: LIA02 Hoc
Subject: RE: Bruce Mallet on board

Due to his industry involvement, we have determined that Bruce Mallet is not able to participate in the task force. You can close it out.

Thank you
Mary

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

From: LIA03 Hoc
Sent: Friday, March 25, 2011 4:01 PM
To: Muessle, Mary
Cc: LIA02 Hoc
Subject: Bruce Mallet on board

Mary,
Is everything straightened out with bringing Mr. Mallet on as a retired annuitant? Please let me know if you need anything else from OIP to complete the process. Otherwise, I'll close out our tickler on this end.

Thanks!
-Jenny

PPP/505

From: OST05 Hoc
Sent: Friday, March 25, 2011 10:14 AM
To: LIA04 Hoc
Subject: FW: Ops Center State Liaison Open Items from Wednesday 3/23
Attachments: FYI - Trace amounts of I-131 in rainfall samples of Eastern plants; RE: Question from Member of Public: CBP criteria for release of materials/products into U.S.; RI Request on TP re: coordination with Japanese Govt on PAR; FW: FYI: Calls about contaminated items coming into the US and detection of atmospheric activity; RE: States list with KI supplies; RE: Question: NRC COMMUNICATIONS REGARDING ELEVATED RADIATION LEVELS AT NRC LICENSED NPPs; Follow-up on Phone Call re: Confirmed Samples at East Coast Plants

From: OST05 Hoc
Sent: Wednesday, March 23, 2011 9:50 PM
To: OST05 Hoc; LIA04 Hoc; Easson, Stuart; Flannery, Cindy; Lukes, Kim; Maupin, Cardelia; Noonan, Amanda; Rautzen, William; Rivera, Alison; Ryan, Michelle; Turtill, Richard; Virgilio, Rosetta
Subject: Ops Center State Liaison Open Items from Wednesday 3/23

Call Maria or Alison if you have any question.

Summary of State Liaison Team

Current Actions

- Issue on contaminated items coming into US from Japan and detection of atmospheric activity
 - o Email from Dan Collins, RI
 - o Contacted Jon Kinneman for insights from Chernobyl
 - o Discuss best approach/answers to expected FAQ's in the coming days
 - o Note: Nothing has been prepared as of 3/23- 9:48pm

Continue Actions to Follow-up

- Action plan regarding confirmed samples of trace amounts of I-131 at Ginna (NY), Nine Mile Point (NY), and Millstone (CT) Power Plants
 - o Incoming: call from RI. Coordinating with PMT.
 - o Staff suspect that the info or news of positive samples may be released to the public ahead of the federal government. EPA has been contacted. NEI has agreed to collect the data from licensees and provide the data to NRC.
 - o Waiting on further direction regarding communication with the States
 - o LT director said it was okay to contact EPA per ET discussion at ~8:00 pm

Pending Actions

- States that has offer KI to NRC – Question was made from PMT
 - o Email was sent, Trish Milligan respond to email request. Email was fwd to PMT

Pending Follow-up Actions

PPP/550

- Follow-up with Federal Liaison Team on Illinois inquiries.
 - o Ensure completion

- Coordination with Japanese Government on PAR
 - o Email from RI
 - o Action was sent to International Liaison Team to address this question.
 - o Waiting on OIP response

Closed Actions

- What are the EPA drinking water standards limits for Iodine-131 and Cesium-137?
 - o Question raised by RI- need to get back to Dug Tiff and Pamela Henderson(request: both be contacted regarding the answer to this question)
 - o Talked with PMT(Nima), he provided the info and response was sent through email. – March 23, 2011: 7:45pm

From: LIA10 Hoc
Sent: Friday, March 25, 2011 10:37 AM
To: LIA02 Hoc; LIA03 Hoc
Subject: NISA bulletin 51 (posted 2:26am EDT)

Atomic power emergency bulletin

【Report 51】 Effects of Tohoku Pacific Earthquake (March 25, 12:30)

[2011/03/25 15:26 updated]

Changes from last report as follows:

1. Employee exposure to radiation: see report 52.
2. Nuclear power stations
 - Fukushima Daiichi NPS
 - ・ Seawater injected to Unit 4 SFP using SFP cooling line (March 25, 06:05 to 10:20)
 - ・ Seawater injected to Unit 2 SFP using SFP cooling line (March 25, 10:30 to 12:19)

原子力関連 緊急情報

【第 51 報】 東北地方太平洋沖地震による原子力施設への影響 について (25 日 12 時 30 分現在)

[2011/03/25 15:26 更新]

前回からの変更点は以下のとおり。

1. 従業員等の被ばく
3月24日、3号機タービン建屋1階及び地下1階において、ケーブル敷設作業を行っていた作業員3名(全員協力社員)について、約170mSv以上の線量を確認し、そのうち2名について、両足の皮膚に放射性物質の付着を確認した。この2名については、ベータ線熱傷の可能性があると判断したことから、福島県立医科大学附属病院へ搬送し、本日25日午後千葉県にある放射線医学総合研究所に出発。
また、当該作業員が踏み入れた水について調査した結果、水表面の線量率は約400mSv/h、採取水のガンマ線核種分析の結果、試料の濃度は各核種合計で約 3.9×10^6 Bq/cm³であった。

ppp/507

2. 原子力発電所関係

○福島第一原子力発電所

- ・ 4号機の使用済燃料プールに、使用済燃料プール冷却系を用いて海水を注入（25日 06:05 から 10:20）
- ・ 2号機の使用済燃料プールに、使用済燃料プール冷却系を用いて海水を注入（25日 10:30 から 12:19）

From: LIA02 Hoc
Sent: Friday, March 25, 2011 11:00 AM
To: RST01 Hoc; Hoc, PMT12; LIA06 Hoc; LIA08 Hoc
Subject: FW: NISA bulletin 50 (posted 9:35pm EDT)

From: LIA10 Hoc
Sent: Friday, March 25, 2011 10:52 AM
To: LIA02 Hoc; LIA03 Hoc
Subject: NISA bulletin 50 (posted 9:35pm EDT)

Atomic power emergency bulletin

【Report 50】 Effects of Tohoku Pacific Earthquake (March 25, 8:00)

[2011/03/25 10:35 updated]

Changes from last report as follows:

1. Employee radiation exposure: [see report 52]

2. NISA response

- NISA gave verbal instruction to Tepco to immediately review and improve its radiation control to prevent a reoccurrence of the radiation exposure to workers at the Fukushima Daiichi Unit 3 Turbine Building on March 24.

3. Announcement from Local Atomic Power Disaster Response HQ

Thyroid exams were carried out March 24 on children near the stay-indoors zone.

- Kawamata town Health Center (40–50km from Fukushima Daiichi NPS)
- Kawamata town Yamakiya Satellite Office (30–40km from Fukushima Daiichi NPS)

<Measurement results>

66 children, including 14 infants and young children aged 1 to 6 years, all showed no large variation from the background. NISA does not consider the levels to be problematic. None of the children examined had taken any iodine tablets.

PPP/508

4. Fukushima Daiichi NPS

- ・ Began injecting seawater to Unit 4 SPF using the cooling-purification line (March 25, 6:05).
- ・ White smoke confirmed continuing to rise from Units 1, 2 and 4 (March 25, approx. 6:20).

原子力関連 緊急情報

【第 50 報】東北地方太平洋沖地震による原子力施設への影響について（25 日 8 時 00 分現在）

[2011/03/25 10:35 更新]

原子力安全・保安院から、3月11日14時46分頃に発生した東北地方太平洋沖地震による原子力施設への影響についてお知らせします。

前回からの変更点は以下のとおり。

1. 従業員等の被ばく

・ 3月24日、3号機タービン建屋1階及び地下1階において、ケーブル敷設作業を行っていた作業員3名（全員協力社員）について、約170mSv以上の線量を確認し、そのうち2名について、両足の皮膚に放射性物質の付着を確認した。この2名については、ベータ線熱傷の可能性があると判断したことから、福島県立医科大学附属病院へ搬送し、本日25日午前千葉県にある放射線医学総合研究所に出発予定。

・ また、当該作業員が踏み入れた水について調査した結果、水表面の線量率は約400mSv/h、採取水のガンマ線核種分析の結果、試料の濃度は各核種合計で約 3.9×10^6 Bq/cm³であった。

2. 原子力安全・保安院等の対応

・ 原子力安全・保安院は、東京電力株式会社に対し、3月24日に発生した福島第一原子力発電所3号機タービン建屋における作業員の被ばくに関し、再発防止の観点から、直ちに放射線管理を見直し改善するよう、口頭で指示。

3. 原子力災害現地対策本部からのお知らせ

3月24日、屋内退避近傍の次の2ヶ所において、小児に対する甲状腺の検査を実施した。

- ・ 川俣町保健センター（福島第一原子力発電所から40から50km圏）
- ・ 川俣町山木屋出張所（福島第一原子力発電所から30から40km圏）

〔測定結果〕

・ 乳幼児（1から6歳）14名を含む小児66名の被ばく線量については、いずれもバックグラウンドと大差なく、原子力安全委員会の考え方に照らしても問題となるレベルではない。なお、ヨウ素剤

の服用実績は全員なし。

4. 福島第一原子力発電所関係

- ・ 4号機の使用済燃料プールに、冷却浄化系を用いて海水注入開始（25日 06:05）
- ・ 1、2、4号機において、引き続き白煙が出ていることを確認（25日 06:20頃）

From: Virgilio, Martin
Sent: Friday, March 25, 2011 8:18 PM
To: LIA03 Hoc
Subject: Re: Just checking up

Thanks.

From: LIA03 Hoc
To: Virgilio, Martin
Cc: LIA02 Hoc
Sent: Fri Mar 25 19:43:28 2011
Subject: Just checking up

Marty,

An item that I had on our action list was to check in with you to make sure that you knew that Bruce Mallet was not eligible to get re-hired to lead a team here since he has had significant industry involvement since he retired from here. I will consider this action closed. Please come see me if you have questions.

Thanks!
-Jenny

PP/509

From: Collins, Elmo
Sent: Friday, March 25, 2011 4:23 PM
To: LIA03 Hoc
Subject: Re: Emergency Contact Information needed

To whom should I provide the information?

From: LIA03 Hoc
To: Collins, Elmo
Cc: LIA02 Hoc
Sent: Fri Mar 25 16:19:57 2011
Subject: Emergency Contact Information needed

Dear Elmo,
Please provide emergency contact information before you depart to Japan. We will need a name (with relationship to yourself) and at least one phone number.

Thank you!
-Jenny

map/510

From: OST05 Hoc
Sent: Friday, March 25, 2011 8:45 PM
To: Easson, Stuart; Flannery, Cindy; LIA04 Hoc; Lukes, Kim; Maupin, Cardelia; Noonan, Amanda; OST05 Hoc; Rautzen, William; Rivera, Alison; Ryan, Michelle; Turtill, Richard; Virgilio, Rosetta; Barker, Allan; Browder, Rachel; Erickson, Randy; Logaras, Herral; Maier, Bill; McNamara, Nancy; Tiff, Doug; Trojanowski, Robert; Woodruff, Gena; Collins, Elmo; Dean, Bill; Heck, Jared; McCree, Victor; Pederson, Cynthia; Satorius, Mark
Subject: FW: Revised USNRC Earthquake-Tsunami Update -- 1800 EDT, March 25, 2011
Attachments: USNRC Earthquake-Tsunami Update 032511 1800EDT(rev2).pdf

From: LIA07 Hoc
Sent: Friday, March 25, 2011 7:56 PM
Subject: Revised USNRC Earthquake-Tsunami Update -- 1800 EDT, March 25, 2011

Resent to add new dose and evacuation information.
Sorry for any confusion!

Attached, please find an 1800 EDT (March 25, 2011) status update from the US Nuclear Regulatory Commission's Emergency Operations Center regarding the impacts of the earthquake/tsunami.

Please note that this information is "Official Use Only" and is only being shared within the federal family.

Please call the Headquarters Operations Officer at 301-816-5100 with questions.

-Sara

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

ppp/511

From: OST05 Hoc
Sent: Friday, March 25, 2011 8:45 PM
To: LIA07 Hoc
Subject: RE: Revised USNRC Earthquake-Tsunami Update -- 1800 EDT, March 25, 2011

Ok. Thanks.

From: LIA07 Hoc
Sent: Friday, March 25, 2011 8:44 PM
To: OST05 Hoc
Subject: RE: Revised USNRC Earthquake-Tsunami Update -- 1800 EDT, March 25, 2011

The Ops Center positions aren't on distribution ... the report is available on WebEOC under Sitreps/Spotreps.
Thanks!
-Sara

From: OST05 Hoc
Sent: Friday, March 25, 2011 8:43 PM
To: LIA07 Hoc
Subject: RE: Revised USNRC Earthquake-Tsunami Update -- 1800 EDT, March 25, 2011

Sara,
Please add LIA04 to distribution.

Thanks
Michelle

Michelle Ryan
State Liaison – Liaison Team

From: LIA07 Hoc
Sent: Friday, March 25, 2011 7:56 PM
Subject: Revised USNRC Earthquake-Tsunami Update -- 1800 EDT, March 25, 2011

Resent to add new dose and evacuation information.
Sorry for any confusion!

Attached, please find an 1800 EDT (March 25, 2011) status update from the US Nuclear Regulatory Commission's Emergency Operations Center regarding the impacts of the earthquake/tsunami.

Please note that this information is "Official Use Only" and is only being shared within the federal family.

Please call the Headquarters Operations Officer at 301-816-5100 with questions.

-Sara

Sara K. Mroz
Communications and Outreach

ppp/5/12

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

From: Turtil, Richard
Sent: Friday, March 25, 2011 1:03 PM
To: Tiff, Doug; McNamara, Nancy; Trojanowski, Robert; Woodruff, Gena; Barker, Allan; Logaras, Harra; Maier, Bill
Cc: Virgilio, Rosetta; LIA04 Hoc; OST05 Hoc; Noonan, Amanda
Subject: Tues and Thurs HHS-organized calls with all 50 states: Pacific Basin Earthquake/Tsunami Conference Call
Attachments: HHS State Territory 2011 Pacific Basin Earthquake Tsunami Conference Call.doc; 2011-0002comgbj-vtrVoteSheetTasking.pdf; 2011-0002comgbj3 21ActionsFollowing.pdf; 2011-0002comgbj-srm3 23 Tasking.pdf

RSLOs:

Each Tuesday and Thursday evening at 5:00 pm EDT, HHS has organized a call with all 50 states and Federal agencies. State audience: State/Territorial Health Officials, State/Territorial Preparedness Directors, State/Territorial Radiation Protection Program Leads, State/Territorial Public Affairs Officers, Staff of the Radiation Protection Alliance, NPHIC Staff.

As Amanda forwarded to you yesterday, and I have indicated to some of you, you should listen to this call. Dave Allard was on last night and asked several questions.

Agencies on the call vary and provide a brief update from their perspective/responsibility. Latest calls have included the following Fed agencies: CBP, CDC, HHS, DOE, NOAA, EPA, and NRC. I have briefed the NRC perspective, providing information about the 50 mile recommended evacuation zone announced by NRC for Japan, our Information Notice to Part 50 licensees, Monday's public meeting, reference to the SRM that came about as a result of the Public meeting, etc. Minutes of last night's call are attached.

The call-in number changes for each scheduled call; once we receive it, we shall provide to each of you for your use and for providing to your State contacts. We will also provide it directly to SLOs and RCPDs per listserv once we learn of the information. We encourage you to recommend that your SLOs participate in the call.

FSME ACTIONS: we are developing another FSME letter anticipated for transmittal on Monday to all RCPDs and SLOs that will communicate information from this week, including Commission responses from Monday's Commission meeting (SRM, Vote Sheets, and summary report: "NRC ACTIONS FOLLOWING THE EVENTS IN JAPAN" – all three are attached.) We will also communicate the usefulness of the Tuesday and Thursday HHS call. We will also send out the bridge line and passcode as soon as we learn of it from HHS (yes, it changes for each call.)

That's it for now.

Rich
Richard Turtil, Chief
Intergovernmental Liaison Branch
Office of Federal and State Materials and Environmental Management Programs
U.S. Nuclear Regulatory Commission
301-415-2308
800-368-5642

ppp / 513

From: Wall, Yvonne
Sent: Friday, March 25, 2011 3:12 PM
To: Merritt, Christina
Subject: FW: UPDATE: NRC IS RESPONDING TO JAPANESE EVENTS

From: Operations Center Bulletin
Sent: Wednesday, March 16, 2011 12:51 PM
To: Operations Center Bulletin
Subject: UPDATE: NRC IS RESPONDING TO JAPANESE EVENTS

THIS IS NOT A DRILL

The Office of Public Affairs is expecting a large volume of calls from media and the general public regarding the latest statements from the State Department and the NRC regarding the situation in Japan. ALL CALLS from media or the general public on this topic must be referred to Regional Public Affairs or the 301-415-8200 number for HQ employees.

THIS IS NOT A DRILL

*****Event Information is Attached*****

The NRC is responding to an event.

Please contact the NRC Executive Support Team if necessary at 301-816-5100 or reply to this e-mail.

prop/514

From: Pederson, Cynthia
Sent: Friday, March 25, 2011 8:45 PM
To: OST05 Hoc
Subject: Out of Office: Revised USNRC Earthquake-Tsunami Update -- 1800 EDT, March 25, 2011

I will be out of the office March 25 to April 4 and will not be checking my e-mail. Please contact Mark Satorius at 630-829-9657 or Tammy Tomczak at 630-829-9658 for assistance .

thanks, Cindy

10/20/11 5:15

From: Weber, Michael
Sent: Friday, March 25, 2011 2:26 PM
To: Ordaz, Vonna
Cc: Haney, Catherine; Dorman, Dan; Kinneman, John; Virgilio, Martin; Dyer, Jim; ET01 Hoc; OST02 HOC; Zimmerman, Roy; LIA06 Hoc; LIA08 Hoc
Subject: Response - QUESTION

We need to be careful in distinguishing from what is needed to restore cooling to the reactors and pools (the focus of our current response) vs. longer term needs like you are raising. I suggest NMSS, NRR, FSME, and RES coordinate to determine a lead office to work this issue through the line organization (not Ops Center).

From: Ordaz, Vonna
To: Weber, Michael; Virgilio, Martin
Cc: Haney, Catherine; Dorman, Dan; Kinneman, John
Sent: Fri Mar 25 12:51:51 2011
Subject: QUESTION

Mike and Marty,

We received a request from Dan in Japan this morning related to post-accident fuel removal associated with storage and transportation, and we are actively working on a response by 6pm. As we began coordinating our response with other offices, we've learned that RES, FSME, NRR, and Region I are also working to pull together different types of information regarding post-accident recovery and remediation issues - - primarily from previous TMI-2 experience.

We are aware of Charlie Miller's 30/60/90 day Team on domestic lessons learned. However, we don't believe the post-accident recovery support to our NRC in-country team falls under the Ops Center or Charlie Miller's Team. Would you please advise on whether there is or will be an agency lead or plan for coordinating post-accident recovery support to our NRC in-country team to cover items such as post-accident assessment, defueling, and long-term waste remediation?

Thank you,

Vonna
(for NMSS OD today)

PPP/516

From: Wiggins, Jim
Sent: Monday, March 28, 2011 2:01 AM
To: ET05 Hoc
Cc: FOIA Response.hoc Resource
Subject: FW: REPLY: QUESTION

From: Dorman, Dan
Sent: Monday, March 28, 2011 1:57 AM
To: Virgilio, Martin
Cc: Casto, Chuck; Wiggins, Jim; Miller, Chris; Weber, Michael
Subject: RE: REPLY: QUESTION

Thanks, Marty. Sorry my phone cut out on that call. The reactor safety team here was working that with the RST there relative to filling in the row of TEPCO actions as we understand them, the NRC's proposed actions based on what we know, the gaps between the two, and strategies to close those gaps.

John Monninger was working to fill in the bottom row of key milestones for declaring victory.

Many of our folks are off at meetings with NISA, TEPCO and MOD, but we'll have them re-engage with the RST on the 0300 EDT call.

Dan

BTW: RADM Rowden borrowed my phone to call ADM Willard after our meeting with TEPCO Executives and Hosono, so for the next few hours until I cross his path again, if you need to talk call me in the team room at the embassy.

From: Virgilio, Martin
Sent: Sunday, March 27, 2011 10:44 PM
To: Dorman, Dan
Cc: Casto, Chuck; Wiggins, Jim; Miller, Chris; Weber, Michael
Subject: REPLY: QUESTION

Thanks, Dan

On another matter, we want to be responsive to your interest in having the "assessment and recommendations" document formatted into a Table that would be used to facilitate conversations with TEPCO. There are at least 2 versions of this Table floating around back here. We need to hear from you (the team) to allow us to make progress/finish this task.

Marty

From: Dorman, Dan
Sent: Sunday, March 27, 2011 8:38 PM
To: Virgilio, Martin; Ordaz, Vonna; Casto, Chuck
Cc: Haney, Catherine; Kinneman, John; Weber, Michael; Uhle, Jennifer; Miller, Chris
Subject: Re: REPLY: QUESTION

Marty,

I wholeheartedly agree and apologize for going out of process. We got this request during the cabinet meeting Friday

evening and I was mindful that knowledge of good references for TMI fuel removal may reside in SFST and that we were fast approaching the weekend.

The GAO report provided by SFST was the perfect high level overview for their initial meetings over the weekend. These have now been supplemented with several more detailed reports from our INPO rep, Al Hochevar. Our colleagues have been very appreciative of this prompt and effective support, and it was accomplished with minimal impact on the people focused on the near term reactor and SFP stability issues.

I'll try to stay in process in the future.

Dan

From: Virgilio, Martin
To: Ordaz, Vonna; Casto, Chuck; Dorman, Dan
Cc: Haney, Catherine; Kinneman, John; Weber, Michael; Uhle, Jennifer; Miller, Chris
Sent: Sun Mar 27 03:20:07 2011
Subject: REPLY: QUESTION

Vonna

You raise a good point that the requests from the site team need to be coordinated thru a central location. As long as we have the RST stood up, I would funnel all requests from the site thru them.

Chuck/Dan

Do you agree?

Marty

From: Ordaz, Vonna
Sent: Friday, March 25, 2011 12:52 PM
To: Weber, Michael; Virgilio, Martin
Cc: Haney, Catherine; Dorman, Dan; Kinneman, John
Subject: QUESTION

Mike and Marty,

We received a request from Dan in Japan this morning related to post-accident fuel removal associated with storage and transportation, and we are actively working on a response by 6pm. As we began coordinating our response with other offices, we've learned that RES, FSME, NRR, and Region I are also working to pull together different types of information regarding post-accident recovery and remediation issues - - primarily from previous TMI-2 experience.

We are aware of Charlie Miller's 30/60/90 day Team on domestic lessons learned. However, we don't believe the post-accident recovery support to our NRC in-country team falls under the Ops Center or Charlie Miller's Team. Would you please advise on whether there is or will be an agency lead or plan for coordinating post-accident recovery support to our NRC in-country team to cover items such as post-accident assessment, defueling, and long-term waste remediation?

Thank you,

Vonna
(for NMSS OD today)

From: LIA04 Hoc
Sent: Friday, March 25, 2011 9:59 AM
To: LIA04 Hoc; OST05 Hoc; Barker, Allan; Browder, Rachel; Erickson, Randy; Logaras, Herral; Maier, Bill; McNamara, Nancy; Tiff, Doug; Trojanowski, Robert; Woodruff, Gena; Janda, Donna; Lynch, James; Orendi, Monica; Collins, Elmo; Dean, Bill; Heck, Jared; McCree, Victor; Pederson, Cynthia; Satorius, Mark
Cc: Piccone, Josephine; Jackson, Deborah; Easson, Stuart; Flannery, Cindy; Lukes, Kim; Maupin, Cardelia; Noonan, Amanda; Rautzen, William; Rivera, Alison; Ryan, Michelle; Turtill, Richard; Virgilio, Rosetta
Subject: FYI - Talking Points on GI-199 Safety Risk Assessment Background Information
Attachments: GI-199 Safety Risk Assessment Background Information.docx

FYI - Attached are talking points that were posted on WebEOC this morning (March 25) on the GI-199 Safety Risk Assessment.

Kim Lukes
State Liaison
NRC HQ Operations Center
301-816-5193

PPP/517

GI-199 Safety Risk Assessment Background Information

Talking Points

- The NRC's GI-199 safety risk assessment was completed in August 2010. It is publically available. <http://pbadupws.nrc.gov/docs/ML1002/ML100270582.html>
- The purpose of the GI-199 safety risk assessment was to perform a conservative, screening-level assessment to determine whether additional seismic safety review was needed for nuclear plants in the Central and Eastern United States (CEUS).
- Updates to seismic data and models indicate increased seismic hazard estimates for some operating nuclear power plant sites in CEUS.
- The results of this assessment are not final estimates of plant-specific seismic risk.
- The NRC does not rank plants by seismic risk.
- The NRC continues to conclude that all plants have adequate seismic safety margin and continue to operate safely.

Q&A

1. What is GI-199?

Generic Issue 199 investigates the safety implications of updated earthquake-related data and models. These updated data and models suggest that the probability for earthquake ground shaking above the seismic design basis for some nuclear power plants in the Central and Eastern United States (CEUS) is still low, but larger than previous estimates.

2. Are the NRC reviews/analyses based on 2004 seismic data from USGS? Is there other updated earthquake information and modeling?

In 2004, preliminary results from United States Geological Survey (USGS) work indicated an increase in the probability of exceeding the Safe Shutdown Earthquake (SSE) for 29 nuclear power sites in the CEUS. The probability increases identified by USGS were primarily due to recent developments in the modeling of earthquake ground motion in the CEUS. USGS published updated data in 2008, which is what was used in the NRC's GI-199 safety risk assessment.

3. The NRC report talks about "screening reviews." What does that mean?

In December 2007, NRC completed a limited scope screening analysis, which is used by the NRC staff to decide whether an issue requires additional review. The screening compared the new seismic data with earlier seismic evaluations conducted by the NRC staff. The limited scope screening analysis concluded that seismic designs of plants in the CEUS continue to provide adequate safety margins. However, because the NRC recognized that this new seismic data could reduce available safety margins, the NRC staff conducted further analysis by performing NRC's GI-199 safety risk assessment.

4. Does the GI-199 study examine all nuclear power plants?

The GI-199 safety risk assessment is limited to all plants in the CEUS. Although plants at the Columbia, Diablo Canyon, Palo Verde, and San Onofre sites are not included in the GI-199 safety risk assessment, the NRC Information Notice on GI-199 is addressed to all operating power plants in the U.S. (as well as all independent spent fuel storage installation licensees). The NRC will also consider inclusion of operating reactors in the Western U.S. in its future generic communication information requests.

5. Does the GI-199 study consider spent fuel pools?

Spent fuel pools (SFPs) were not specifically evaluated as part of GI-199 safety risk assessment. However, based on their design characteristics, the NRC concludes that SFPs remain safe. SFPs are constructed of reinforced concrete, several feet thick, with a stainless steel liner to prevent leakage and maintain water quality. SFPs are inherently structurally-rugged and are designed to the same seismic requirements as the nuclear plant.

6. Is the NRC performing any inspections for GI-199?

The NRC is not currently performing inspections that are directly related to GI-199. However, on March 23, 2011, the NRC directed its inspectors to assess the actions taken by nuclear plant licensees in response to events at the Fukushima Daiichi nuclear station in Japan. NRC inspectors were given direction in the form of a Temporary Instruction (TI), which is one of the processes that NRC inspectors use to perform inspections following specific events. Using TI 2515/183, NRC inspectors will verify that important equipment and materials are adequate and properly staged, tested, and maintained in order to respond to a severe earthquake, flooding event, or loss of all electrical power. This inspection is an additional NRC activity. It does not replace any of the routine reviews that NRC inspectors perform daily at every nuclear power plant. Inspection activities for TI 2515/183 are expected to be completed by April 29, 2011. The results will be issued in a publically available inspection report by May 13, 2011

7. What happens next with GI-199?

The NRC is developing a Generic Letter (GL) to request information from all nuclear plants in the CEUS, which is a total of 96 operating reactors. The GL is scheduled to be issued for public comment in the late spring 2011. In addition its internal review processes, the NRC will also present the GL to the Advisory Committee on Reactor Safeguards (ACRS) both before and after the public comment period. The GL should be issued by end of 2011, near the time when new seismic models become available. These new seismic models are being developed by NRC, DOE, and EPRI. In addition the USGS will review the model. Information requested in the GL will likely require 3 to 6 months for nuclear plant licensees to prepare. NRC's review will be ongoing as information is collected. Based on NRC's review of that information, a determination will be made regarding required changes at nuclear plants.

8. What if the GI-199 is wrong and an unexpected earthquake happens?

Following the events of September 11, 2001, NRC required all nuclear plant licensees to take additional steps to protect public health and safety in the event of a large fire or explosion. If needed, these additional steps could also be used during natural phenomena such as earthquakes, tornadoes, floods, and tsunamis. In general, these additional steps are plans, procedures, and pre-staged equipment whose intent is to minimize the effects of adverse events. In accordance with NRC regulations, all nuclear power plants are required to maintain or restore cooling for the reactor core, containment building, and spent fuel pool under the circumstances associated with a large fire or explosion. These requirements include using existing or readily available equipment and personnel, having strategies for firefighting, operations to minimize fuel damage, and actions to minimize radiological release to the environment.

Date: March 25, 2011

From: Weber, Michael
Sent: Friday, March 25, 2011 2:19 PM
To: Dyer, Jim
Cc: Zimmerman, Roy; Uhle, Jennifer; PMT01 Hoc; ET01 Hoc
Subject: Response - CA briefing today

Thanks, Jim

From: Dyer, Jim
To: Batkin, Joshua
Cc: Borchardt, Bill; Virgilio, Martin; Weber, Michael; Ross-Lee, MaryJane; Carpenter, Cynthia
Sent: Fri Mar 25 13:23:00 2011
Subject: RE: from the CA briefing today

We just received isotopic analysis from TEPCO of the water in the U3 Turbine Building. Iodine 131 levels and other isotopes indicate damaged fuel from the core so it looks like there has been a breach of the containment to get it into the turbine building. Over exposed workers entered under 3/23 surveys that showed much less radiation dose. Subsequently they entered the turbine building on 3/24 and went into a couple feet of water with a radiation dose rate at the surface of 40 R/hr. The skin burns are believed to be about 18 Rem beta.

Jim

From: Dyer, Jim
Sent: Friday, March 25, 2011 12:27 PM
To: Batkin, Joshua
Cc: Borchardt, Bill
Subject: RE: from the CA briefing today

As a post call 0715 briefing followup item. Dr. John Holgren, OSTP, called at 8:15 about news reports that there had been a major breach or radiation release at the site. I told him that I had heard nothing and that my turnover was that the plants were stable. Subsequently, on our call with INPO and confirmed in discussions with Chuck Casto, we heard that the U3 Turbine building has some standing water in the basement that contaminated the workers yesterday and that water contained fission products. Chuck said that they weren't sure whether the water was from the containment or from the water that they are filling the spent fuel pool with that has drained out. I just saw the news flashes that this is a containment breach. Bottom line is that we don't know.

Jim

From: Batkin, Joshua
Sent: Friday, March 25, 2011 10:43 AM
To: Ross-Lee, MaryJane
Cc: Dyer, Jim; ET05 Hoc
Subject: RE: from the CA briefing today

I'll handle. Thanks

From: Ross-Lee, MaryJane
Sent: Friday, March 25, 2011 9:36 AM
To: Batkin, Joshua

PPP/518

Cc: Dyer, Jim; ET05 Hoc

Subject: from the CA briefing today

Josh, the commission's would like a copy of what the Chairman has for his briefing with the Japanese Ambassador today. We said we would work through the chairman's office for distribution. thanks

From: Ross-Lee, MaryJane
Sent: Friday, March 25, 2011 11:10 AM
To: Batkin, Joshua
Cc: Dyer, Jim; ET05 Hoc; Hoc, PMT12
Subject: RE: from the CA briefing today

They also requested the PMT compendium of assumptions and outputs for runs that have been completed. PMT is on this, and it has not yet been completed.

In addition that would like a copy of the RST assessment regarding further actions for the three Units that will be provided to the Japan government. This action has not yet happened; the document is in draft and being discussed between RST, NR, GEH, DOE.

From: Batkin, Joshua
Sent: Friday, March 25, 2011 10:43 AM
To: Ross-Lee, MaryJane
Cc: Dyer, Jim; ET05 Hoc
Subject: RE: from the CA briefing today

I'll handle. Thanks

From: Ross-Lee, MaryJane
Sent: Friday, March 25, 2011 9:36 AM
To: Batkin, Joshua
Cc: Dyer, Jim; ET05 Hoc
Subject: from the CA briefing today

Josh, the commission's would like a copy of what the Chairman has for his briefing with the Japanese Ambassador today. We said we would work through the chairman's office for distribution. thanks

PROP/519

From: LIA02 Hoc
Sent: Friday, March 25, 2011 8:13 AM
To: Smith, Brooke; Foggie, Kirk
Cc: LIA03 Hoc
Subject: Watch Turnover

Lance and Steve Bloom have the watch.

ppp/520

From: Kerben, Valerie
Sent: Friday, March 25, 2011 3:10 PM
To: LIA03 Hoc
Subject: RE: New names going to japan

Thank you. Yes, Personnel Security completes all clearances for NRC staff going to Japan.

From: LIA03 Hoc
Sent: Friday, March 25, 2011 2:44 PM
To: Kerben, Valerie; LIA02 Hoc; Fragoyannis, Nancy; LIA11 Hoc
Cc: Pretzello, Andrew; Watson, Linda
Subject: RE: New names going to japan

Hello Valerie,

I did not realize that your office was informed of folks traveling to Japan. I can confirm that those three are part of the relief team of NRC folks going over. I have attached a complete list FYI.

Lance English
International Liaison desk

From: Kerben, Valerie
Sent: Friday, March 25, 2011 2:38 PM
To: LIA02 Hoc; LIA03 Hoc; Fragoyannis, Nancy; LIA11 Hoc
Cc: Pretzello, Andrew; Watson, Linda
Subject: New names going to japan

I just received word from USAID in around about way from Region that 3 more people are going to Japan. Please inform me as soon as possible so I can take action the same time or before the names go to USAID and the Embassy.

Thank you-!

Valerie B. Kerben
Chief, Personnel Security Branch
Division of Facilities and Security
U.S. Nuclear Regulatory Commission
(office#) 301-492-3527
(fax #) 301-492-3442

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NRC Officer _____ Danielle Emche _____

ppp/521

NRC Officer	Eric Stahl
NRC Officer	Elmo Collins

From: Kerben, Valerie
Sent: Friday, March 25, 2011 4:51 PM
To: LIA03 Hoc
Subject: Re: New names going to japan

No thank you!

Valerie B. Kerben, Chief
Personnel Security Branch
Nuclear Regulatory Commission
P-(301) 492-3527
F-(301) 492-3442

From: LIA03 Hoc
To: Kerben, Valerie
Sent: Fri Mar 25 16:48:34 2011
Subject: RE: New names going to japan

Valerie,
Do you need other information on these travelers? (like departure date, blackberry number etc)

Thanks,
-Jenny

From: Kerben, Valerie
Sent: Friday, March 25, 2011 2:38 PM
To: LIA02 Hoc; LIA03 Hoc; Fragoyannis, Nancy; LIA11 Hoc
Cc: Pretzello, Andrew; Watson, Linda
Subject: New names going to japan

I just received word from USAID in around about way from Region that 3 more people are going to Japan. Please inform me as soon as possible so I can take action the same time or before the names go to USAID and the Embassy.

Thank you-!

Valerie B. Kerben
Chief, Personnel Security Branch
Division of Facilities and Security
U.S. Nuclear Regulatory Commission
(office#) 301-492-3527
(fax #) 301-492-3442

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PPP/522

NRC Officer	Danielle Emche
NRC Officer	Eric Stahl
NRC Officer	Elmo Collins

From: LIA02 Hoc
Sent: Friday, March 25, 2011 10:16 PM
To: RST01 Hoc; RST02 Hoc
Cc: LIA03 Hoc
Subject: FW: Nikkei article 3/26/11 sense of crisis on the US side
Attachments: image001.jpg

Here is some new information from our Japanese translator.

From: LIA10 Hoc
Sent: Friday, March 25, 2011 10:12 PM
To: LIA02 Hoc; LIA03 Hoc
Subject: Nikkei article 3/26/11 sense of crisis on the US side

Fresh water injection into NPP, joint operation with US military
Sense of crisis on the part of US in the background
Actual work to start on March 28 at the earliest
2011/3/26 1:06

What is behind the decision to initiate Japan-US joint operation to inject fresh water into the nuclear power plant is a strong sense of crisis on the part of the U.S. that some unexpected situation might develop under current conditions.

The U.S. military mobilized two barges from Yokosuka base and prepared about 2200 tons of water and purchased pumps from Australia which have been transported by C17 cargo planes to Yokota base. Actual fresh water injection operation is to start as early as March 28.

Each barge is 50 m long and 12 m wide and capable of carrying about 1100 tons of water. According to the plan, multi-purpose support ship Hiuchi of the Self Defense Forces will tow the barges to the ocean off the nuclear power plant. After the barges come alongside the pier, large-size pumps will draw fresh water which will be hosed down into reactors.

The U.S. barges carrying fresh water left the port of Yokosuka before noon on March 25. It takes time to make preparations even after coming alongside the pier, actual operation will start on March 28 at the earliest. Once water injection started, Maritime Self Defense Forces will deploy supply vessels in a distance of about 30 km off shore which will supply water to barges as needed. Self Defense Forces will be in charge of this operation and TEPCO will install the pumps.

It is estimated that about 3500 tons of fresh water will be needed to fill the cooling water tank.

A high-ranking official of the Ministry of Defense explains about U.S. request, "There is no choice but to use sea water to cool down (the reactors) on emergency basis. But if it continues for long time, it can cause

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negative effects such as progressive corrosion and accumulation of salt. It is their judgment that it is better to shift to fresh water injection as soon as possible.”

Minister of Defense Toshimi Kitazawa said, “The U.S. side is very deeply concerned and there was a strong request.” The Minister of Defense also said, “There was a comment from TEPCO that if sea water is continuously injected, same kind of salt damage might develop.”

There was a judgment on the part of the Japanese side as well that it is necessary to switch to fresh water from the beginning. But the efforts geared up only after the strong request from the U.S., after all.

原発に真水注入、米軍と共同作戦 米側の危機感が背景

28 日にも作業開始

2011/3/26 1:06

日米が共同で原発への真水注入作戦に着手したのは、現状では不測の事態が起こりかねない、との米側の強い危機感からだ。米軍は横須賀基地にある「バージ船」と呼ばれるはしけ船2隻で約2200トンの水を用意し、ポンプ機もオーストラリアから購入。C17輸送機で横田基地に輸送している。28日にも実際の注入作業が始まる見通しだ。



注入する真水を積んだ米艦艇(奥)をえい航する海上自衛隊の艦艇 (25日、東京湾の浦賀水道) =共同

A Maritime Self Defense Force ship tows a U.S. barge (in the rear) carrying fresh water to be injected. (March 25, Uraga Channel in Tokyo Bay) =Kyodo

バージ船は長さ50メートル、幅12メートルで、1隻あたり約1100トンの水を積める。自衛隊の多用途支援艦「ひうち」が原発近くの沖合までえい航し、接岸後は大型ポンプで水をくみ上げ、ホースで原子炉内に真水を入れる計画だ。

米側が真水を入れたバージ船は25日昼前、横須賀港を出発した。現地に到着して接岸し、準備を整える時間がかかるため、作業が始まるのは早くも28日になる。注入が始まれば、沖合約30キロ

のあたりに海上自衛隊の補給艦を停泊させ、バージ船に随時、水を補給する。この作業は自衛隊が担当し、ポンプは東電が設置する。

冷却水タンクを満たすには、約 3500 トンの真水が必要と試算している。

米側の要請について防衛省幹部は「緊急に冷やすためには海水でやむを得ないが、長期間にわたると腐食が進んだり、塩がたまるなどの弊害が起きる。早く真水に変えた方がいいとの判断だ」と説明する。

北沢俊美防衛相も記者会見で「米側が非常に懸念を持っていて、強い要請があった」と明かす。ただ防衛相は同時に「東電からも『いつまでも海水を注入していると、塩害のようなものが起きてくるのではないか』との意見があった」とも語っている。

日本側にも当初から「真水に切り替える必要がある」との判断はあった。だが結局、本格化したのは米側の強い要請を受けてからになった。

From: JapanEmbassy, TaskForce <JapanEmbassyTaskForce@state.gov>
Sent: Friday, March 25, 2011 4:50 PM
To: PMT01 Hoc
Cc: LIA03 Hoc; JapanEmbassy, TaskForce; LIA02 Hoc
Subject: RE: Request to Japan Meteorological Agency Thru the Japan Embassy Task Force
Attachments: Notes.xlsx; Tamakawa.xlsx; Watari.xlsx; Natori.xlsx; Sendai.xlsx; Shiogama.xlsx; Marumori.xlsx; Hirono.xlsx; Namie.xlsx; Taira.xlsx; Tomioka.xlsx; Onohama.xlsx; Soma.xlsx; Haramachi.xlsx

Hello,

Attached please find the data your requested. It is listed in Japanese on the Japan Meteorological Agency website, so for each data set we translated the Japanese portions into English. We've also roughly translated a key that describes some of the symbols in the data sets. Please note that the translations were by laypersons, so hopefully it still makes sense to the scientists.

To answer your questions, as of March 25, the following stations are not in service:

Miyagi Prefecture(24 stations): Shizugawa, Ogatsu, Natori, Enoshima

Fukushima Prefecture(38 stations): Namie, Tsuchima, Tomioka, Hirono, Kawauchi

The websites from which we drew the data are below:

<Soma>

Data in March by day:

http://www.data.jma.go.jp/obd/stats/etrn/view/daily_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7&block_no=0285&block_ch=%91%8A%94n&year=2011&month=3&day=&elm=daily&view=

If you need hourly weather data a certain day, click the underlined date at the left side in the table above.

I will show you detailed data of March 1 as example:

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7&block_no=0285&block_ch=%91%8A%94n&year=2011&month=03&day=1&view=p1

<Haramachi>

Data in March by day:

http://www.data.jma.go.jp/obd/stats/etrn/view/daily_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7&block_no=0288&block_ch=%8C%B4%92%AC&year=2011&month=3&day=&elm=daily&view=

Note: Haramachi station measures only precipitation.

<Namie>

Data in March (until the 11th)by day:

http://www.data.jma.go.jp/obd/stats/etrn/view/daily_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7&block_no=0295&block_ch=%98Q%8D%5D&year=2011&month=3&day=&elm=daily&view=

<Tomioka>

Data in March (until the 13th) by day:

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http://www.data.jma.go.jp/obd/stats/etrn/view/daily_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7&block_no=0300&block_ch=%95x%89%AA&year=2011&month=3&day=&elm=daily&view=

Note: Tomioka station measures only precipitation

<Hirono>

Data in March (until the 13th) by day:

http://www.data.jma.go.jp/obd/stats/etrn/view/daily_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7&block_no=1034&block_ch=%8DL%96%EC&year=2011&month=3&day=&elm=daily&view=

<Taira>

Data in March by day:

http://www.data.jma.go.jp/obd/stats/etrn/view/daily_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7&block_no=0310&block_ch=%95%BD&year=2011&month=3&day=&elm=daily&view=

Note: Taira station measures only precipitation.

<Onohama>

Data in March by day:

http://www.data.jma.go.jp/obd/stats/etrn/view/daily_s1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7&block_no=47598&block_ch=%8F%AC%96%BC%95I&year=2011&month=3&day=&elm=daily&view=

<Tamakawa>

Data in March by day:

http://www.data.jma.go.jp/obd/stats/etrn/view/daily_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7&block_no=1466&block_ch=%8B%CA%90%EC&year=2011&month=3&day=&elm=daily&view=

<Watari>

Data in March by day:

http://www.data.jma.go.jp/obd/stats/etrn/view/daily_a1.php?prec_no=34&prec_ch=%8B%7B%8F%E9%8C%A7&block_no=0257&block_ch=%98j%97%9D&year=2011&month=3&day=&elm=daily&view=

<Natori>

Data in March by day(until the 13th):

http://www.data.jma.go.jp/obd/stats/etrn/view/daily_a1.php?prec_no=34&prec_ch=%8B%7B%8F%E9%8C%A7&block_no=1464&block_ch=%96%BC%8E%E6&year=2011&month=3&day=&elm=daily&view=

<Sendai>

Data in March by day:

http://www.data.jma.go.jp/obd/stats/etrn/view/daily_s1.php?prec_no=34&prec_ch=%8B%7B%8F%E9%8C%A7&block_no=47590&block_ch=%90%E5%91%E4&year=2011&month=3&day=&elm=daily&view=

<Shiogama>

Data in March by day:

http://www.data.jma.go.jp/obd/stats/etrn/view/daily_a1.php?prec_no=34&prec_ch=%8B%7B%8F%E9%8C%A7&block_no=1030&block_ch=%89%96%8A%98&year=2011&month=3&day=&elm=daily&view=

<Marumori>

Data in March by day:

http://www.data.jma.go.jp/obd/stats/etrn/view/daily_a1.php?prec_no=34&prec_ch=%8B%7B%8F%E9%8C%A7&block_no=1220&block_ch=%8A%DB%90X&year=2011&month=3&day=&elm=daily&view=

Hope this provides the information you need.

Naomi Walcott
Emergency Action Officer
Japan Emergency Command Center
U.S. Embassy Tokyo

This email is UNCLASSIFIED.

From: PMT01 Hoc [mailto:PMT01.Hoc@nrc.gov]
Sent: Thursday, March 24, 2011 4:57 PM
To: JapanEmbassy, TaskForce; LIA02 Hoc
Cc: LIA03 Hoc
Subject: RE: Request to Japan Meteorological Agency Thru the Japan Embassy Task Force

Website NRC is looking at is www.jma.go.jp/en (Japan Meteorological Agency)

The pathway on the website that is of our interest to the request below is Home > Weather and Earthquakes > Latest Weather (Weather Observation Table) > Table of Hourly Weather Observations (Today/Yesterday) > and then the site of interest, for example Fukushima > Soma or Miyagi > Sendai

Here are the final destinations

e.g. Sendai http://www.jma.go.jp/en/amedas_h/today-34392.html?groupCode=23&areaCode=000

e.g. Soma http://www.jma.go.jp/en/amedas_h/today-36151.html?groupCode=25&areaCode=000

this website (and others for the other sites listed below) is useful so that we can see what the observed conditions are and can compare to our forecasts. The current day's observations are listed, and there is a link to yesterday's observations

e.g. Sendai yesterday http://www.jma.go.jp/en/amedas_h/yesterday-34392.html?areaCode=000&groupCode=23

e.g. Soma yesterday http://www.jma.go.jp/en/amedas_h/yesterday-36151.html?areaCode=000&groupCode=25

Measurements Desired-Most Useful

Time

Precipitation

Wind Speed (m/s)

Wind Direction

The other measurements (temperature, sunshine duration) displayed on the website are useful, but not essential. If the below request is too much information to ask, let us know and we will make a list of prioritized sites.

Thank you,
Andy Imboden, PMT01 (Meteorologist)

From: JapanEmbassy, TaskForce [mailto:JapanEmbassyTaskForce@state.gov]
Sent: Thursday, March 24, 2011 3:17 AM
To: LIA02 Hoc; PMT01 Hoc
Cc: LIA03 Hoc
Subject: RE: Request to Japan Meteorological Agency Thru the Japan Embassy Task Force

Dear Mike (and NRC International Liaison Desk),

We are working on this matter but would like to clarify a couple points. Could you provide the website where you have found the data you've been looking at? Also, exactly what kind of measurements are you seeking? (This latter question may be answered if we know what JMA website you've been using.)

Thanks very much,

Naomi Walcott
Emergency Action Officer
Japan Emergency Command Center
U.S. Embassy Tokyo

This email is UNCLASSIFIED.

From: LIA02 Hoc [mailto:LIA02.Hoc@nrc.gov]
Sent: Thursday, March 24, 2011 2:50 AM
To: JapanEmbassy, TaskForce
Cc: PMT01 Hoc; LIA03 Hoc
Subject: FW: Request to Japan Meteorological Agency Thru the Japan Embassy Task Force

Good morning,

Please see below request from the NRC Operations Center's Protective Measures Team. If you could kindly assist us with this we would greatly appreciate it.

Kind regards,
NRC International Liaison Desk

From: PMT01 Hoc
Sent: Wednesday, March 23, 2011 1:45 PM
To: LIA01 Hoc; LIA02 Hoc
Cc: Harvey, Brad; Quinlan, Kevin; Brown, David; Galletta, Thomas; Imboden, Andy; Brandon, Lou; Hoc, PMT12
Subject: Request to Japan Meteorological Agency Thru the Japan Embassy Task Force

Folks:

This is to request your assistance thru the Japan Embassy Task Force to obtain available hourly meteorological measurement data from the Japan Meteorological Agency (JMA) for specific monitoring stations near the Fukushima Nuclear Power Plant. The Task Force has been very helpful in expediting previous requests from PMT-Meteorology and focusing the requests on to the appropriate agencies or organizations. The text below can be excerpted for this current request.

Thanks,

Mike Mazaika.
PMT – Meteorology

Over the course of responding to the incidents at the Fukushima Nuclear Power Plant which began March 11, 2011, we have been trying to build a data base of representative meteorological data for the site and surrounding area. We have identified a number of monitoring stations operated by the Japan Meteorological Agency (JMA) located at or near the coast to the north and south of the facility.

Hourly measurements that are readily retrievable from the JMA website appear only to be available for the current and preceding day and must be queried on a regular basis. We do not have a complete set of hourly measurements for the identified stations and would like to obtain data for the parameters measured at these stations and for the dates indicate below. We realize that because of the devastating effects of the tsunami, several stations went out of service. In those cases, we would appreciate confirmation of the operating status thru the indicated time periods and in the case of all stations the provision of any available data during these time periods.

Prefecture	Station	Dates Needed	Current Operating Status
Fukushima	Soma	March 11 – 17	Operating
Fukushima	Haramachi	March 11 – 17	Operating
Fukushima	Namie	March 11 – 18	Not in Service
Fukushima	Tomioka	March 11 – 18	Not in Service
Fukushima	Hirono	March 11 – 18	Not in Service
Fukushima	Taira	March 11 – 18	Operating
Fukushima	Onahama	March 11 – 13, 15 – 18	Operating
Fukushima	Tamakawa (Fukushima Arpt)	March 11 – 13, 15 – 18, 21	Operating
Miyagi	Watari	March 11 – 17	Operating
Miyagi	Natori	March 11 – 18	Not in Service
Miyagi	Sendai (Observatory)	March 11 – 13, 17	Operating
Miyagi	Shiogama	March 11 – 17	Operating
Miyagi	Marumori	March 11 – 21	Operating

We are grateful for your assistance.

Thank you,

Mike Mazaika.

NRC

PMT – Meteorology

Sendai - March 11th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_s1.php?prec_no=34&prec_ch=%8B%7B%8F%E9%8C%A7

Time	Atmospheric Pressure (hPa)		Precipitation (mm)	Temperature (°C)	Dew Point Temperature (°C)
	On site	Ocean surface			
	Median	Median			
1	1009.4	1015	--	-0.6	-4.1
2	1009.6	1015.1	--	-0.3	-4.2
3	1009.6	1015.2	0	-1.1	-3.1
4	1009.5	1015.1	--	-1.7	-3.3
5	1009.6	1015.2	--	-2.2	-3.5
6	1009.9	1015.5	--	-1.2	-4
7	1009.7	1015.2	--	0.2	-3.9
8	1009.5	1015	--	1.7	-4.2
9	1009.2	1014.7	--	3	-6.1
10	1008.6	1014	--	4.6	-6
11	1007.9	1013.3	--	5	-6.5
12	1007.1	1012.5	0	4.7	-5.1
13	1006	1011.4	0	5.3	-6
14	1005.7	1011.1	0	6.2	-5.7
15	1006.4	1011.8	0	4.8	-3.5
16	1007.3	1012.8	0	2.1	-0.1
17	1008.6	1014.1	1	1.2	-0.2
18	1009.3	1014.8	0	0.9	-1.8
19	1009.7	1015.2	0	1.1	-3.7
20	1010	1015.5	--	1.7	-6.1
21	1010.9	1016.4	--	0.1	-3.6
22	1011.2	1016.8	--	-0.6	-3.4
23	1011.2	1016.7	0	0.4	-4
24	1011.4	1017	0	-0.1	-3.6

'&block_no=47590&block_ch=%90%E5%91%E4&year=2011&month=03&day=11&view=p1

Steam Pressure	Humidity	Wind Direction & Speed (m/s)		Sunshine Duration (h)	Amount of Global Solar Radiation (MJ/m ²)
		Speed	Direction		
4.5	77	2.8	SSW		
4.5	75	2.6	N		
4.9	86	1.8	N		
4.8	89	1.3	S		
4.7	91	1.2	S		
4.5	81	4.5	SW	0	0
4.6	74	2.9	SW	0.7	0.27
4.5	65	2.6	SW	1	0.99
3.9	51	1.5	S	1	1.69
3.9	46	1.2	WNW	0.9	2.13
3.8	43	1.5	NW	0.4	1.54
4.2	49	2.9	NNW	0.1	1.02
3.9	44	3	SW	0	0.94
4	42	4.5	SW	0	0.75
4.7	55	3.3	SW	0	0.56
6	85	3.8	NNE	0	0.21
6	90	2.8	W	0.1	0.18
5.3	82	2.8	WNW	0	0.03
4.6	70	2.7	W		0
3.9	56	4	WNW		
4.7	76	2.2	NNW		
4.7	81	0.8	WSW		
4.5	72	4	W		
4.7	77	2.2	SW		

Snow (cm)		Weather	Cloud Cover	Visibility
Snowfall	Accumulated snow			
--	--			
--	--			
--	--	○	1	10
--	--			
--	--			
--	--	○	0+	20
--	--			
--	--			
--	--	⊕	2	25
--	--			
--	--			
--	--	✕	10	20
--	--			
--	--			
--	--	✕	10	15
--	--			
1	1			
--	1	⊙	9	15
--	1			
--	1			
--	1	⊕	5	15
--	1			
--	1			
--	1			

Sendai - March 12th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_s1.php?prec_no=34&prec_ch=%8B%7B%8F%E9%8C%A7

Time	Atmospheric Pressure (hPa)		Precipitation (mm)	Temperature (°C)	Dew Point Temperature (°C)
	On site	Ocean surface			
	Median	Median			
1	1012	1017.6	--	-0.3	-3.5
2	1012.4	1018	--	-0.4	-4.1
3	1012.7	1018.3	--	-0.1	-5.7
4	1013.5	1019.1	--	0.2	-4.8
5	1014	1019.6	--	0.4	-5
6	1014.7	1020.3	0	0.3	-4.7
7	1015.9	1021.5	--	-0.2	-3.9
8	1016.9	1022.5	--	0.9	-3.6
9	1017.8	1023.3	--	2.1	-4
10	1017.7	1023.2	0	4.7	-6.2
11	1017.5	1023	0	5.6	-5.7
12	1017.3	1022.7	0	6.7	-8
13	1016.7	1022.1	0	7.2	-9.2
14	1016.4	1021.8	--	8.1	-8.9
15	1016.6	1022	--	7.2	-4.2
16	1016.8	1022.2	--	7.2	-6.2
17	1017	1022.4	--	7	-4.7
18	1017.4	1022.9	--	5.6	-3.5
19	1017.5	1023	--	4.2	-2.9
20	1017.3	1022.8	--	4.3	-1.7
21	1017.1	1022.6	--	4.1	-0.9
22	1016.8	1022.3	--	3	-3.8
23	1016.3	1021.8	--	2.5	-3.8
24	1015.8	1021.4	--	0.9	-3.4

7&block_no=47590&block_ch=%90%E5%91%E4&year=2011&month=03&day=12&view=p1

Steam Pressure	Humidity	Wind Direction & Speed (m/s)		Sunshine Duration (h)	Amount of Global Solar Radiation (MJ/m ²)
		Speed	Direction		
4.7	79	2.4	S		
4.5	76	3.1	WSW		
4	66	1.8	NNW		
4.3	69	4.1	N		
4.2	67	5	NNW		
4.3	69	3	NW	0	0
4.6	76	2.3	ENE	0	0.09
4.7	72	1.3	ENE	0.2	0.48
4.6	64	1	S	0.1	0.86
3.8	45	3.4	WSW	1	2.29
4	44	1.6	WNW	1	2.75
3.3	34	3.2	NW	0.8	2.46
3	30	4.5	NW	0.7	2.19
3.1	29	4.1	W	1	2.54
4.5	44	2.6	SSE	1	2.05
3.9	38	1.5	S	1	1.27
4.3	43	3.6	SSE	1	0.61
4.7	52	3.1	SE	0.4	0.08
4.9	60	2.1	SSE		0
5.4	65	2.8	S		
5.7	70	2.4	SW		
4.6	61	2.3	W		
4.6	63	2.5	WNW		
4.8	73	1.4	SW		

Snow (cm)		Weather	Cloud Cover	Visibility
Snowfall	Accumulated snow			
--	1			
--	1			
--	1	Ⓣ	4	12
--	1			
--	1			
--	1	Ⓣ	5	12
--	1			
--	1			
--	1	⊙	10 -	10
--	--			
--	--			
--	--	✕	4	20
--	--			
--	--			
--	--	○	1	25
--	--			
--	--			
--	--	○	0 +	10
--	--			
--	--			
--	--	○	0	10
--	--			
--	--			
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Sendai - March 13th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_s1.php?prec_no=34&prec_ch=%8B%7B%8F%E9%8C%A7

Time	Atmospheric Pressure (hPa)		Precipitation (mm)	Temperature (°C)	Dew Point Temperature (°C)
	On site	Ocean surface			
	Median	Median			
1	1015.3	1020.9	--	0.6	-4
2	1015.1	1020.6	--	1.7	-5.4
3	1014.8	1020.3	--	1.4	-6.2
4	1014.9	1020.4	--	1.7	-5.4
5	1014.8	1020.4	--	0.6	-5.4
6	1014.7	1020.3	--	0	-5
7	1015	1020.5	--	3.1	-5.3
8	1015.1	1020.6	--	2.6	-4.4
9	1014.6	1020	--	5.8	-3.5
10	1013.8	1019.1	--	10.8	-2.2
11	1012.9	1018.2	--	14.3	-5.4
12	1012.6	1017.8	--	15.2	-5.2
13	1012.4	1017.6	--	15.3	-4.1
14	1012.2	1017.4	--	15.6	-3.8
15	1012.3	1017.5	--	15.4	-4.5
16	1012.6	1017.8	--	15.3	-3.6
17	1013.4	1018.7	--	12.8	-0.8
18	1014.1	1019.4	--	11.3	-0.8
19	1014.1	1019.5	--	9.9	-0.6
20	1014.1	1019.5	--	8.8	-0.2
21	1014.3	1019.7	--	9.2	-0.9
22	1013.9	1019.3	--	8.6	-2.1
23	1013.2	1018.6	--	5.7	-1
24	1012.9	1018.3	--	6.9	-1.5

7&block_no=47590&block_ch=%90%E5%91%E4&year=2011&month=03&day=13&view=p1

Steam Pressure	Humidity	Wind Direction & Speed (m/s)		Sunshine Duration (h)	Amount of Global Solar Radiation (MJ/m ²)
		Speed	Direction		
4.5	71	2.9	SSW		
4.1	59	3.2	SW		
3.9	57	2.7	SSW		
4.1	59	3.6	WSW		
4.1	64	1.5	W		
4.2	69	3	S	0	0
4.1	54	2.7	SW	0	0.12
4.4	60	1.7	W	0.1	0.38
4.7	51	1.4	ESE	1	1.4
5.2	40	2.2	SSE	1	2.06
4.1	25	5.7	WNW	1	2.2
4.1	24	5.7	WNW	1	2.79
4.5	26	3.9	WSW	1	2.7
4.6	26	4.6	WNW	1	2.41
4.4	25	3.8	W	1	1.92
4.7	27	4.4	W	1	1.25
5.8	39	2.4	ESE	1	0.55
5.8	43	2	SSW	0	0.06
5.9	48	2.2	S		0
6	53	1.9	SSW		
5.7	49	2.4	WNW		
5.3	47	2	WNW		
5.7	62	1.9	SSW		
5.5	55	2.4	W		

Snow (cm)		Weather	Cloud Cover	Visibility
Snowfall	Accumulated snow			
--	--			
--	--			
--	--	○	0	10
--	--			
--	--			
--	--	Ⓣ	4	10
--	--			
--	--			
--	--	Ⓣ	6	10
--	--			
--	--			
--	--	Ⓣ	2	15
--	--			
--	--			
--	--	Ⓣ	4	15
--	--			
--	--			
--	--	Ⓣ	3	10
--	--			
--	--			
--	--	○	0+	10
--	--			
--	--			
--	--			

Sendai - March 17th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_s1.php?prec_no=34&prec_ch=%8B%7B%8F%E9%8C%A7

Time	Atmospheric Pressure (hPa)		Precipitation (mm)	Temperature (°C)	Dew Point Temperature (°C)
	On site	Ocean surface			
	Median	Median			
1	1003.2	1008.7	--	-1.6	-9
2	1003.1	1008.7	0	-2.5	-6.3
3	1002.6	1008.2	0	-2.3	-6.5
4	1002.9	1008.4	0	-1.6	-7.9
5	1002.7	1008.2	0	-1.5	-7.4
6	1002.8	1008.3	0	-1.3	-7
7	1003.5	1009	0	-0.7	-6.9
8	1004.3	1009.8	0	0.3	-6.3
9	1005.7	1011.2	0	1	-5
10	1006.2	1011.7	0	1.1	-6
11	1006.4	1011.9	0	0	-3.2
12	1006.3	1011.8	0	-0.1	-2.5
13	1006	1011.5	0	0.9	-3
14	1006.2	1011.7	0	-0.4	-3.1
15	1006.7	1012.2	0.5	-0.5	-2.4
16	1007.1	1012.6	0.5	-1	-2.6
17	1007.7	1013.3	2	-1.1	-2.1
18	1008.4	1014	1.5	-1	-2.6
19	1009.2	1014.8	0	-1.5	-3.7
20	1010	1015.6	0	-1.1	-3.6
21	1010.8	1016.4	0	-1.7	-3.4
22	1011.8	1017.4	--	-1.4	-4.9
23	1012	1017.6	--	-1.8	-6.7
24	1012.3	1017.9	--	-1.7	-8.6

'&block_no=47590&block_ch=%90%E5%91%E4&year=2011&month=03&day=17&view=p1

Steam Pressure	Humidity	Wind Direction & Speed (m/s)		Sunshine Duration (h)	Amount of Global Solar Radiation (MJ/m ²)
		Speed	Direction		
3.1	57	6.7	WNW		
3.8	75	7.7	W		
3.8	73	5	W		
3.4	62	6.6	W		
3.5	64	4.7	W		
3.6	65	8	W	0	0.01
3.7	63	8.6	W	0.6	0.35
3.8	61	6.8	W	1	1.09
4.2	64	3.7	WNW	0.9	1.66
3.9	59	3.7	WSW	0.5	1.36
4.8	79	3.3	NW	0	0.45
5.1	84	6.4	W	0	1.11
4.9	75	3.9	NW	0.3	1.62
4.9	82	6.2	WNW	0	0.68
5.1	87	3.7	W	0	0.44
5.1	89	4.3	WNW	0	0.18
5.2	93	2.7	WNW	0	0.08
5.1	89	2.9	W	0	0.02
4.7	85	1.9	W		0
4.7	83	3.4	W		
4.7	88	1.4	SW		
4.2	77	3.2	WNW		
3.7	69	3.2	NW		
3.2	59	5.4	W		

Snow (cm)		Weather	Cloud Cover	Visibility
Snowfall	Accumulated snow			
--	--			
--	--			
--	--	☒	7	15
--	--			
--	--			
--	--	☒	2	20
--	--			
--	--			
--	--	☒	5	30
--	--			
--	--			
--	--	☒	10	3
--	--			
--	--			
--	--	☒	10	2
1	1			
3	4			
2	6	☒	10	3
--	5			
--	5			
--	5	Ⓛ	2	15
--	5			
--	5			
--	5			

Onohama - March 11th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_s1.php?prec_no=36&prec_ch=%95%9F%9

Time	Atmospheric Pressure (hPa)		Precipitation (mm)	Temperature (°C)
	On site	Ocean surface		
	Median	Median		
1	1014.7	1015.4	--	-0.9
2	1014.9	1015.6	--	-0.8
3	1014.4	1015.1	--	-0.3
4	1014.6	1015.3	--	-1.1
5	1014.8	1015.5	--	0
6	1014.7	1015.4	--	1.3
7	1015	1015.7	--	1.9
8	1014.9	1015.6	--	3.8
9	1014.5	1015.2	--	6.1
10	1013.8	1014.5	--	7.1
11	1013.1	1013.8	--	7.6
12	1012.2	1012.8	--	8.1
13	1011	1011.7	--	7.5
14	1011	1011.7	--	7
15	1011.3	1012	--	7.5
16				
17	x	x	x	x
18	x	x	x	x
19	x	x	x	x
20				
21				
22				
23				
24				

(cm)			
Accumulated snow	Weather	Cloud Cover	Visibility
	⊖		15.9
	⊖		17.3
	⊖		42.3
	⊖		20.5
	⊖		43.3
	⊖		50
	⊖		28.3
	⊖		41.3
	⊖		37.8
	⊖		31.4
	⊖		31
	⊖		33.3
	⊖		34.9
	⊖		37.1
	⊙		34.4
			x
			x
			x

Onohama - March 12th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_s1.php?prec_no=36&prec_ch=%95%9F%99

Time	Atmospheric Pressure (hPa)		Precipitation (mm)	Temperature (°C)
	On site	Ocean surface		
	Median	Median		
1				
2				
3				
4				
5				
6				
7				
8				
9				
10	x	x	x	x
11	x	x	x	x
12	x	x	x	x
13	1021.8	1022.5	x	8.1
14	1021.4	1022.1	x	8.3
15	1021.4	1022.1	x	8.6
16	1021.5	1022.2	x	8.4
17	1022	1022.7	x	7.8
18	1022.5	1023.2	x	7.5
19	1022.8	1023.5	x	7.2
20	1022.8	1023.5	x	4.7
21	1022.9	1023.6	x	3.5
22	1022.6	1023.3	x	2.9
23	1022.1	1022.8	x	2.6
24	1021.7	1022.4	x	2.2

3%87%8C%A7&block_no=47598&block_ch=%8F%AC%96%BC%95I&year=2011&month=03&day=12&view=|

Dew Point Temperature (°C)	Steam Pressure	Humidity	Wind Direction & Spee		Sunshine Duration (h)	Amount of Global Solar	Snow
			Speed	Direction			Snowfall
x	x	x	x		x		
x	x	x	x		x		
x	x	x	x		x		
-0.1	6	56	6.2	SSW	0.2		
0.3	6.2	57	6.4	S	1		
0.8	6.5	58	5.5	S	1		
0.9	6.5	59	4.8	S	1		
0.1	6.1	58	4.4	S	1		
0.5	6.3	61	2.5	S	0.3		
1.9	7	69	2.3	S			
-0.1	6.1	71	1.5	NNW			
-0.5	5.9	75	1.6	NNW			
-0.9	5.7	76	1.4	NNW			
-1	5.7	77	1.5	NNW			
-1.4	5.5	77	0.8	N			

(cm)			
Accumulated snow	Weather	Cloud Cover	Visibility
	x		x
	x		x
	x		x
	⓪		39.5
	⓪		30.7
	⓪		29.6
	⓪		32.2
	⓪		31.4
	⓪		23.2
	⓪		34.5
	⓪		27.5
	⓪		26.7
	⓪		26.2
	⓪		27.7
	⓪		26.1

Onohama - March 13th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_s1.php?prec_no=36&prec_ch=%95%9F%9

Time	Atmospheric Pressure (hPa)		Precipitation (mm)	Temperature (°C)
	On site	Ocean surface		
	Median	Median		
1	1021.4	1022.1	×	2.7
2	1020.9	1021.6	×	2.5
3	1020.3	1021	×	2.5
4	1020.1	1020.8	×	2.6
5	1020.3	1021	×	2.2
6	1020.6	1021.3	×	2.7
7	1020.8	1021.5	×	5.7
8	1020.9	1021.6	×	8.9
9	1020.5	1021.1	×	13.4
10	1020.1	1020.7	×	15.2
11	1020.2	1020.8	×	10.8
12	1019.4	1020	×	11.1
13	1018.1	1018.7	×	11.4
14	1017.2	1017.8	×	11.5
15	1017.3	1017.9	×	12.6
16	1017.7	1018.3	×	12.2
17	1018.4	1019	×	11.9
18	1019.1	1019.7	×	10.6
19	1019.7	1020.3	×	9.9
20	1019.7	1020.4	×	8.4
21	1019.4	1020.1	×	7.1
22	1019.5	1020.2	×	6.5
23	1019.1	1019.8	×	5.9
24	1018.3	1019	×	4.3

3%87%8C%A7&block_no=47598&block_ch=%8F%AC%96%BC%95I&year=2011&month=03&day=13&view=|

Dew Point Temperature (°C)	Steam Pressure	Humidity	Wind Direction & Speed		Sunshine Duration (h)	Amount of Global Solar	Snow
			Speed	Direction			Snowfall
-1.5	5.5	74	1.2	N			
-1.5	5.5	75	1.3	NNW			
-1.3	5.6	76	2.2	NNW			
-1	5.7	77	1.4	NNW			
-0.9	5.7	80	2.2	NNW			
-0.2	6	81	2.6	NNW	0		
1.6	6.9	75	2.4	NNW	0.5		
0.6	6.4	56	2.6	N	1		
-4.7	4.3	28	4.6	WNW	1		
-4.2	4.5	26	4.8	NW	1		
6.2	9.5	73	4.9	SSW	1		
7	10	76	5.2	SSW	1		
7.1	10.1	75	4.1	SSW	1		
5.4	9	66	2.8	SE	1		
4.8	8.6	59	3.4	SSE	1		
5.2	8.8	62	1.7	SSE	1		
3.9	8.1	58	1.5	SSE	0.9		
4.7	8.6	67	0.9	WSW	0		
4.7	8.5	70	0.9	S			
3.9	8	73	1.1	NNW			
3.4	7.8	77	0.4	NNW			
2.4	7.3	75	2.1	N			
0.5	6.3	68	1	NNW			
0.8	6.5	78	1.8	NNW			

(cm)			
Accumulat ed snow	Weather	Cloud Cover	Visibility
	⊖		33.8
	⊖		26.9
	⊙		30.3
	⊖		31
	⊖		30.7
	⊖		23.5
	⊙		24.5
	⊖		29.1
	⊖		19
	⊖		20
	⊖		19.9
	⊖		17.9
	⊖		16
	⊖		19.3
	⊖		16.3
	⊖		19.4
	⊖		15
	⊖		14.3
	⊖		13.1
	⊖		15.2
	⊖		15
	⊖		19.1
	⊖		23
	⊖		18.6

Onohama - March 15th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_s1.php?prec_no=36&prec_ch=%95%9F%9

Time	Atmospheric Pressure (hPa)		Precipitation (mm)	Temperature (°C)
	On site	Ocean surface		
	Median	Median		
1	1011.2	1011.8	×	9
2	1010.3	1010.9	×	8.5
3	1010.9	1011.5	×	8
4	1012.5	1013.2	×	7.7
5	1011.8	1012.5	×	7.1
6	1012.2	1012.9	×	7
7	1012.8	1013.5	×	7.4
8	1013.4	1014.1	×	7.3
9	1012.5	1013.2	×	7.5
10	1012.1	1012.8	×	7.7
11	1011.9	1012.6	×	7.5
12	1011.2	1011.9	×	7.2
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

Onohama - March 18th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_s1.php?prec_no=36&prec_ch=%95%9F%99

Time	Atmospheric Pressure (hPa)		Precipitation (mm)	Temperature (°C)
	On site	Ocean surface		
	Median	Median		
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13	x	x	x	x
14	x	x	x	x
15	x	x	x	x
16	x	x	x	x
17	1023.1	1023.8	--]	6.1
18	1023.7	1024.4	--	5.8
19	1024	1024.7	--	5.3
20	1024	1024.7	--	2.9
21	1024.4	1025.1	--	2.2
22	1024.3	1025	--	2
23	1024	1024.7	--	1.1
24	1023	1023.7	--	1

Shiogama - March 11th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	-1.7	1.1	WSW
2	0	-2.1	2.1	NW
3	0	-2.7	1.7	NNW
4	0	-3.2	1.4	ESE
5	0	-3.7	0.1	静穏
6	0	-3.8	1.1	WNW
7	0	-2.2	1.9	W
8	0	0	2.3	W
9	0	2.4	2.2	W
10	0	3.8	2	WNW
11	0	3.2	0.7	NNE
12	0	3.6	1.2	SE
13	0	2.5	2.5	E
14	0	2.5	1.4	E
15	0	0.5	1.5	NNW
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Shiogama - March 12th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	0.0]	5.1	2.9	NW
14	0	4.7	2.5	SSE
15	0	5.5	2.8	SE
16	0	5.6	1.5	SE
17	0	4.8	1.6	SE
18	0	3.4	1	SE
19	0	3.2	1.1	SE
20	0	2.8	1.1	ESE
21	0	2.8	0.6	SE
22	0	1.9	0.8	WNW
23	0	3.1	1.4	NW
24	///	///	///	///

Sunshine Duration (h)	Snow (cm)	
	Snowfall	Accumulated snow
///	///	///
///	///	///
///	///	///
///	///	///
///	///	///
///	///	///
///	///	///
///	///	///
///	///	///
///	///	///
///	///	///
///	///	///
///	///	///
0.2]	///	///
0.5	///	///
1	///	///
1	///	///
1	///	///
0.2	///	///
	///	///
	///	///
	///	///
	///	///
	///	///
///	///	///

Shiogama - March 13th-15th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	///	///	///	///
14	///	///	///	///
15	///	///	///	///
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Shiogama - March 16th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	0.7	1.3	NNE
11	///	0.8	2.4	NNE
12	///	0.1	3.6	NNW
13	///	1.3	3	NNW
14	///	2.6	5	NW
15	///	2.3	5.2	NW
16	///	2	5.3	WNW
17	0.0)	-1.3	5.2	WNW
18	0.5	-1.1	2.4	WNW
19	0	-1.4	4.6	WNW
20	0	-2.3	2.6	NW
21	0	-2.5	2.2	W
22	0	-3.3	2	WNW
23	0	-3.1	3.6	WNW
24	0	-3.5	3.1	WNW

Shiogama - March 17th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	-3.7	2.7	WNW
2	0	-3.9	4.1	WNW
3	0	-4.1	2.6	WNW
4	0	-3.7	5.9	W
5	0	-3.4	5.2	W
6	0	-3.3	2.9	WNW
7	0	-2.4	3.5	WNW
8	0	-1.2	3.8	WNW
9	0	-0.1	0.9	WNW
10	0	-0.7	2.6	NNW
11	0	0	3	WNW
12	0	1.1	4.8	W
13	0	-0.4	4.4	WNW
14	0.5	-2.2	2.7	N
15	0.5	-1.4	1.4	WNW
16	0	-1.4	3.1	W
17	0	-1.8	3.8	W
18	0.5	-1.9	3.6	W
19	0	-2	2.2	WNW
20	0	-2.1	2.3	NW
21	0	-2.4	2.6	NW
22	0	-2.4	2.9	NW
23	0	-3.3	2.4	WNW
24	0	-3.6	2.9	WNW

TAMAKAWA - March 11th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	-2.3	0.8	NE
2	0	-2.3	1.5	NNE
3	0	-3	2.2	NNW
4	0	-3	1.3	W
5	0	-4.6	1.1	ESE
6	0	-3.9	1.8	ESE
7	0	-2.4	0.9	NW
8	0	-0.2	1.1	NE
9	0	1.3	0.9	WSW
10	0	3.4	2.6	W
11	0	4.2	2.5	SW
12	0	4.2	1.7	NNW
13	0	5.5	4	W
14	0	5.2	5.1	SW
15	0.5	3.7	5.8	SW
16	0	2.6	3.7	WNW
17	0	0.8	5.6	NNW
18	0	0.1	4.2	NW
19	0	-0.1	3.6	WNW
20	0	-0.8	2.8	WNW
21	0	-1	2.6	WNW
22	0	-2.2	3.4	NNW
23	0	-1.6	2	W
24	0	-2.4	2	W

Tamakawa - Mar 12th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)		Sunshine Duration (h)
			Speed	Direction	
1	0	-2.8	1.4	W	///
2	0	-1.5	5.9	WNW	///
3	0	-1.2	6.1	NW	///
4	0	-0.7	2.6	WNW	///
5	0	-0.5	2.9	NNW	///
6	0	-0.4	6.1	NNW	///
7	0	-0.1	6.4	NW	///
8	0	1.1	3.9	NW	///
9	0	1.9	2.7	N	///
10	0	3.9	3.3	WNW	///
11	0	4.8	4.4	WNW	///
12	0	5.7	3.9	NW	///
13	0	5.7	5.2	NNW	///
14	0	6.6	5.1	N	///
15	0	7	4.5	NNW	///
16	0	6.5	5.6	N	///
17	0	5.3	4.2	N	///
18	0	4	2.7	N	///
19	0	3.1	2.2	ESE	///
20	0	2.8	1.4	ESE	///
21	0	-0.2	2.4	SE	///
22	0	1.5	2.2	SE	///
23	0	2	2.3	SE	///
24	0	1.8	2.4	SE	///

Tamakawa - March 13th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)		Sunshine Duration (h)
			Speed	Direction	
1	0	1.7	1.7	SE	///
2	0	2.3	1.3	ESE	///
3	0	1.8	0.5	ENE	///
4	0	1	0.7	NNE	///
5	0	0.7	0.7	N	///
6	0	-0.4	1.7	ESE	///
7	0	0.6	2	ESE	///
8	0	6.4	1.3	SSE	///
9	0	8.9	1.4	S	///
10	0	10.1	2	NW	///
11	0	11.4	5.1	NW	///
12	0	13.1	5.9	WNW	///
13	0	14.2	4.9	WNW	///
14	0	13.7	5.8	NNW	///
15	0	12.8	7.1	NNW	///
16	0	11.4	7.9	NNW	///
17	0	10	5.6	N	///
18	0	8.2	5.7	N	///
19	0	7.1	2.7	NE	///
20	0	7.2	2.3	NNE	///
21	0	6.7	2.8	N	///
22	0	5.4	0.6	NE	///
23	0	2.9	2.6	ESE	///
24	0	3.9	1.5	ESE	///

Tamakawa - March 15th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)		Sunshine Duration (h)
			Speed	Direction	
1	0	7.3	5.6	NNE	///
2	0	7.2	7.8	N	///
3	0	6.9	6.1	NNE	///
4	0	6.5	6.7	NNE	///
5	0	6	7.5	N	///
6	0	5.5	6.7	N	///
7	0	4.4	5.8	N	///
8	0	5.5	3.8	N	///
9	0	7.2	4.3	NNW	///
10	0	5.9	1.9	NE	///
11	0	5.1	2.7	E	///
12	0	4.8	3.5	ESE	///
13	0	4.8	2.4	ESE	///
14	0	4.8	2.3	ESE	///
15	0	4.1	2.4	SE	///
16	0	3.6	3	ESE	///
17	0	3.4	3.6	ESE	///
18	0	3.3	2.3	SE	///
19	0	3	2.4	SE	///
20	0	3.3	1.7	SE	///
21	0	3.1	2.8	ESE	///
22	0	2.8	2.3	ESE	///
23	0	2.6	2.1	SE	///
24	0.5	2	1.3	NNW	///

Tamakawa - 16th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)		Sunshine Duration (h)
			Speed	Direction	
1	2.5	0.4	1.1	N	///
2	0	0.2	3.9	N	///
3	0	0.1	6.7	N	///
4	0	0.2	6.3	N	///
5	0	0	5.6	N	///
6	0	0.5	6.7	N	///
7	0	0.5	4.2	NNE	///
8	0.0)	2.3	6	NNW	///
9	0	3.5	4.6	NNW	///
10	0	4.5	4.5	WSW	///
11	0	6.9	10.2	W	///
12	0	2.3	8	W	///
13	0	2.5	7.6	NW	///
14	0	3.3	9.7	NW	///
15	0	1.4	8.4	NW	///
16	0	1	7.6	NW	///
17	0	-0.7	4.7	WNW	///
18	0	-1.5	5.3	WNW	///
19	0	-2.5	6.8	WNW	///
20	0	-2.7	4.2	NW	///
21	0	-3	3.3	WNW	///
22	0	-3.8	5.7	NW	///
23	0	-4.4	6.9	NW	///
24	0	-4.4	4.9	WNW	///

Tamakawa - 17th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)		Sunshine Duration (h)
			Speed	Direction	
1	0	-4.5	4.6	NW	///
2	0	-4.4	3.4	WNW	///
3	0	-5	3.3	WNW	///
4	0	-5.3	4.3	NW	///
5	0	-5.2	3.1	NW	///
6	0	-4.3	4.3	NW	///
7	0	-3.9	4.6	WNW	///
8	0	-2.8	6.5	WNW	///
9	0	-1.3	7.2	WNW	///
10	0	-0.5	5.8	WNW	///
11	0	0.8	8.1	WNW	///
12	0	1.5	8.3	WNW	///
13	0	1.8	9.3	WNW	///
14	0	0.8	8.7	WNW	///
15	0	0.2	9.2	WNW	///
16	0	-0.7	8	WNW	///
17	0	-2	5.8	WNW	///
18	0	-2.5	3.5	NW	///
19	0	-3.1	5.1	NW	///
20	0	-3.2	4.8	NW	///
21	0	-3.5	5.4	NW	///
22	0	-4	5.2	NNW	///
23	0	-3.6	2	NW	///
24	0	-3.8	4.6	NW	///

Tamakawa - March 18th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)		Sunshine Duration (h)
			Speed	Direction	
1	0	-3.8	4.1	NW	///
2	0	-3.6	3.3	NW	///
3	0	-4.7	2.6	NNW	///
4	0	-4.2	3	NW	///
5	0	-4.3	4.8	NNW	///
6	0	-4.6	5.6	NNW	///
7	0	-3.2	6.4	NNW	///
8	0	-1.7	7.5	NNW	///
9	0	-0.6	7.4	NNW	///
10	0	0.9	5.1	WNW	///
11	0	1.3	5.5	WNW	///
12	0	2.6	7.3	NW	///
13	0	3.5	8.6	NNW	///
14	0	4.4	6.6	NW	///
15	0	4.2	5.4	NW	///
16	0	3.2	7.7	NNW	///
17	0	2	5.8	N	///
18	0	0.5	3.1	NNE	///
19	0	-0.7	2.1	N	///
20	0	-0.8	1.6	SE	///
21	0	-0.8	1.6	N	///
22	0	-1.4	1.5	E	///
23	0	-1	0.2	静穏	///
24	0	-2.4	2	SE	///

Tamakawa - March 21st, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)		Sunshine Duration (h)
			Speed	Direction	
1	0	5.6	1.9	ESE	///
2	0	6	0.6	SSE	///
3	0	5.2	2.6	NNE	///
4	0	4.9	1.5	ESE	///
5	0	7	4.7	N	///
6	0	7.7	7.3	N	///
7	0	6.9	7.1	N	///
8	1.5	6.2	7.1	N	///
9	1.5	6.6	6.9	N	///
10	0.5	7.2	8.7	N	///
11	0	7.4	6	N	///
12	0	7.5	6.2	NNW	///
13	0.5	6.4	5.1	N	///
14	0.5	6	4.3	N	///
15	2	5.3	4.7	NNW	///
16	0.5	4.9	3.8	NNW	///
17	0	4.9	1.8	NNE	///
18	0	4.7	3.5	N	///
19	0	4.6	3.9	N	///
20	0	4.3	3.5	NNE	///
21	0	4.2	1.8	NNE	///
22	0	4	2.6	NNE	///
23	0	3.9	0.8	ESE	///
24	0	4	0.7	NE	///

Notes

<http://www.data.jma.go.jp/obd/stats/data/mdrr/man/remark.html>

Symbol	Symbol	Short Meaning	Short Meaning
値	Value only	正常値	Normal Value
値)	Value)	準正常値	Quasi-Normal Value
値]	Value]	資料不足値	Missing Data Value
—	—	現象なし	No phenomenon
×	×	資料なし (欠測)	Data missing
空白	White Space	統計しない	Did not calculate
	///	資料なし (欠測) 統計しない	No data
*	*	極値の起日重複	Extreme value
#	#	疑問値	Questionable value

Rough Translation

No problem with quality.
Minor problem with quality, or a part of data needed for statistics is missing.
Missing data needed for statistics. Lack of confidence due to the missing data, so be careful about use.
What was being measured did not occur during the stated time period.
Data unavailable due to a failure of the instrument.
Not observing during the stated period of time.
Data unavailable due to a failure of the instrument, or was not observing during the period of time.
Problem with the observed result.

Marumori - March 11th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	-2	0.2	静穏
2	0	1.2	3.6	WSW
3	0	0	2.7	WNW
4	0	-1	0.4	W
5	0	-3	0.4	WSW
6	0	-4	0.3	NNE
7	0	-1.5	0.8	NNE
8	0	2.3	2.1	ESE
9	0	4.8	3.7	W
10	0	6.3	3.7	W
11	0	7	3.6	W
12	0	6.5	2.9	W
13	0	5.5	2.4	N
14	0	5.2	2.8	NW
15	0	5.8	1.6	SSE
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Marumori - March 12th - 20th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8
http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8
http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8
http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8
http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8
http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8
http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8
http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8
http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	///	///	///	///
14	///	///	///	///
15	///	///	///	///
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Marumori - March 21st, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	///	///	///	///
14	///	8.8	1.2	ESE
15	///	8.1	3	SE
16	0.0]	7.7	2.8	SE
17	0	6.8	1.7	SE
18	0	6.4	0.9	SE
19	0	5.6	0.6	SE
20	0	5.2	0.8	NNE
21	0	4.9	0.7	WNW
22	0	3	1.3	SE
23	0	3.2	0.7	SE
24	0	3.6	0	静穏

Namie - March 11th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	0.4	1.5	SSE
2	0	0.2	1.8	WSW
3	0	1	3.8	WSW
4	0	2	5.2	W
5	0	1	2.8	WNW
6	0	-0.1	1.4	NNE
7	0	1.5	0.9	NW
8	0	3.9	3.7	W
9	0	5.4	3.7	W
10	0	7.2	2.3	ESE
11	0	7.8	2.7	SW
12	0	8.3	2.2	SSW
13	0	6.7	4.1	SE
14	0	6.2	2.8	SE
15	0.5	6.5	2	SE
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Namie - March 11th, Hourly

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)		Sunshine Duration (h)
			Speed	Direction	
1	///	///	///	///	///
2	///	///	///	///	///
3	///	///	///	///	///
4	///	///	///	///	///
5	///	///	///	///	///
6	///	///	///	///	///
7	///	///	///	///	///
8	///	///	///	///	///
9	///	///	///	///	///
10	///	///	///	///	///
11	///	///	///	///	///
12	///	///	///	///	///
13	///	///	///	///	///
14	///	///	///	///	///
15	///	///	///	///	///
16	///	///	///	///	///
17	///	///	///	///	///
18	///	///	///	///	///
19	///	///	///	///	///
20	///	///	///	///	///
21	///	///	///	///	///
22	///	///	///	///	///
23	///	///	///	///	///
24	///	///	///	///	///

Natori - March 11th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	-1.9	1.3	NNE
2	0	-0.9	1.1	ESE
3	0	-0.9	3.1	NW
4	0	-2.4	1.1	N
5	0	-4.5	0.4	WNW
6	0	-4.2	2.7	W
7	0	-1.4	2.4	WSW
8	0	2	2.9	WSW
9	0	4.1	5.9	WSW
10	0	4.7	2.9	WNW
11	0	5.5	2.3	NNE
12	0	5.4	1.2	N
13	0	5.6	1.4	SSE
14	0	5.5	5.8	SW
15	0	4.6	4.8	WSW
16	///	4.8	5.8	SW
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Natori - March 12th-18th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8
http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8
http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8
http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8
http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8
http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8
http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	///	///	///	///
14	///	///	///	///
15	///	///	///	///
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Watari - March 11th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	-0.5	3.7	WSW
2	0	-0.3	4.5	W
3	0	-0.2	3	WNW
4	0	-3.1	1.1	SSW
5	0	-3.1	2.2	WNW
6	0	-0.9	3.5	W
7	0	0.2	4.2	WSW
8	0	2.1	7	SW
9	0	3.8	4.4	W
10	0	5.2	3.3	SW
11	0	6	4.6	W
12	0	6.6	2.2	W
13	0	5.6	5.9	W
14	0	5.3	1.9	WNW
15	0	4.9	3.1	S
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Watari - March 12th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	0.0]	6	3	E
14	///	///	///	///
15	///	///	///	///
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Watari - March 13th, 14th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	///	///	///	///
14	///	///	///	///
15	///	///	///	///
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Watari - March 15th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	///	///	///	///
14	///	///	///	///
15	///	///	///	///
16	///	///	///	///
17	///	4.2	2.9	SE
18	0	4.1	2.4	SE
19	1	4.1	1.4	SSE
20	0.5	4.1	1.2	SSE
21	1	3.7	3.4	SE
22	2	3.1	3.4	ESE
23	2.5	2.7	2.3	SE
24	2.5	1.7	0.3	S

Watari - March 16th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	1.5	0.8	1.1	NW
2	1	0.2	2.5	NNW
3	0	0.3	2	NNW
4	0.5	0.3	1.5	N
5	0	0.5	2	NNW
6	0	0.6	1.6	NW
7	0	0.5	1	NW
8	0	1.4	1.8	SW
9	0	1.8	0.9	SW
10	0	2.2	2	SE
11	0	2.8	2.4	E
12	2	0.3	6.3	N
13	0.5	2.3	2.6	N
14	0	4.3	5.9	NNW
15	0	2.9	7.9	WNW
16	0	2.5	4.6	NW
17	0	1.7	4.9	WNW
18	0	0.7	3.6	WNW
19	0	0.6	4.8	W
20	0	-0.1	3.7	WSW
21	0	-1.1	2.8	WSW
22	0	-1.5	4	NW
23	0	-1.9	3.5	WNW
24	0	-1.9	3.8	W

Watari - March 17th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=34&prec_ch=%8B%7B%8

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	-2.1	5	W
2	0	-1.9	4.3	W
3	0	-2	5.8	W
4	0	-2.3	5	W
5	0	-2.2	8.1	WSW
6	0	-2	9.7	W
7	0	-0.6	7.5	W
8	0	0	7.7	WSW
9	0	0.9	9.3	WSW
10	0	2.2	8.4	W
11	0	2.9	9.1	W
12	0	2.8	8.4	W
13	0	2.5	8.7	W
14	0	2	7.7	W
15	0	2.5	6.1	W
16	0	2.1	7.2	WSW
17	0	0.5	8.2	W
18	0	-0.1	5.5	W
19	0	-0.2	4.2	WNW
20	0	-0.9	3.5	W
21	0	-0.7	3.2	WNW
22	0	-1.1	3.5	WNW
23	0	-1.2	3.8	NW
24	0	-1.5	1.8	NNW

TAIRA - March 11th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	///	///	///
2	0	///	///	///
3	0	///	///	///
4	0	///	///	///
5	0	///	///	///
6	0	///	///	///
7	0	///	///	///
8	0	///	///	///
9	0	///	///	///
10	0	///	///	///
11	0	///	///	///
12	0	///	///	///
13	0	///	///	///
14	0	///	///	///
15	0	///	///	///
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

TAIRA - March 12th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	0.0]	///	///	///
14	0	///	///	///
15	0	///	///	///
16	0	///	///	///
17	0	///	///	///
18	0	///	///	///
19	0	///	///	///
20	0	///	///	///
21	0	///	///	///
22	0	///	///	///
23	0	///	///	///
24	0	///	///	///

TAIRA - March 13th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	///	///	///
2	0	///	///	///
3	0	///	///	///
4	0	///	///	///
5	0	///	///	///
6	0	///	///	///
7	0	///	///	///
8	0	///	///	///
9	0	///	///	///
10	0	///	///	///
11	0	///	///	///
12	0	///	///	///
13	0	///	///	///
14	0	///	///	///
15	0	///	///	///
16	0	///	///	///
17	0	///	///	///
18	0	///	///	///
19	0	///	///	///
20	0	///	///	///
21	0	///	///	///
22	0	///	///	///
23	0	///	///	///
24	0	///	///	///

TAIRA

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	///	///	///
2	0	///	///	///
3	0	///	///	///
4	0	///	///	///
5	0	///	///	///
6	0	///	///	///
7	0	///	///	///
8	0	///	///	///
9	0	///	///	///
10	0	///	///	///
11	0	///	///	///
12	0	///	///	///
13	0	///	///	///
14	0	///	///	///
15	0	///	///	///
16	0	///	///	///
17	0	///	///	///
18	0	///	///	///
19	0	///	///	///
20	0	///	///	///
21	0	///	///	///
22	0	///	///	///
23	0	///	///	///
24	0	///	///	///

TAIRA - March 15th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	///	///	///
2	0	///	///	///
3	0	///	///	///
4	0	///	///	///
5	0	///	///	///
6	0	///	///	///
7	0	///	///	///
8	0	///	///	///
9	0	///	///	///
10	0	///	///	///
11	0	///	///	///
12	0	///	///	///
13	0	///	///	///
14	0	///	///	///
15	0	///	///	///
16	0	///	///	///
17	0	///	///	///
18	0	///	///	///
19	0	///	///	///
20	0	///	///	///
21	0	///	///	///
22	0	///	///	///
23	0	///	///	///
24	0	///	///	///

TAIRA - March 16th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	///	///	///
2	1	///	///	///
3	1	///	///	///
4	0.5	///	///	///
5	0	///	///	///
6	0	///	///	///
7	0	///	///	///
8	0	///	///	///
9	0	///	///	///
10	0	///	///	///
11	0	///	///	///
12	0	///	///	///
13	0	///	///	///
14	0	///	///	///
15	0	///	///	///
16	0	///	///	///
17	0	///	///	///
18	0	///	///	///
19	0	///	///	///
20	0	///	///	///
21	0	///	///	///
22	0	///	///	///
23	0	///	///	///
24	0	///	///	///

TAIRA - March 17th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	///	///	///
2	0	///	///	///
3	0	///	///	///
4	0	///	///	///
5	0	///	///	///
6	0	///	///	///
7	0	///	///	///
8	0	///	///	///
9	0	///	///	///
10	0	///	///	///
11	0	///	///	///
12	0	///	///	///
13	0	///	///	///
14	0	///	///	///
15	0	///	///	///
16	0	///	///	///
17	0	///	///	///
18	0	///	///	///
19	0	///	///	///
20	0	///	///	///
21	0	///	///	///
22	0	///	///	///
23	0	///	///	///
24	0	///	///	///

TAIRA - March 18th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	///	///	///
2	0	///	///	///
3	0	///	///	///
4	0	///	///	///
5	0	///	///	///
6	0	///	///	///
7	0	///	///	///
8	0	///	///	///
9	0	///	///	///
10	0	///	///	///
11	0	///	///	///
12	0	///	///	///
13	0	///	///	///
14	0	///	///	///
15	0	///	///	///
16	0	///	///	///
17	0	///	///	///
18	0	///	///	///
19	0	///	///	///
20	0	///	///	///
21	0	///	///	///
22	0	///	///	///
23	0	///	///	///
24	0	///	///	///

TOMIOKA - March 11th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	///	///	///
2	0	///	///	///
3	0	///	///	///
4	0	///	///	///
5	0	///	///	///
6	0	///	///	///
7	0	///	///	///
8	0	///	///	///
9	0	///	///	///
10	0	///	///	///
11	0	///	///	///
12	0	///	///	///
13	0	///	///	///
14	0	///	///	///
15	0	///	///	///
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

北 North
 南 South
 東 East
 西 West

TOMIOKA - March 12th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	0.0]	///	///	///
14	0	///	///	///
15	0	///	///	///
16	0	///	///	///
17	0	///	///	///
18	0	///	///	///
19	0	///	///	///
20	0	///	///	///
21	0	///	///	///
22	0	///	///	///
23	0	///	///	///
24	0	///	///	///

TOMIOKA - March 13th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	///	///	///
2	0	///	///	///
3	0	///	///	///
4	0	///	///	///
5	0	///	///	///
6	0	///	///	///
7	0	///	///	///
8	0	///	///	///
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	///	///	///	///
14	///	///	///	///
15	///	///	///	///
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Japanese for wind direction:

- 北 North
- 南 South
- 東 East
- 西 West

TOMIOKA - March 14th-18th, Hourly

Note: Tomioka station measures only precipitation

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	///	///	///	///
14	///	///	///	///
15	///	///	///	///
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Japanese for wind direction:

- 北 North
- 南 South
- 東 East
- 西 West

SOMA - March 12-14th, Hourly

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (km/h)		Sunshine Duration (h)	Snow (cm)	
			Speed	Direction		Snowfall	Accumulated snow
1	///	///	///	///	///	///	///
2	///	///	///	///	///	///	///
3	///	///	///	///	///	///	///
4	///	///	///	///	///	///	///
5	///	///	///	///	///	///	///
6	///	///	///	///	///	///	///
7	///	///	///	///	///	///	///
8	///	///	///	///	///	///	///
9	///	///	///	///	///	///	///
10	///	///	///	///	///	///	///
11	///	///	///	///	///	///	///
12	///	///	///	///	///	///	///
13	///	///	///	///	///	///	///
14	///	///	///	///	///	///	///
15	///	///	///	///	///	///	///
16	///	///	///	///	///	///	///
17	///	///	///	///	///	///	///
18	///	///	///	///	///	///	///
19	///	///	///	///	///	///	///
20	///	///	///	///	///	///	///
21	///	///	///	///	///	///	///
22	///	///	///	///	///	///	///
23	///	///	///	///	///	///	///
24	///	///	///	///	///	///	///

SOMA - March 15th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)		Sunshine Duration (h)	Snow (cm)	
			Speed	Direction		Snowfall	Accumulated snow
1	///	///	///	///	///	///	///
2	///	///	///	///	///	///	///
3	///	///	///	///	///	///	///
4	///	///	///	///	///	///	///
5	///	///	///	///	///	///	///
6	///	///	///	///	///	///	///
7	///	///	///	///	///	///	///
8	///	///	///	///	///	///	///
9	///	///	///	///	///	///	///
10	///	///	///	///	///	///	///
11	///	///	///	///	///	///	///
12	0	5.6	1.3	NNE	0	///	///
13	0	5.6	0.2	Calm	0	///	///
14	0	5.2	0.7	S	0	///	///
15	///	///	///	///	///	///	///
16	///	///	///	///	///	///	///
17	0.0]	4.8	0.5	W	0.0]	///	///
18	0.5	4.6	0.6	WSW	0	///	///
19	0.5	4.6	0.3	SSW		///	///
20	1	4.5	0	Calm		///	///
21	1	3.8	0.8	SE		///	///
22	1.5	3.6	0.9	ENE		///	///
23	2	3.4	0.7	SE		///	///
24	1.5	3.1	1	SW		///	///

&block_no=0285&block_ch=%91%8A%94n&year=2011&month=03&day=15&view=p1

SOMA - March 16th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C%A7

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)		Sunshine Duration (h)	Snow (cm)	
			Speed	Direction		Snowfall	Accumulated snow
1	1.5	1.8	1.2	WSW		///	///
2	0.5	1.3	2.4	NNW		///	///
3	1	0.7	2.3	NNW		///	///
4	0.5	0.9	1.7	NNW		///	///
5	0	1.1	2.1	NW		///	///
6	0	1.2	2.6	NW	0	///	///
7	0	1.5	3	NW	0	///	///
8	0	2.3	2	WNW	0	///	///
9	0	3.3	1.8	NNW	0.2	///	///
10	0	4.4	1.3	ENE	0.3	///	///
11	0	3.7	1.7	ENE	0	///	///
12	1.5	1.8	3.7	N	0	///	///
13	1	2.6	4.1	N	0.2	///	///
14	0.5	6.4	9.2	WNW	0.5	///	///
15	0	5.4	8.5	WNW	0.6	///	///
16	0	3.9	7.4	WNW	0.8	///	///
17	0	2.7	4.1	WNW	0.5	///	///
18	0	0.8	2.1	WNW	0	///	///
19	0	0.8	4.5	W		///	///
20	0	0.2	4.9	W		///	///
21	0	-1	4.6	WNW		///	///
22	0	-0.7	6.4	WNW		///	///
23	0	-1	8.2	W		///	///
24	0	-1.3	6.6	W		///	///

&block_no=0285&block_ch=%91%8A%94n&year=2011&month=03&day=16&view=p1

SOMA - March 17th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%93%87%8C

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)		Sunshine Duration (h)	Snow (cm)	
			Speed	Direction		Snowfall	Accumulated snow
1	0	-1.6	4.3	W		///	///
2	0	-1.6	9.2	W		///	///
3	0	-1.8	7.1	WNW		///	///
4	0	-2	7.1	W		///	///
5	0	-2	3	NW		///	///
6	0	-1.4	7.9	W	0	///	///
7	0	-0.4	8.7	W	0.9	///	///
8	0	0.5	9.8	W	1	///	///
9	0	1.8	10.2	W	1	///	///
10	0	3	9.6	W	1	///	///
11	0	3.6	9.5	WNW	1	///	///
12	0	4.1	8.2	WNW	1	///	///
13	0	4.3	8.9	NW	1	///	///
14	0	4.5	8.3	WNW	1	///	///
15	0	4.1	7.7	W	1	///	///
16	0	3.1	8.4	WNW	1	///	///
17	0	1.5	8.3	W	0.9	///	///
18	0	0.6	7	W	0	///	///
19	0	0	4.6	W		///	///
20	0	-0.1	7.9	WNW		///	///
21	0	-0.5	5.1	WNW		///	///
22	0	-0.6	6.4	WNW		///	///
23	0	-1.1	2.6	NW		///	///
24	0	-1.9	1.7	NW		///	///

%A7&block_no=0285&block_ch=%91%8A%94n&year=2011&month=03&day=17&view=p1

Haramachi - March 11th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9:

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	///	///	///
2	0	///	///	///
3	0	///	///	///
4	0	///	///	///
5	0	///	///	///
6	0	///	///	///
7	0	///	///	///
8	0	///	///	///
9	0	///	///	///
10	0	///	///	///
11	0	///	///	///
12	0	///	///	///
13	0	///	///	///
14	0	///	///	///
15	///	///	///	///
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Haramachi - March 12th-14th, Hourly

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	///	///	///	///
14	///	///	///	///
15	///	///	///	///
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Haramachi - March 15th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	///	///	///
11	0.0]	///	///	///
12	0	///	///	///
13	0	///	///	///
14	0	///	///	///
15	0	///	///	///
16	0	///	///	///
17	0	///	///	///
18	0	///	///	///
19	0	///	///	///
20	0	///	///	///
21	0	///	///	///
22	0	///	///	///
23	1.5	///	///	///
24	1.5	///	///	///

Haramachi - March 16th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9:

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	1.5	///	///	///
2	0.5	///	///	///
3	0.5	///	///	///
4	0	///	///	///
5	0.5	///	///	///
6	0	///	///	///
7	0	///	///	///
8	0	///	///	///
9	0	///	///	///
10	0	///	///	///
11	0	///	///	///
12	0	///	///	///
13	0.5	///	///	///
14	0	///	///	///
15	0	///	///	///
16	0	///	///	///
17	0	///	///	///
18	0	///	///	///
19	0	///	///	///
20	0	///	///	///
21	0	///	///	///
22	0	///	///	///
23	0	///	///	///
24	0	///	///	///

Haramachi - March 17th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	///	///	///
2	0	///	///	///
3	0	///	///	///
4	0	///	///	///
5	0	///	///	///
6	0	///	///	///
7	0	///	///	///
8	0	///	///	///
9	0	///	///	///
10	0	///	///	///
11	0	///	///	///
12	0	///	///	///
13	0	///	///	///
14	0	///	///	///
15	0	///	///	///
16	0	///	///	///
17	0	///	///	///
18	0	///	///	///
19	0	///	///	///
20	0	///	///	///
21	0	///	///	///
22	0	///	///	///
23	0	///	///	///
24	0	///	///	///

Hirono - March 11th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	-1.8	0.2	Calm
2	0	1.6	1.3	W
3	0	1.8	2	WSW
4	0	1.7	1.5	NW
5	0	2.2	5.5	WNW
6	0	1.6	3.7	WNW
7	0	2.3	2.4	ESE
8	0	4	1	WNW
9	0	6.1	1.7	WSW
10	0	5.9	2.7	SE
11	0	6.3	3	SE
12	0	7	3.1	SE
13	0	6.2	3.8	SSE
14	0	6.4	4.7	SSE
15	0.5	6	4	S
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Hirono - March 12th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	0.0]	8.2	2.5	SSE
14	0	10.6	1.8	WNW
15	0	8.7	3.6	SSE
16	0	8.2	2.9	SSE
17	0	7.8	2.3	S
18	0	6.3	1.3	SSW
19	0	3.4	0.2	Calm
20	0	2.6	1	W
21	0	2.3	1.9	W
22	0	1.8	0.2	Calm
23	0	1.5	0	Calm
24	0	3.8	0.4	S

Hirono - March 13th, Hourly

http://www.data.jma.go.jp/obd/stats/etrn/view/hourly_a1.php?prec_no=36&prec_ch=%95%9F%9

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	0	2.8	0.6	N
2	0	2.6	0.2	Calm
3	0	3.8	0	Calm
4	0	3.1	0.3	NNE
5	0	2.8	0.6	NNE
6	0	2.9	0.5	WSW
7	0	5.7	0.7	ENE
8	0	10.7	1.4	ESE
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	///	///	///	///
14	///	///	///	///
15	///	///	///	///
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

Hirono - March 14-18th, Hourly

Time	Precipitation (mm)	Temperature (°C)	Wind Direction & Speed (m/s)	
			Speed	Direction
1	///	///	///	///
2	///	///	///	///
3	///	///	///	///
4	///	///	///	///
5	///	///	///	///
6	///	///	///	///
7	///	///	///	///
8	///	///	///	///
9	///	///	///	///
10	///	///	///	///
11	///	///	///	///
12	///	///	///	///
13	///	///	///	///
14	///	///	///	///
15	///	///	///	///
16	///	///	///	///
17	///	///	///	///
18	///	///	///	///
19	///	///	///	///
20	///	///	///	///
21	///	///	///	///
22	///	///	///	///
23	///	///	///	///
24	///	///	///	///

From: Holahan, Vincent
Sent: Saturday, March 26, 2011 5:00 PM
To: LIA03 Hoc
Subject: Out of Office:

I will be out of the office Friday, March 25, 2011, and will return to the office on Monday, April 18, 2011. I will be checking my email periodically during my absence.

ppp/525

From: ET07 Hoc
Sent: Saturday, March 26, 2011 11:01 AM
To: RMTPACTSU_ELNRC
Cc: Dudek, Michael
Subject: your question

I spoke with the response advisor here and she suggested that you talk with Mike Tschiltz...

PPP/526

From: ET07 Hoc
Sent: Saturday, March 26, 2011 8:34 AM
To: LIA07 Hoc
Subject: RE: Does anyone have a copy of the most recent DOE sitrep?

THANKS!!!

From: LIA07 Hoc
Sent: Saturday, March 26, 2011 8:33 AM
To: ET07 Hoc; LIA01 Hoc; Hoc, PMT12; RST01 Hoc; RMTPACTSU_ELNRC
Subject: RE: Does anyone have a copy of the most recent DOE sitrep?

Attached. I'm printing a copy for you.

From: ET07 Hoc
Sent: Saturday, March 26, 2011 8:24 AM
To: LIA07 Hoc; LIA01 Hoc; Hoc, PMT12; RST01 Hoc; RMTPACTSU_ELNRC
Subject: Does anyone have a copy of the most recent DOE sitrep?

The ET is looking for the most recent DOE sitrep update. The most recent they've seen is dated 6 pm yesterday.

PPP/527

From: ET07 Hoc
Sent: Saturday, March 26, 2011 12:08 PM
To: RST03 Hoc
Subject: talking points
Attachments: chairman brief on SAMGs - Dyer changes.docx

ppp/528

CHAIRMAN TALKING POINTS FOR AMBASSADOR ROOS CALL 3/26/11

A list of suggested actions was developed in collaboration with INPO, GE-Hitachi, Naval Reactors (NR), EPRI, DOE and NRC that pertain to severe accident management strategies. The organizations agreed to a version of this document, dated March 26, 2011, and we provided it to Chuck Casto. The actions were based on the long-established severe accident management guidelines of a U.S. plant similar to Fukushima. In the US, guidelines do not have the same force as Emergency Operating Procedures (EOPs).

Over the course of the day, we do expect to make additional changes to the document to improve the technical content. We expect to obtain consensus from our partners this afternoon and transmit the document to Chuck Casto.

The suggested actions are informed by our current understanding of plant conditions at Fukushima. These conditions are dynamic and our information is unconfirmed in light of the unavailability of working instrumentation.

NRC and our U.S. partners are concerned about the conditions in Unit 1 regarding the potential for hydrogen burn. The suggested actions do not address hydrogen in great detail. U.S. severe accident management guidelines assume the option to purge the containment with nitrogen to preclude hydrogen burn is available. This tactic is not currently available at Fukushima. As a result, the staff is going to continue to evaluate the hydrogen issue in consultation with some consultants with the required expertise, such as Dana Powers at Sandia National Laboratory.

If an accident were to occur in the U.S., the NRC would remain abreast of conditions in the plant and raise concerns to the licensee if we noted that a licensee was taking inappropriate actions. We would escalate up to and including an order if warranted.

The original course of action was to provide these suggested actions to TEPCo and obtain feedback regarding the validity of our assumed plant conditions. Thereafter, the site team would then explain our suggested actions and determine whether TEPCo was taking these actions or if not, determine their planned actions and rationale. We believe this interactive dialogue would be effective at encouraging these actions and determining TEPCo's overall strategy to place the plants in a stable state.

From: ET07 Hoc
Sent: Saturday, March 26, 2011 7:30 AM
To: Dyer, Jim; Ross-Lee, MaryJane
Subject: Current copy
Attachments: chairman brief on SAMGs - Marty changes.docx

PPP/529

A list of suggested actions was developed in collaboration with INPO, GE-Hitachi, Naval Reactors (NR), EPRI, DOE and NRC that pertain to severe accident management strategies. The organizations agreed to a version of this document, dated March 26, 2011, and we provided it to Chuck Casto. The actions were based on the long-established severe accident management guidelines of a U.S. plant similar to Fukushima.

Over the course of the day, we do expect to make additional changes to the document to improve the technical content. We expect to obtain concurrence from our partners this morning and transmit the document to Chuck Casto later today.

The suggested actions are informed by our current understanding of plant conditions at Fukushima. These conditions are dynamic and our information is unconfirmed in light of the unavailability of working instrumentation.

NRC and our U.S. partners are concerned about the conditions in Unit 1 regarding the potential for hydrogen burn. The suggested actions do not address hydrogen in great detail. U.S. severe accident management guidelines assume the option to inert the containment with nitrogen to preclude hydrogen burn is available. This tactic is not currently available at Fukushima. As a result, the staff is going to continue to evaluate the hydrogen issue in consultation with some consultants with the required expertise, such as Dana Powers at Sandia National Laboratory.

If an accident were to occur in the U.S., the NRC would remain abreast of conditions in the plant and raise concerns to the licensee if we noted that a licensee was taking inappropriate actions. We would escalate up to and including an order if warranted.

The original course of action was to provide these suggested actions to TEPCo and obtain feedback regarding the validity of our assumed plant conditions. Thereafter, the site team would then explain our suggested actions and determine whether TEPCo was taking these actions or if not, determine their planned actions and rationale. We believe this interactive dialogue would be effective at encouraging these actions and determining TEPCo's overall strategy to place the plants in a stable state.

From: LIA06 Hoc
Sent: Saturday, March 26, 2011 3:35 AM
To: LIA08 Hoc; LIA02 Hoc; LIA04 Hoc; LIA11 Hoc; LIA06 Hoc; LIA03 Hoc; LIA01 Hoc; LIA10 Hoc
Subject: FW: Fax from 81355105111
Attachments: File1.PDF

FYI. Fukushima Response Organization Chart

Liaison Team Director
U.S. Nuclear Regulatory Commission
Operations Center

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

From: ET07 Hoc
Sent: Saturday, March 26, 2011 3:24 AM
To: LIA06 Hoc; McGinty, Tim
Subject: FW: Fax from 81355105111

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

From: HOO Hoc
Sent: Friday, March 25, 2011 4:08 AM
To: ET07 Hoc
Subject: FW: Fax from 81355105111

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

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

From: hoo1 [mailto:hoo1.hoc@nrc.gov]
Sent: Friday, March 25, 2011 3:57 AM
To: HOO Hoc
Subject: Fax from 81355105111

RECEIVE NOTIFICATION FOR JOB 00017841

PPP/530

Notice for: H001

Remote ID: 81355105111

Received at: 03/25/2011 03:56

Pages: 2

Routed by:

Routed at: 03/25/2011 03:56

To: Hoo

From: NRC Japan Team

Subj: Fukushima response
Org chart

FUKUSHIMA RESPONSE ORGANIZATION

KANTEI – Prime Minister Kan
Lead: Chief Cabinet Secretary Edano

Joint Crisis Action Center
(MOD, TEPCO, FDMA, NPA, METI, NISA, etc.)

GOJ

Ichigaya – Defense Minister Kitazawa
Lead: Director General Takamizawa

MOD

TEPCO

FDMA

NPA

JDIH
Photo/Imaging

JJS

Tokyo Electric Power Company

Fire and Disaster Management Agency

National Police Agency

Information and Political Coordination

CRF
Central Readiness Force
-- Reduction Units
-- Watering Units
-- Firefighting Agency

Local Coord Center

Yotsukura Parking Area – Joban Expwy

JTF-FF

Joint Task Force Fukushima Firefighting

TEPCO

Fukushima Plant Manager, etc.

HYPER RESCUE, etc.

Special Team from Tokyo Fire Department

NPA

-- Police/Riot Control Veh
-- Water Pumper Truck
-- Osaka Fire Department

Field Coord Center
J-Village (60km south of Fukushima)

— : COMMAND
— : CONTROL

From: PMT03 Hoc
Sent: Saturday, March 26, 2011 1:05 AM
To: Mohseni, Aby
Cc: OST01 HOC; OST02 HOC
Subject: PMT Director

Aby,

We're almost complete on the PMT Director roster for next week, but have two slots that you can assist with if you're available. There are the graveyard shifts, Tues-Wed, 3/29-3/30, 11pm-7am and Wed/Thurs, 3/30-3/31, 11pm-7am. If you can fill these slots, please respond by copying OST01 and OST02, to be placed on the roster.

Hope to see you then.

Thanks.

Lou

ppp/531

From: Droggitis, Spiros
Sent: Saturday, March 26, 2011 7:07 AM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Shane, Raeann; Riley (OCA), Timothy; Decker, David; Dacus, Eugene
Subject: Daily Plant Status Report - 3/26/2011
Attachments: USNRC Japan Plant Condition Updates March26 0430EDT.PDF

APP/532

From: Wiggins, Jim
Sent: Saturday, March 26, 2011 8:02 PM
To: LIA07 Hoc; LIA08 Hoc; ET05 Hoc; RST01 Hoc
Subject: Fw: ANS Technical Brief: MOX Fuel & Fukushima
Attachments: ANS-Technical-Brief-MOX-Fukushima.pdf

Fyi

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

From: ANS Broadcasts <broadcasts@ans.org>
To: Wiggins, Jim
Sent: Sat Mar 26 11:05:29 2011
Subject: ANS Technical Brief: MOX Fuel & Fukushima

The ANS Special Committee on Nuclear Non-Proliferation has prepared the attached Technical Brief on The Impact of Mixed Oxide Fuel Use on Accident Consequences at Fukushima Daiichi.

For additional Fukushima resources, visit the "Featured Content" box on the front page of the American Nuclear Society's website:

<http://www.ans.org/>

PPP/533



AMERICAN NUCLEAR SOCIETY

555 North Kensington Avenue
La Grange Park, Illinois
60526-5592 USA

Tel: 708/ 352-6611
E-Mail: NUCLEUS@ans.org
<http://www.ans.org>
Fax: 708/ 352-0499

Date: March 25, 2011

To: Joe Colvin
ANS President

From: Michael (Mikey) Brady Raap 
Chair, ANS Professional Divisions Committee

Below please find the Technical Brief on The Impact of Mixed Oxide Fuel Use on Accident Consequences at Fukushima Daiichi. This Technical Brief contains factual information prepared by the ANS Special Committee on Nuclear Non-Proliferation.

The Impact of Mixed Oxide Fuel Use on Accident Consequences at Fukushima Daiichi

American Nuclear Society Technical Brief – March 2011

Conclusion

Mixed Oxide (MOX) fuel has been used safely in nuclear power reactors for decades. The presence of a limited number of MOX fuel assemblies at Fukushima Daiichi Unit 3 has not had a significant impact on the ability to cool the reactor or on any radioactive releases from the site due to damage from the earthquake and tsunami.

Summary

At the time of the magnitude 9.0 earthquake, Fukushima Daiichi Unit 3 was operating with 32 mixed oxide (MOX) fuel assemblies and 516 low enriched uranium (LEU) fuel assemblies in its reactor core. In other words, less than 6% of the fuel in the Unit 3 core was MOX fuel. There were no other MOX fuel assemblies (new, in operation or used) at the Fukushima Daiichi plant at the time of the accident.

MOX fuel assemblies were loaded into Fukushima Daiichi Unit 3 for the first time in the fall of 2010. The MOX fuel had been used for less than five months at the time of the accident. Differences in initial fuel composition between MOX and LEU fuel can lead to differences in consequences (prompt fatalities and latent cancers) following a core damage event with releases to the environment.

There are indications that Fukushima Daiichi Unit 3 suffered damage to some of its core. The core damage resulted from a loss of core cooling due to damage to plant systems from the tsunami that followed the earthquake. The damage was not related to the presence of MOX fuel.

There have been no prompt fatalities as a result of radiation exposure from Fukushima Daiichi. Prompt evacuation has minimized radiation exposure to the public, so long-term public health consequences from radiation exposure are expected to be small. Given the small number of MOX fuel assemblies at Fukushima Daiichi Unit 3 at the time of the event, coupled with the short time of irradiation of the MOX fuel, it can be concluded that MOX fuel has had and will have no perceptible impact on any consequences from the event.

Background

It is important to note that while LEU fuel begins its useful life with no plutonium, as it is used in a light water reactor it builds up plutonium as a result of the nuclear reactions in the core. By the end of its useful life an LEU fuel assembly contains about 1% plutonium actually generates more power from plutonium than from uranium. All reactor cores contain plutonium; those cores loaded with some MOX fuel contain more.

Mixed oxide (MOX) fuel is comprised of a blend of uranium oxide and plutonium oxide. MOX fuel is predominantly uranium, with average concentrations of plutonium that range from 3-10%. The presence of plutonium produces modest changes in some physical characteristics of the fuel material such as thermal conductivity. However, MOX fuel and low-enriched uranium (LEU) fuel are fundamentally similar. Moreover, the physical dimensions and structural material of a MOX fuel assembly are essentially identical to that of a LEU fuel assembly. To the naked eye, a MOX fuel assembly and a LEU fuel assembly are identical.

Nuclear power plants have been generating electricity for use by the public since the 1950s, and over those years the industry has compiled an enviable safety record. Today over 400 reactors worldwide generate substantial amounts of emissions-free electricity. Dozens of those reactors currently generate power using a mixture of conventional LEU fuel assemblies and MOX fuel assemblies in their reactor cores. The majority of the fuel loaded into these reactors is LEU (60-70% or more), while the remainder (30-40% or less) is MOX. The use of MOX fuel allows the re-use of plutonium that was recovered during nuclear fuel recycling operations. The fabrication and use of MOX fuel has been carried out safely and efficiently on an industrial scale since the 1970s. Safety authorities in France, Belgium, Germany, Switzerland and Japan have all approved the use of MOX fuel in light water reactors using the same rigorous standards that are applied for the licensing of LEU fuel.

Safety is the cornerstone of nuclear power plant operations. Nuclear power plant operators perform safety analyses to determine how the plants will respond during various “what if” problem scenarios. Some of those scenarios involve extreme conditions coupled with multiple equipment failures that lead to estimates of damage to the fuel in the reactor core. Scenarios with significant damage to the reactor core are referred to as severe accidents, and such accidents can result in the calculated release of radionuclides to the environment. Severe accident consequences are the adverse public health effects – fatalities and latent cancers – that arise from the offsite release of radionuclides from a damaged reactor core.

When uranium or plutonium atoms split (fission), they release a relatively large amount of energy which is converted into heat and eventually electricity. The smaller atoms left behind after fission are referred to as fission products. In addition, some of the uranium and plutonium atoms in nuclear fuel assemblies absorb neutrons without fissioning, becoming even heavier atoms called actinides. Both fission products and actinides are radioactive, posing a health hazard if they are released to the environment. Using MOX fuel alters somewhat the “source term,” or mix of radionuclides in the core and available for release following a severe accident. The different source term between MOX fuel and LEU fuel leads to different calculated consequences following a postulated severe accident.

In November 1999 the Department of Energy published the Surplus Plutonium Disposition Environmental Impact Statement which documented, among other things, the consequences of four severe accident scenarios at three different reactors using some MOX fuel derived from weapons grade plutonium. Each reactor accident sequence was analyzed with two different reactor core assumptions: a reference case with all LEU fuel, and a second case with a mixed core of approximately 40% MOX fuel and the remainder LEU fuel. For each case the severe accident was assumed to progress in the same manner. Relative to the reference case with all LEU fuel, the offsite consequences to the public with the mixed MOX-LEU core ranged from 4% lower to 22% higher, depending on the reactor studied and the accident sequence. Most cases resulted in consequence increases of 10% or less. The differences between the consequences relate back to differences in the source term. The mixed MOX-LEU core consequences were generally higher because of the presence of more radioactive actinides in the MOX fuel at the time of the postulated accident. However, the differences were modest compared to the uncertainty associated with the consequence calculations for these extremely low probability events.

The type of plutonium used in MOX fuel can also impact severe accident consequences. The aforementioned analysis assumed weapons grade plutonium. If the calculations had been done for MOX fuel containing plutonium from recycled commercial nuclear fuel, as is the practice in Europe and Asia today, the difference between the all uranium cases and the 40% MOX fuel consequences would have been greater than cited above. This is again due primarily to the presence of more radioactive actinides in used “reactor grade” MOX fuel (with plutonium from recycled reactor fuel) than in used weapons grade MOX fuel (with plutonium from retired nuclear weapons).

Turning to the Fukushima Daiichi reactors in Japan, Unit 3 was using some reactor grade MOX fuel at the time of the March 2011 earthquake. Had it been using a 40% MOX fuel core, one could expect an increase in severe accident consequences on the order of 10% for weapons grade MOX. With a 40% reactor grade MOX core, and applying a bounding factor of four increase relative to weapons grade MOX, the overall increase in severe accident consequences would have been on the order of 40% relative to the all LEU fuel case. However, Unit 3 was loaded with only 32 MOX fuel assemblies during refueling operations in the fall of 2010. There are a total of 548 fuel assemblies in the Unit 3 reactor core, so this represents less than 6% of the total fuel in the core. The MOX fuel had been operating in Unit 3 for less than five months; fuel assemblies are typically used for a total of 3-4 years in reactor cores before being replaced by new fuel and discharged to used fuel pools. Therefore, the MOX fuel would have built up relatively few radioactive fission products and actinides at the time of the earthquake and subsequent damage to the reactor core. With these facts in mind – the low percentage of MOX fuel in the core and the short operation time for the MOX fuel – it is evident that the presence of MOX fuel at Fukushima Daiichi Unit 3 has had no significant impact on the offsite releases of radioactivity following the earthquake and tsunami.

Other than the 32 MOX fuel assemblies in the Unit 3 reactor core, at the time of the earthquake there were no other MOX fuel assemblies (new or used) at the Fukushima Daiichi plant. The problems encountered at Fukushima Daiichi reactors stem from plant damage due to the tsunami that followed the earthquake, not the use of MOX fuel in Unit 3.

It is also important to put the public health consequences from the event in perspective. There have been no prompt fatalities as a result of radiation exposure. Moreover, prompt evacuation has minimized the exposure of the population to radiation. At this point, the consequences of the event are expected to be small. MOX fuel effects, if any, would be a small change to an already small number.

In conclusion, MOX fuel has been used safely in nuclear power reactors for decades. The presence of a limited number of MOX fuel assemblies at Fukushima Daiichi Unit 3 has not had a significant impact on the ability to cool the reactor or on any radioactive releases from the site due to damage from the earthquake and tsunami.

From: LIA11 Hoc
Sent: Saturday, March 26, 2011 7:39 PM
To: Hoc, PMT12
Subject: FW: CBP/CDC Passenger/Baggage Guidance Docs Task 8057
Attachments: image001.jpg; CBP Flowpath 3_23 Final.pptx; Screening_Script.pdf

From: Evans, Lynn (CDC/ONDIEH/NCEH) [mailto:gfn6@cdc.gov]
Sent: Thursday, March 24, 2011 2:07 PM
To: 2011 Japan Earthquake (CDC); CDC IMS Scientific Response Section Chief -2; CDC IMS Scientific Response Section Task Tracker -2; Dixon, John E. (CDC/ONDIEH/NCEH); Brooks, Michael (ATSDR/DHAC/SRAB)
Cc: 'hhs.soc@hhs.gov'; HOO Hoc; 'eoc.epahq@epa.gov'; LIA01 Hoc; LIA11 Hoc; LIA04 Hoc; OST05 Hoc; LIA11 Hoc; Turtill, Richard
Subject: RE: CBP/CDC Passenger/Baggage Guidance Docs Task 8057

Attached are documents that make up the Traveler Plan Protocol and Procedures for screening travelers leaving Japan for possible radioactive contamination. These documents were prepared by an interagency workgroup (not the Advisory Team) to make sure it was appropriate and addressed many concerns.

The Advisory Team is working on another document which addresses contamination on cargo and miscellaneous items coming from Japan. This document is still being developed.

Please contact me if you need more information.

Thanks!
Lynn Evans

D. Lynn Evans, MS
CAPT, USPHS
Centers for Disease Control and Prevention
NCEH/EHHE/Radiation Studies Branch
Mail Stop F58
4770 Buford Highway NE
Atlanta, GA 30341-3717
Phone: (770) 488-3656
Fax: (770) 488-1539
Email: gfn6@cdc.gov

From: EOC Report (CDC)
Sent: Thursday, March 24, 2011 12:03 PM
To: Evans, Lynn (CDC/ONDIEH/NCEH)
Cc: 2011 Japan Earthquake (CDC)
Subject: FW: CBP/CDC Passenger/Baggage Guidance Docs

Fyi;

Lorenzo Moore
CDC EOC Duty Officer
770-488-7100
eocreport@cdc.gov

10pp / 534

From: Connally, Daniel (HHS/ASPR/OPEO) **On Behalf Of** OS Secretarys Operations Center
Sent: Thursday, March 24, 2011 11:53 AM
To: EOC Report (CDC)
Cc: OS Secretarys Operations Center; hoo.hoc@nrc.gov; eoc.epahq@epa.gov; Lia01.hoc@nrc.gov; Lia11.hoc@nrc.gov; Lia04.hoc@nrc.gov; Ost05.hoc@nrc.gov; LIA11.Hoc@nrc.gov; Richard.Turtill@nrc.gov
Subject: CBP/CDC Passenger/Baggage Guidance Docs

CDC,

Per the request on the ESF-8 call today, can you please provide NRC HOC and EPA EOC with any guidance for passengers, baggage and other importation guidance; especially those expected to be issued today? Please include in your response all addresses in the CC line of this email.

Very Respectfully,

Daniel Connally
Watch Officer
Secretary's Operation Center
Department of Health and Human Services
200 Independence Avenue, SW
Washington, DC 20201
Email: hhs.soc@hhs.gov
W: 202.619.7800
Fax: 202.619.7870



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Traveler Screening Script for CBP Officers

(CBP officer reads this script to traveler after secondary screening has been done and LSS results are available.)

For Travelers with Count LESS THAN 2 TIMES BACKGROUND

Mr./Ms. [Last name of traveler],

You have tested positive for radioactive material. However, The Centers for Disease Control and Prevention (CDC) believes your level is low and not a threat to your health, the health of your family, or the health of other travelers. Here are CDC's instructions that will help you to decontaminate yourself, to decontaminate your pet, if necessary, and to appropriately manage your clothes and luggage. Please read these instructions, and use the contact information at the bottom of the page if you have further questions.

For Travelers with Count GREATER THAN 2 TIMES BACKGROUND AND LESS THAN 20 TIMES BACKGROUND

Mr./Ms. [Last name of traveler],

You have tested positive for radioactive material. Although the level is somewhat elevated, The Centers for Disease Control and Prevention (CDC) still believes that your level may be of potential concern to your health, the health of your family, or the health of other travelers. We strongly discourage you from continuing to travel without first changing into your own clean clothes and washing your exposed skin surfaces, such as your hands and face. Once you change, we will rescreen you to see if your contamination levels have come down. Here are CDC's instructions that will help you to decontaminate yourself, to decontaminate your pet, if necessary, and to appropriately manage your clothes and luggage. Please read and follow these instructions now, and use the contact information at the bottom of the page if you have further questions.

We understand that you may be concerned about these test results and your health. Please provide your contact information on this form, and we will send it securely to CDC, along with your test results. Someone from CDC will evaluate your results and follow up with you for further health advice. Providing your contact information is voluntary, but it will ensure that you get follow up advice from CDC.

Only for Travelers Returning from Japan With Count GREATER THAN 20 TIMES BACKGROUND

Mr./Ms. [Last name of traveler],

You have tested positive for radioactive material. CDC believes that your level of contamination is of concern to your health, the health of your family, or the health of other travelers. We strongly discourage you from continuing to travel without first changing into your own clean clothes and washing your exposed skin surfaces, such as your hands and face. Once you change, we will rescreen you to see if your contamination levels have come down. Here are CDC's instructions that will help you to decontaminate yourself, to decontaminate your pet, if necessary, and to appropriately manage your clothes and luggage.



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

If the traveler tests LESS THAN 20 TIMES BACKGROUND on rescreening:

Your test results show that your levels of radiation have decreased but still may be a potential concern to your health, the health of your family, or the health of other travelers. It is still important for you to take a shower when you go home and follow the instructions provided for decontamination. We understand that you may be concerned about these test results and your health. Please provide your contact information on this form, and we will send it securely to CDC, along with your test results. Someone from CDC will evaluate your results and follow up with you for further health advice. Providing your contact information is voluntary, but it will ensure that you get follow up advice from CDC.

If the traveler tests GREATER THAN 20 TIMES BACKGROUND on rescreening:

Your test results are still elevated. Please wait here while we call the state radiation control officer, who will give you advice about further decontamination. The state radiation control officer will also give you advice about how to decontaminate your belongings and the next steps you should take to protect your health.

We understand that you may be concerned about these test results and your health. Please provide your contact information on this form, and we will send it securely to the state and CDC, along with your test results. Someone from CDC will evaluate your results and follow up with you for further health advice. Providing your contact information is voluntary, but it will ensure that you get follow up advice from the state and CDC.

If the traveler elects to leave the FIS area before the state radiation control officer gives advice:

We cannot prevent you from leaving, but it is very important for you to wait here for advice from the state radiation control officer. If you decide to leave, please give us your contact information so that the state and CDC can follow up with you. Please refer to the CDC information for travelers for further advice.

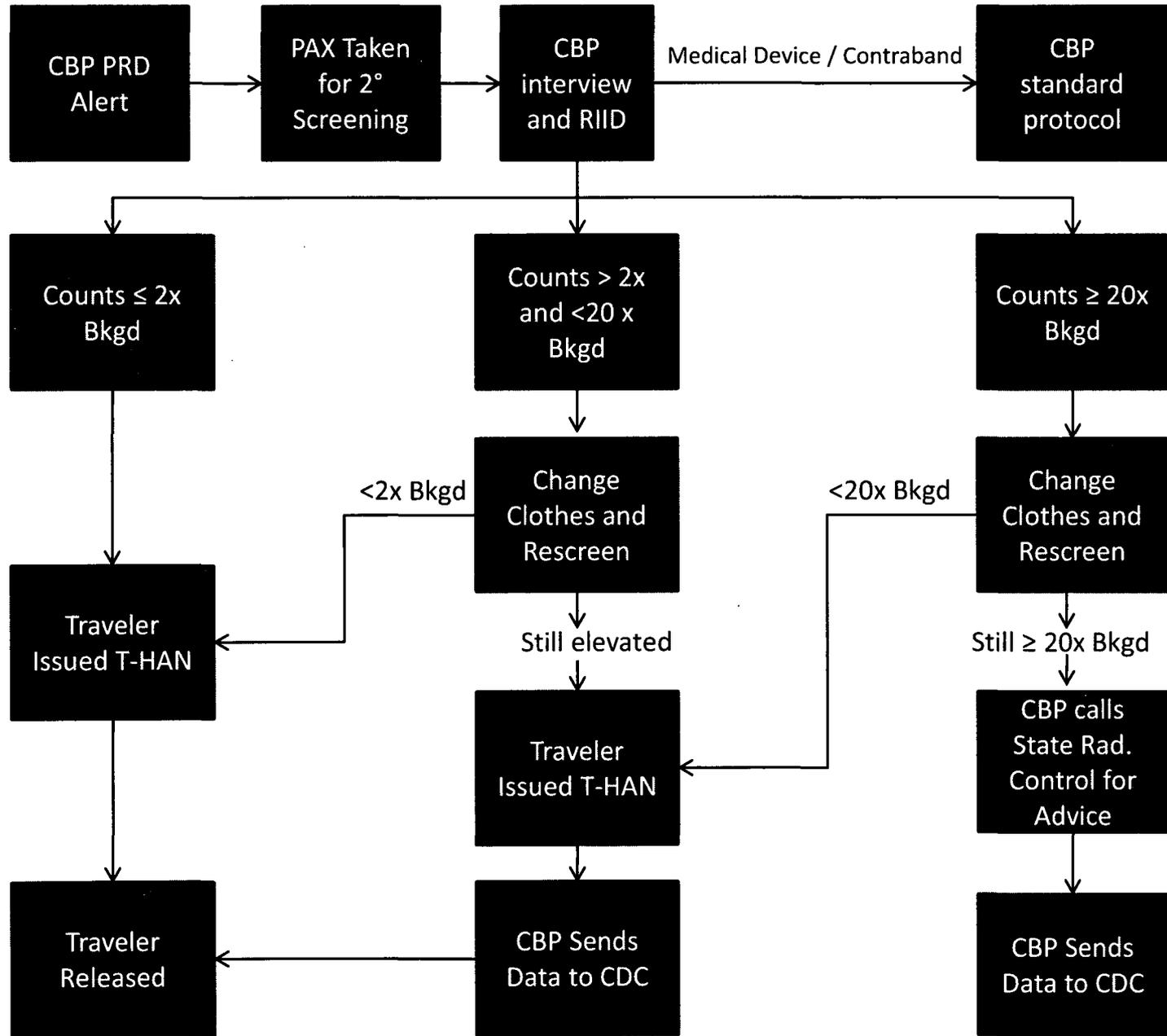
If the traveler is worried about pets (hand luggage or cargo):

If your pet tests positive for radiation, we will be notified. We will consult the state radiation control officer, who will advise you about how to decontaminate your pet. You will be reunited with your pet before you leave the airport.

If the traveler is worried about missing a connecting flight:

CDC has written a letter to the airlines recommending change fee waivers for anyone who misses a flight because you have to wait here. We cannot guarantee that your fees will be waived.

CDC Algorithm for CBP Radiological Screening Program for Travelers Returning to the U.S. from Japan



From: Grant, Jeffery
Sent: Saturday, March 26, 2011 12:55 AM
To: ET07 Hoc
Subject: Fw: Japanese Earthquake ERO Staffing March 20-26, 2011 (Pay Period 7, Week 2)
Attachments: Japan Earthquake - ERO Staffing Schedule - March 20-26.pdf

Jeffery D. Grant

From: OST02 HOC

To: Abrams, Charlotte; Abu-Eid, Bobby; Adams, John; Afshar-Tous, Mugeh; Ahn, Hosung; Alemu, Bezakulu; Aigama, Don; Alter, Peter; Anderson, Brian; Anderson, James; Arndt, Steven; Arribas-Colón, Maria; Ashkeboussi, Nima; Athey, George <george.athey@nrc.gov>; Baker, Stephen; Ballam, Nick; Barnhurst, Daniel; Barr, Cynthia; Barss, Dan; Bazian, Samuel; Bensi, Michelle; Bergman, Thomas; Berry, Rollie; Bhachu, Ujagar; Bloom, Steven; Blount, Tom; Boger, Bruce; Bonnette, Cassandra; Borchardt, Bill; Bowers, Anthony; Bowman, Gregory; Boyce, Tom (RES); Brandon, Lou; Brandt, Philip; Brenner, Eliot; Brock, Kathryn; Brown, Cris; Brown, David; Brown, Eva; Brown, Frederick; Brown, Michael; Bukharin, Oleg; Burnell, Scott; Bush-Goddard, Stephanie; Campbell, Stephen; Camper, Larry; Carpenter, Cynthia; Carter, Mary; Case, Michael; Casto, Greg; Cecere, Bethany; Cervera, Margaret; Chazell, Russell; Chen, Yen-Ju; Cheok, Michael; Chokshi, Nilesh; Chowdhury, Prosanta; Chung, Donald; Circle, Jeff; Clement, Richard; Clinton, Rebecca; Coggins, Angela; Collins, Frank; Cool, Donald; Correia, Richard; Corson, James; Costa, Arlon; Couret, Ivonne; Craffey, Ryan; Crutchley, Mary Glenn; Cruz, Zahira; Cuadrado, Leira; Dacus, Eugene; DeCicco, Joseph; Decker, David; Dembek, Stephen; Devlin, Stephanie; Dimmick, Lisa; Doane, Margaret; Dorman, Dan; Dorsey, Cynthia; Dozier, Jerry; Drake, Margaret <margaret.drake@nrc.gov>; Droggitis, Spiros; Dube, Donald; Dudes, Laura; Eads, Johnny; Emche, Danielle; English, Lance; Erlanger, Craig; Esmaili, Hossein; Figueroa, Roberto; Fiske, Jonathan; Flanders, Scott; Flannery, Cindy; Floyd, Daphene; Foggie, Kirk; Foster, Jack; Fragoyannis, Nancy; Franovich, Rani; Frazier, Alan; Freshman, Steve <steve.freshman@nrc.gov>; Fuller, Edward; Galletta, Thomas; Gambone, Kimberly; Gardocki, Stanley; Gartman, Michael; Gibson, Kathy; Giitter, Joseph; Gilmer, James; Glenn, Nichole; Gordon, Dennis; Gott, William; Grant, Jeffery; Greenwood, Carol; Greenwood, Carol; Grimes, Kelly; Grobe, Jack; Gross, Allen; Gulla, Gerald; Hale, Jerry; Hardesty, Duane; Hardin, Kimberly; Hardin, Leroy; Harrington, Holly; Harris, Tim; Harrison, Donnie; Hart, Ken; Hart, Michelle; Harvey, Brad; Hasselberg, Rick; Hayden, Elizabeth; Helton, Donald; Henderson, Karen; Hiland, Patrick; Holahan, Patricia; Holahan, Vincent; Holian, Brian; HOO Hoc; Horn, Brian; Howard, Tabitha; Huffert, Anthony; Hurd, Sapna; Huyck, Doug; Imboden, Andy; Isom, James; Jackson, Karen; Jacobson, Jeffrey; Jervey, Richard; Jessie, Janelle; Johnson, Michael; Jolicoeur, John; Jones, Andrea; Jones, Cynthia; Jones, Henry; Kahler, Carolyn; Kammerer, Annie; Karas, Rebecca; Kauffman, John; Khan, Omar; Kolb, Timothy; Kotzalas, Margie; Kowalczyk, Jeffrey; Kratchman, Jessica; Kugler, Andrew; Lamb, Christopher; Lane, John; Larson, Emily; Laur, Steven; LaVie, Steve; Lewis, Robert; Li, Yong; Lichatz, Taylor; Lising, Jason; Lombard, Mark; Lubinski, John; Lui, Christiana; Lukes, Kim; Lynch, Jeffery; Ma, John; Mamish, Nader; Manahan, Michelle; Marksberry, Don; Marshall, Jane; Masao, Nagai <nagai.masao@nrc.gov>; Maupin, Cardelia; Mayros, Lauren; Mazaika, Michael; McConnell, Keith; McCoppin, Michael; McDermott, Brian; McGinty, Tim; McGovern, Denise; McIntyre, David; McMurtray, Anthony; Merritt, Christina; Meyer, Karen; Miller, Charles; Miller, Chris; Milligan, Patricia; Miranda, Samuel; Mohseni, Aby; Moore, Scott; Morlang, Gary; Morris, Scott; Mroz (Sahm), Sara; Munson, Clifford; Murray, Charles; Nerret, Amanda; Nguyen, Caroline; Norris, Michael; Norton, Charles; Opara, Stella; Ordaz, Vonna; Owens, Janice; Padovan, Mark; Parillo, John; Patel, Jay; Patel, Pravin; Patrick, Mark; Perin, Vanice; Pope, Tia; Powell, Amy; Purdy, Gary; Quinlan, Kevin; Raddatz, Michael; Ragland, Robert; Ralph, Melissa; Ramsey, Jack; Reed, Elizabeth; Reed, Sara <sara.reed@nrc.gov>; Reed, Wendy; Reeves, Rosemary; Reis, Terrence; Resner, Mark; Riley (OCA), Timothy; Riner, Kelly; Rini, Brett; Robinson, Edward; Rodriguez-Luccioni, Hector; Roggenbrodt, William; Ropon, Kimberly <kimberly.ropon@nrc.gov>; Rosales-Cooper, Cindy; Rosenberg, Stacey; Ross-Lee, MaryJane; Roundtree, Amy; Ruland, William; Russell, Tonya; Ryan, Michelle; Salay, Michael; Salter, Susan; Salus, Amy; Sanfilippo, Nathan; Santos, Daniel; Scarbrough, Thomas; Schaperow, Jason; Schmidt, Duane; Schmidt, Rebecca; Schoenebeck, Greg; Schrader, Eric; Schwartzman, Jennifer; Seber, Dogan; See, Kenneth; Shane, Raeann; Shea, James; Shepherd, Jill; Sheron, Brian; Skarda, Raymond; Skeen, David; Sloan, Scott; Smirolodo, Elizabeth; Smith, Brooke; Smith, Stacy; Smith, Theodore; Stahl, Eric; Stang, Annette; Stark, Johnathan; Steger (Tucci), Christine; Stieve, Alice; Stone, Rebecca; Stransky, Robert; Sturz, Fritz; Sullivan, Randy; Summers, Robert; Sun, Casper; Tappert, John; Tegeler, Bret; Temple, Jeffrey; Thaggard, Mark; Thomas,

PPP/535

Eric; Thorp, John; Tiruneh, Nebiyu; Tobin, Jennifer; Trefethen, Jean; Tschiltz, Michael; Turtill, Richard; Uhle, Jennifer; Valencia, Sandra; Vaughn, James; Vick, Lawrence; Virgilio, Martin; Virgilio, Rosetta; Ward, Leonard; Ward, William; Wastler, Sandra; Watson, Bruce; Webber, Robert; Weber, Michael; White, Bernard; Wiggins, Jim; Williams, Donna; Williams, Joseph; Williamson, Linda; Willis, Dori; Wimbush, Andrea; Wittick, Brian; Wray, John; Wright, Lisa (Gibney); Wright, Ned; Wunder, George; Young, Francis; Zimmerman, Jacob; Zimmerman, Roy

Sent: Fri Mar 25 12:31:06 2011

Subject: Japanese Earthquake ERO Staffing March 20-26, 2011 (Pay Period 7, Week 2)

Good Afternoon,

Attached is the OPS Center revised watchbill for March 20-26. The watchbill for the week of March 27-April 2 will be sent by Saturday, March 27.

If you need to change the schedule, please send an email to OST02 HOC and your Teams Coordinator.

EST Admin Support
NRC Operations Center
eMail: OST02.HOC@nrc.gov
301-816-5100 x5600

Japan Earthquake ERO Staffing Roster
 March 20-26, 2011
 Pay Period 7 - Week 2

Position	Date	Time	Staff
Executive Team			
ET Director			
Sat-Sun	3/19-3/20	11pm - 7am	Mike Johnson
Sun	20-Mar	7am - 3pm	Jim Wiggins
Sun	20-Mar	3pm-11pm	Brian Sheron
Sun-Mon	3/20-3/21	11pm - 7am	Mike Johnson
Mon	21-Mar	7am - 3pm	Mike Weber
Mon	21-Mar	3pm-11pm	Jim Wiggins
Mon-Tues	3/21-3/22	11pm - 7am	Mike Johnson
Tues	22-Mar	7am - 3pm	Mike Weber
Tues	22-Mar	3pm-11pm	Jim Wiggins
Tues-Wed	3/22-3/23	11pm - 7am	Bruce Boger
Wed	23-Mar	7am - 3pm	Mike Weber
Wed	23-Mar	3pm-11pm	Roy Zimmerman
Wed-Thur	3/23-3/24	11pm - 7am	Bruce Boger
Thur	24-Mar	7am - 3pm	Mike Weber
Thur	24-Mar	3pm-11pm	Roy Zimmerman
Thur-Fri	3/24-3/25	11pm - 7am	Jennifer Uhle
Fri	25-Mar	7am - 3pm	Jim Dyer
Fri	25-Mar	3pm-11pm	Roy Zimmerman
Fri-Sat	3/25-3/26	11pm-7am	Jennifer Uhle
Sat	26-Mar	7am - 3pm	Jim Dyer
Sat	26-Mar	3pm-11pm	Brian Sheron
Sat-Sun	3/26-3/27	11pm - 7am	Jennifer Uhle
ET Response Advisor			
Sat-Sun	3/19-3/20	11pm - 7am	Scott Morris
Sun	20-Mar	7am - 3pm	Chris Miller
Sun	20-Mar	3pm-11pm	Mary Jane (MJ) Ross-Lee
Sun-Mon	3/20-3/21	11pm - 7am	Scott Morris
Mon	21-Mar	7am - 3pm	Brian McDermott
Mon	21-Mar	3pm-11pm	Chris Miller
Mon-Tues	3/21-3/22	11pm - 7am	Scott Morris
Tues	22-Mar	7am - 3pm	Mary Jane (MJ) Ross-Lee
Tues	22-Mar	3pm-11pm	Chris Miller
Tues-Wed	3/22-3/23	11pm - 7am	Tim McGinty
Wed	23-Mar	7am - 3pm	Brian McDermott
Wed	23-Mar	3pm-11pm	Joe Giitter
Wed-Thur	3/23-3/24	11pm - 7am	Tim McGinty
Thur	24-Mar	7am - 3pm	Mary Jane (MJ) Ross-Lee
Thur	24-Mar	3pm-11pm	Joe Giitter
Thur-Fri	3/24-3/25	11pm - 7am	Tim McGinty
Fri	25-Mar	7am - 3pm	Mary Jane (MJ) Ross-Lee
Fri	25-Mar	3pm-11pm	Joe Giitter
Fri-Sat	3/25-3/26	11pm-7am	Tim McGinty
Sat	26-Mar	7am - 3pm	Mary Jane (MJ) Ross-Lee
Sat	26-Mar	3pm-11pm	Joe Giitter
Sat-Sun	3/26-3/27	11pm - 7am	Chris Miller
ET Rx Prot Measures & State Coordinator			
Sat-Sun	3/19-3/20	11pm - 7am	Rob Lewis

Japan Earthquake ERO Staffing Roster
 March 20-26, 2011
 Pay Period 7 - Week 2

Sun	20-Mar	7am - 3pm	Vonna Ordaz
Sun	20-Mar	3pm-11pm	Larry Camper
Sun-Mon	3/20-3/21	11pm - 7am	Cynthia Carpenter
Mon	21-Mar	7am - 3pm	Charlie Miller
Mon	21-Mar	3pm-11pm	Larry Camper
Mon-Tues	3/21-3/22	11pm - 7am	Rob Lewis
Tues	22-Mar	7am - 3pm	Charlie Miller
Tues	22-Mar	3pm-11pm	Patricia Holahan
Tues-Wed	3/22-3/23	11pm - 7am	Cynthia Carpenter
Wed	23-Mar	7am - 3pm	Charlie Miller
Wed	23-Mar	3pm-11pm	Patricia Holahan
Wed-Thur	3/23-3/24	11pm - 7am	N/A
Thur	24-Mar	7am - 3pm	Larry Camper
Thur	24-Mar	3pm-11pm	Cynthia Carpenter
Thur-Fri	3/24-3/25	11pm - 7am	N/A
Fri	25-Mar	7am - 3pm	Cynthia Carpenter
Fri	25-Mar	3pm-11pm	Patricia Holahan
Fri-Sat	3/25-3/26	11pm-7am	N/A
Sat	26-Mar	7am - 3pm	N/A
Sat	26-Mar	3pm-11pm	N/A
Sat-Sun	3/26-3/27	11pm - 7am	N/A
Executive Briefing Team			
EBT Admin. Assistant			
Sat-Sun	3/19-3/20	11pm - 9am	Sapna Hurd
Sun	20-Mar	9am - 7pm	Annette Stang
Sun-Mon	3/20-3/21	7pm-7am	Carolyn Kahler
Mon	21-Mar	7am - 3pm	A. Stang (7-11) / Sapna Hurd (11-3)
Mon	21-Mar	3pm-11pm	Tia Pope
Mon-Tues	3/21-3/22	11pm - 7am	Christina Merritt
Tues	22-Mar	7am - 3pm	Carolyn Kahler/Sapna Hurd
Tues	22-Mar	3pm-11pm	Jon Fiske
Tues-Wed	3/22-3/23	11pm - 7am	Tia Pope
Wed	23-Mar	7am - 3pm	Jon Fiske
Wed	23-Mar	3pm-11pm	Annette Stang
Wed-Thur	3/23-3/24	11pm - 7am	Christina Merritt
Thur	24-Mar	7am - 3pm	Carolyn Kahler/Sapna Hurd
Thur	24-Mar	3pm-11pm	Jonathan Fiske
Thur-Fri	3/24-3/25	11pm - 7am	Tia Pope
Fri	25-Mar	7am - 3pm	Jon Fiske
Fri	25-Mar	3pm-11pm	Sapna Hurd
Fri-Sat	3/25-3/26	11pm-7am	Carolyn Kahler
Sat	26-Mar	7am - 3pm	Kelly Riner
Sat	26-Mar	3pm-11pm	Louise Lovell
Sat-Sun	3/26-3/27	11pm - 7am	Jonathan Fiske
EBT Coordinator			
Sat-Sun	3/19-3/20	11pm - 7am	Jim Andersen
Sun	20-Mar	7am - 3pm	Yen-Ju Chen
Sun	20-Mar	3pm-11pm	Caroline Nguyen
Sun-Mon	3/20-3/21	11pm - 7am	Jim Andersen
Mon	21-Mar	7am - 3pm	Yen-Ju Chen

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Mon	21-Mar	3pm-11pm	Sara Mroz
Mon-Tues	3/21-3/22	11pm - 7am	Jim Andersen
Tues	22-Mar	7am - 3pm	Caroline Nguyen
Tues	22-Mar	3pm-11pm	Sara Mroz
Tues-Wed	3/22-3/23	11pm - 7am	Jim Andersen
Wed	23-Mar	7am - 3pm	Yen-Ju Chen
Wed	23-Mar	3pm-11pm	Sara Mroz
Wed-Thur	3/23-3/24	11pm - 7am	Jim Andersen
Thur	24-Mar	7am - 3pm	Yen-Ju Chen
Thur	24-Mar	3pm-11pm	Sara Mroz
Thur-Fri	3/24-3/25	11pm - 7am	Jim Andersen
Fri	25-Mar	7am - 3pm	Caroline Nguyen
Fri	25-Mar	3pm-11pm	Sara Mroz
Fri-Sat	3/25-3/26	11pm-7am	Jim Andersen
Sat	26-Mar	7am - 3pm	Yen-Ju Chen/Tonya Russell
Sat	26-Mar	3pm-11pm	Sara Mroz
Sat-Sun	3/26-3/27	11pm - 7am	Jim Anderson
Executive Support Team			
EST Status Officer			
Sat-Sun	3/19-3/20	11pm - 7am	Doug Huyck
Sun	20-Mar	7am - 3pm	Craig Erlanger
Sun	20-Mar	3pm-11pm	John Jolicoeur
Sun-Mon	3/20-3/21	11pm - 7am	Doug Huyck
Mon	21-Mar	7am - 3pm	Jane Marshall
Mon	21-Mar	3pm-11pm	Bill Gott
Mon-Tues	3/21-3/22	11pm - 7am	Jeff Grant
Tues	22-Mar	7am - 3pm	John Jolicoeur
Tues	22-Mar	3pm-11pm	Bill Gott
Tues-Wed	3/22-3/23	11pm - 7am	Jeff Grant
Wed	23-Mar	7am - 3pm	Sally Billings/Jane Marshall
Wed	23-Mar	3pm-11pm	Bill Gott
Wed-Thur	3/23-3/24	11pm - 7am	Jeff Grant
Thur	24-Mar	7am - 3pm	Jane Marshall
Thur	24-Mar	3pm-11pm	Bill Gott
Thur-Fri	3/24-3/25	11pm - 7am	Jeff Grant
Fri	25-Mar	7am - 3pm	Jane Marshall
Fri	25-Mar	3pm-11pm	Bill Gott
Fri-Sat	3/25-3/26	11pm-7am	Jeff Grant
Sat	26-Mar	7am - 3pm	Jane Marshall ?
Sat	26-Mar	3pm-11pm	Bill Gott
Sat-Sun	3/26-3/27	11pm - 7am	Jeff Grant
EST Actions Officer			
Sat-Sun	3/19-3/20	11pm - 7am	Jonathan Fiske
Sun	20-Mar	7am - 3pm	Melissa Ralph
Sun	20-Mar	3pm-11pm	Jonathan Fiske
Sun-Mon	3/20-3/21	11pm - 7am	Dori Votolato-Willis
Mon	21-Mar	7am - 3pm	Melissa Ralph
Mon	21-Mar	3pm-11pm	Amanda Nerret
Mon-Tues	3/21-3/22	11pm - 7am	Kelly Grimes
Tues	22-Mar	7am - 3pm	Melissa Ralph

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Tues	22-Mar	3pm-11pm	Dori Votolato-Willis
Tues-Wed	3/22-3/23	11pm - 7am	Kelly Grimes
Wed	23-Mar	7am - 3pm	Melissa Ralph
Wed	23-Mar	3pm-11pm	Dori Votolato-Willis
Wed-Thur	3/23-3/24	11pm - 7am	Kelly Grimes
Thur	24-Mar	7am - 3pm	Wendy Reed
Thur	24-Mar	3pm-11pm	Dori Votolato-Willis
Thur-Fri	3/24-3/25	11pm - 7am	N/A
Fri	25-Mar	7am - 3pm	Amanda Nerret
Fri	25-Mar	3pm-11pm	Melissa Ralph
Fri-Sat	3/25-3/26	11pm-7am	N/A
Sat	26-Mar	7am - 3pm	James Corson
Sat	26-Mar	3pm-11pm	Don Algama
Sat-Sun	3/26-3/27	11pm - 7am	N/A
EST Coordinator			
Sat-Sun	3/19-3/20	11pm - 7am	Rebecca Stone
Sun	20-Mar	7am - 3pm	Clyde Ragland
Sun	20-Mar	3pm-11pm	Tony Bowers
Sun-Mon	3/20-3/21	11pm - 7am	Rebecca Stone
Mon	21-Mar	7am - 3pm	Tony McMurtray
Mon	21-Mar	3pm-11pm	Tony Bowers
Mon-Tues	3/21-3/22	11pm - 7am	Rebecca Stone
Tues	22-Mar	7am - 3pm	Tony McMurtray
Tues	22-Mar	3pm-11pm	Clyde Ragland
Tues-Wed	3/22-3/23	11pm - 7am	Rebecca Stone
Wed	23-Mar	7am - 3pm	Tony McMurtray
Wed	23-Mar	3pm-11pm	Clyde Ragland
Wed-Thur	3/23-3/24	11pm - 7am	Rebecca Stone
Thur	24-Mar	7am - 3pm	Tony McMurtray
Thur	24-Mar	3pm-11pm	Clyde Ragland
Thur-Fri	3/24-3/25	11pm - 7am	Steve Campbell
Fri	25-Mar	7am - 3pm	Taylor Lichatz
Fri	25-Mar	3pm-11pm	Tony McMurtray
Fri-Sat	3/25-3/26	11pm-7am	Steve Campbell
Sat	26-Mar	7am - 3pm	Tonya Russell
Sat	26-Mar	3pm-11pm	Tony McMurtray
Sat-Sun	3/26-3/27	11pm - 7am	Steve Campbell
EST Chronology Officer			
Sat-Sun	3/19-3/20	11pm - 7am	Cynthia Dorsey
Sun	20-Mar	7am - 3pm	James Vaughn
Sun	20-Mar	3pm-11pm	Rebecca Karas
Sun-Mon	3/20-3/21	11pm - 7am	Mark Resner
Mon	21-Mar	7am - 3pm	Hector Rodriguez-Luccioni
Mon	21-Mar	3pm-11pm	Rebecca Karas
Mon-Tues	3/21-3/22	11pm - 7am	Thomas Scarbrough
Tues	22-Mar	7am - 3pm	Hector Rodriguez-Luccioni
Tues	22-Mar	3pm-11pm	Rebecca Karas
Tues-Wed	3/22-3/23	11pm - 7am	Thomas Scarbrough
Wed	23-Mar	7am - 3pm	James Vaughn
Wed	23-Mar	3pm-11pm	Rebecca Karas

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Wed-Thur	3/23-3/24	11pm - 7am	Nick Ballam
Thur	24-Mar	7am - 3pm	Hector Rodriguez-Luccioni
Thur	24-Mar	3pm-11pm	Rebecca Karas
Thur-Fri	3/24-3/25	11pm - 7am	Thomas Scarbrough
Fri	25-Mar	7am - 3pm	Hector Rodriguez-Luccioni
Fri	25-Mar	3pm-11pm	Rebecca Karas
Fri-Sat	3/25-3/26	11pm-7am	Thomas Scarbrough
Sat	26-Mar	7am - 3pm	Nick Ballam
Sat	26-Mar	3pm-11pm	Rebecca Karas
Sat-Sun	3/26-3/27	11pm - 7am	Thomas Scarbrough
EST Response Ops Mgr			
Sat-Sun	3/19-3/20	11pm - 7am	Jean Trefethan
Sun	20-Mar	7am - 3pm	Karen Jackson
Sun	20-Mar	3pm-11pm	Roberto Figueroa
Sun-Mon	3/20-3/21	11pm - 7am	Jean Trefethan
Mon	21-Mar	7am - 3pm	Bob Stransky
Mon	21-Mar	3pm-11pm	Omar Khan
Mon-Tues	3/21-3/22	11pm - 7am	Cris Brown
Tues	22-Mar	7am - 3pm	Bob Stransky
Tues	22-Mar	3pm-11pm	Karen Jackson
Tues-Wed	3/22-3/23	11pm - 7am	Roberto Figueroa
Wed	23-Mar	7am - 3pm	Bob Stransky
Wed	23-Mar	3pm-11pm	Jean Trefethan
Wed-Thur	3/23-3/24	11pm - 7am	Cris Brown
Thur	24-Mar	7am - 3pm	Karen Jackson
Thur	24-Mar	3pm-11pm	Omar Khan
Thur-Fri	3/24-3/25	11pm - 7am	Roberto Figueroa
Fri	25-Mar	7am - 3pm	Jean Trefethan
Fri	25-Mar	3pm-11pm	Cris Brown
Fri-Sat	3/25-3/26	11pm-7am	Roberto Figueroa
Sat	26-Mar	7am - 3pm	Omar Khan
Sat	26-Mar	3pm-11pm	Cris Brown
Sat-Sun	3/26-3/27	11pm - 7am	Roberto Figueroa
EST Admin. Assistant			
Sat-Sun	3/19-3/20	11pm - 7am	Chris Lamb
Sun	20-Mar	7am - 3pm	Karen Meyer
Sun	20-Mar	3pm-11pm	Linda Williamson
Sun-Mon	3/20-3/21	11pm - 7am	Chris Lamb
Mon	21-Mar	7am - 3pm	Karen Meyer
Mon	21-Mar	3pm-11pm	Mary Glenn Crutchley
Mon-Tues	3/21-3/22	11pm - 7am	Andrea Wimbush
Tues	22-Mar	7am - 3pm	Cynthia Dorsey
Tues	22-Mar	3pm-11pm	Mary Glenn Crutchley
Tues-Wed	3/22-3/23	11pm - 7am	Michelle Manahan
Wed	23-Mar	7am - 3pm	Karen Meyer
Wed	23-Mar	3pm-11pm	Mary Glenn Crutchley
Wed-Thur	3/23-3/24	11pm - 7am	Andrea Wimbush
Thur	24-Mar	7am - 3pm	Cynthia Dorsey
Thur	24-Mar	3pm-11pm	Mary Glenn Crutchley
Thur-Fri	3/24-3/25	11pm - 7am	N/A

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Fri	25-Mar	7am - 3pm	Karen Meyer
Fri	25-Mar	3pm-11pm	Cynthia Dorsey
Fri-Sat	3/25-3/26	11pm-7am	N/A
Sat	26-Mar	7am - 3pm	Karen Meyer
Sat	26-Mar	3pm-11pm	Cynthia Dorsey
Sat-Sun	3/26-3/27	11pm - 7am	N/A
Liaison Team			
LT Director			
Sat-Sun	3/19-3/20	11pm - 7am	John Adams
Sun	20-Mar	7am - 3pm	Tom Bergman
Sun	20-Mar	3pm-11pm	Bob Webber
Sun-Mon	3/20-3/21	11pm - 7am	John Adams
Mon	21-Mar	7am - 3pm	Tom Bergman
Mon	21-Mar	3pm-11pm	Bob Webber
Mon-Tues	3/21-3/22	11pm - 7am	John Adams
Tues	22-Mar	7am - 3pm	Tom Bergman
Tues	22-Mar	3pm-11pm	Bob Webber
Tues-Wed	3/22-3/23	11pm - 7am	John Adams
Wed	23-Mar	7am - 3pm	Michael Tschiltz
Wed	23-Mar	3pm-11pm	Rich Correia
Wed-Thur	3/23-3/24	11pm - 7am	Jake Zimmerman
Thur	24-Mar	7am - 3pm	Michael Tschiltz
Thur	24-Mar	3pm-11pm	Rich Correia
Thur-Fri	3/24-3/25	11pm - 7am	Jake Zimmerman
Fri	25-Mar	7am - 3pm	Michael Tschiltz
Fri	25-Mar	3pm-11pm	Rich Correia
Fri-Sat	3/25-3/26	11pm-7am	Jake Zimmerman
Sat	26-Mar	7am - 3pm	Michael Tschiltz
Sat	26-Mar	3pm-11pm	Rich Correia
Sat-Sun	3/26-3/27	11pm - 7am	Marissa Bailey
LT Coordinator			
Sat-Sun	3/19-3/20	11pm - 7am	Janelle Jessie
Sun	20-Mar	7am - 3pm	Jeff Temple
Sun	20-Mar	3pm-11pm	Nathan Sanfilippo
Sun-Mon	3/20-3/21	11pm - 7am	Milt Murray
Mon	21-Mar	7am - 3pm	Jeff Temple
Mon	21-Mar	3pm-11pm	Nathan Sanfilippo
Mon-Tues	3/21-3/22	11pm - 7am	Milt Murray
Tues	22-Mar	7am - 3pm	Rani Franovich
Tues	22-Mar	3pm-11pm	Nathan Sanfilippo
Tues-Wed	3/22-3/23	11pm - 7am	Milt Murray
Wed	23-Mar	7am - 3pm	Rani Franovich
Wed	23-Mar	3pm-11pm	Jeff Temple
Wed-Thur	3/23-3/24	11pm - 7am	Milt Murray
Thur	24-Mar	7am - 3pm	Rani Franovich
Thur	24-Mar	3pm-11pm	Jeff Temple
Thur-Fri	3/24-3/25	11pm - 7am	Milt Murray
Fri	25-Mar	7am - 3pm	Janelle Jessie
Fri	25-Mar	3pm-11pm	Rani Franovich
Fri-Sat	3/25-3/26	11pm-7am	Milt Murray

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Sat	26-Mar	7am - 3pm	Janelle Jessie
Sat	26-Mar	3pm-11pm	Rani Franovich
Sat-Sun	3/26-3/27	11pm - 7am	Milt Murray
LT State Liaison			
Sat-Sun	3/19-3/20	9pm-7am	Michelle Ryan/Rich Turttil (ON CALL ONLY)
Sun	20-Mar	7am-2pm	Michelle Ryan/Rich Turttil (ON CALL ONLY)
Sun	20-Mar	2pm-9pm	Michelle Ryan/Rich Turttil (ON CALL ONLY)
Sun-Mon	3/20-3/21	9pm-7am	Michelle Ryan/Rich Turttil (ON CALL ONLY)
Mon	21-Mar	7am-2pm	Flannery (Riveria-On Call)
Mon	21-Mar	2pm-9pm	Easson (Turttil-On Call)
Mon-Tue	3/21-3/22	9pm-7am	Michelle Ryan/Rich Turttil (ON CALL ONLY)
Tue	22-Mar	7am-2pm	Maupin
Tue	22-Mar	2pm-9pm	Easson/Michelle Ryan
Tue-Wed	3/22-3/23	9pm-7am	Alison Rivera/Amanda Noonan (ON CALL ONLY)
Wed	23-Mar	7am-2pm	Maupin
Wed	23-Mar	2pm-9pm	Alison Rivera
Wed-Thur	3/23-3/24	9pm-7am	Michelle Ryan/Turttil (ON CALL ONLY)
Thur	24-Mar	7am-2pm	Flannery
Thur	24-Mar	2pm-9pm	Amanda Noonan
Thur-Fri	3/24-3/25	9pm-7am	Rivera/Turttil (ON CALL ONLY)
Fri	25-Mar	7am-2pm	Kim Lukes
Fri	25-Mar	2pm-9pm	Michelle Ryan
Fri-Sat	3/25-3/26	9pm-7am	Alison Rivera/Amanda Noonan (ON CALL ONLY)
Sat	26-Mar	7am-2pm	Michelle Ryan/Amanda Noonan (ON CALL ONLY)
Sat	26-Mar	2pm-9pm	Michelle Ryan/Amanda Noonan (ON CALL ONLY)
Sat-Sun	3/26-3/27	9pm-7am	Michelle Rivera/Amanda Noonan (ON CALL ONLY)
LT Federal Liaison (2)			
Sun	20-Mar	7am - 3pm	Ned Wright
Sun	20-Mar	3pm-11pm	Jeff Temple
Sun-Mon	3/20-3/21	11pm - 7am	Scott Sloan
Sun-Mon	3/20-3/21	11pm - 7am	Lisa Wright
Mon	21-Mar	7am - 3pm	Beth Reed/Ted Smith
Mon	21-Mar	3pm-11pm	Ned Wright
Mon-Tues	3/21-3/22	11pm - 7am	Lisa Wright
Tues	22-Mar	7am - 3pm	Beth Reed/Ted Smith
Tues	22-Mar	3pm-11pm	Ned Wright
Tues-Wed	3/22-3/23	11pm - 7am	Lisa Wright
Wed	23-Mar	7am - 3pm	Jerry Hale/Ted Smith
Wed	23-Mar	3pm-11pm	Ned Wright
Wed-Thur	3/23-3/24	11pm - 7am	Lisa Wright
Thur	24-Mar	7am - 3pm	Ted Smith/Bethany Cecere
Thur	24-Mar	3pm-11pm	Jerry Hale
Thur-Fri	3/24-3/25	11pm - 7am	Scott Sloan
Fri	25-Mar	7am - 3pm	Ted Smith/Bethany Cecere
Fri	25-Mar	3pm-11pm	Jason Lising
Fri-Sat	3/25-3/26	11pm-7am	Scott Sloan
Sat	26-Mar	7am - 3pm	Jason Lising/Lisa Gibney
Sat	26-Mar	3pm-11pm	Jeff Temple
Sat-Sun	3/26-3/27	11pm - 7am	Scott Sloan

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LT Congressional Liaison (2)			
Sun	20-Mar	7am - 2pm	Rebecca Schmidt
	20-Mar	2pm-9pm	Reanne Shane
Mon	21-Mar	7am - 2pm	Spiros Droggitis
	21-Mar	2pm-9pm	Tim Riley
Tues	22-Mar	7am - 2pm	Tim Riley
	22-Mar	2pm-9pm	Spiros Droggitis
Wed	23-Mar	7am - 2pm	Gene Dacus
	23-Mar	2pm-9pm	Raeann Shane
Thur	24-Mar	7am - 2pm	Spiros Droggitis
	24-Mar	2pm-9pm	Raeann Shane
Fri	25-Mar	7am - 2pm	Gene Dacus
	25-Mar	2pm-9pm	Amy Powell
Sat	26-Mar	7am - 3pm	Amy Powell (ON CALL ONLY)
Sat	26-Mar	3pm-11pm	Amy Powell (ON CALL ONLY)
Sun	3/26-3/27	11pm - 7am	Amy Powell (ON CALL ONLY)

LT International Liaison (2)			
Sat-Sun	3/19-3/20	11pm - 7am	Elizabeth Smiroldo/Danielle Emche
Sun	20-Mar	7am - 3pm	Karen Henderson/Steve Baker
Sun	20-Mar	3pm-11pm	Eric Stahl/Nancy Fragoyanis
Sun-Mon	3/20-3/21	11pm - 7am	Elizabeth Smiroldo/Jenny Tobin
Mon	21-Mar	7am - 3pm	Jen Schwartzman/Charlotte Abrams/Nancy (12-3
Mon	21-Mar	3pm-11pm	Danielle Emche/Lauren Mayros
Mon-Tues	3/21-3/22	11pm - 7am	Eric Stahl/Mugeh Afshar-Tous
Tues	22-Mar	7am - 3pm	Jen Schwartzman/Charlotte Abrams/Nancy (12-3
Tues	22-Mar	3pm-11pm	Danielle Emche/Lauren Mayros
Tues-Wed	3/22-3/23	11pm - 7am	Eric Stahl/Mugeh
Wed	23-Mar	7am - 3pm	Jen Schwartzman/Charlotte Abrams/Nancy (12-3
Wed	23-Mar	3pm-11pm	Danielle Emche/Lauren Mayros
Wed-Thur	3/23-3/24	11pm - 7am	Eric Stahl/Mugeh
Thur	24-Mar	7am - 3pm	Steve Bloom/Lance English
Thur	24-Mar	3pm-11pm	Janice/Jenny Tobin
Thur-Fri	3/24-3/25	11pm - 7am	Andrea/Elizabeth Smiroldo
Fri	25-Mar	7am - 3pm	Steve Bloom/Lance English
Fri	25-Mar	3pm-11pm	Janice/Jenny Tobin
Fri-Sat	3/25-3/26	11pm-7am	Andrea/Elizabeth Smiroldo
Sat	26-Mar	7am - 3pm	Steve Bloom / Lance English
Sat	26-Mar	3pm-11pm	Janice Owens / Jenny Tobin
Sat-Sun	3/26-3/27	11pm - 7am	Cindy Rosales/ Elizabeth Smiroldo

Protective Measures Team

PMTR Director			
Sat-Sun	3/19-3/20	11pm - 7am	Kathy Gibson
Sun	20-Mar	7am - 3pm	John Lubinski
Sun	20-Mar	3pm-11pm	Don Cool
Sun-Mon	3/20-3/21	11pm - 7am	Kathy Gibson
Mon	21-Mar	7am - 3pm	John Lubinski
Mon	21-Mar	3pm-11pm	Don Cool
Mon-Tues	3/21-3/22	11pm - 7am	John Tappert
Tues	22-Mar	7am - 3pm	John Lubinski
Tues	22-Mar	3pm-11pm	Don Cool

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Tues-Wed	3/22-3/23	11pm - 7am	John Tappert
Wed	23-Mar	7am - 3pm	Terry Reis
Wed	23-Mar	3pm-11pm	Cindy Jones
Wed-Thur	3/23-3/24	11pm - 7am	Randy Sullivan
Thur	24-Mar	7am - 3pm	Terry Reis
Thur	24-Mar	5pm-11pm	Cindy Jones
Thur-Fri	3/24-3/25	11pm - 7am	Randy Sullivan
Fri	25-Mar	7am - 3pm	Terry Reis
Fri	25-Mar	5pm-11pm	Cindy Jones
Fri-Sat	3/25-3/26	11pm-7am	Randy Sullivan
Sat	26-Mar	7am - 3pm	Terry Reis
Sat	26-Mar	3pm-11pm	Cindy Jones
Sat-Sun	3/26-3/27	11pm - 7am	Randy Sullivan
PMTR Coordinator			
Sat-Sun	3/19-3/20	11pm - 7am	Lou Brandon
Sun	20-Mar	7am - 3pm	Nima Ashkeboussi
Sun	20-Mar	3pm-11pm	Jay Patel
Sun-Mon	3/20-3/21	11pm - 7am	Lou Brandon
Mon	21-Mar	7am - 3pm	Prosanta Chowdhury (8 am)
Mon	21-Mar	3pm-11pm	Jay Patel
Mon-Tues	3/21-3/22	11pm - 7am	Lou Brandon
Tues	22-Mar	7am - 3pm	Prosanta Chowdhury (8 am)
Tues	22-Mar	3pm-11pm	Nima Ashkeboussi
Tues-Wed	3/22-3/23	11pm - 7am	Mike Norris
Wed	23-Mar	7am - 3pm	John Wray
Wed	23-Mar	3pm-11pm	Nima Ashkeboussi
Wed-Thur	3/23-3/24	11pm - 7am	Mike Norris
Thur	24-Mar	7am - 3pm	John Wray
Thur	24-Mar	3pm-11pm	Jay Patel/Joe DeCicco
Thur-Fri	3/24-3/25	11pm - 7am	Mike Norris
Fri	25-Mar	7am - 3pm	Duane Hardesty/Joe DeCicco
Fri	25-Mar	3pm-11pm	Ryan Craffey
Fri-Sat	3/25-3/26	11pm-7am	Lou Brandon
Sat	26-Mar	7am - 3pm	Arlon Costa
Sat	26-Mar	3pm-11pm	Kimberly Hardin
Sat-Sun	3/26-3/27	11pm - 7am	Lou Brandon
PMTR Prot Actions Asst Dir			
Sat-Sun	3/19-3/20	11pm - 7am	Greg Casto
Sun	20-Mar	7am - 3pm	Kathryn Brock
Sun	20-Mar	3pm-11pm	Tim Harris
Sun-Mon	3/20-3/21	11pm - 7am	Greg Casto (Jessica Kratchman - to shadow)
Mon	21-Mar	7am - 3pm	Kathryn Brock
Mon	21-Mar	3pm-11pm	Dan Barss
Mon-Tues	3/21-3/22	11pm - 7am	Jessica Kratchman
Tues	22-Mar	7am - 3pm	Kathryn Brock
Tues	22-Mar	3pm-11pm	Tim Harris
Tues-Wed	3/22-3/23	11pm - 7am	Jessica Kratchman
Wed	23-Mar	7am - 3pm	Sandra Wastler
Wed	23-Mar	3pm-11pm	Vince Holahan
Wed-Thur	3/23-3/24	11pm - 7am	Jessica Kratchman

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Thur	24-Mar	7am - 3pm	Sandra Wastler
Thur	24-Mar	3pm-11pm	Stacey Rosenberg
Thur-Fri	3/24-3/25	11pm - 7am	Jessica Kratchman
Fri	25-Mar	7am - 3pm	Kathryn Brock
Fri	25-Mar	3pm-11pm	Vince Holahan
Fri-Sat	3/25-3/26	11pm-7am	Greg Casto
Sat	26-Mar	7am - 3pm	Dan Barss
Sat	26-Mar	3pm-11pm	Sandra Wastler
Sat-Sun	3/26-3/27	11pm - 7am	Greg Casto/Jessica Kratchman
PMTR RAAD			
Sat-Sun	3/19-3/20	11pm - 7am	Patricia Milligan
Sun	20-Mar	7am - 3pm	Eric Schrader
Sun	20-Mar	3pm-11pm	Steve LaVie
Sun-Mon	3/20-3/21	11pm - 7am	Mike Norris
Mon	21-Mar	7am - 3pm	Michelle Hart
Mon	21-Mar	3pm-11pm	Steve Lavie
Mon-Tues	3/21-3/22	11pm - 7am	Boby Abu-Eid
Tues	22-Mar	7am - 3pm	Bruce Watson
Tues	22-Mar	3pm-11pm	Steve LaVie
Tues-Wed	3/22-3/23	11pm - 7am	Boby Abu-Eid
Wed	23-Mar	7am - 3pm	Bruce Watson
Wed	23-Mar	3pm-11pm	Michelle Hart
Wed-Thur	3/23-3/24	11pm - 7am	Duane Schmidt
Thur	24-Mar	7am - 3pm	Bruce Watson
Thur	24-Mar	3pm-11pm	Steve LaVie
Thur-Fri	3/24-3/25	11pm - 7am	Cynthia Barr
Fri	25-Mar	7am - 3pm	Bruce Watson
Fri	25-Mar	3pm-11pm	Michelle Hart
Fri-Sat	3/25-3/26	11pm-7am	Cynthia Barr
Sat	26-Mar	7am - 3pm	Bruce Watson
Sat	26-Mar	3pm-11pm	Steve LaVie
Sat-Sun	3/26-3/27	11pm - 7am	Mike Norris
PMTR Dose Assessment (RASCAL) - Need 2			
Sat-Sun	3/19-3/20	11pm - 7am	Kimberly Gambone/John Parillo
Sun	20-Mar	7am - 3pm	Casper Sun / Duane Schmidt
Sun	20-Mar	3pm-11pm	Margaret Cervera / Tony Huffert
Sun-Mon	3/20-3/21	11pm - 7am	Kimberly Gambone/John Parillo
Mon	21-Mar	7am - 3pm	Eric Schrader/Rich Clement
Mon	21-Mar	3pm-11pm	Margaret Cervera/Tony Huffert
Mon-Tues	3/21-3/22	11pm - 7am	John Parillo / Bernie White
Tues	22-Mar	7am - 3pm	Eric Schrader/Rich Clement
Tues	22-Mar	3pm-11pm	Gary Purdy/Casper Sun
Tues-Wed	3/22-3/23	11pm - 7am	Margaret Cervera/Tony Huffert
Wed	23-Mar	7am - 3pm	Eric Schrader/Rich Clement
Wed	23-Mar	3pm-11pm	Kimberly Gambone/Casper Sun
Wed-Thur	3/23-3/24	11pm - 7am	Tony Huffert/John Parillo
Thur	24-Mar	7am - 3pm	Eric Schrader/Rich Clement
Thur	24-Mar	3pm-11pm	Kimberly Gambone/Casper Sun
Thur-Fri	3/24-3/25	11pm - 7am	Tony Huffert/John Parillo
Fri	25-Mar	7am - 3pm	Eric Schrader/Rich Clement

Japan Earthquake ERO Staffing Roster

March 20-26, 2011

Pay Period 7 - Week 2

Fri	25-Mar	3pm-11pm	Gary Purdy/Casper Sun
Fri-Sat	3/25-3/26	11pm-7am	John Parillo / Bernie White
Sat	26-Mar	7am - 3pm	Tony Huffert/Charlie Hinson
Sat	26-Mar	3pm-11pm	Leroy Hardin/Gary Purdy?
Sat-Sun	3/26-3/27	11pm - 7am	John Parillo/Ron LaVera
PMTR GIS Analyst			
Sun-Mon	3/20-3/21	11pm - 7am	Alice Stieve
Mon	21-Mar	7am - 3pm	Nebiyu Tiruneh
Mon	21-Mar	3pm-11pm	Stephanie Devlin
Mon-Tues	3/21-3/22	11pm - 7am	Alice Stieve
Tues	22-Mar	7am - 3pm	Yong Li
Tues	22-Mar	3pm-11pm	Stephanie Devlin
Tues-Wed	3/22-3/23	11pm - 7am	Alice Stieve
Wed	23-Mar	7am - 3pm	Allen Gross
Wed	23-Mar	3pm-11pm	Stephanie Devlin
Wed-Thur	3/23-3/24	11pm - 7am	Phil Brandt
Thur	24-Mar	7am - 3pm	Yong Li
Thur	24-Mar	3pm-11pm	Stephanie Devlin
Thur-Fri	3/24-3/25	11pm - 7am	Dogan Seber
Fri	25-Mar	7am - 3pm	Allen Gross
Fri	25-Mar	3pm-11pm	N/A
Fri-Sat	3/25-3/26	11pm-7am	N/A
Sat	26-Mar	7am - 3pm	N/A
Sat	26-Mar	3pm-11pm	N/A
Sat-Sun	3/26-3/27	11pm - 7am	N/A
PMTR Meteorologist			
Sat-Sun	19-Mar	3pm-11pm	Mike Mazaika
Sun	3/19-3/20	11pm - 7am	David Brown
Sun	20-Mar	7am - 3pm	Kevin Quinlan
Sun	20-Mar	3pm-11pm	Mike Mazaika
Sun-Mon	3/20-3/21	11pm - 7am	David Brown
Mon	21-Mar	7am - 3pm	Mike Mazaika
Mon	21-Mar	3pm-11pm	Brad Harvey
Mon-Tues	3/21-3/22	11pm - 7am	Kevin Quinlan
Tues	22-Mar	7am - 3pm	David Brown
Tues	22-Mar	3pm-11pm	Brad Harvey
Tues-Wed	3/22-3/23	11pm - 7am	Andy Imboden/Kevin Quinlan
Wed	23-Mar	7am - 3pm	Mike Mazaika
Wed	23-Mar	3pm-11pm	Brad Harvey
Wed-Thur	3/23-3/24	11pm - 7am	Kevin Quinlan
Thur	24-Mar	7am - 3pm	David Brown
Thur	24-Mar	3pm-11pm	Brad Harvey
Thur-Fri	3/24-3/25	11pm - 7am	Kevin Quinlan
Fri	25-Mar	7am - 3pm	Mike Mazaika
Fri	25-Mar	3pm-11pm	N/A
Fri-Sat	3/25-3/26	11pm-7am	N/A
Sat	26-Mar	7am - 3pm	N/A
Sat	26-Mar	3pm-11pm	N/A
Sat-Sun	3/26-3/27	11pm - 7am	N/A

Japan Earthquake ERO Staffing Roster
 March 20-26, 2011
 Pay Period 7 - Week 2

Reactor Safety Team			
RST Director			
Sat-Sun	3/19-3/20	11pm - 7am	Jennifer Uhle
Sun	20-Mar	7am - 3pm	Laura Dudes
Sun	20-Mar	3pm-11pm	Dave Skeen
Sun-Mon	3/20-3/21	11pm - 7am	Jennifer Uhle
Mon	21-Mar	7am - 3pm	Fred Brown
Mon	21-Mar	3pm-11pm	Dave Skeen
Mon-Tues	3/21-3/22	11pm - 7am	Jennifer Uhle
Tues	22-Mar	7am - 3pm	Fred Brown
Tues	22-Mar	3pm-11pm	Dave Skeen
Tues-Wed	3/22-3/23	11pm - 7am	Brian Holian
Wed	23-Mar	7am - 3pm	Fred Brown
Wed	23-Mar	3pm-11pm	Bill Ruland
Wed-Thur	3/23-3/24	11pm - 7am	Brian Holian
Thur	24-Mar	7am - 3pm	Fred Brown
Thur	24-Mar	3pm-11pm	Bill Ruland
Thur-Fri	3/24-3/25	11pm - 7am	Brian Holian
Fri	25-Mar	7am - 3pm	Pat Hiland
Fri	25-Mar	3pm-11pm	Bill Ruland
Fri-Sat	3/25-3/26	11pm-7am	Brian Holian
Sat	26-Mar	7am - 3pm	Pat Hiland
Sat	26-Mar	3pm-11pm.	Bill Ruland
Sat	3/26-27/2011	11pm - 7am	Dave Skeen
RST Coordinator			
Sat-Sun	3/19-3/20	11pm - 7am	Frank Collins
Sun	20-Mar	7am - 3pm	Peter Alter
Sun	20-Mar	3pm-11pm	Eric Thomas
Sun-Mon	3/20-3/21	11pm - 7am	Mike Morlang
Mon	21-Mar	7am - 3pm	Peter Alter
Mon	21-Mar	3pm-11pm	Greg Schoenebeck
Mon-Tues	3/21-3/22	11pm - 7am	Frank Collins
Tues	22-Mar	7am - 3pm	Rick Hasselberg
Tues	22-Mar	3pm-11pm	Mike Morlang
Tues-Wed	3/22-3/23	11pm - 7am	Oleg Bukharin
Wed	23-Mar	7am - 3pm	Eric Thomas
Wed	23-Mar	3pm-11pm	Greg Schoenebeck
Wed-Thur	3/23-3/24	11pm - 7am	Frank Collins
Thur	24-Mar	7am - 3pm	Rick Hasselberg
Thur	24-Mar	3pm-11pm	Brett Rini
Thur-Fri	3/24-3/25	11pm - 7am	Tom Boyce (RES)
Fri	25-Mar	7am - 3pm	Eric Thomas
Fri	25-Mar	3pm-11pm	Brett Rini
Fri-Sat	3/25-3/26	11pm-7am	Frank Collins
Sat	26-Mar	7am - 3pm	Eric Thomas
Sat	26-Mar	3pm-11pm	Mark Orr
Sat-Sun	3/26-3/27	11pm - 7am	Brett Rini
Severe Accident/PRA			
Sat-Sun	3/19-3/20	11pm - 7am	Mike Salay
Sun	20-Mar	7am - 3pm	John Lane

Japan Earthquake ERO Staffing Roster

March 20-26, 2011

Pay Period 7 - Week 2

Sun	20-Mar	3pm-11pm	Jim Gilmer
Sun-Mon	3/20-3/21	11pm - 7am	Don Dube
Mon	21-Mar	7am - 3pm	Jeff Circle
Mon	21-Mar	3pm-11pm	Hossein Esmaili
Mon-Tues	3/21-3/22	11pm - 7am	Jim Gilmer
Tues	22-Mar	7am - 3pm	Ed Fuller
Tues	22-Mar	3pm-11pm	Len Ward
Tues-Wed	3/22-3/23	11pm - 7am	Sam Miranda
Wed	23-Mar	7am - 3pm	Jeff Circle
Wed	23-Mar	3pm-11pm	Steven Arndt
Wed-Thur	3/23-3/24	11pm - 7am	Mike Salay
Thur	24-Mar	7am - 3pm	Jeff Circle
Thur	24-Mar	3pm-11pm	Steve Laur
Thur-Fri	3/24-3/25	11pm - 7am	Don Helton
Fri	25-Mar	7am - 3pm	Steven Arndt
Fri	25-Mar	3pm-11pm	Steve Laur
Fri-Sat	3/25-3/26	11pm-7am	Don Helton
Sat	26-Mar	7am - 3pm	Steven Arndt
Sat	26-Mar	3pm-11pm	Jerry Dozier
Sat-Sun	3/26-3/27	11pm - 7am	Ray Skarda
BWR Expertise			
Sat-Sun	3/19-3/20	11pm - 7am	John Kauffman
Sun	20-Mar	7am - 3pm	Larry Vick
Sun	20-Mar	3pm-11pm	Chuck Norton
Sun-Mon	3/20-3/21	11pm - 7am	Mike Brown
Mon	21-Mar	7am - 3pm	Bob Summers
Mon	21-Mar	3pm-11pm	Chuck Norton
Mon-Tues	3/21-3/22	11pm - 7am	Mike Brown
Tues	22-Mar	7am - 3pm	Tom Boyce (RES)
Tues	22-Mar	3pm-11pm	Chuck Norton
Tues-Wed	3/22-3/23	11pm - 7am	Mike Brown
Wed	23-Mar	7am - 3pm	Larry Vick
Wed	23-Mar	3pm-11pm	Chuck Norton
Wed-Thur	3/23-3/24	11pm - 7am	Eva Brown
Thur	24-Mar	7am - 3pm	Peter Alter
Thur	24-Mar	3pm-11pm	Chuck Norton
Thur-Fri	3/24-3/25	11pm - 7am	Eva Brown
Fri	25-Mar	7am - 3pm	Bob Summers
Fri	25-Mar	3pm-11pm	Chuck Norton
Fri-Sat	3/25-3/26	11pm-7am	Eva Brown
Sat	26-Mar	7am - 3pm	Mike Brown
Sat	26-Mar	3pm-11pm	Chuck Norton
Sat-Sun	3/26-3/27	11pm - 7am	Eva Brown
RST Comm/ERDS Operator			
Sat-Sun	3/19-3/20	11pm - 7am	Ujagar Bhachu
Sun	20-Mar	7am - 3pm	Denise McGovern
Sun	20-Mar	3pm-11pm	Donna Williams
Sun-Mon	3/20-3/21	11pm - 7am	Ujagar Bhachu
Mon	21-Mar	7am - 3pm	Joseph Williams
Mon	21-Mar	3pm-11pm	John Thorp

Japan Earthquake ERO Staffing Roster

March 20-26, 2011

Pay Period 7 - Week 2

Mon-Tues	3/21-3/22	11pm - 7am	Bill Roggenbrodt
Tues	22-Mar	7am - 3pm	Steve Bloom
Tues	22-Mar	3pm-11pm	Jim Isom
Tues-Wed	3/22-3/23	11pm - 7am	Bill Roggenbrodt
Wed	23-Mar	7am - 3pm	Joseph Williams
Wed	23-Mar	3pm-11pm	Ken Hart
Wed-Thur	3/23-3/24	11pm - 7am	Bill Roggenbrodt
Thur	24-Mar	7am - 3pm	John Thorp
Thur	24-Mar	3pm-11pm	Ken Hart
Thur-Fri	3/24-3/25	11pm - 7am	Bill Roggenbrodt
Fri	25-Mar	7am - 3pm	Donna Williams
Fri	25-Mar	3pm-11pm	David Solorio
Fri-Sat	3/25-3/26	11pm-7am	Rick Hasselberg
Sat	26-Mar	7am - 3pm	John Thorp
Sat	26-Mar	3pm-11pm	Stan Gardocki
Sat-Sun	3/26-3/27	11pm - 7am	Denise McGovern
RST Support (Seismology Q&A)			
Fri-Sat	3/18-3/19	11pm-7am	Off (On Call)
Sat	19-Mar	7am - 3pm	Off (On Call)
Sat	19-Mar	3pm-11pm	Off (On Call)
Sat-Sun	3/19-3/20	11pm - 7am	Alice Stieve (On Call) Working as PMT GIS
Sun	20-Mar	7am - 3pm	Cliff Munson (On Call)
Sun	20-Mar	3pm-11pm	Annie Kammerer (On Call)
Sun-Mon	3/20-3/21	11pm - 7am	Stephanie Devlin (On Call)
Mon	21-Mar	7am - 3pm	Cliff Munson (On Call)
Mon	21-Mar	3pm-11pm	A. Kammerer 3-11; M. Bensi 3-6 (On Call)
Mon-Tues	3/21-3/22	11pm - 7am	Dogan Seber (On Call)
Tues	22-Mar	7am - 3pm	Nilesh Chokchi On Call)
Tues	22-Mar	3pm-11pm	S. Devlin 3-11; M. Bensi 3-6 (On Call)
Tues-Wed	3/22-3/23	11pm - 7am	Cliff Munson (On Call)
Wed	23-Mar	7am - 3pm	Nilesh Chokchi On Call)
Wed	23-Mar	3pm-11pm	A. Kammerer 3-11, M. Bensi 3-6 (On Call)
Wed-Thur	3/23-3/24	11pm - 7am	Annie Kammerer (On Call)
Thur	24-Mar	7am - 3pm	Cliff Munson (On Call)
Thur	24-Mar	3pm-11pm	A. Kammerer 3-11, M. Bensi 3-6 (On Call)
Thur-Fri	3/24-3/25	11pm - 7am	Dogan Seber (On Call)
Fri	25-Mar	7am - 3pm	Dogan Seber (On Call)
Fri	25-Mar	3pm-11pm	A.Kammerer 3-11, M. Bensi 3-6 (On Call)
Fri-Sat	3/25-3/26	11pm-7am	Dogan Seber (On Call)
Sat	26-Mar	7am - 3pm	A. Kammerer (On Call)
Sat	26-Mar	3pm-11pm	A. Kammerer (On Call)
Sat-Sun	3/26-3/27	11pm - 7am	A. Kammerer (On Call)
RST Support (Structural)			
Fri-Sat	3/18-3/19	11pm-7am	Off (On Call)
Sat	19-Mar	7am - 3pm	Off (On Call)
Sat	19-Mar	3pm-11pm	Off (On Call)
Sat-Sun	3/19-3/20	11pm - 7am	Off (On Call)
Sun	20-Mar	7am - 3pm	Off (On Call)
Sun	20-Mar	3pm-11pm	Off (On Call)
Sun-Mon	3/20-3/21	11pm - 7am	Off (On Call)

Japan Earthquake ERO Staffing Roster

March 20-26, 2011

Pay Period 7 - Week 2

Mon	21-Mar	7am - 3pm	Off (On Call)
Mon	21-Mar	3pm-11pm	Bret Tegeler (On Call)
Mon-Tues	3/21-3/22	11pm - 7am	Bret Tegeler (On Call)
Tues	22-Mar	7am - 3pm	Pravin Patel (On Call)
Tues	22-Mar	3pm-11pm	Bret Tegeler (On Call)
Tues-Wed	3/22-3/23	11pm - 7am	Bret Tegeler (On Call)
Wed	23-Mar	7am - 3pm	Pravin Patel (On Call)
Wed	23-Mar	3pm-11pm	Samir Chakrabart (On Call)
Wed-Thur	3/23-3/24	11pm - 7am	Samir Chakrabart (On Call)
Thur	24-Mar	7am - 3pm	Pravin Patel (On Call)
Thur	24-Mar	3pm-11pm	Jerry Chung (On Call)
Thur-Fri	3/24-3/25	11pm - 7am	Jerry Chung (On Call)
Fri	25-Mar	7am - 3pm	Pravin Patel (On Call)
Fri	25-Mar	3pm-11pm	Manas Chakravorty (On Call)
Fri-Sat	3/25-3/26	11pm-7am	Manas Chakravorty (On Call)
Sat	26-Mar	7am - 3pm	Off (On Call)
Sat	26-Mar	3pm-11pm	Off (On Call)
Sat-Sun	3/26-3/27	11pm - 7am	Off (On Call)

From: LIA05 Hoc
Sent: Sunday, March 27, 2011 2:48 PM
To: Ward, Paul; michael.howe@dhs.gov
Subject: Radiation Reading Report 26 March 2011
Attachments: Radioactivity Level Map Chart_3.26.11.pdf

Please find the attached.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

~~***** FOR OFFICIAL USE ONLY *****~~

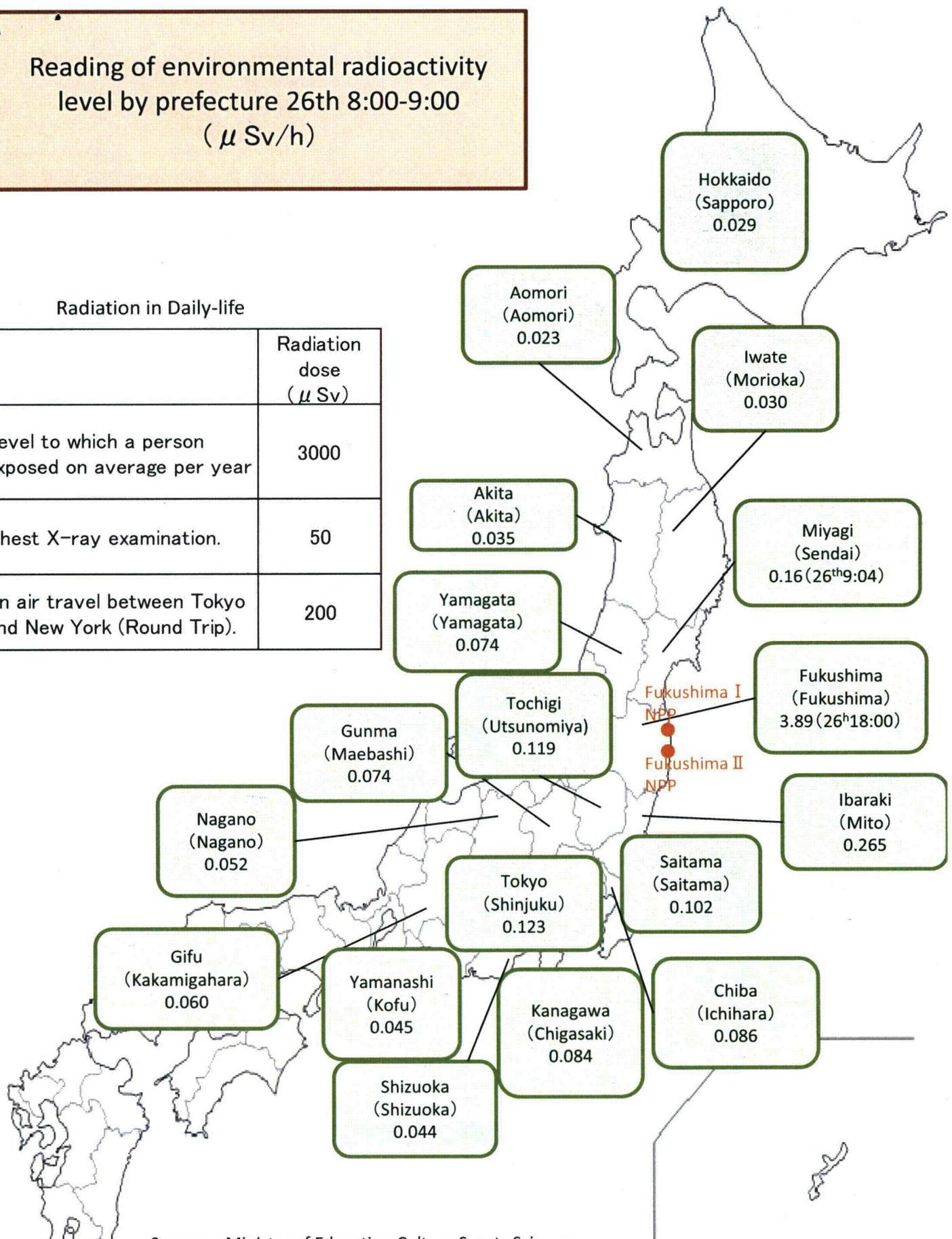
DO NOT RELEASE OUTSIDE OF THE FEDERAL FAMILY

map/536

Reading of environmental radioactivity level by prefecture 26th 8:00-9:00 ($\mu\text{Sv/h}$)

Radiation in Daily-life

	Radiation dose (μSv)
Level to which a person exposed on average per year	3000
Chest X-ray examination.	50
An air travel between Tokyo and New York (Round Trip).	200



Sources : Ministry of Education,Culture,Sports,Science
Fukushima prefecture, Miyagi prefecture HP

From: Hamilton, Lisa <Lisa.Hamilton@dhs.gov>
Sent: Sunday, March 27, 2011 2:35 PM
To: LIA05 Hoc
Subject: Out of Office AutoReply: NRC "One Pager" for Today

I will be out of the office Monday, March 28th and returning Tuesday, April 4th. I will have limited access to email, but will respond as quickly as possible. Thanks and have a great day!

Lisa

PPP/537

From: PMT03 Hoc
Sent: Sunday, March 27, 2011 10:05 PM
To: eoc_environmental_unit@epa.gov; eoc_manager@epa.gov
Cc: Hoc, PMT12
Subject: U.S. Nuclear Plan Reported Measurement Update
Attachments: US Nuclear Plant Reported Measurements 03272011.xlsx

Please find attached an update to our US Nuclear Plan reported measurements. We received an update from San Onofre Nuclear Generating Station (SONGS) on Sunday, March 27, 2011 at 9:53 PM.

In addition, please disregard the previous emails/attachments as this is the latest update with the Palo Verde and San Onofre readings (there was a correction to the previous spreadsheet attached). We will continue to provide updates as they come in or by COB every day.

Thanks,

PMT

PPP/538

~~OFFICIAL USE ONLY~~

Date	Plant	Isotope	Concentration
3/18/2011	San Onofre	I-131	1.4E-13 uCi/cc
3/18/2011	Diablo Canyon	I-131	3.8 to 6E-13 uCi/cc
3/19/2011	San Onofre	I-131	6.5E-13 to 7.0E-13 uCi/cc
3/19/2011	Palo Verde	Cs-134	2.22E-13 uCi/cc
3/19/2011	Palo Verde	Cs-137	3.58E-13 uCi/cc
3/19/2011	Palo Verde	I-131	1.54E-12 uCi/cc
3/20/2011	San Onofre	I-131	2.0E-12 uCi/cc
3/20/2011	Palo Verde	Cs-134	3.87E-13 uCi/cc
3/20/2011	Palo Verde	I-131	2.50E-12 uCi/cc
3/21/2011	Nine Mile Point	I-131	19.1 pCi/L (rainwater)
3/21/2011	Palo Verde	I-131	6.70E-13 uCi/cc
3/21/2011	Palo Verde	Cs-134	2.06E-13 uCi/cc,
3/21/2011	Palo Verde	Cs-137	2.71E-13 uCi/cc
3/22/2011	San Onofre	I-131	7.0 to 8.0E-13 uCi/cc
3/22/2011	San Onofre	Cs-137	1.25E-13 uCi/cc
3/22/2011	Columbia	I-131	6.74E-13 uCi/cc
3/22/2011	Nine Mile Point	I-131	18 pCi/L (rainwater)
3/22/2011	GINNA	I-131	26.8 pCi/L (rainwater)
3/22/2011	Palo Verde	I-131	2.01E-12 uCi/cc
3/22/2011	Palo Verde	Cs-137	2.93E-13 uCi/cc
3/22/2011	Palo Verde	Cs-134	2.76E-13 uCi/cc
3/23/2011	Millstone	I-131	25.6 pCi/L (rainwater)
3/23/2011	San Onofre	I-131	5E-13 to 6E-13 uCi/cc
3/23/2011	San Onofre	Cs-137	7E-14 uCi/cc
3/23/2011	Palo Verde	I-131	7.42E-13 uCi/cc
3/23/2011	TMI	I-131	95 pCi/L (rainwater)
3/24/2011	Palo Verde	I-131	6.30E-13 uCi/cc
3/24/2011	Oyster Creek	I-131	127 pCi/L (rainwater)
3/24/2011	San Onofre	I-131	3.0E-13 to 6.0E-13 uCi/cc
3/24/2011	Limerick	I-131	47 pCi/L (rainwater)
3/25/2011	South Texas	I-131	2.6E-13 uCi/cc
3/25/2011	San Onofre	I-131	9.0E-13 to 1E-12 uCi/cc
3/25/2011	San Onofre	Cs-137	1E-13 to 3E-13 uCi/cc
3/25/2011	Palo Verde	I-131	1.25E-12 uCi/cc
3/25/2011	Palo Verde	Cs-134	3.50E-13 uCi/cc
3/25/2011	Palo Verde	Cs-137	2.62E-13 uCi/cc
3/26/2011	Palo Verde	I-131	5.561E-13 uCi/cc
3/27/2011	Palo Verde	I-131	2.2181E-13 uCi/cc
3/27/2011	San Onofre	I-131	2E-13 to 3E-13 uCi/cc

I-131 Reporting Levels
NUREG-1201 and NUREG-1302

	I-131	Units	I-131	Units
Drinking Water	2	pCi/L	2.00E-09	uCi/ml
Non-Drinking Water	20	pCi/L	2.00E-08	uCi/ml
Air	0.9	pCi/m3	9.00E-13	uCi/cc

From: OST02 HOC
Sent: Sunday, March 27, 2011 6:35 PM
To: PMT02 Hoc; PMT11 Hoc; Hoc, PMT12
Subject: FW: interagency conference call?
Attachments: image001.png

From: HOO Hoc [mailto:HOO.Hoc@nrc.gov]
Sent: Sunday, March 27, 2011 6:25 PM
To: LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Subject: FW: interagency conference call?

From: JapanEmbassy, TaskForce[SMTP:JAPANEMBASSYTASKFORCE@STATE.GOV]
Sent: Sunday, March 27, 2011 6:24:13 PM
To: Zumwalt, James P; Alan Remick DOE; Amy Sink; Ulses, Anthony;
Cook, William; Smith, Brooke; Cherry, Ronald C; Casto, Chuck;
cmht@nnsa.doe.gov; Coleman, Michael; Courtney Brown; Damian Peko;
Dorman, Dan; Daniel Blumenthal; Duncan, Aleshia D; HOO Hoc; Foster, Jack;
JapanEmbassy, TaskForce; Joe Hughart; Monninger, John; John Okon;
John Szymanski; Johnstone, Gregg M; Josehp Hughart HHS; Ken Spurlock;
Foggie, Kirk; nara@llnl.gov; NITOPS; Hoc, PMT12; PMT01 Hoc;
PRLH_PHNS_RDCON; reachback@cntr.dtra.mil; Devercelly, Richard;
Richard Reed; Nakanishi, Tony; Webster, Jessica M (TDY/ECN);
Ahrens, Rebekah (TDY/CON); Basalla, Suzanne I; Bowman, Tom;
Coleman, Dr. Norm ; Hancock, Michelle A (TDY/DAO); Petrie, Ronald C;
Telfer, Jana (CDC/ONDIEH/NCEH); Telfer, Jana CDC; Wiggin, Geoffrey W;
Bare, Robert A; Beed, John A; Berger, William (RDMA/OFDA);
Forbes, James A; Sink, Amy (BFS)
Cc: JapanEmbassy, TaskForce
Subject: RE: interagency conference call?
Auto forwarded by a Rule

Greetings,

In addition to agenda items that you would like to include, please also let us know if you plan to participate. We'll send around the agenda as soon as we receive it.

Thanks,
Mike

This email is UNCLASSIFIED.

PPP/5389

From: Hinds, Lynda J

Sent: Monday, March 28, 2011 6:34 AM

To: Zumwalt, James P; Tokyo-Consular-Officers-DL; TOKYO POL Americans; Tokyo Econ All; 3740ss; Alan Remick DOE; Amy Sink; Anthony Ulses; Bill Cook NRC; Brian Lewis; Brooke Smith NRC; Bryan Moyers; CAT 5; Cherry, Ronald C; Chuck Castro NRC; cmht@nnsa.doe.gov; Coleman, Michael; Courtney Brown; Craig Haas; Curry Wright; Damian Peko; Dan Dorman NRC; Daniel Blumenthal; Darrel Dehaven; David Mack; Duncan, Aleshia D; esteban.acosta@yokota.af.mil; HOO; Howard, E. Bruce; Jack Foster NRC; JapanEmbassy, TaskForce; Joe Hughart; John Monninger NRC; John Okon; John Szymanski; Johnstone, Gregg M; Josehp Hughart HHS; Ken Spurlock; Kirk Foggie NRC; latrice.davis@jtfcs.northcom.mil; Lewis, Brian M; Lewis, Brian M (TDY/RSO); LTC Andrea Brooks; MAJ Keith Simmers; Mears, Jeremy M; Morales, Russell A; NACC; narac@ltnl.gov ; NITOPS; Paul Guss; PMT 12; PMT01; PRLH_PHNS_RDCON; reachback@cnttr.dtra.mil; Richard Devercelly NRC; Richard Peeke; Richard Peeke (2); Richard Reed; Russ Morales; Schiller, Bryan S; SES-O; TaskForce-1 - Japan; Theodore Shaw; Thomas Murphy; Thur, Randy R; Tony Nakanishi NRC; Uchida, Koichi; Webster, Jessica M (TDY/ECN); Ahrens, Rebekah (TDY/CON); Basalla, Suzanne I; Bowman, Tom; Chang, Benjamin; Coleman, Dr. Norm ; Gabor, Robert R; Guerin, Peter T; Hancock, Michelle A (TDY/DAO); Harrell, Benjamin L; Kelso, Robert D; Mueller, Troy; Petrie, Ronald C; Roos, Susie; Sano, Mikako; Schiller, Bryan S; Telfer, Jana (CDC/ONDIEH/NCEH); Telfer, Jana CDC; Wiggin, Geoffrey W; Bare, Robert A; Beed, John A; Berger, William (RDMA/OFDA); Forbes, James A; greg.loose@trade.gov; helen.peterson@trade.gov; Hiroyuki.Hanawa@trade.gov; Horowitz, Paul D; john.peters@trade.gov; Sink, Amy (BFS); Walcott, Naomi; Yamaki, Rie

Cc: Daschbach, Michael A; JapanEmbassy, TaskForce

Subject: FW: interagency conference call?

Anything specific for the agenda for the 1030 (local time) interagency conference call? Looks like it's happening today.

Thanks,

Lynda

on behalf of the Japan Emergency Command Center, +81-3-3224- 5533

Lynda Hinds

Staff Assistant to Ambassador John V. Roos

U.S. Embassy

1-10-5 Akasaka, Minato-ku

Tokyo 107-8420

Tel. (03) 3224- 5370

[Twitter.com/AmbassadorRoos](https://twitter.com/AmbassadorRoos)



This email is UNCLASSIFIED.

From: Zareski, Karen B

Sent: Monday, March 28, 2011 6:28 AM

To: Brendel, Brian D; Hinds, Lynda J

Cc: Green, Christopher L; TaskForce-1 - Japan; Dresser, Heather L (EAP/J); Patterson, Coney D

Subject: RE: interagency conference call?

Linda, Please let us know if there is anything specific that the Embassy would like to have on the agenda.

Regards,

Kz

Karen Zareski

Deputy Director for Crisis Management, U.S. Department of State Operations Center (S/ES-O)

Tel: 202.647.7640 | Fax: 202.647.1015 | zareskib@state.gov | zareskib@state.sgov.gov

From: Brendel, Brian D
Sent: Sunday, March 27, 2011 3:33 PM
To: Hinds, Lynda J
Cc: Green, Christopher L; TaskForce-1 - Japan; Dresser, Heather L (EAP/J)
Subject: RE: interagency conference call?

Yes, I'm CC'ing Chris Green. He's just replaced me running the Task Force.

From: Hinds, Lynda J
Sent: Sunday, March 27, 2011 3:09 PM
To: Brendel, Brian D
Subject: interagency conference call?

Brian – any idea if there will be an interagency conference call 1030 Japan time 28MAR/2130 EDT 27MAR?

Thanks - Lynda

on behalf of the Japan Emergency Command Center, +81-3-3224- 5533

Lynda Hinds
Staff Assistant to Ambassador John V. Roos
U.S. Embassy
1-10-5 Akasaka, Minato-ku
Tokyo 107-8420
Tel. (03) 3224- 5370

[Twitter.com/AmbassadorRoos](https://twitter.com/AmbassadorRoos)



This email is UNCLASSIFIED.

From: OST01 HOC
Sent: Sunday, March 27, 2011 11:08 AM
To: ET07 Hoc; LIA06 Hoc; LIA08 Hoc; PMT01 Hoc; PMT02 Hoc; PMT11 Hoc; Hoc, PMT12
Subject: FW: Please Review - High Priority
Attachments: Summary of Air Sample Analyses Submitted by CMOC 25 Mar WORKING DRAFT.xlsx

Please forward to applicable personnel, if necessary.

From: HOO Hoc [mailto:HOO.Hoc@nrc.gov]
Sent: Sunday, March 27, 2011 11:05 AM
To: LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Subject: FW: Please Review - High Priority

From: NITOPS[SMTP:NITOPS@NNSA.DOE.GOV]
Sent: Sunday, March 27, 2011 11:04:58 AM
To: DL-Policy Working Group; CMHT; HOO Hoc; NARAC; PMT01 Hoc; PMT02 Hoc; Hoc, PMT12
Subject: FW: Please Review - High Priority
Auto forwarded by a Rule

FYI

From: Reed, Alexis L (NST)
Sent: Sunday, March 27, 2011 11:03 AM
To: NITOPS; CMHT
Subject: Please Review - High Priority

Please review the attached summary spreadsheet of air samples taken by the CMRT field teams. Target values are daily whole-body dose (mrem) and daily thyroid dose (mrem) at each location.

Alexis L. Reed, Ph.D. (Contractor)
DOE CM Home Team

[702-794-1671]
al

PPP/540

Air Sample Data
Embassy Area Only - Not reported previously

DAC thy
 DAC WB
 Blank ->

Date	Type	Team	Sample Number	Latitude	Longitude	Exposure Rate (uR)
3/19/2011	Paper	Roof	SCF-00013	35.668738	139.743319	25
3/19/2011	Charcoal	Roof	SCF-00015	35.668738	139.743319	25
3/19/2011	Paper	Harris	SCF-00016	35.668738	139.743319	25
3/19/2011	Charcoal	Harris	SCF-00018	35.668738	139.743319	25
3/18/2011	Cartridge	Roof	SCF-08994	35.668738	139.743319	16
3/18/2011	Paper	Roof	SCF-08987	35.668738	139.743319	16
3/18/2011	Cartridge	Harris	SCF-08993	35.668738	139.743319	17
3/18/2011	Paper	Harris	SCF-08989	35.668738	139.743319	17
3/16/2011	Paper	Roof	2011_03_17_13_02_020	35.668738	139.743319	17
3/16/2011	Cartridge	Roof	2011_03_17_13_22_400	35.668738	139.743319	17
3/17/2011	Paper	Roof	2011_03_17_16_14_370	35.668738	139.743319	17
3/17/2011	Cartridge	Roof	2011_03_17_16_33_270	35.668738	139.743319	17
3/24/2011	Paper	Harris	SCF-00055	35.668738	139.743319	26
3/24/2011	Cartridge	Harris	SCF-00056	35.668738	139.743319	26
3/23/2011	Paper	Harris	SCF-00126	35.668738	139.743319	30
3/23/2011	Cartridge	Harris	SCF-00127	35.668738	139.743319	30
3/24/2011	Paper	Roof	SCF-00128	35.668738	139.743319	23
3/24/2011	Cartridge	Roof	SCF-00129	35.668738	139.743319	23
3/25/2011	Paper	Roof	SCF-00300	35.668738	139.743319	31
3/25/2011	Cartridge	Roof	SCF-00301	35.668738	139.743319	31
3/25/2011	Paper	Harris	SCF-00302	35.668738	139.743319	23
3/25/2011	Cartridge	Harris	SCF-00303	35.668738	139.743319	23

8.00E-08 3.75E-06 3.00E-07 (uCi/ml)
 2.00E-08 3.00E-06 1.00E-07 4.00E-08 6.00E-08 (uCi/ml)
 2.93E-03 1.18E-03 0 8.06E-04 3.22E-04 (uCi)

Sample								
I-131 (uCi)	I-132 (uCi)	I-133 (uCi)	Cs-134 (uCi)	Cs-137 (uCi)	Volume (cf)	I-131 Conc (uCi/ml)	I-132 Conc (uCi/ml)	I-133 Conc (uCi/ml)
0.00E+00	1.03E-02	0.00E+00	8.19E-03	0.00E+00	1.05E+03	0.00E+00	3.07E-10	0.00E+00
2.43E-04	2.49E-03	0.00E+00	0.00E+00	0.00E+00	1.05E+03	0.00E+00	4.41E-11	0.00E+00
5.23E-03	7.14E-05	0.00E+00	0.00E+00	0.00E+00	1.47E+03	5.53E-11	0.00E+00	0.00E+00
2.02E-02	0.00E+00	0.00E+00	1.12E-04	0.00E+00	1.47E+03	4.16E-10	0.00E+00	0.00E+00
1.73E-03	3.03E-04	1.77E-04	1.23E-04	0.00E+00	1327.2	0.00E+00	0.00E+00	4.71E-12
2.06E-03	4.18E-04	0.00E+00	0.00E+00	0.00E+00	1327.2	0.00E+00	0.00E+00	0.00E+00
5.41E-03	0.00E+00	0.00E+00	5.81E-03	0.00E+00	1733.82	5.05E-11	0.00E+00	0.00E+00
2.01E-03	4.36E-04	0.00E+00	0.00E+00	0.00E+00	1733.82	0.00E+00	0.00E+00	0.00E+00
2.08E-03	4.44E-04	0.00E+00	4.37E-05	0.00E+00	4.62E+01	0.00E+00	0.00E+00	0.00E+00
2.03E-03	4.88E-04	0.00E+00	1.06E-04	0.00E+00	4.62E+01	0.00E+00	0.00E+00	0.00E+00
2.23E-03	5.16E-04	5.35E-05	8.91E-05	0	9.91E+02	0.00E+00	0.00E+00	1.91E-12
2.21E-03	4.81E-04	9.07E-05	9.95E-05	0	9.91E+02	0.00E+00	0.00E+00	3.23E-12
5.48E-03	2.61E-04	8.82E-05	7.94E-03	2.21E-04	1.77E+03	5.08E-11	0.00E+00	1.76E-12
6.09E-03	4.34E-04	7.42E-05	7.55E-03	2.46E-04	1.77E+03	6.30E-11	0.00E+00	1.48E-12
1.65E-02	7.87E-04	1.98E-04	0	0	1.51E+03	3.17E-10	0.00E+00	4.62E-12
2.04E-02	1.16E-03	0	8.40E-03	1.74E-03	1.51E+03	4.08E-10	0.00E+00	0.00E+00
4.86E-03	1.01E-03	0	8.31E-04	2.59E-04	1.29E+03	5.29E-11	0.00E+00	0.00E+00
5.26E-03	8.19E-04	0	7.48E-04	3.35E-04	1.29E+03	6.39E-11	0.00E+00	0.00E+00
3.52E-03	2.17E-04	0	0	0	1113.08	1.87E-11	0.00E+00	0.00E+00
3.98E-03	4.12E-04	0	7.18E-04	1.77E-04	1113.08	3.33E-11	0.00E+00	0.00E+00
3.47E-03	1.94E-04	0	8.21E-04	0	1287.5	1.48E-11	0.00E+00	0.00E+00
4.18E-03	2.05E-04	0	0	0	1287.5	3.43E-11	0.00E+00	0.00E+00

Cs-134 Conc (uCi/ml)	Cs-137 Conc (uCi/ml)	Int WB Dose (mrem/hr)	Combined WM Dose Rate	Thyroid Dose (mrem/hr)	Combined Thyroid Dose Rate	Paper/Cartridge
2.49E-10	0.00E+00	1.58E-02		2.05E-03		
0.00E+00	0.00E+00	3.68E-05	1.58E-02	2.94E-04	2.34E-03	0.0
0.00E+00	0.00E+00	6.92E-03		1.73E-02		
0.00E+00	0.00E+00	5.19E-02	5.89E-02	1.30E-01	1.47E-01	0.3
0.00E+00	0.00E+00	1.18E-04		3.92E-04		
0.00E+00	0.00E+00	0.00E+00	1.18E-04	0.00E+00	3.92E-04	1.2
1.02E-10	0.00E+00	1.27E-02		1.58E-02		
0.00E+00	0.00E+00	0.00E+00	1.27E-02	0.00E+00	1.58E-02	0.4
0.00E+00	0.00E+00	0.00E+00		0.00E+00		
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.0
0.00E+00	0.00E+00	4.77E-05		1.59E-04		
0.00E+00	0.00E+00	8.08E-05	1.28E-04	2.69E-04	4.28E-04	1.0
1.42E-10	0.00E+00	1.53E-02		1.60E-02		
1.34E-10	0.00E+00	1.63E-02	3.16E-02	1.98E-02	3.58E-02	0.9
0.00E+00	0.00E+00	3.97E-02		9.94E-02		
1.77E-10	3.31E-11	6.35E-02	1.03E-01	1.28E-01	2.27E-01	0.8
6.86E-13	0.00E+00	6.66E-03		1.65E-02		
0.00E+00	3.57E-13	8.00E-03	1.47E-02	2.00E-02	3.65E-02	0.9
0.00E+00	0.00E+00	2.34E-03		5.85E-03		
0.00E+00	0.00E+00	4.16E-03	6.50E-03	1.04E-02	1.63E-02	0.9
4.11E-13	0.00E+00	1.88E-03		4.63E-03		
0.00E+00	0.00E+00	4.29E-03	6.16E-03	1.07E-02	1.53E-02	0.8

From: Droggitis, Spiros
Sent: Monday, March 28, 2011 5:14 AM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Shane, Raeann; Riley (OCA), Timothy; Dacus, Eugene; Decker, David; Weil, Jenny
Subject: Daily Plant Status Report - 3/28/2011
Attachments: USNRC Japan Plant Condition Update March 28 0430EDT.PDF

PPP/541

From: Schwartzman, Jennifer
Sent: Sunday, March 27, 2011 7:42 PM
To: Evans, Michele; LIA02 Hoc
Cc: LIA03 Hoc
Subject: RE: Draft return checklist

Michele - we really weren't sure because we had a list of folks who may need a debrief, but then there was a separate item for visiting the health center that also included other things (like returning KI). Maybe we should just put it with the health/wellness section and leave the debrief section for things like office management, the ET, etc?

From: Evans, Michele
Sent: Sunday, March 27, 2011 7:37 PM
To: LIA02 Hoc; Schwartzman, Jennifer
Cc: LIA03 Hoc
Subject: RE: Draft return checklist

Jen,

Looks good. One question, should EAP debrief be under #5 or just under #6. Looks like it may be under both items?

Thanks

Michele Evans
Acting Deputy OD, NSIR

From: LIA02 Hoc
Sent: Wednesday, March 23, 2011 9:55 AM
To: Evans, Michele
Cc: LIA03 Hoc
Subject: Draft return checklist

Michele,

Please see attached draft checklist for returning travelers. Your thoughts are welcome. Thanks!

Jen Schwartzman

PPP/542

From: Schwartzman, Jennifer
Sent: Sunday, March 27, 2011 8:23 PM
To: LIA02 Hoc; LIA03 Hoc
Subject: FW: RESPONSE TO YOUR REQUEST: Draft return checklist

From: Evans, Michele
Sent: Sunday, March 27, 2011 7:54 PM
To: Schwartzman, Jennifer
Subject: FW: RESPONSE TO YOUR REQUEST: Draft return checklist

Jen,

Can you add the suggestion from HR to the checklist:

Contact HR to review hours of duty and premium pay entitlements, Larry Davidson, Lawrence.davidson@nrc.gov, 301-492-2286

Thanks.

Michele

From: Buchholz, Jeri
Sent: Wednesday, March 23, 2011 5:04 PM
To: Evans, Michele
Cc: Cohen, Miriam
Subject: RESPONSE TO YOUR REQUEST: Draft return checklist

Recalled and resent to provide updated attachment.

Michele:

Miriam asked me to reply.

Here are our comments (see attached)

Also, do you want to add an item:

Contact HR to review hours of duty and premium pay entitlements, Larry Davidson, Lawrence.davidson@nrc.gov, 301-492-2286

From: Cohen, Miriam
Sent: Wednesday, March 23, 2011 2:25 PM
To: Buchholz, Jeri
Subject: Fw: Draft return checklist

PPP/543

Pls take a look at this. I am on the B-berry and can't view it.

From: Evans, Michele
To: Cohen, Miriam; Doane, Margaret
Sent: Wed Mar 23 14:10:55 2011
Subject: FW: Draft return checklist

Miriam,

This is the reverse checklist that I was referring to at the meeting today. Does this address the issue you were getting at? Feedback welcome.

Thanks

Michele

From: LIA02 Hoc
Sent: Wednesday, March 23, 2011 9:55 AM
To: Evans, Michele
Cc: LIA03 Hoc
Subject: Draft return checklist

Michele,

Please see attached draft checklist for returning travelers. Your thoughts are welcome. Thanks!

Jen Schwartzman

From: LIA02 Hoc
Sent: Sunday, March 27, 2011 8:11 PM
To: Evans, Michele; Schwartzman, Jennifer
Cc: LIA03 Hoc
Subject: RE: Draft return checklist
Attachments: RETURN checklist.docx

Michele,
Thanks for taking a look. Based on Jen's email, we deleted the EAP item from #5 (since it's covered in #6). Would you like it sent out to the first wave of travelers coming back or would you like to do that?

Thanks!
-Jenny

From: Evans, Michele
Sent: Sunday, March 27, 2011 7:37 PM
To: LIA02 Hoc; Schwartzman, Jennifer
Cc: LIA03 Hoc
Subject: RE: Draft return checklist

Jen,
Looks good. One question, should EAP debrief be under #5 or just under #6. Looks like it may be under both items?

Thanks

Michele Evans
Acting Deputy OD, NSIR

From: LIA02 Hoc
Sent: Wednesday, March 23, 2011 9:55 AM
To: Evans, Michele
Cc: LIA03 Hoc
Subject: Draft return checklist

Michele,

Please see attached draft checklist for returning travelers. Your thoughts are welcome. Thanks!

Jen Schwartzman

PROP/544

NRC Japan Team Return Checklist

	Completed
1. Prompt Communication of Urgent Information - Urgent information should be communicated during the trip or immediately upon return to Ops Center staff.	
2. Return International Blackberry and Calling Cards, if necessary – Contact Karen Jackson at 415-6398	
3. Return Passport (if traveling with official) – Contact Kia Jackson at 415-1690	
4. Return dosimetry - Contact Undine Shoop at 301-415-2063 or your Regional RSO.	
5. Debrief <ul style="list-style-type: none">○ Office Management○ Ops Center Personnel (Executive Team/Protective Measures Team/Reactor Safety Team, as appropriate)	
6. Check-in with Health Center – (1) the Office of Human Resources strongly recommends that all returning employees check in with the Employee Assistance Program (EAP) for a Critical Incident Stress Debrief. Contact Sarah.Linnerooth@nrc.gov ; (2) return KI tablets	

From: Schwartzman, Jennifer
Sent: Sunday, March 27, 2011 11:46 AM
To: LIA03 Hoc; LIA02 Hoc
Subject: RE: Hello out there!

Gotcha. No problem! Hi Jill and Karen. Hope you're having an enjoyable Sunday in there. At the very least it's warmer than outside.

From: LIA03 Hoc
Sent: Sunday, March 27, 2011 11:45 AM
To: Schwartzman, Jennifer; LIA02 Hoc
Subject: RE: Hello out there!

We have been told to keep this close hold for now.... (It's Karen and Jill on duty).

From: Schwartzman, Jennifer
Sent: Sunday, March 27, 2011 11:45 AM
To: LIA03 Hoc; LIA02 Hoc
Subject: Hello out there!

Hi guys,

Who's on staff today? I can't remember. Anyway, hi, whoever you are!

Can I make the suggestion that the fact that the Chairman is traveling to Japan be added to the transition report? Unless there was some ET reason to exclude this, it took quite a few of us by surprise.

Thanks!!

1999/545

From: ET05 Hoc
Sent: Sunday, March 27, 2011 1:01 PM
To: Blount, Tom
Subject: 03-27-0900 spent fuel storage safety_RST_0327_0900FINALVERSION.docx
Attachments: 03-27-0900 spent fuel storage safety_RST_0327_0900FINALVERSION.docx

ppp/546

SPENT FUEL STORAGE SAFETY

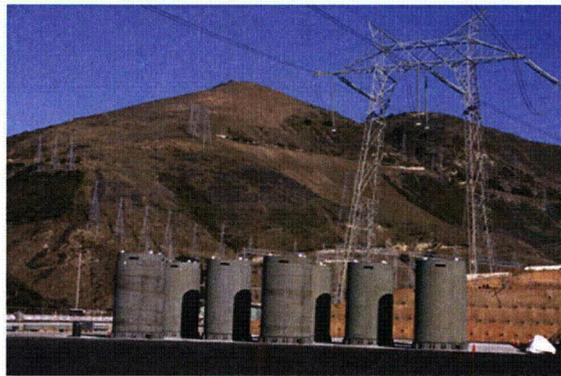
Overview

Spent fuel is nuclear reactor fuel that has been used to generate power in the reactor. Immediately after discharge from the reactor during refueling, spent fuel must be stored wet in storage pools for at least three years until it is sufficiently cool to permit dry storage in casks. Interim storage of spent fuel in wet or dry storage systems is safe and presents low risk to the public. Both storage methods are robust designs that are manufactured to high quality standards, and are designed and built using numerous industry codes and standards. Therefore, NRC regulations permit either method to be used for interim storage of spent fuel. There is a significant experience base in the U.S. and abroad with the safe storage of spent fuel.

Since the terrorist events of September 11, 2001, the NRC staff has augmented the safety and security requirements for storage locations of nuclear materials including spent nuclear fuel. Evaluations and assessments performed by the NRC staff show that the likelihood of a physical attack on dry storage casks or spent fuel pools that would result in a significant radiological release is extremely low. Extensive security measures required by NRC protect against radiological sabotage or theft and diversion of radioactive material. The NRC has specific regulatory requirements for the physical protection of commercial spent fuel. In addition, NRC maintains a threat assessment capability that works in collaboration with federal law enforcement and intelligence agencies.

Spent Fuel Storage

Dry storage is achieved by placement of the spent fuel in above-ground structures. Dry cask storage allows spent fuel that has already been cooled in the spent fuel pool for at least three years to be surrounded by an inert gas inside a container called a cask. The casks are typically steel cylinders that are either welded or bolted closed. The steel cylinder is typically 1-inch-thick steel, with a welded lid that is 8 to 10 inches of steel, a bottom flange that is 6 inches of steel, and provides a leak-tight containment of the spent fuel. The steel canister is then placed in a storage overpack that consists of 8 to 10 inches of steel or several feet of concrete (2 to 3 feet). The natural flow of air around the cask in the overpack provides adequate cooling for the spent fuel inside.



Currently there are 63 independent spent fuel storage installation (ISFSI) licensees located at 57 facilities in the United States. There are over 1400 loaded storage casks in these facilities, mostly at active or decommissioned reactor sites.

Wet storage is achieved by the use of spent fuel pools. The spent fuel pool structures are constructed with thick reinforced concrete walls and floor slabs lined with seam-welded stainless steel plate (1/8 to 1/4 inch thick). Pool walls are about 4 to 5 feet thick, and the pool floor slabs

are about 4 to 6 ft thick. The typical pool dimensions are about 40 feet long, 35 feet wide and 40 feet deep, but pool lengths and widths vary widely because of varying design considerations.

In the United States there are 23 boiling water reactor (BWR) plants with Mark I containment designs similar to the Fukushima Daiichi Units 1-5, and eight Mark II containment designs similar to Fukushima Daiichi Unit 6. The spent fuel pool structures are located in the reactor building at an elevation several stories above the ground (about 50 to 60 feet above ground for the Mark I reactors). The remaining spent fuel pools at operating reactors are typically located with the bottom of the pool at or below plant grade level. The robust construction provides the potential for the structure to withstand events well beyond those considered in the original design.

Spent Fuel Storage Regulation

The regulations in Title 10 of the *Code of Federal Regulations* (10 CFR), including Appendix A, "General Design Criteria for Nuclear Power Plants," 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," or 10 CFR Part 72, "Licensing requirements for the independent storage of spent nuclear fuel and high-level radioactive waste, and reactor-related greater than Class C waste," contain design criteria for both wet and dry storage to ensure that fuel storage and handling systems provide adequate safety under anticipated operating and accident conditions.

The design criteria include requirements for: radiation shielding; confinement; residual heat removal capability consistent with its importance to safety; and maintaining the fuel in a subcritical configuration. Additional design criteria specify requirements for: protection against natural phenomena, such as seismic events, tornados, and flooding (tsunamis, hurricanes, seiches, and potential dam failures); protection against dynamic effects, such as flying debris resulting from equipment failure and drops of fuel storage and handling equipment resulting from either human error or equipment failure. Additionally, spent fuel storage facilities are evaluated against hazards to the storage site from nearby activities.

Inspections and Oversight

The NRC has established inspection activities to verify that spent fuel pool design features, operational controls, and security are maintained at each facility consistent with its license. Refueling practices, including spent fuel pool operations, are inspected each refueling. In addition, the NRC implemented special inspection activities to verify proper implementation of new spent fuel cooling capabilities and changes in operating practices.

NRC's regulatory program includes oversight of the independent review and certification of dry cask designs and on-site inspection of cask designers, fabricators, and licensees. This regulatory program ensures compliance with NRC storage regulations, certificates of compliance for each NRC-approved storage system. The program requires that the general licensee perform internal demonstrations of all activities needed safely load a cask in the pool and transfer it to the storage pad, as well as the reverse in the event a loaded cask has to be unloaded and its fuel returned to the pool. NRC inspectors with specific knowledge of ISFSI operations observe and assess the adequacy of the licensee's demonstrations (usually referred to as the NRC-observed dry run) and these inspectors observe all initial cask loadings. Subsequent loadings may be observed by regional inspectors or the on-site resident inspectors. The regional offices also perform periodic inspections of routine ISFSI operations.

Spent Fuel Pool Design

Protection against Natural Phenomena and Dynamic Effects

The spent fuel pool structures (walls, floor slabs and supports) for all operating reactors are designed to seismic standards consistent with other important safety-related structures on the site. The storage racks supporting the stored fuel are also designed to maintain the design storage configuration following a seismic event. The spent fuel pool and its supporting systems are located within structures that provide appropriate protection against natural phenomena and dynamic effects. The large inventory of water maintained over the stored fuel, typically more than 20 feet above the top of the spent fuel rods, provides substantial protection itself by absorbing the energy of likely flying debris that may enter the pool through the surface. The thick walls and floor slabs have been evaluated to maintain structural integrity and protect the fuel from impact by flying debris resulting from postulated equipment failures and natural phenomena.



Maintenance of Water Inventory

The stainless-steel-lined spent fuel pool structure protects against a substantial loss of inventory. Piping which enters the pool structure is typically above the stored fuel, and with few exceptions, the operating reactor pool structures have been designed with no penetrations below the top of the stored fuel. The only exceptions are small lines used to detect liner leakage that have been equipped with means for isolation and, at two pressurized water reactor (PWR) sites, robust fuel transfer tubes that enter the spent fuel pool directly. The liner normally prevents any loss of inventory through the leak detection lines, but isolation valves or plugs are available if the liner experiences a large leak or tear. The spent fuel pool and fuel storage area have instruments to alert operators to lower-than-normal cooling water levels, higher-than-normal cooling water temperature, and high radiation levels.

Spent Fuel Pool Cooling Systems

Each pool has an attached cooling system that transfers residual heat from radioactive decay in the stored fuel to the environment. These systems have adequate capacity to maintain spent fuel pool coolant temperature at levels that provide substantial time for recovery of cooling prior to reaching saturation conditions (i.e., bulk boiling) in the spent fuel pool. The NRC has ensured administrative controls on the transfer of fuel from the reactor to the spent fuel pool maintain this time for recovery of cooling or establishment of make-up water connections.

Make-up Water

All plants have systems available which can provide make-up water to the spent fuel pools to replace water lost due to evaporation or leakage. Most have at least one system which is designed to be available following a design basis earthquake. However, operating experience indicates that even non-seismically designed systems are likely to survive a design basis earthquake and be available for make-up to the spent fuel pools.

Furthermore, temporary systems are described in emergency and accident procedures to provide make-up water to the spent fuel pool if the normal make-up systems are unavailable. In some cases, these make-up water paths require installation of short piping segments between systems or connection of hoses. However, the fuel is unlikely to rapidly become uncovered because of the large inventory of spent fuel pool water, the robust design of the pool structure, and the limited paths for loss of water from the pool.

Emergency Cooling

In addition to the temporary make-up water systems, the nuclear power plant operators have established backup emergency cooling capability for the spent fuel pool in the unlikely event that a substantial loss of spent fuel pool coolant occurs that cannot be promptly recovered. As described above, the design of the spent fuel pool provides a high likelihood that events affecting the spent fuel pool would evolve slowly. To further slow the evolution of events involving a substantial loss of coolant, the configuration of spent fuel in the pool is carefully managed. The emergency cooling capability uses temporary equipment that would be available following fires, explosions, and other unlikely events that damage large portions of the facility and may prevent operation of normal cooling and make-up systems. The plant operators have been trained to use the emergency cooling equipment, and it has been evaluated to provide adequate cooling even if the pool structure loses its water-tight integrity. Thus, establishment of this emergency cooling capability within several hours would be adequate to protect the stored fuel from further degradation in a number of extreme scenarios.

Margin to Criticality

Under normal conditions, spent fuel pools have substantial margin to prevent criticality (i.e., a condition where fission would become self-sustaining) through the use of spacing between fuel assemblies and neutron-absorbing plates attached to the storage rack between each fuel assembly. Calculations demonstrate that some margin to criticality is maintained for a variety of abnormal conditions, including fuel handling accidents involving a dropped fuel assembly.

From: Hoc, PMT12
Sent: Monday, March 28, 2011 7:59 PM
To: 'eoc_environmental_unit@epa.gov'; eoc_manager@epa.gov; clark.ray@epa.gov; NITOPS@nnsa.doe.gov
Cc: PMT03 Hoc; Hoc, PMT12
Subject: Management of Environmental Data from US Nuclear Power Plants
Attachments: US Nuclear Plant Reported Measurements 03282011.xlsx

Please see the attached spreadsheet with updated US Nuclear Plant reported measurements. We will continue to provide this information until the Nuclear Energy Institute establishes a online password protected database, which all recipients on this email will have access to.

If you have any questions, please contact the NRC Protective Measures Team.

PMT
301-816-5100

PPP/547

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Date	Plant	Isotope	Concentration
3/18/2011	San Onofre	I-131	1.4E-13 uCi/cc
3/18/2011	Diablo Canyon	I-131	3.8 to 6E-13 uCi/cc
3/19/2011	San Onofre	I-131	6.5E-13 to 7.0E-13 uCi/cc
3/19/2011	Palo Verde	Cs-134	2.22E-13 uCi/cc
3/19/2011	Palo Verde	Cs-137	3.58E-13 uCi/cc
3/19/2011	Palo Verde	I-131	1.54E-12 uCi/cc
3/20/2011	San Onofre	I-131	2.0E-12 uCi/cc
3/20/2011	Palo Verde	Cs-134	3.87E-13 uCi/cc
3/20/2011	Palo Verde	I-131	2.50E-12 uCi/cc
3/21/2011	Nine Mile Point	I-131	19.1 pCi/L (rainwater)
3/21/2011	Palo Verde	I-131	6.70E-13 uCi/cc
3/21/2011	Palo Verde	Cs-134	2.06E-13 uCi/cc,
3/21/2011	Palo Verde	Cs-137	2.71E-13 uCi/cc
3/22/2011	San Onofre	I-131	7.0 to 8.0E-13 uCi/cc
3/22/2011	San Onofre	Cs-137	1.25E-13 uCi/cc
3/22/2011	Columbia	I-131	6.74E-13 uCi/cc
3/22/2011	Nine Mile Point	I-131	18 pCi/L (rainwater)
3/22/2011	GINNA	I-131	26.8 pCi/L (rainwater)
3/22/2011	Palo Verde	I-131	2.01E-12 uCi/cc
3/22/2011	Palo Verde	Cs-137	2.93E-13 uCi/cc
3/22/2011	Palo Verde	Cs-134	2.76E-13 uCi/cc
3/23/2011	Millstone	I-131	25.6 pCi/L (rainwater)
3/23/2011	San Onofre	I-131	5E-13 to 6E-13 uCi/cc
3/23/2011	San Onofre	Cs-137	7E-14 uCi/cc
3/23/2011	Palo Verde	I-131	7.42E-13 uCi/cc
3/23/2011	TMI	I-131	95 pCi/L (rainwater)
3/24/2011	Palo Verde	I-131	6.30E-13 uCi/cc
3/24/2011	Oyster Creek	I-131	127 pCi/L (rainwater)
3/24/2011	San Onofre	I-131	3.0E-13 to 6.0E-13 uCi/cc
3/24/2011	Limerick	I-131	47 pCi/L (rainwater)
3/25/2011	South Texas	I-131	2.6E-13 uCi/cc
3/25/2011	San Onofre	I-131	9.0E-13 to 1E-12 uCi/cc
3/25/2011	San Onofre	Cs-137	1E-13 to 3E-13 uCi/cc
3/25/2011	Palo Verde	I-131	1.25E-12 uCi/cc
3/25/2011	Palo Verde	Cs-134	3.50E-13 uCi/cc
3/25/2011	Palo Verde	Cs-137	2.62E-13 uCi/cc
3/26/2011	Palo Verde	I-131	5.561E-13 uCi/cc
3/27/2011	Palo Verde	I-131	2.2181E-13 uCi/cc
3/27/2011	San Onofre	I-131	2E-13 to 3E-13 uCi/cc
3/28/2011	Beaver Valley	I-131	14.98 pCi/L (standing water)
3/28/2011	San Onofre	I-131	2.0 to 3E-13 uCi/cc

I-131 Reporting Levels
NUREG-1301 and NUREG-1302

	I-131	Units	I-131	Units
Drinking Water	2	pCi/L	2.00E-09	uCi/ml
Non-Drinking Water	20	pCi/L	2.00E-08	uCi/ml
Air	0.9	pCi/m3	9.00E-13	uCi/cc

from 2E-13 to 3E-13 microcuries/cc

From: Noonan, Amanda
Sent: Monday, March 28, 2011 8:59 AM
To: Rivera, Alison; Rautzen, William; Maupin, Cardelia; Virgilio, Rosetta; Turttil, Richard; Lukes, Kim; Flannery, Cindy; Ryan, Michelle; Easson, Stuart; LIA04 Hoc; OST05 Hoc; Cuadrado, Leira; Arribas-Colon, Maria
Cc: Piccone, Josephine; Jackson, Deborah; White, Duncan
Subject: RE: State Liaison desk schedule for 3/27-4/9
Attachments: State LiaisonSchedule (7).docx

Attached please find a revised schedule for the Ops Center. **Everyone's schedule is the same**, but MSSA (Maria and Leira) are able to provide us with assistance again this week. Lisa might be able to cover shifts later in the week.

Amanda Noonan
Management Analyst, FSME/DILR
301-415-2551
amanda.noonan@nrc.gov

From: Rivera, Alison
Sent: Friday, March 25, 2011 3:18 PM
To: Rautzen, William; Maupin, Cardelia; Virgilio, Rosetta; Turttil, Richard; Noonan, Amanda; Rivera, Alison; Lukes, Kim; Flannery, Cindy; Ryan, Michelle; Easson, Stuart; LIA04 Hoc; OST05 Hoc
Cc: Piccone, Josephine; Jackson, Deborah
Subject: State Liaison desk schedule for 3/27-4/9

Attached please find the current schedule for the State Liaison desk in the Operations Center for the next two weeks.

Thanks, Alison

Alison L. Rivera
Technical Assistant, FSME/DILR
301-415-5108
Office: T8-F36a
Mailstop: T8-F42
Alison.Rivera@nrc.gov

PPP/548

**Japanese Earthquake/Tsunami Coverage – State Liaison Function in the NRC Operations Center
March – 7 Hour Shifts, 1 Person Each Shift, Nights and Weekends are On Call Only**

	Sun 27 ON CALL	M 28	Tu 29	W 30	Th 31	F 01	Sat 02 ON CALL
7am - 2pm	Rivera	Maupin OC: Flannery	Maupin OC: Turtill	Flannery	Noonan	Lukes	Noonan
2pm – 9pm	Rivera	Easson Arribas-Colon	Easson Cuadrado	Ryan	Ryan Arriba -Colon	Rivera Cuadrado	Noonan
9pm – 7am On Call Only	Rivera	Virgilio	Turtill	Turtill	Turtill	Turtill	Noonan
	Bill Rautzen Alison Rivera	Cardelia Maupin Kim Lukes	Rosetta Virgilio Cindy Flannery	Richard Turtill Michelle Ryan	Amanda Noonan Stuart Easson		

Date

3/28 7am – 2pm	Cardelia Maupin
3/28 2pm – 9pm	Stuart Easson/ Maria Arribas-Colon
3/29 7am – 2pm	Cardelia Maupin
3/29 2pm – 9pm	Stuart Easson/Leira Cuadrado
3/30 7am – 2pm	Cindy Flannery
3/30 2pm – 9pm	Michelle Ryan
3/31 7am – 2pm	Amanda Noonan
3/31 2pm – 9pm	Michelle Ryan/ Maria Arribas-Colon
4/1 7am – 2pm	Kim Lukes
4/1 2pm – 9pm	Alison Rivera/ Leira Cuadrado

	Sun 03 ON CALL	M 04	Tu 05	W 06	Th 07	F 08	Sat 09 ON CALL
7am - 2pm	Ryan	Flannery	Lukes	Flannery	Noonan	Rivera	Noonan
2pm - 9pm	Ryan	Easson	Ryan	Easson	Rivera	Turttil	Noonan
9pm - 7am On Call Only	Ryan	Rivera	Noonan	Rivera	Turttil	Noonan	Noonan
	Bill Rautzen Alison Rivera	Cardelia Maupin Kim Lukes	Rosetta Virgilio Cindy Flannery	Richard Turttil Michelle Ryan	Amanda Noonan Stuart Easson		

Date

4/4 7am - 2pm	Cindy Flannery
4/4 2pm - 9pm	Stuart Easson
4/5 7am - 2pm	Kim Lukes
4/5 2pm - 9pm	Michelle Ryan
4/6 7am - 2pm	Cindy Flannery
4/6 2pm - 9pm	Stuart Easson
4/7 7am - 2pm	Amanda Noonan
4/7 2pm - 9pm	Alison Rivera
4/8 7am - 2pm	Alison Rivera
4/8 2pm - 9pm	Richard Turttil

From: Lukes, Kim
Sent: Monday, March 28, 2011 8:01 PM
To: OST05 Hoc
Subject: Out of Office: Information from PEMA

This is an automatic reply. I will be out of the office on March 28 and return on March 29.

If you have any questions or concerns that need immediate attention, please contact my branch chief, Adelaide Giantelli, at 301-415-3521 or at Adelaide.Giantelli@nrc.gov.

Thank you!

PPP/549

From: RST06 Hoc
Sent: Monday, March 28, 2011 9:55 PM
To: ET02 Hoc
Subject: RE: Insert file name in header

thanks

From: ET02 Hoc
Sent: Monday, March 28, 2011 9:52 PM
To: RST06 Hoc
Subject: Insert file name in header

Insert the file name of the document

1. Place the cursor where you want to insert the file name in the header or footer.
2. Under **Header & Footer Tools**, on the **Design** tab, in the **Insert** group, click **Quick Parts**, and then click **Field**.
3. In the **Field names** list, click **FileName**. If you want to include the path as part of the file name, select the **Add path to filename** check box.

SECURITY Because field codes can be visible to anyone reading your document, be sure that the information you place in field codes is not information that you want kept private.

ppp/550

From: RST06 Hoc
Sent: Monday, March 28, 2011 9:39 PM
To: RST01 Hoc
Subject: RST-DART Daily Communication Coordination Rev 0.docx
Attachments: RST-DART Daily Communication Coordination Rev 0.docx

PPP/557

RST-DART Daily Communication Coordination
Revision 0, 3/28/11

0300 – DART call from Japan to NRC RST

- Normal attendees; Industry (INPO, GEH, EPRI, and Nav Rx and DOE if they desire) are in listening mode

When Japan DART hangs up, other U.S. industry attendees (INPO, EPRI, GEH) will stay on the line to coordinate actions for the day in the “Daily Task Alignment Meeting” with the RST.

~0330 – Daily Task Alignment Meeting

**NRC RST Lead, INPO ERC Tech Lead, INPO ED, GE Tech Lead, EPRI Tech Lead
(hang on phone after DART team call concludes)**

- What new requests do we have?
 - Who made the request? (Organization, person)
 - What is the purpose of the request?
 - With whom will the information (in the answer) be shared?
 - Do we need to actually work on the request (or is it just somebody’s musing)?
 - Which entities should work on the request?
 - What is the urgency of the request?
 - What is a reasonable due time or date?
 - What assumptions are we using as inputs to the problem?
- Does any of the new status data change our assumptions for previous recommendations?
- Update current RST Actions-Owners
- NRC RST distributes revised action list to 1100 meeting attendees.

1100 – Technical Refocus Meeting (RST, INPO, GEH, EPRI, Nav Rx, DOE) – Led by INPO Tech Lead

- 1) Status Open Actions
- 2) Deliver any responses for new actions that have been completed from the daily task alignment meeting
- 3) If actions are not complete:
 - a) Go around to the various parties that have worked on the request to present a brief status.
 - b) Conduct a brief brainstorming/additional helpful technical input from all attendees: 5-10 minutes (this is valuable to NRC and participants)
 - c) Rescope problem if needed
 - d) Determine new actions and responsible parties if applicable
 - e) Determine what the completion time should be; if possible deliver to NRC by 1530
 - f) Determine what the product will be (email, paper, etc.)
 - g) Is a 1600 phone call necessary? If so Identify:
 - i) who needs to participate?
 - ii) who is the lead of the call and will set it up?
 - iii) what is desired outcome of the call?
 - h) Adjourn

From: Hoc, PMT12
Sent: Tuesday, March 29, 2011 9:08 PM
To: PMT03 Hoc
Subject: FW: More Info

From: Mroz (Sahm), Sara
Sent: Tuesday, March 29, 2011 8:48 PM
To: Hoc, PMT12
Subject: More Info

You may also want to check NUREG-0728 – “NRC Incident Response Plan”
<http://r4.nrc.gov/RCB/references/NUREG-0728.pdf>

To describe PMT, it says “Another team monitors and independently determines potential radiological exposure to the public and provides assistance to licensees and governmental agencies in determination of public protective measures.”

Hope that helps.
-Sara

Sara K. Mroz

Communications and Outreach
Office of Nuclear Security and Incident Response
US Nuclear Regulatory Commission
301-415-1692 (direct)
sara.mroz@nrc.gov

Please consider the environment before printing this email.

APP/552

From: Greten, Timothy <Timothy.Greten@dhs.gov>
Sent: Monday, March 28, 2011 11:49 AM
To: LIA05 Hoc; Greten, Timothy; Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Vanessa E. Quinn
Subject: RE:

Of course-

From: prvs=0610c37e9=LIA05.Hoc@nrc.gov [mailto:prvs=0610c37e9=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Monday, March 28, 2011 11:49 AM
To: Greten, Timothy; Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Vanessa E. Quinn
Subject: RE:

Please let us know as soon as one is on the calendar.

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Greten, Timothy [mailto:Timothy.Greten@dhs.gov]
Sent: Monday, March 28, 2011 11:47 AM
To: LIA05 Hoc; Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: RE:

Next meeting hasn't been scheduled yet--

From: prvs=0610c37e9=LIA05.Hoc@nrc.gov [mailto:prvs=0610c37e9=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Monday, March 28, 2011 11:46 AM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject:

NRC is requesting information on the FRPCC, when is the next meeting ?

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

ppp/553

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From: LIA05 Hoc
Sent: Monday, March 28, 2011 11:50 AM
To: Greten, Timothy; Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Vanessa E. Quinn
Subject: RE:

Thank you so very much.

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Greten, Timothy [mailto:Timothy.Greten@dhs.gov]
Sent: Monday, March 28, 2011 11:49 AM
To: LIA05 Hoc; Greten, Timothy; Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Vanessa E. Quinn
Subject: RE:

Of course-

From: prvs=0610c37e9=LIA05.Hoc@nrc.gov [mailto:prvs=0610c37e9=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Monday, March 28, 2011 11:49 AM
To: Greten, Timothy; Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Vanessa E. Quinn
Subject: RE:

Please let us know as soon as one is on the calendar.

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From: Greten, Timothy [mailto:Timothy.Greten@dhs.gov]
Sent: Monday, March 28, 2011 11:47 AM
To: LIA05 Hoc; Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: RE:

ppp/554

Next meeting hasn't been scheduled yet--

From: prvs=0610c37e9=LIA05.Hoc@nrc.gov [mailto:prvs=0610c37e9=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Monday, March 28, 2011 11:46 AM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject:

NRC is requesting information on the FRPCC, when is the next meeting ?

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NRC Operations Center
(301) 816-5187

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From: Ralston, Michelle <Michelle.Ralston@dhs.gov>
Sent: Monday, March 28, 2011 2:49 PM
To: LIA05 Hoc
Subject: Re: Meeting Agenda on Small Modular Reactors

This should definitely go to our HPs.

Respectfully,

Michelle Ralston

(202) 280-9304

From: prvs=0610c37e9=LIA05.Hoc@nrc.gov <prvs=0610c37e9=LIA05.Hoc@nrc.gov>
To: Coons, Albert <albert.coons@dhs.gov>
Cc: Dan Feighert <dan.feighert@dhs.gov>; Andrew Seward <Andrew.Seward1@dhs.gov>; Harry Sherwood <harry.sherwood@dhs.gov>; John Simpson <john.simpson@dhs.gov>; Lisa Hamilton <Lisa.Hamilton@dhs.gov>; Michelle Ralston <Michelle.Ralston@dhs.gov>; Rebecca Fontenot <Rebecca.Fontenot@dhs.gov>; Steve Horwitz <steve.horwitz@dhs.gov>; Tim Greten <Timothy.Greten@dhs.gov>; Vanessa E. Quinn <Vanessa.Quinn@dhs.gov>
Sent: Mon Mar 28 14:37:00 2011
Subject: Meeting Agenda on Small Modular Reactors

Please find the attached.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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PPP/555

SCHEDULING NOTE

Title: BRIEFING ON SMALL MODULAR REACTORS (Public)

Purpose: To provide the Commission a discussion of anticipated licensing activities for Small Modular Reactors (SMRs), the status of activities to resolve key generic policy issues, and activities and plans for SMRs on the part of the industry and other government agencies and to facilitate Commission voting on policy paper on use of risk insights in SMR reviews.

Scheduled: March 29, 2011
9:00 am

Duration: Approx. 3 hours

Location: Commissioners' Conference Room, 1st floor OWFN

Participants:	Presentation
<u>External Panel</u>	40 mins.*
John Kelly , Deputy Assistant Secretary, Nuclear Reactor Technologies, Department of Energy, Office of Nuclear Energy <u>Topic:</u> DOE Program in support of SMRs.	10 mins.*
Doug Walters , Vice President, Regulatory Affairs, Nuclear Energy Institute <u>Topic:</u> NEI activities in support of SMRs.	10 mins.*
Jack Bailey , VP, Nuclear Generation Development, TVA <u>Topic:</u> Utility perspective on SMRs - Licensing.	10 mins.*
Christopher Mowry , President and CEO, Modular Nuclear Energy, Babcock and Wilcox Nuclear Generation (mPower) <u>Topic:</u> Vendor perspective on SMRs - Technology.	10 mins.*
Commission Q & A	50 mins.
Break	5 mins.

<u>NRC Staff Panel</u>	45 mins.*
Bill Borchardt , Executive Director for Operations	
Michael Johnson , Director, NRO	
Michael Mayfield , Director, Advanced Reactor Program, NRO	5 mins.*
<u>Topic:</u> Overview of NRO Activities on SMRs.	
Stewart Magruder , Chief, Advanced Reactor Branch 2, NRO	20 mins.*
<u>Topic:</u> SMR Licensing Activities, including status of staff's response to COMGBJ-10-0004/COMGEA-10-0001 (Use of Risk Insights to Enhance Safety Focus of SMR Reviews), and preparations for the possible licensing and construction of SMRs by TVA at the Clinch River Site.	
William Reckley , Chief, Advanced Reactor Branch 1, NRO	20 mins.*
<u>Topic:</u> Progress on Resolution of Key Technical and Policy Issues, emphasizing control room staffing, security, and emergency planning.	
Commission Q & A	50 mins.
Discussion – Wrap-up	5 mins.

*For presentation only and does not include time for Commission Q & A's.

From: LIA05 Hoc
Sent: Monday, March 28, 2011 2:35 PM
To: Ward, Paul; michael.howe@dhs.gov
Cc: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: Radiation Level Report 03282011
Attachments: Monitoring Data 3.28.11rJNES.pdf

Please find the attached.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

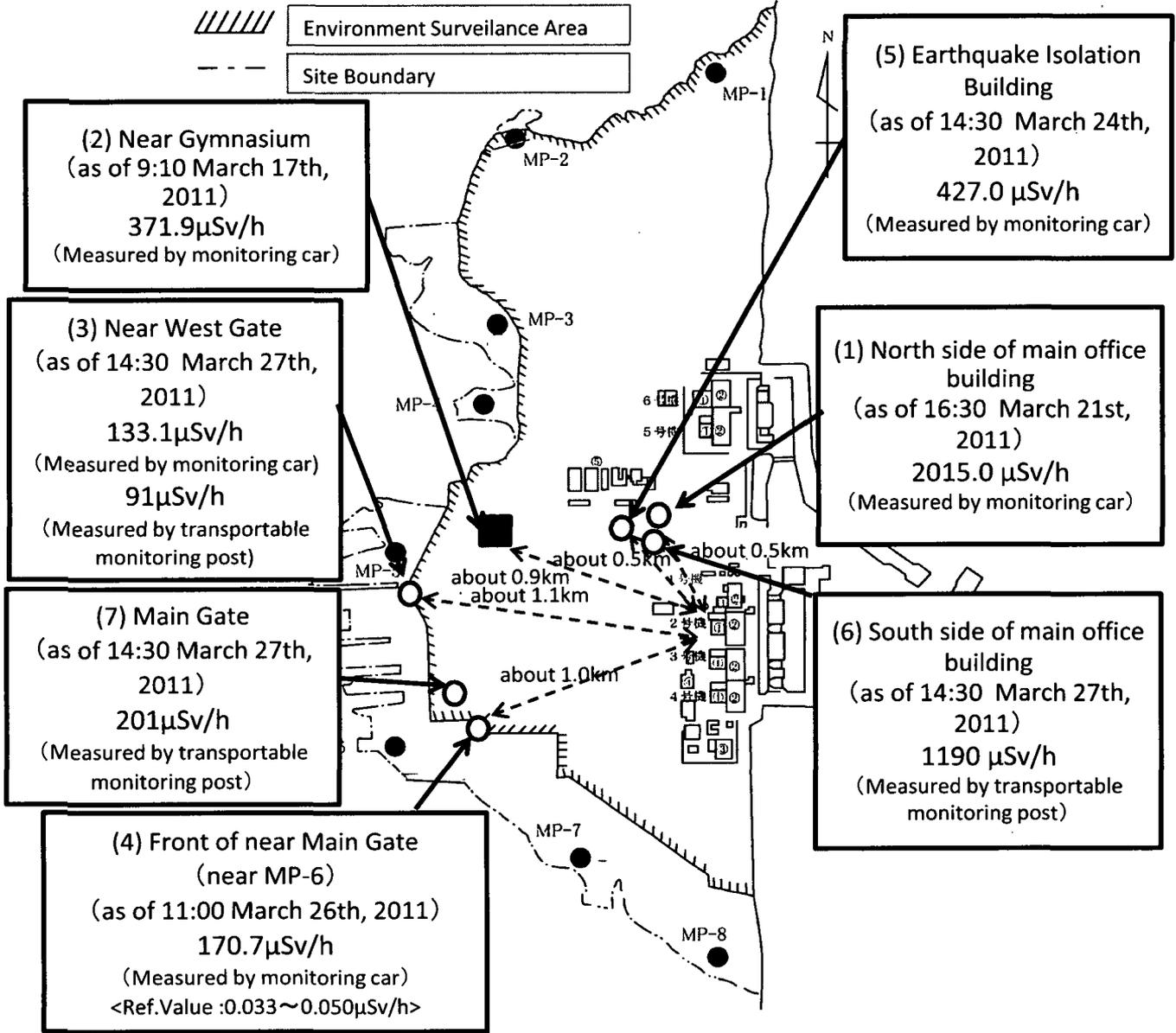
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PPP/5576

Fukushima Dai-ichi NPS

as of 17:30, March 27th, 2011



From: OST05 Hoc
Sent: Monday, March 28, 2011 8:01 PM
To: Easson, Stuart; Flannery, Cindy; Lukes, Kim; Maupin, Cardelia; Noonan, Amanda; Rautzen, William; Rivera, Alison; Ryan, Michelle; Turtill, Richard; Virgilio, Rosetta
Subject: FW: Information from PEMA

FYI

Maria Arribas-Colon

From: LIA05 Hoc
Sent: Monday, March 28, 2011 7:57 PM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Cc: LIA01 Hoc; LIA11 Hoc; LIA04 Hoc; OST05 Hoc
Subject: Information from PEMA

The following was sent from the Pennsylvania Emergency Management Agency (PEMA):

EVENT OF POTENTIAL PUBLIC INTEREST (EPPi) – Three Mile Island (TMI), 3:53 a.m., 3/28/11
– Approximately 20 – 30 citizens held a peaceful vigil at TMI in Londonderry Township, Dauphin County, at 3:53 a.m., Monday, 3/28/11. The vigil was held to bring attention to the 32nd anniversary of the TMI nuclear accident. TMI coordinated with PSP to maintain plant security. The vigil was terminated at 5:00 a.m., with no interference with plant operations.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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~~DO NOT RELEASE OUTSIDE OF THE FEDERAL FAMILY~~

Prop/557

From: LIA02 Hoc
Sent: Monday, March 28, 2011 8:58 PM
To: Hoc, PMT12; PMT02 Hoc
Cc: LIA03 Hoc
Subject: FW: TEPCO Earthquake Information Update on March 28: Detection of Pu in the soil in Fukushima Daiichi NPS
Attachments: image001.jpg; image002.png; image003.png

Neema,
See response below.

Cindy

From: Hidehiko Yamachika [mailto:yamachika-hidehiko@jnes-usa.org]
Sent: Monday, March 28, 2011 8:45 PM
To: LIA02 Hoc
Subject: RE: TEPCO Earthquake Information Update on March 28: Detection of Pu in the soil in Fukushima Daiichi NPS

Unfortunately, I can't send it due to some trouble in the attached file.
Please understand it.

From: LIA02 Hoc [mailto:LIA02.Hoc@nrc.gov]
Sent: Monday, March 28, 2011 7:42 PM
To: Yamachika, Hidehiko
Cc: LIA03 Hoc
Subject: RE: TEPCO Earthquake Information Update on March 28: Detection of Pu in the soil in Fukushima Daiichi NPS

Hello,
Can you please resend the maps that were attached to the information update? They did not come through.

Thank you
Cindy Rosales-Cooper

From: Hidehiko Yamachika [mailto:yamachika-hidehiko@jnes-usa.org]
Sent: Monday, March 28, 2011 7:05 PM
To: LIA02 Hoc
Subject: FW: TEPCO Earthquake Information Update on March 28: Detection of Pu in the soil in Fukushima Daiichi NPS

ppp/558

FYI

This is from TEPCO Washington.

From: 松尾 建次 [mailto:matsuo.kenji@wash.tepco.com] **On Behalf Of** matsuo.kenji@tepco.co.jp

Sent: Monday, March 28, 2011 6:54 PM

To: matsuo.kenji@tepco.co.jp

Subject: TEPCO Earthquake Information Update on March 28: Detection of Pu in the soil in Fukushima Daiichi NPS

TEPCO Earthquake Information Update on March 28: Detection of Pu in the soil in Fukushima Daiichi NPS

Dear Friends,

On March 28th, TEPCO announced the result of analysis of plutonium contained in the soil collected on March 21st and 22nd at the 5 spots in Fukushima Daiichi Nuclear Power Station (See Map 1 bellow). As a result, plutonium 238, 239 and 240 were detected as shown in the Table.

- The density of detected plutonium is equivalent to the fallout observed in Japan when atmospheric nuclear tests were conducted in the past.
- We assume the current reactor accident was a possible cause of plutonium detected from two samples out of five ((1) and (5)), considering their activity ratio of the plutonium isotopes.
- The density of detected plutonium is equivalent to the density in the soil under normal environmental conditions and therefore poses no major impact on human health. TEPCO strengthens environment monitoring inside the station and surrounding areas.
- We will conduct analysis of the three additional soil samples.

We will continue the radionuclide analysis contained in the soil at three points in the site (See Map 2 bellow).

Result of Pu measurement in the soil in Fukushima Daiichi Nuclear Power Plant

(Unit: Bq/kg·dry soil)

Sampling spot	Time of sampling	Pu-238	Pu-239, Pu-240
① site field	13:30, March 21 st	$(5.4 \pm 0.62) \times 10^{-1}$	$(2.7 \pm 0.42) \times 10^{-1}$
② 1km away from Unit 1/2 exhaust stack	7:00, March 22 nd	N.D.	$(2.6 \pm 0.58) \times 10^{-1}$
③ 0.75km away from Unit 1/2 exhaust stack	7:10, March 22 nd	N.D.	1.2 ± 0.12
④ 0.5km away from Unit 1/2 exhaust stack	7:18, March 22 nd	N.D.	1.2 ± 0.11
⑤ solid waste storage ordinary domestic soil [※]	7:45, March 22 nd	$(1.8 \pm 0.33) \times 10^{-1}$ N.D. $\sim 1.5 \times 10^{-1}$	$(1.9 \pm 0.34) \times 10^{-1}$ N.D. ~ 4.5

* :MEXT

environmental radiation database; 1978-2008

Density of detected Pu-238, Pu-239 and Pu-240 are within the same level of the fallout observed in Japan after the atmospheric nuclear test in the past. Activity ratio of Pu-238 detected in site field and solid waste storage against Pu-239 and Pu-240 are 2.0 and 0.94 respectively. They exceed activity ratio of 0.026 which resulted from the atmospheric nuclear test in the past, thus those Pus are considered to come from the recent incident.

Contacts:

TEPCO Washington Office :202-457-0790

Kenji Matsuo, Director and General Manager

Yuichi Nagano, Deputy General Manager,

Masayuki Yamamoto, Manager, Nuclear Power Programs

<Impact on the human health>

Detected density of plutonium is within the same level of density in the normal environment. Therefore there will be no direct negative impact on worker's health.

The nuclide of plutonium is alpha. It can be shielded by a paper and does not penetrate skin. Therefore, the effect of external exposure on human health will be negligible. However, if it is orally ingested, it poses risk of internal exposure. If we suppose oral intake of 1kg of plutonium 239, which equals 1.32Bq/kg, the internal exposure is approximately 0.3 microSv. ($1.32 \times 2.5 \times 10^{-4} = 0.00033 \text{ mSv} = 0.3 \text{ microSv}$)

If plutonium is detected in seawater, it may be taken into the human body orally. Because absorption through digestive organ is very limited (0.1 to 0.001 %), most will be excreted and the impact on the health will be limited.

<Source of the plutonium>

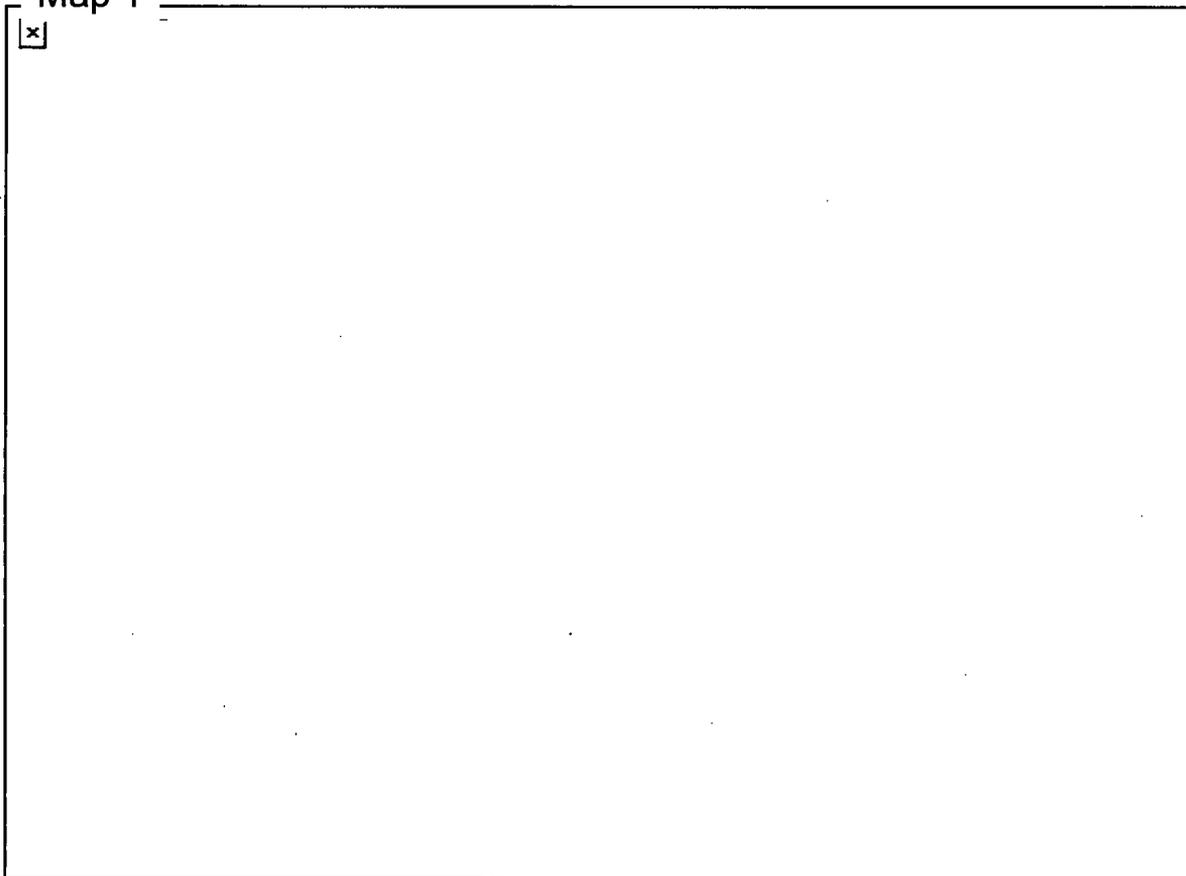
At this moment the source of the plutonium is not identified. Uranium fuel installed in each unit contains 0 to 1% of plutonium.

Since uranium fuel produces plutonium through nuclear fission, we can not determine that the detected plutonium is from the MOX fuel at unit 3.

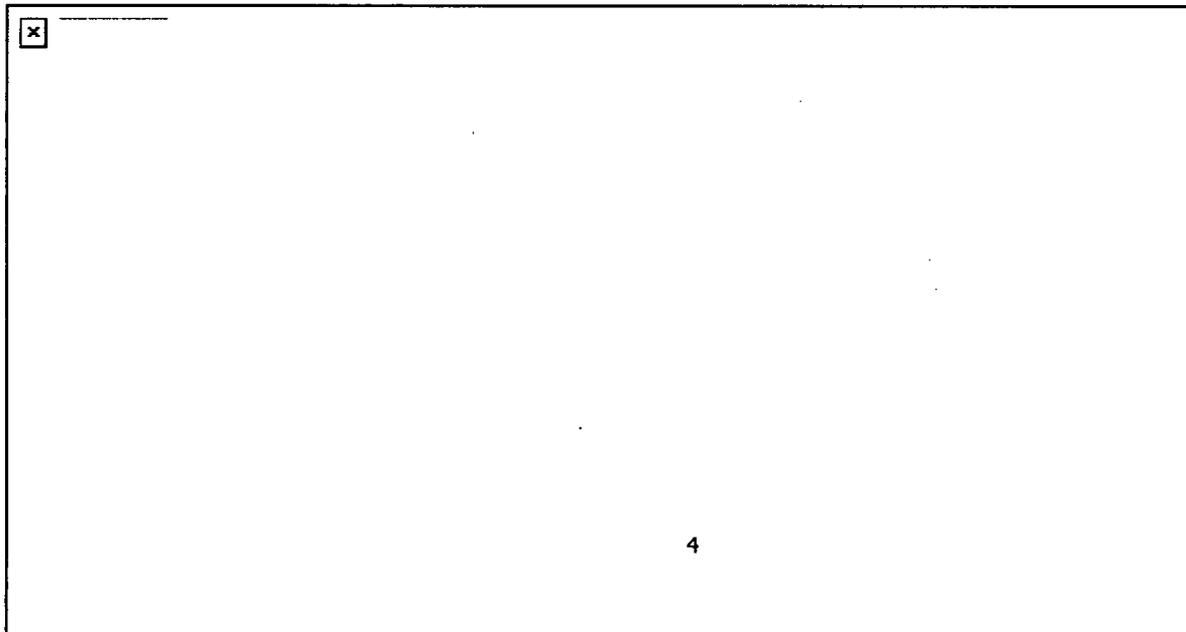
<Impact of the detected density in comparison with that from the ordinary environment>

The detected density is considered to be within the variation range of the density found in the ordinary domestic soil. For reference, measured density of Pu 239 and 240 in the soil from Fukushima prefecture this year was ND ~0.21Bq/kg from 4 towns surrounding plants and 0.61 Bq/kg from Fukushima City.

Map 1



Map 2



From: Zimmerman, Roy
Sent: Monday, March 28, 2011 9:03 PM
To: ET05 Hoc
Subject: Document1
Attachments: Doc1.docx

PROP/559

Units 1,2,3 are injecting fresh water to the core. Feed and bleed of the 3 units ongoing.

Spent fuel pools filled with some slow heatup in a couple

Unit 1 remains our top priority in an effort to get containment inerted to prevent a hydrogen explosion. Tepco plans to install equipment to inert Unit 1 by 3/30.

One train of the Bechtel pumping system is at J Village and prepping and training staff prior to being deployed to site. how it will be used we think is still being worked out.

Water in unit 1 turbine building lower level was pumped into a condenser bay. There are significant contamination levels in lower levels of U2 and U3 turbine buildings. Water levels in the TB are not currently rising. RST has developed a draft discussion paper on the potential leakage paths to the turbine building. Paper is being vetted internally now and will be discussed with GE, INPO, NR for comment

We are still working to validate the news reports of contaminated water in trench outside secondary containment. We are aware of reports of plutonium in soil, but again, working to validate.

Fresh water barges about 40 miles away and training on its use ongoing

Naval Reactors supplying about 30k feet of flex piping to get fresh water to Rx's from trucks

Call with industry consortium at 10:00am tomorrow to discuss progress and plans

Re-entry guidance sent to DOE and OSTP.....incorporated their comments

GOJ formally requested a specialized pump from DOE that separates radioactivity from contaminated water, which is then evaporated.

DOE has agreed to provide a robot with appropriate sensing instrumentation, radiation hardened cameras, and a gamma camera to be expedited to Japan.

Sandia also working on a robot

At a high level, understand Chairman's visit went well in Japan.

NRC and DOE had a mtg with NISA and Japan Nuclear Energy Safety Organization (JNES) to discuss intervention levels on agricultural products, reentry guidelines, rad monitoring within the voluntary evacuation zone.

Japan has asked PNL for help with moving SFP.....expect it is intermediate term action

Japan requests remain for spent fuel handling, shielding, and robotics

Bill Borchardt testifying tomorrow, Chairman and Mike Weber testifying to congress on Wednesday.

Heard on radio about an IAEA mtg to discuss Japan

Elmo will be going to Japan to replace Dan Dorman

NEI continues to serve as focal point for collecting U.S. rx plant environmental monitoring data, providing it to NRC and then we distribute to federal partners. . a protected website should be online and functioning shortly.

RST provided a coordinated set of recommendations pertaining to severe accident management strategies.....now considering if there are access constraints from radiation which might affect recommendations.

Pennsylvania press release has led to questions on dose if a glass of rainwater is drank.

Vince holohan arriving in pearl harbor to assist ADM Williard for a couple days.

From: LIA04 Hoc
Sent: Monday, March 28, 2011 12:04 PM
To: Easson, Stuart; Flannery, Cindy; LIA04 Hoc; Lukes, Kim; Maupin, Cardelia; Noonan, Amanda; OST05 Hoc; Rautzen, William; Rivera, Alison; Ryan, Michelle; Turtill, Richard; Virgilio, Rosetta
Cc: Piccone, Josephine; Jackson, Deborah
Subject: FW: 50 Mile EPZ justification response

FYI

From: LIA08 Hoc
Sent: Monday, March 28, 2011 11:57 AM
To: LIA04 Hoc
Cc: LIA02 Hoc
Subject: FW: 50 Mile EPZ justification response

From: LIA08 Hoc
Sent: Monday, March 28, 2011 11:56 AM
To: Franovich, Mike; Orders, William; Snodderly, Michael; Castleman, Patrick; Marshall, Michael; Batkin, Joshua; Hipschman, Thomas
Cc: LIA06 Hoc
Subject: FW: 50 Mile EPZ justification response

Attached for your info is an email sent by the Ops Center Liaison Team to Mr. Takashi regarding questions he raised about the 50 mile evacuation recommendation we made for US Citizens in Japan. Please let me know if you have any questions or would like additional information about this.

Jeff Temple
Response Program Manager
Liaison Team/Interagency Response Team/Corporate Support Response Team
301-816-5185

From: LIA03 Hoc
Sent: Monday, March 28, 2011 11:07 AM
To: takashi.inutsuka@mofa.go.jp
Cc: Doane, Margaret; Mamish, Nader; LIA02 Hoc; LIA08 Hoc; Borchardt, Bill; LIA03 Hoc
Subject: 50 Mile EPZ justification response

On behalf of Bill Borchardt, we are responding to your questions:

1. In the NRC NEWS, March 16, 2011, there are attachments of the results of two sets of computer calculations. One, 15 March 2010 02:51am (EDT), has a hypothetical, single-reactor site, 2350 Mwt, Boiling Water Reactor. On the other hand, 16 March 2010 12:24pm (EDT), has a hypothetical, four-reactor site. But in these attachments there is no detailed assumption for calculations about
 - (1) the power and type of reactor for the four-reactor site,
 - (2) weather, wind direction and speed, and the status of the problem at the reactors (for example: Source Term).

PPP/500

From: LIA05 Hoc
Sent: Friday, April 01, 2011 3:27 PM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: FW: 50 Mile EPZ justification response

Additional information we may want to keep.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Blount, Tom
Sent: Monday, March 28, 2011 12:49 PM
To: ET05 Hoc
Cc: Weber, Michael; McDermott, Brian
Subject: FW: 50 Mile EPZ justification response

The below has been sent to close out the requested information....
FYI

From: LIA08 Hoc
Sent: Monday, March 28, 2011 11:58 AM
To: Franovich, Mike; Blount, Tom
Subject: FW: 50 Mile EPZ justification response

For your info. Jeff Temple

From: LIA08 Hoc
Sent: Monday, March 28, 2011 11:56 AM
To: Franovich, Mike; Orders, William; Snodderly, Michael; Castleman, Patrick; Marshall, Michael; Batkin, Joshua; Hipschman, Thomas
Cc: LIA06 Hoc
Subject: FW: 50 Mile EPZ justification response

Attached for your info is an email sent by the Ops Center Liaison Team to Mr. Takashi regarding questions he raised about the 50 mile evacuation recommendation we made for US Citizens in Japan. Please let me know if you have any questions or would like additional information about this.

Jeff Temple
Response Program Manager
Liaison Team/Interagency Response Team/Corporate Support Response Team
301-816-5185

From: LIA03 Hoc
Sent: Monday, March 28, 2011 11:07 AM
To: takashi.inutsuka@mofa.go.jp
Cc: Doane, Margaret; Mamish, Nader; LIA02 Hoc; LIA08 Hoc; Borchardt, Bill; LIA03 Hoc
Subject: 50 Mile EPZ justification response

On behalf of Bill Borchardt, we are responding to your questions:

1. In the NRC NEWS, March 16, 2011, there are attachments of the results of two sets of computer calculations. One, 15 March 2010 02:51am (EDT), has a hypothetical, single-reactor site, 2350 MWT, Boiling Water Reactor. On the other hand, 16 March 2010 12:24pm (EDT), has a hypothetical, four-reactor site. But in these attachments there is no detailed assumption for calculations about

(1) the power and type of reactor for the four-reactor site,
(2) weather, wind direction and speed, and the status of the problem at the reactors (for example: Source Term).

Q1: Are these sentences correct?

A1: These sentences are correct. Although the press release identified one of the computer calculations being based on a hypothetical four-reactor site, the source term used in the calculation was the approximate activity available for release from one reactor and two spent fuel pools.

Q2: Have you ever explained these detailed assumptions to the public?

A2: The assumptions have been generally described in press releases, interviews, and congressional testimony.

Q3: Could you explain the relation between the number of Total EDE and 1rem (PAGs)? For example 8.1rem (15 March calculation) and 9.9rem (16 March calculation), 50 mi, and 1rem? Could you also explain the relation between the number of Thyroid CDE and 5rem (PAGs)? For example 23rem (15 March calculation) and 48rem (16 March calculation), 50 mi, and 5rem? Is there no need to calculate this for distances greater than 50 mi?

A3: As stated in the press release, these two computer calculations are hypothetical, rough estimates that would not necessarily characterize an actual release. Although the calculation references have TEDE and CDE doses exceeding PAGs beyond 50 miles, these were only two of several cases run. Given that other cases projected PAG doses less than 50 miles and there would be time to extend our recommendations beyond 50 miles, if necessary, the 50 mile recommendation was considered appropriate to protect US citizens.

2. At the White House Regular Briefing, March 17, 2011, Chairman Jaczko said, "We have a team of 11, some of our best technical experts in Tokyo, and they are working with counterparts from the utility in Tokyo as well as other individuals with the government. So that is one of the sources. We are collecting data from as many places as we can to make the best judgments we can with the information available. But I would stress that this is a very difficult situation. There is often conflicting information. And so we made what we thought was a prudent decision."

Q4: Does this statement accurately reflect the NRC's decisionmaking process that led to the recommendation (50 miles)?

A4: Yes.

Q5: Did NRC have evidence to suggest that radiation levels around Fukushima were higher than what Japanese officials had said?

A5: No. The NRC had very limited radiation level information at this time. The computer calculations and subsequent protective action decisions were based on conservative assumptions based on limited information and the deteriorating state of several reactors and spent fuel pools.

3. At the meeting of NRC, March 21, 2011, you said, "the situation that led to the 50 mile guidance in Japan was based upon what we understood and still believe had existed that there were degraded conditions in two spent-fuel pools at the site and, in all likelihood, some core damage in three of the reactor units. Based on the situation as we understood it at that time, we thought it was prudent to provide the recommendation to the ambassador to evacuate out to 50 miles in Japan."

Q6: Does this statement accurately reflect the NRC's decisionmaking process that led to the recommendation (50 miles)?

A6: Yes.

Q7: There are some differences on the basis for making recommendation between 1. and 3. Could you explain the basis for making the recommendation (50 miles) again?

A7: The comments made by NRC Chairman Jaczko and Mr. Borchardt were consistent in that seriously degrading conditions at several Daiichi units supported a need to take pre-emptive protective action. The computer calculations helped to provide perspective on possible impacts.

Q8: I understand the recommendation is prudent. How do you define "prudent" in the assumptions for your calculations? in the decision about the distance?

A8: Since communications were limited and there was a large degree of uncertainty about plant conditions at the time, it was difficult to accurately assess the radiological hazard. Computer models used meteorological model data appropriate for the Fukushima Daiichi vicinity. Source terms were based on hypothetical, but not unreasonable estimates of fuel damage, containment, and other release conditions. Subsequent modeling can be correlated with the ground deposition as observed in flyover and other monitoring data. Therefore, prudent (reasonable conservative protective actions made with a predictive approach to limit radiation exposure to US citizens) can be substantiated based on the conditions present and the information known at the time.

If you have additional questions please contact Mr. Borchardt at the email address above.

From: Weber, Michael
Sent: Monday, March 28, 2011 9:00 AM
To: Moore, Scott; Lewis, Robert
Cc: Borchardt, Bill; Batkin, Joshua; Coggins, Angela; LIA06 Hoc; LIA08 Hoc; ET07 Hoc; ET05 Hoc; OST02 HOC; FOIA Response.hoc Resource; Itzkowitz, Marvin; Powell, Amy; Schmidt, Rebecca
Subject: FYI - Illinois Senate -Energy Hearing

Mark is preparing to participate in this hearing in the Illinois Senate on Thursday morning using the same testimony that Cindy used last week.

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

From: Satorius, Mark
Sent: Monday, March 28, 2011 8:37 AM
To: Virgilio, Martin; Weber, Michael
Cc: Schmidt, Rebecca; Barker, Allan; Heck, Jared; Miller, Charles; Moore, Scott; Boland, Anne; Pederson, Cynthia; Shear, Gary; Holt, BJ; Loudon, Patrick; OBrien, Kenneth; Sotiropoulos, Dina; Reynolds, Steven; West, Steven
Subject: FW: Illinois Senate -Energy Hearing

Gents - sending this to both of you, as this affects both Marty as my supervisor and Mike because the Agreement State program rests w/ FSME. We are gathering more info and I have a call into Charlie to coordinate. It appears that basically the same cast of characters are being requested as those participating last Friday, and I believe we should support this request. Request was for Cindy (now me w/ her on leave), an Exelon Sr Exec (I understand the Exelon rep from last week, Chip Pardee will be going), and probably the Illinois Emerg Mana Agency director. We did a lot of work preparing written testimony and extensive Q&A's for last week, and I would intend to us that after a scrub to ensure the latest info is provided. More forthcoming. Mark

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

From: Barker, Allan
Sent: Monday, March 28, 2011 7:05 AM
To: Satorius, Mark
Cc: Heck, Jared; Logaras, Harral
Subject: FW: Illinois Senate -Energy Hearing

Mark,

I talked to Mr. Mossos late Friday about this request. He attended the hearing downtown Chicago where Cindy represented the agency. Her presentation was excellent, and also aligned with their need. I will request additional information this morning on the format of the hearing.

Allan

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

From: Mossos, Elias "Louie" [mailto:EMossos@senatedem.ilga.gov]
Sent: Friday, March 25, 2011 3:55 PM
To: Barker, Allan
Subject: Illinois Senate -Energy Hearing

PPP/561

Thanks for your help, Allan.

The Illinois Senate will have a subject matter hearing in Springfield on Thursday, March 31, at 8:30 am in Room 212 of the State Capitol. The hearing will focus on nuclear safety and preparedness.

We would appreciate it if an NRC representative were available to testify regarding the current safety and preparedness measures that are in place.

Thank you.

Elias "Louie" Mossos
Senior Legal Counsel
Office of the Senate President
State House, Room 611A
Springfield, Illinois 62706
Telephone: 217-557-5943
Facsimile: 217-782-1631

From: Pederson, Cynthia
Sent: Monday, March 28, 2011 4:00 PM
To: ET05 Hoc
Subject: Out of Office: Illinois State Energy Hearing

I will be out of the office March 25 to April 4 and will not be checking my e-mail. Please contact Mark Satorius at 630-829-9657 or Tammy Tomczak at 630-829-9658 for assistance .

thanks, Cindy

APP/562

From: ET05 Hoc
Sent: Monday, March 28, 2011 6:09 PM
To: RST01 Hoc
Subject: FW: Likely questions from Sen. Bingaman tomorrow

Importance: High

From: Zimmerman, Roy
Sent: Monday, March 28, 2011 6:02 PM
To: ET05 Hoc
Cc: Brown, Frederick
Subject: FW: Likely questions from Sen. Bingaman tomorrow
Importance: High

Only questions 2 and 4.....pls assign to RST.....due nlt 7:00am Tuesday morning, thx

From: Borchardt, Bill
Sent: Monday, March 28, 2011 5:56 PM
To: Zimmerman, Roy
Subject: FW: Likely questions from Sen. Bingaman tomorrow
Importance: High

Roy,
As we discussed I'd appreciate the teams help developing a few key talking points for the below questions. I don't need help with Qs 1& 3.
Thanks
Bill

From: Powell, Amy
Sent: Monday, March 28, 2011 5:45 PM
To: Borchardt, Bill
Cc: Schmidt, Rebecca
Subject: Likely questions from Sen. Bingaman tomorrow
Importance: High

Bill –

Here are the questions Sen. Bingaman's staff provided for him to ask you tomorrow (of course, the Senator may well ad-lib)...

1. Mr. Borchardt – can you please explain what were the parameters or data the NRC used to determine a 50 km evacuation zone for U.S. citizens?

PPP/5/03

2. Mr. Borchardt – how many U.S. reactors are of the basic design at Fukushima and of those how many are scheduled for re-licensing?
3. Mr. Borchardt – the NRC is licensing several new reactors that contain “passive” safety features – can you please describe these and what advantages they offer relative to the boiling water reactors at Fukushima I.
4. Mr. Borchardt – what limits reactor operators in the U.S. from moving spent fuel from the ponds to dry cask storage at a faster rate?

Amy

Amy Powell
Associate Director
U. S. Nuclear Regulatory Commission
Office of Congressional Affairs
Phone: 301-415-1673

From: LIA02 Hoc
Sent: Monday, March 28, 2011 9:10 PM
To: Emche, Danielle; LIA03 Hoc
Subject: RE: Updated dates

Thanks Danielle

Cindy

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

From: Emche, Danielle
Sent: Monday, March 28, 2011 9:07 PM
To: LIA03 Hoc
Cc: LIA02 Hoc
Subject: Re: Updated dates

Ok, for Chuck the new date is 4/12 and John 4/5.
Danielle
Sent from an NRC BlackBerry.

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

From: LIA03 Hoc
To: Emche, Danielle
Cc: LIA02 Hoc
Sent: Mon Mar 28 20:45:02 2011
Subject: RE: Updated dates

Danielle,

The only information I have is what is currently on the Japanese traveler documents. It shows a return for John Monninger on March 29 and for Chuck Casto the document reflects" update 3/28: staying on, not yet given new ticket for return" I have no other information nor have I heard anything else. Do you need our assistance with anything?

Nancy

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

From: Emche, Danielle
Sent: Monday, March 28, 2011 8:39 PM
To: LIA03 Hoc
Subject: Updated dates

Do you have John and Chuck extension dates? Believe for now, one week added for Monninger and 2 weeks out (4/12) for Chuck.

Danielle
Sent from an NRC BlackBerry.

PROP 544

From: LIA02 Hoc
Sent: Tuesday, March 29, 2011 4:20 PM
To: Smith, Brooke; Emche, Danielle; Casto, Chuck; Dorman, Dan
Cc: LIA03 Hoc; LIA06 Hoc; LIA08 Hoc
Subject: POC request

We need a team member to be the POC for the Consortium effort that will include vetting the "Japanese Government Action Items and Materials Request List to be Considered by the Consortium" and participate in future daily meetings starting March 31 at 8am Japan time. Please let us know if this time does NOT work for the POC. Once we have the name of the POC we will forward the list and other pertinent information.

Please let us know if you have any questions.

Thanks.

Nancy

Prop 7505

From: LIA03 Hoc
Sent: Monday, March 28, 2011 8:26 PM
To: LIA06 Hoc; LIA08 Hoc
Subject: FW: IAEA meeting?

This is what Roy was inquiring about.

Nancy

From: Schwartzman, Jennifer
Sent: Monday, March 28, 2011 7:41 PM
To: LIA03 Hoc; 'ShafferMR@state.gov'
Cc: LIA02 Hoc
Subject: RE: IAEA meeting?

Yes - see: <http://www.iaea.org/newscenter/news/emergencyresponse.html>

From: LIA03 Hoc
Sent: Monday, March 28, 2011 7:12 PM
To: 'ShafferMR@state.gov'
Cc: Schwartzman, Jennifer; LIA02 Hoc
Subject: IAEA meeting?

Mark,

Roy Zimmerman said he heard on the radio that IAEA was going to hold a meeting to talk about assistance for Japan. Do you know anything about this? This is the only information that he provided.

Thanks.

Nancy

ppp/566

From: Shaffer, Mark R <ShafferMr@state.gov>
Sent: Tuesday, March 29, 2011 2:18 AM
To: LIA03 Hoc
Cc: LIA02 Hoc; Schwartzman, Jennifer
Subject: RE: IAEA meeting?

Jennifer's note below refers to yesterday's announcement by DG Amano...."High Level Conference Called to Strengthen Nuclear Safety and Emergency Response." This will take place in June here in Vienna. But, it is not to talk about assistance to Japan? Maybe the media got it wrong after the daily press conference?

This email is UNCLASSIFIED.

From: Schwartzman, Jennifer [mailto:Jennifer.Schwartzman@nrc.gov]
Sent: Tuesday, March 29, 2011 1:41 AM
To: LIA03 Hoc; Shaffer, Mark R
Cc: LIA02 Hoc
Subject: RE: IAEA meeting?

Yes - see: <http://www.iaea.org/newscenter/news/emergencyresponse.html>

From: LIA03 Hoc
Sent: Monday, March 28, 2011 7:12 PM
To: 'ShafferMR@state.gov'
Cc: Schwartzman, Jennifer; LIA02 Hoc
Subject: IAEA meeting?

Mark,

Roy Zimmerman said he heard on the radio that IAEA was going to hold a meeting to talk about assistance for Japan. Do you know anything about this? This is the only information that he provided.

Thanks.

Nancy

APP/567

From: Emche, Danielle
Sent: Tuesday, March 29, 2011 4:06 AM
To: LIA02 Hoc; LIA03 Hoc
Subject: Info

Another bit of news, Tony Nakanisha is here until Friday. We still have IT issues, (for me no voice mail, although I'm ready to give up and stop reporting this). A bigger issue is with citrix for a few laptops here. We've contacted Robert Heard and Karen Jackson.

Can you confirm in the notes whether PMT ever contacted Taiwan?? I don't know why this keeps falling off the radar.
Danielle
Sent from an NRC BlackBerry.

10/29/11 5:10 PM

From: ET02 Hoc
Sent: Tuesday, March 29, 2011 4:35 PM
To: ET07 Hoc
Subject: FW: California Coastal Commission Report
Attachments: Tohoku_Earthquake_Report.pdf; image001.png

From: ET01 Hoc
Sent: Tuesday, March 29, 2011 4:35:10 PM
To: ET02 Hoc
Subject: FW: California Coastal Commission Report
Auto forwarded by a Rule

From: Wiggins, Jim
Sent: Tuesday, March 29, 2011 4:35:08 PM
To: ET01 Hoc; RST01 Hoc
Subject: Fw: FYI: California Coastal Commission Report
Auto forwarded by a Rule

From: Evans, Michele
To: Holahan, Patricia; McDermott, Brian; Layton, Michael; Morris, Scott; Erlanger, Craig; Caldwell, Robert; Wiggins, Jim; Rheaume, Cynthia; Abraham, Susan
Sent: Tue Mar 29 09:37:50 2011
Subject: FW: FYI: California Coastal Commission Report

In case you are planning any west coast trips...

From: Nelson, Robert
Sent: Tuesday, March 29, 2011 8:36 AM
To: Leeds, Eric; Boger, Bruce; Grobe, Jack; Landau, Mindy; Roberts, Darrell; Kennedy, Kriss; Lara, Julio; Croteau, Rick; Steger (Tucci), Christine; LIA06 Hoc; Bahadur, Sher; Blount, Tom; Brown, Frederick; Cheok, Michael; Evans, Michele; Ferrell, Kimberly; Galloway, Melanie; Giitter, Joseph; Givvines, Mary; Hiland, Patrick; Holian, Brian; Howe, Allen; Lee, Samson; Lubinski, John; McGinty, Tim; Quay, Theodore; Ruland, William; Skeen, David; Thomas, Brian; Westreich, Barry; Guzman, Richard; Lyon, Fred; Markley, Michael; Meighan, Sean; Nguyen, Quynh; Oesterle, Eric; Polickoski, James; Tam, Peter; Thomas, Eric
Cc: West, Steven; Shear, Gary; Burnell, Scott; Broaddus, Doug; Campbell, Stephen; Carlson, Robert; Chernoff, Harold; Kulesa, Gloria; Pascarelli, Robert; Salgado, Nancy; Simms, Sophonia; Wall, Scott
Subject: FYI: California Coastal Commission Report

The California Coastal Commission has released, "THE TÔHOKU EARTHQUAKE OF MARCH 11, 2011: A PRELIMINARY REPORT ON IMPLICATIONS FOR COASTAL CALIFORNIA." It is a public document and is attached.

PPP/569

From: LIA08 Hoc
Sent: Tuesday, March 29, 2011 8:56 AM
To: Murray, Charles
Subject: FW: FYI: California Coastal Commission Report
Attachments: Tohoku_Earthquake_Report.pdf; image001.png

From: LIA06 Hoc
Sent: Tuesday, March 29, 2011 8:50 AM
To: RST01 Hoc
Cc: LIA08 Hoc
Subject: FW: FYI: California Coastal Commission Report

FYI

Liaison Team Director
U.S. Nuclear Regulatory Commission
Operations Center

From: Nelson, Robert
Sent: Tuesday, March 29, 2011 8:36 AM
To: Leeds, Eric; Boger, Bruce; Grobe, Jack; Landau, Mindy; Roberts, Darrell; Kennedy, Kriss; Lara, Julio; Croteau, Rick; Steger (Tucci), Christine; LIA06 Hoc; Bahadur, Sher; Blount, Tom; Brown, Frederick; Cheok, Michael; Evans, Michele; Ferrell, Kimberly; Galloway, Melanie; Giitter, Joseph; Givvines, Mary; Hiland, Patrick; Holian, Brian; Howe, Allen; Lee, Samson; Lubinski, John; McGinty, Tim; Quay, Theodore; Ruland, William; Skeen, David; Thomas, Brian; Westreich, Barry; Guzman, Richard; Lyon, Fred; Markley, Michael; Meighan, Sean; Nguyen, Quynh; Oesterle, Eric; Polickoski, James; Tam, Peter; Thomas, Eric
Cc: West, Steven; Shear, Gary; Burnell, Scott; Broaddus, Doug; Campbell, Stephen; Carlson, Robert; Chernoff, Harold; Kulesa, Gloria; Pascarelli, Robert; Salgado, Nancy; Simms, Sophonia; Wall, Scott
Subject: FYI: California Coastal Commission Report

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The report provides: a description of the Tōhoku Earthquake and tsunami effects; an evaluation of whether the seismic characteristics of the Tōhoku Earthquake are applicable to the California coast; and a brief description of the earthquake and tsunami risks at California's three coastal nuclear facilities. The Executive Summary is repeated below.

- **The vast majority of faults in California, including the San Andreas fault, could not produce a magnitude 9 earthquake.**
Most of California is not susceptible to an event of the scale of the Tōhoku Earthquake. Nevertheless, it is important not to become complacent; large earthquakes are inevitable throughout coastal California, and could be devastating in their own right. There is a large population and much infrastructure at risk in central and southern coastal California.
- **The Cascadia Subduction Zone could produce a magnitude 9 earthquake similar to the Tōhoku Earthquake.**

The northern part of the coastal California, as well as all of coastal Oregon, Washington, and part of coastal British Columbia—the Cascadia Subduction Zone—is susceptible to an earthquake and tsunami event similar to that of the Tōhoku Earthquake. Emergency response scenarios and land use planning must take this into account.

- **A nuclear emergency such as is occurring in Japan is extremely unlikely at the state's two operating nuclear power plants.**

The combination of strong ground motion and massive tsunami that occurred in Japan cannot be generated by faults near the San Onofre Nuclear Generating Station and the Diablo Canyon Power Plant. Nevertheless, the geologic conditions near those plants are very likely different than previously believed and ongoing study is warranted. This has been understood for at least the past three years, and some of these studies, and the environmental planning process for other such studies, are underway.

If you already received this from Annie Kammerer, I apologize for the duplicate.

R.A. Nelson

Robert A. Nelson
NRR External Communications Coordinator, Japan Event
Deputy Director
Division of Operating Reactor Licensing
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March 24, 2011

**THE TŌHOKU EARTHQUAKE OF MARCH 11, 2011: A PRELIMINARY REPORT
ON IMPLICATIONS FOR COASTAL CALIFORNIA**

To: Commissioners and interested parties
From: Mark Johnsson, Staff Geologist

This report is intended to help the Commission place the recent events in Japan in context and to provide perspective for their possible implications to coastal California, based on preliminary information known at this early date. The discussion below includes the following:

- A description of the Tōhoku Earthquake and tsunami effects
- An evaluation of whether the seismic characteristics of the Tōhoku Earthquake are applicable to the California coast
- A brief description of the earthquake and tsunami risks at California's three coastal nuclear facilities

References and links to web resources can be found at the end of this report. Some words or phrases are further explained in an appendix. These words or phrases are marked in *bold italics* where they first occur.

EXECUTIVE SUMMARY

- **The vast majority of faults in California, including the San Andreas fault, could not produce a magnitude 9 earthquake.**
Most of California is not susceptible to an event of the scale of the Tōhoku Earthquake. Nevertheless, it is important not to become complacent; large earthquakes are inevitable throughout coastal California, and could be devastating in their own right. There is a large population and much infrastructure at risk in central and southern coastal California.
- **The Cascadia Subduction Zone could produce a magnitude 9 earthquake similar to the Tōhoku Earthquake.**
The northern part of the coastal California, as well as all of coastal Oregon, Washington, and part of coastal British Columbia—the Cascadia Subduction Zone—is susceptible to an

earthquake and tsunami event similar to that of the Tōhoku Earthquake. Emergency response scenarios and land use planning must take this into account.

- **A nuclear emergency such as is occurring in Japan is extremely unlikely at the state's two operating nuclear power plants.**

The combination of strong ground motion and massive tsunami that occurred in Japan cannot be generated by faults near the San Onofre Nuclear Generating Station and the Diablo Canyon Power Plant. Nevertheless, the geologic conditions near those plants are very likely different than previously believed and ongoing study is warranted. This has been understood for at least the past three years, and some of these studies, and the environmental planning process for other such studies, are underway.

The Tōhoku Earthquake and Tsunami

The magnitude 9.0 Tōhoku Earthquake of March 11, 2011, the fourth most powerful earthquake measured by modern instruments (since about the year 1900), occurred at the interface between the *Pacific* and *North America plates*. Two days prior to the earthquake, a magnitude 7.2 earthquake occurred near what would be the *epicenter* of the Tōhoku Earthquake. It was followed by three aftershocks in the magnitude 6 range later that day. In retrospect, these earthquakes can be viewed as foreshocks to the magnitude 9.0 event that followed. The *hypocenter* of the Tōhoku Earthquake was located 81 miles off the east coast of the Oshika Peninsula, part of the Tōhoku region of the island of Honshu, near the city of Sendai, at a depth of 20 miles below the seafloor.

Over the next several days, hundreds of aftershocks, the largest of magnitude 6.8, outlined the area of the plate boundary that ruptured. Aftershocks extend to depths of about 340 miles, although most are above a depth of 125 miles. As of March 23, some 726 aftershocks have been recorded, 26 of them magnitude 6.0 or greater, and they are expected to continue, at a decreasing frequency, for the next several years.

The Tōhoku Earthquake is what is termed a “*megathrust earthquake*,” a major *subduction zone* earthquake whereby the Pacific plate suddenly lurched beneath the North America plate. The affected portion of the North America plate is a westward and southward extension of the plate from the Alaska region that underlies eastern Siberia and the northern Sea of Japan. Some geologists divide this geologically complex region into a number of microplates (for a representation of the geometry of these plates, see <http://pubs.usgs.gov/gip/dynamic/slabs.html>).

The area of the plate boundary that *ruptured* during this earthquake was about 190 miles long and 90 miles wide, which is larger than the areas of San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Diego counties combined. At the location of the earthquake, *oceanic crust* of the Pacific plate is being thrust under oceanic crust of the North America plate at an angle of about 15 degrees, creating the Japan Trench, a bathymetric trough on the seafloor. The average rate of this movement is approximately 83 mm/yr, one of the higher rates of *plate*

convergence in the world. Much of this movement occurs episodically in earthquakes such as the Tōhoku Earthquake.

The Tōhoku Earthquake was accompanied by violent and long-lasting ground shaking. The highest measured **ground acceleration** was a devastating 2.75 g¹, measured over 80 miles from the epicenter, although most stations relatively near the epicenter reported ground accelerations more on the order of 1.0 g. Ground shaking intensity reached a **Modified Mercalli Intensity** of IX (Violent), and resulted in widespread damage. Damaging secondary effects included liquefaction, lateral spread, and landslides.

The most damaging secondary effect of the earthquake was the resulting tsunami. Megathrust earthquakes of this magnitude occurring beneath the sea at relatively shallow depths always produce large tsunamis and the Tōhoku Earthquake was no exception. About 15 minutes after the earthquake, a tsunami with an amplitude of about 30 feet hit the shoreline. The first wave swept up to six miles inland in flat regions, leveling buildings, and sweeping debris, buildings, ships, vehicles, and airplanes far inland.

The tsunami caused the loss of power, and disabled backup generators, at the Fukushima 1 nuclear power plant. The subsequent loss of coolant in several reactors and spent fuel storage pools resulted in explosions, fires, and partial core meltdowns in at least three nuclear reactors, and the release of radiation to the environment.

The full extent of the damage resulting from the Tōhoku earthquake and tsunami is still unknown and will likely be unknown for some time. Given the thousands of lives that have been lost, the billions of dollars worth of property and infrastructure destroyed, and the ongoing nuclear emergency, it is natural to ask how vulnerable California is to a similar event.

Does the Tōhoku quake increase the likelihood of a similar event in California?

Despite some alarmist articles that have appeared in the press, there is no reason to believe that this earthquake has in-and-of-itself raised the likelihood of an earthquake in California. Although there have been three very damaging earthquakes around the Pacific Rim in just the last year, they are not related in a geologic sense.

The magnitude 8.8 southern Chilean earthquake of 27 February 2010 was a major subduction zone earthquake similar in many ways to the Tōhoku Earthquake, but it occurred on a separate plate boundary (the Nazca/South America plate boundary) with no connection to the Pacific or North America plates.

¹ Ground shaking during earthquakes is measured by how fast the earth moves, both horizontally and vertically. It is expressed as a comparison to the force of gravity – that is, the acceleration (which is the rate of change in speed) of the ground relative to the acceleration caused by gravity (or g-force). For instance, ground shaking of 1.0g is equal to the acceleration caused by gravity, shaking of 0.5g is equal to half the acceleration of gravity, etc. For any location and earthquake, this value varies based on a number of factors, including the area of the fault plane that slipped, depth of the earthquake, distance from the epicenter, and the underlying site geology.

The magnitude 7.1 Canterbury Earthquake of September 4, 2010 near Christchurch, New Zealand, together with its destructive February 22, 2011 magnitude 6.3 aftershock, was not a major plate boundary earthquake, but rather a significant earthquake on shallow crustal faults. The fact that its major aftershock (dubbed the Christchurch Earthquake) was so damaging is more a product of its location and shallow depth than of its significance as a geologic phenomenon.

The relatively recent magnitude 9.1 and 8.6 earthquakes of 2004 and 2005 off the island of Sumatra were far removed from the Pacific plate, and most seismologists do not feel that stress transfer to the Pacific plate occurred as a result of these events.

Although geologists are increasingly realizing that large earthquakes may load stress on adjacent faults, there is no connection between the faults associated with any of these earthquakes and any faults in California. The United States Geological Survey (USGS) writes on their website for the event:

The USGS does not believe that the earthquakes in Japan have significantly raised the probability of future major earthquakes. While the probability of future large earthquakes far from northern Honshu has not increased, neither has it decreased and large earthquakes will continue to occur just as we have observed in the past.

Could an earthquake of this magnitude occur in California?

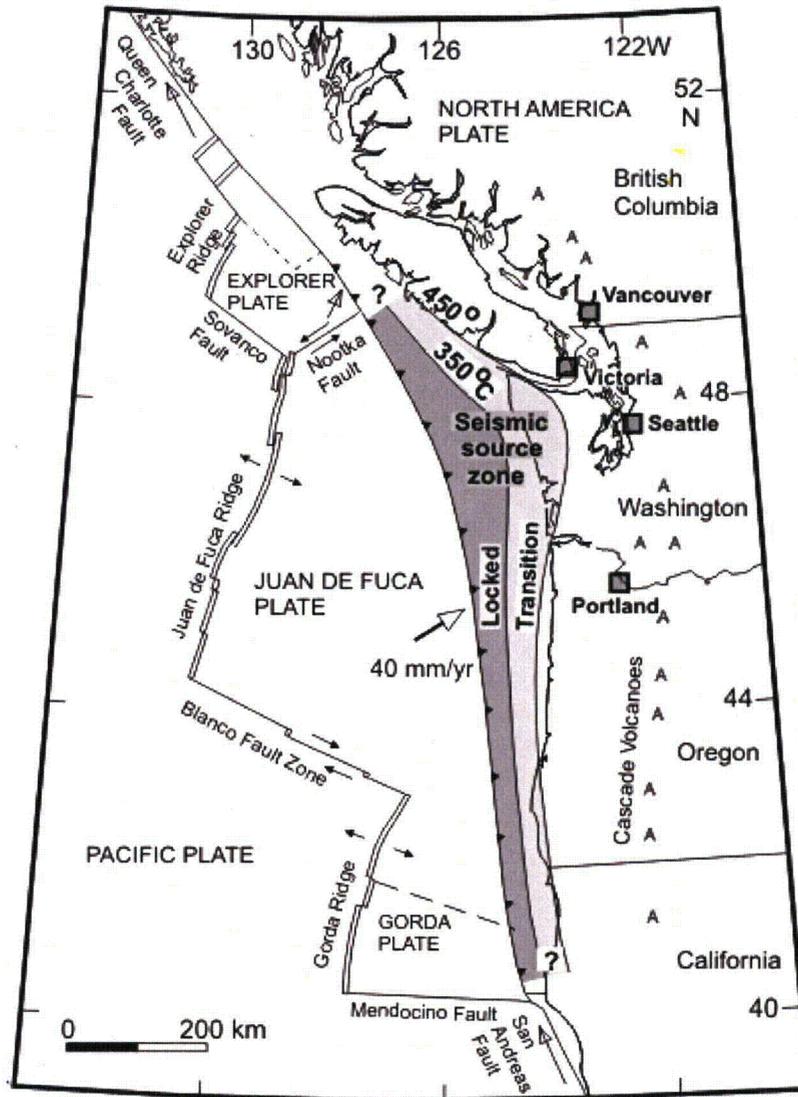
Most faults in California are incapable of an earthquake of the magnitude of the Tōhoku Earthquake. A magnitude 9 earthquake requires rupturing a fault surface thousands of square miles in area. The shallow faults making up most of the state's California's fault systems, including the San Andreas fault, simply do not have sufficient area to generate such an earthquake.

An important exception is the region north of Cape Mendocino, from about 25 miles south of Eureka to north of Vancouver, British Columbia, an area known as the Cascadia Subduction Zone. This region could generate an earthquake comparable to the Tōhoku Earthquake. There are important similarities, and some differences, between the Cascadia Subduction Zone and the part of the subduction zone off the Tōhoku region of Japan that ruptured during the Tōhoku Earthquake.

The Cascadia Subduction Zone

The Cascadia Subduction Zone lies off the Pacific Northwest, and is the zone where the Gorda, Juan de Fuca, and Explorer plates are being thrust beneath the overriding North America plate. Unlike the situation at the Japan Trench, where oceanic crust is thrust beneath other oceanic crust, here oceanic crust is thrust beneath continental crust. The Gorda, Juan de Fuca, and Explorer plates are separated from the Pacific plate by the Juan de Fuca and Gorda Ridges to the west and by the Mendocino Transform Fault to the south. Two prominent sets of fracture zones, healed *transform faults*, are zones of weakness and separate the Explorer plate to the north from

the Juan de Fuca plate to the south, and the Juan de Fuca plate from the Gorda plate further south. All three subplates are moving together, converging on the North America plate at a rate of about 40 mm/yr and diving beneath it at an angle of about 8 degrees, an angle that increases with depth. The upper portion of the subduction zone is locked (not moving), while the lower section is moving, thus creating great stress in the upper part of the subduction zone. Release of this stress will occur during the next megathrust earthquake.



Source: Geological Survey of Canada
http://gsc.nrcan.gc.ca/geodyn/cascadia_e.php

The Cascadia Subduction Zone, about 800 miles long, is thus divided into three segments. The longest segment, about 450 miles long, is the Juan de Fuca plate segment that lies off central and northern Oregon and Washington. The Juan de Fuca plate segment is flanked by the Explorer plate segment, off British Columbia, and the Gorda plate segment, off northern California and southern Oregon, each about 175 miles long. It is unknown if the segments typically rupture together, separately, or in pairs during megathrust earthquakes. This introduces some uncertainty into the estimation of the magnitude of megathrust earthquakes in the Cascadia Subduction Zone.

Nevertheless, most seismologists agree that a megathrust earthquake involving any of these plates would be in the magnitude 9 range, similar to the Tōhoku Earthquake.

Thirteen past megathrust earthquakes associated with the Cascadia Subduction Zone have been identified through submarine sediment deposits triggered by the earthquakes, tsunami deposits preserved on land, and deposits indicative of sudden land subsidence associated with the earthquakes. Of these past earthquakes, the last seven are reasonably well-dated:

Estimated Date	Recurrence Interval (yr)
26 January 1700, ~9:00 PM	780
780-1190 AD	210
690-730 AD	330
350-420 AD	910
660-440 BC	400
980-890 BC	250
1440-1340 BC	unknown

Reference: Atwater et al., 2005

The time of the most recent event is known with such precision because, even though there are no written records from North America, Japanese writings describe an “orphan tsunami” (one not accompanied by an earthquake) arriving in Japan at a time that would correspond to an earthquake on the Cascadia Subduction Zone at about 9:00 PM (local time) on January 26, 1700. This time and date are consistent with the geologic data, and with Yurok legends indicating that the earthquake and tsunami occurred early on a winter night in about that year.

The probability of another megathrust earthquake on the Cascadia Subduction Zone in any given upcoming time interval can be estimated from these recurrence interval data. The mean recurrence interval is 500-600 years. According to a study by Mazzotti and Adams (2004), this yields a probability of between 0 and 12 percent that the next megathrust earthquake will occur in the next 50 years.

However, close examination of the recurrence interval data show that they may be bimodal in distribution: three earthquakes in relatively quick succession, followed by a long pause; then three earthquakes, followed by a long pause, ending in the 1700 event. A sample size of seven events is too small to confirm that this is a real trend, but there are geologic reasons that such a bimodal recurrence interval distribution might make sense. Assuming a bimodal recurrence interval, with the two “modes” being recurrence intervals of 310 and 820 years, the probability of a megathrust earthquake occurring in the next 50 years rises to between 6 and 45 percent.

Finally, it has been recently discovered that, in addition to megathrust earthquakes, a significant amount of the convergence between the Juan de Fuca and North America plates is taken up by what has been termed “slow-slip” events. These are events, lasting one to three weeks and recurring every 13-15 months, when movement between the plates occurs at great depths without causing significant earthquakes. Mazzotti and Adams (2004) calculate that the chance of a

megathrust earthquake occurring during one of these slow-slip events is 30 to 100 times greater than between events.

To summarize, an earthquake and tsunami looking very much like the Tōhoku Earthquake is very likely in northern California. It is, however, very difficult to predict the probability of such an event in any given time interval. The interagency Cascadia Region Earthquake Workgroup (CREW) continues to study and prepare for the next megathrust earthquake. In 2005 they published a very useful and informative planning scenario, which can be found at <http://www.crew.org/papers/CREWCascadiaFinal.pdf>.

Implications for California Nuclear Power Plants and Spent Fuel Storage Facilities

There are two operating nuclear power plants in the California coastal zone and one nuclear plant undergoing decommissioning. The Diablo Canyon Power Plant (DCPP) in San Luis Obispo County and the San Onofre Nuclear Generating Station (SONGS) in northern San Diego County are operating power plants that hold current licenses from the Nuclear Regulatory Commission (NRC). The nuclear unit of the Humboldt Bay Power Plant (HBPP) near Eureka is being decommissioned, although highly radioactive spent fuel and other materials remain on site. A magnitude 9 earthquake near DCPP or SONGS is extremely unlikely. However, the Humboldt Bay plant is in close proximity to the Cascadia Subduction Zone and could be subject to a magnitude 9 earthquake.

All three facilities, including their spent fuel storage facilities, have been subject to numerous seismic investigations. During the permitting process for the Independent Spent Fuel Storage Installation (ISFSI) at each facility, Southern California Edison (SCE) and Pacific Gas and Electric (PG&E) undertook new geologic investigations; particularly extensive for Diablo Canyon and Humboldt Bay. These studies, along with studies undertaken for the original licensing of these plants, ongoing USGS and academic studies, and experience gained from geologically similar regions, were reviewed by the U.S. Nuclear Regulatory Commission (NRC), which ultimately released Final Safety Analysis Reports (FSARs) recommending approval of each facility.

During Coastal Commission review and permitting of each ISFSI, Commission staff reviewed all of this material, conducted independent research of published literature, interviewed knowledgeable parties, and conducted site visits at and around each facility, prior to recommending that the Commission approve each facility. The Commission's adopted findings for each approval can be found at:

DCPP: <http://www.coastal.ca.gov/energy/W5a-1-2005.pdf>

SONGS: <http://www.coastal.ca.gov/energy/e-00-14rf.pdf>

HBPP: <http://www.coastal.ca.gov/energy/Th6a-9-2005.pdf>

The expected earthquake and tsunami risk at each facility is described briefly below.

Diablo Canyon Nuclear Power Plant

Earthquake Concerns: Although a magnitude 9 earthquake is extremely unlikely near the DCP, a magnitude 7.2 earthquake on the Hosgri Fault, lying only 3 miles offshore, is currently considered possible.

The Hosgri Fault was discovered during the construction of the plant. In 1975 the NRC, in conjunction with the USGS, concluded that the Hosgri Fault is capable of a magnitude 7.5 earthquake, and that ground shaking at DCP could be as high as 0.75 g. PG&E retrofitted the plant in 1978 to withstand that level of ground shaking. In 1978 the NRC required the implementation of a Long Term Seismic Program, through which the seismic safety at the plant would be continuously reevaluated. In 1991, NRC approved a report from PG&E that, using improved earthquake models, showed that the maximum credible earthquake on the Hosgri fault was of magnitude 7.2, but that ground shaking at DCP would be as high as 0.83 g. PG&E demonstrated to the satisfaction of the NRC that the plant had been retrofitted in 1978 with adequate safety margins to withstand that level of ground shaking.

The most recent study submitted to the NRC by PG&E examined ground shaking that would result from an earthquake on the newly discovered "Shoreline Fault" located less than 0.5 miles from the reactor building. Preliminary results of those studies indicate that the potential ground shaking from this fault will be less than those used in the initial plant design. The report of these studies, available at <http://diablocanyonpge.com/home/resources/shoreline-fault-zone-report-with-plates.html> is currently under review by the NRC, as well as by state geologists from a number of agencies, including the Coastal Commission.

As discussed below, AB 1632 required that the State prepare a report making recommendations to facilitate assessing, among other things, the seismic safety of DCP and SONGS. One of the recommendations in that report is for further detailed investigation not only of the Shoreline Fault, but of the total seismic environment of the plant. These studies are currently underway. The proposed high-energy studies meant to identify seismic characteristics deep below the plant and surrounding area will be subject to CEQA review and will require review and permitting by the Coastal Commission.

Tsunami Concerns: DCP is located at an elevation of 85 feet above mean sea level (MSL), atop a high coastal bluff. It is effectively above the range of any conceivable earthquake-induced tsunami, and is mapped as lying outside of the tsunami inundation zone on the Tsunami Inundation Maps recently released by the California Emergency Management Agency, California Geological Survey, and the University of Southern California.

San Onofre Nuclear Generating Station

Unit 1 of the San Onofre Nuclear Generating Station was commissioned in 1968, and was designed to resist ground shaking of 0.67g corresponding to a magnitude 7.0 earthquake on the nearby Newport-Inglewood-Rose Canyon Fault system. Units 2 and 3 were commissioned in

1983 and 1984 to the same design standard. Unit 1 was decommissioned in 1992, but radioactive portions of the reactor still remain at the plant.

Earthquake Concerns: Although a magnitude 9 earthquake is extremely unlikely near SONGS, a few studies indicate that an earthquake larger than the design-basis earthquake may be possible near the reactor site. The Commission considered these studies in its findings for the ISFSI approval in June 2001 and concluded that:

...there appears to be credible evidence that, in addition to the strike-slip faulting recognized at the time of the SONGS licensing review, thrust faults exist in the area offshore of the SONGS site which might interact with the Newport-Inglewood-Rose Canyon fault system in a complex way during an earthquake. If these faults are active or potentially active, the increase in potential fault rupture area has, at a minimum, the potential to increase the magnitude of an earthquake on the integrated fault system. Geologists' understanding of this area is rapidly evolving, and there are few constraints on the parameters needed to assess the increase in earthquake risk (such as slip rate on each of the potentially active faults, segmentation of the faults, and potential for cascading failure between fault segments). One of the few published estimates is that of Shaw and his students (Rivero et al., 2000), who hypothesize that the combined system may be capable of an earthquake ranging from M_w 7.1 to 7.6, depending on which sets of faults are involved in the earthquake...

Shaw's tectonic model for the area is, however, quite controversial (Jones, USGS, pers. comm., 2001). Commission staff consulted with seismologists and geologists at the U.S. Geological Survey, California Division of Mines and Geology, California Seismic Safety Commission, within academia, and at private consulting firms. Although there was near unanimous recognition that there is an increased earthquake risk given our emerging understanding of the complexities of the region relative to a simple strike-slip model used in the SONGS seismic hazard assessments, no one could assess the potential ground shaking that might be expected at the SONGS site.

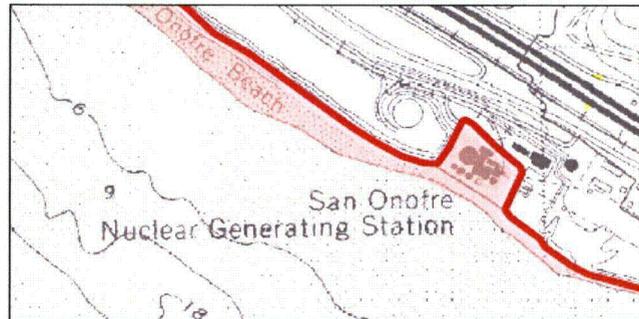
The Commission thus finds that there is credible reason to believe that the design basis earthquake approved by the NRC at the time of the licensing of SONGS 2 and 3—a magnitude 7.0 earthquake on the Newport-Inglewood-Rose Canyon fault system 8 km from the site, resulting in ground shaking with a high frequency component peaking at 0.67 g—may underestimate the seismic risk at the site. This does not mean that the facility is unsafe—although the design basis earthquake may have been undersized, the plant was engineered with very large margins of safety, and would very likely be able to attain a safe shutdown even given the larger ground accelerations that might occur during a much larger earthquake.

Tsunami Concerns: Tsunami run up and inundation were considered by the SCE and NRC for permitting of the SONGS facility. However, more recent examinations indicate that a larger earthquake or a large submarine landslide could generate a tsunami larger than that considered by SCE or the NRC. The potential tsunami risk was included in the Commission's findings for the ISFSI permit which concluded:

These studies suggest that large local-source tsunamis could be generated by mechanisms other than those considered during licensing for SONGS 2 and 3, the basis for the 1995 SCE report. However, there have been no local runup studies based on this mechanism that are widely agreed upon, and certainly none for the SONGS site itself. As Dr. [Mark] Legg indicates, tsunami runup maps are currently being prepared for San Diego County by individuals at the University of Southern California in conjunction with the Office of Emergency Services, but they are not currently available.

Commission staff accordingly concludes that although the proposed project may be threatened by tsunami, the major effect from an earthquake-generated tsunami would be site inundation. Possible inundation has been factored into the [ISFSI] project design, and it would not adversely [a]ffect the stability of the site. There is also a potential for a submarine landslide to generate a tsunami that could threaten this site; however, current mapping and modeling do not provide any information of how the site would be [a]ffected by such an event.

The maps mentioned have since been produced, and they do, in fact, place the SONGS facility in the tsunami inundation zone:



The SONGS site was excavated into the coastal bluff and the nuclear reactors are located at an elevation of less than 20 feet MSL. The tsunami inundation line calculated for this area is at an elevation of approximately 20 feet MSL, and the plant is protected by a 30-foot seawall. Thus, it appears to be protected from the modeled set of tsunamis underlying the state map. How the inundation line on the state map might change if it included the magnitude 7.6 thrust earthquake postulated by Shaw and others is not, however, known. Further study of the tsunami risk at the SONGS facility appears warranted.

Humboldt Bay Power Plant

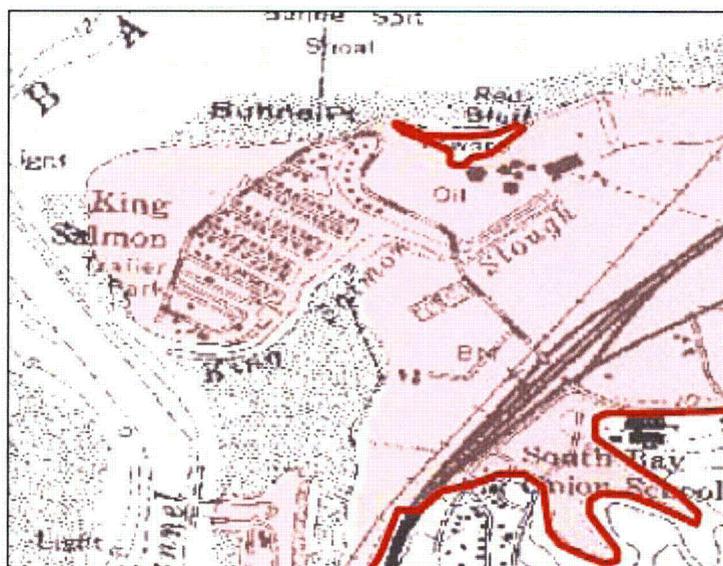
The Humboldt Bay Power Plant is susceptible to a megathrust earthquake on the Cascadia Subduction Zone. The nuclear unit at HBPP has been shut down since 1976, largely for seismic hazard reasons, and currently is undergoing decommissioning. PG&E expects to complete decommissioning by about 2015. Highly radioactive spent fuel remains on site. Until recently, this fuel was stored in the same type of pool that apparently has been compromised in Japan. In 2005 the Coastal Commission approved a small Independent Spent Fuel Storage Installation (ISFSI) to contain this material. Unlike the ISFSI's at SONGS and DCP, the casks containing the spent fuel and highly radioactive components of the decommissioned reactor are located below ground, in part to make them less vulnerable to tsunamis.

Earthquake Concerns: Regarding ground shaking, the Commission's findings for the Independent Spent Fuel Storage Installation concluded that the facility was designed to withstand the expected level of ground motion:

PG&E designed the ISFSI in part using a probabilistic assessment of the "maximum credible earthquake" likely to occur at the site during a 2000-year return period. This design earthquake is

of magnitude 9.1, roughly equivalent to the recent Sumatra earthquake of December 2004, and has a peak acceleration of almost 2.9 g, which is equivalent to the force near the upper limit of any earthquake anywhere in the world. The Commission's staff geologist has objected to the use of a 2000-year return period and instead recommends the use of a 10,000-year return period; however, the Commission concurs with his determination that the overall assessment provided by PG&E results in a conservative design basis for the ISFSI. The Commission therefore recommends that designing the ISFSI to withstand this rate of ground shaking is consistent with Coastal Act section 30253(1) with respect to the ground motion hazard.

Tsunami Concerns: The site clearly is at high risk for a tsunami generated during a Cascadia Subduction Zone event. This general region is by far the most studied area on the west coast of North America with respect to tsunami hazards, with many of those studies being funded by PG&E and summarized in the NRC's FSAR for the site. The State's Tsunami Inundation Map shows that the entire site, except for a small area at the top of Buhne Hill, lies in the predicted inundation zone. That small hilltop is the approximate location of the ISFSI.



The Coastal Commission found in September 2005 that the ISFSI is susceptible to tsunami hazards, including higher runup levels than predicted during the NRC licensing process, and the danger of bluff erosion due to energy from both incoming and retreating waves. As summarized in the Commission staff report:

PG&E assessed how the ISFSI site likely would be affected by tsunamis and tsunami runups. It determined that the maximum tsunami runup resulting from a Cascadian Subduction Zone earthquake during Mean Higher High Water would be from about 23 to 38 feet. Because the ISFSI site is at about 44 feet, and because it is below grade, PG&E concludes that the ISFSI would not be inundated and would not be damaged by debris carried by the tsunami.

However, for several reasons, the Commission cannot conclude that the site will be safe from tsunami hazards either during the relatively short-term or in perpetuity. First, similarities between the expected Cascadian Subduction Zone earthquakes and the December 2004 Sumatran earthquake raise doubts as to the validity of the expected tsunami runup height at the ISFSI site.

The Sumatran quake resulted in tsunami runups of as much as 130 feet, which is about three times higher than the runup predicted at the ISFSI site, but the mechanisms for the earthquakes and the generation of tsunamis in each area are similar. Additionally, the predicted 38-foot runup at the ISFSI site is based only on the height above Mean Higher High Water and does not include the customary additional height provided if the tsunami occurred during a 100-year storm surge. This would put the runup at an even higher level, possibly at or above the 44-foot elevation of the ISFSI structure. Further, the ISFSI site is on a peninsula made up of poorly consolidated soils, and it would be subject during a tsunami to wave energy from both incoming and retreating waves, which could result in substantial erosion and damage to the ISFSI site.

Finally, because the ISFSI is expected to remain in perpetuity, Commission staff requested PG&E evaluate the longer-term potential for tsunami effects. PG&E applied the rate of tectonic uplift at Buhne Point (estimated at about 1.3 feet per 100 years) to several scenarios for anticipated rates of sea level rise. The analyses found that during the next several thousand years, overtopping of the site would be likely, though over the next 10,000 years, the anticipated sea level will likely fall due to increased glaciation and that ISFSI site would become less exposed to risks associated with sea level rise or tsunamis.

Therefore, based on the above, the Commission finds that the siting of the ISFSI is inconsistent with the requirement of Section 30253(1) to minimize risks associated with tsunamis and tsunami runup.

Although the Commission found the project was inconsistent with Coastal Act section 30253 for this and other reasons, as well as other Chapter 3 policies of the Coastal Act, it approved the ISFSI, in large part due to the lack of safer alternative storage sites for the material and the hazards of transporting the material offsite. The Commission's findings state:

Denying the ISFSI on the basis of these inconsistencies would result in the continued presence of the existing storage facility, which would likely result in significant adverse impacts to marine biology, water quality, and environmentally sensitive habitat areas caused by the same geologic hazards that make the blufftop a safer location than the existing storage pool. In such a situation, when a proposed project is inconsistent with a Chapter 3 policy, and denial or modification of the project would be inconsistent with another policy, Section 30007.5 of the Coastal Act provides for resolution of such a policy conflict.

Simply put, although the site is unsafe, keeping the spent fuel in subterranean casks in a hazardous location is less unsafe than keeping the material in the spent fuel pool within the nearby and lower elevation reactor building, where it had been kept for the previous several decades. After Commission approval of the facility, all spent fuel at the site has been moved into the ISFSI. The Commission will soon review an application for an expansion of this facility to accommodate low and mid-level radioactive waste being generated during the HBPP decommissioning process.

Ongoing and Planned Seismic Studies

Both state and federal legislators have in recent days called for renewed study of the seismic safety of nuclear power plants in California and the United States, respectively; however, such studies are in fact already underway in California. AB 1632 (Blakeslee, Statutes of 2006, Chapter 722), directed the California Energy Commission to assess the vulnerability of the state's operating nuclear power plants to a major disruption due to a major seismic event or plant aging,

the potential impacts of such a disruption, potential impacts from the accumulation of nuclear waste at the state's existing nuclear plants, and other key policy and planning issues regarding the future role of California's existing nuclear plants. In 2008, the Energy Commission released the required report "An Assessment of California's Nuclear Power Plants" which can be found at: <http://www.energy.ca.gov/2008publications/CEC-100-2008-009/CEC-100-2008-009-CMF.PDF>

The California Public Utilities Commission has since required PG&E and SCE to undertake the studies recommended in the report, which include, among other things, 3D seismic imaging of the faults around both sites, in order to answer some of the questions about fault geometry and expected ground motions during different earthquake scenarios. The Coastal Commission's staff geologist sits on an Independent Peer Review Panel which reviewed the production of the AB 1632 report and will review the study plan, results, and interpretation of these studies as they proceed. PG&E has begun some of these studies, and has begun the environmental review process for others. SCE, who is not proceeding with relicensing on as aggressive a time schedule as PG&E, has not yet produced plans for the required studies.

Effects of the Tōhoku Earthquake Tsunami in California

The Tōhoku Earthquake produced a tsunami felt throughout the Pacific Ocean. California was moderately impacted, and several harbors around the state suffered damage, collectively totaling tens of millions of dollars. Fortunately, given the state's tsunami preparedness, and the many hours warning time afforded by this distant-source tsunami, early evacuation and preparation were effective and losses were kept to a minimum, although there was one death associated with the tsunami. The Coastal Commission's coastal engineer will prepare an evaluation of preparations, events, responses, and results of this major test of the state's tsunami preparedness and response program in the near future.

Implications for Predictions of Future Sea Level Rise

The way the land responds to a megathrust earthquake such as is expected in the Cascadia Subduction Zone has important implications for planning for future sea level rise. When a subduction zone is locked (not moving through small earthquakes) at the surface, but is moving at depth, as is the case in the Cascadia Subduction Zone, there is a region close to the coast where the land is rising. Further inland is a region of gradual land subsidence. When the locked upper portion of the subduction zone builds up sufficient stress, it suddenly slips (causing a megathrust earthquake), and the region of uplift near the coast suddenly subsides, while the region further inland rises. The Incorporated Research Institutions for Seismology (IRIS) has produced an excellent animation illustrating this process, which can be found at <http://www.youtube.com/watch?v=RVaDXsqLUtI>

In northern coastal California, the land has been rising faster than global average sea level since the 1700 megathrust event, and the long-term average sea level rise *relative to the land* is actually negative (-0.65 mm/yr at Crescent City, for example); *relative* sea level in this region is falling. As global average sea level rise continues to accelerate, the rate of *relative* sea level *fall*

in northern California will decrease, but the uplift of the land will reduce the effects of global sea level rise relative to elsewhere on the coast.

One consequence of the next Cascadia Subduction Zone earthquake is that this effect will be suddenly undone. Past Cascadia Subduction Zone earthquakes have typically resulted in a sudden land subsidence of about six feet. This figure is consistent with what has been observed following other megathrust earthquakes around the world. This sudden subsidence needs to be taken into account when planning for future sea level rise. The National Academy of Science has, at the request of the western states' governors, convened a panel to provide recommendations for predicting sea level trends in California, Oregon, and Washington over the next century. The panel is well aware of this phenomenon, and it will be interesting to see how they incorporate it into their recommendations.

REFERENCES AND WEB RESOURCES:

Atwater, B.F., Musumi-Rokkaku, S., Satake, K., Tsuji, Y., Useda, K., and Yamaguchi, D.K., 2006, The orphan tsunami of 1700: Japanese clues to a parent earthquake in North America: Seattle, University of Washington Press, 133 p.

See also: <http://pubs.usgs.gov/pp/pp1707/pp1707.pdf>

Mazzotti, S., and Adams, J., 2004, Variability of near-term probability for the next great earthquake on the Cascadia Subduction Zone: Bulletin of the Seismological Society of America, v. 94, p. 1954-1959.

Rivero, C., Shaw, J.H., and Mueller, K., 2000, Oceanside and Thirtymile Bank blind thrusts: Implications for earthquake hazards in southern California: Geology, v. 28, p. 891-894.

USGS page for this earthquake: <http://earthquake.usgs.gov/earthquakes/eqinthenews/2011/usc0001xqp/>

NOAA page for this tsunami: <http://nctr.pmel.noaa.gov/honshu20110311/>

IRIS educational resources for this event: <http://www.iris.edu/hq/retm>

Coastal Commission SONGS ISFSI staff report: <http://www.coastal.ca.gov/energy/e-00-14rf.pdf>

Coastal Commission DCCP ISFSI staff report: <http://www.coastal.ca.gov/energy/W5a-1-2005.pdf>

Coastal Commission HBPP ISFSI staff report: <http://www.coastal.ca.gov/energy/Th6a-9-2005.pdf>

AB1632 Report: <http://www.energy.ca.gov/ab1632/index.html>

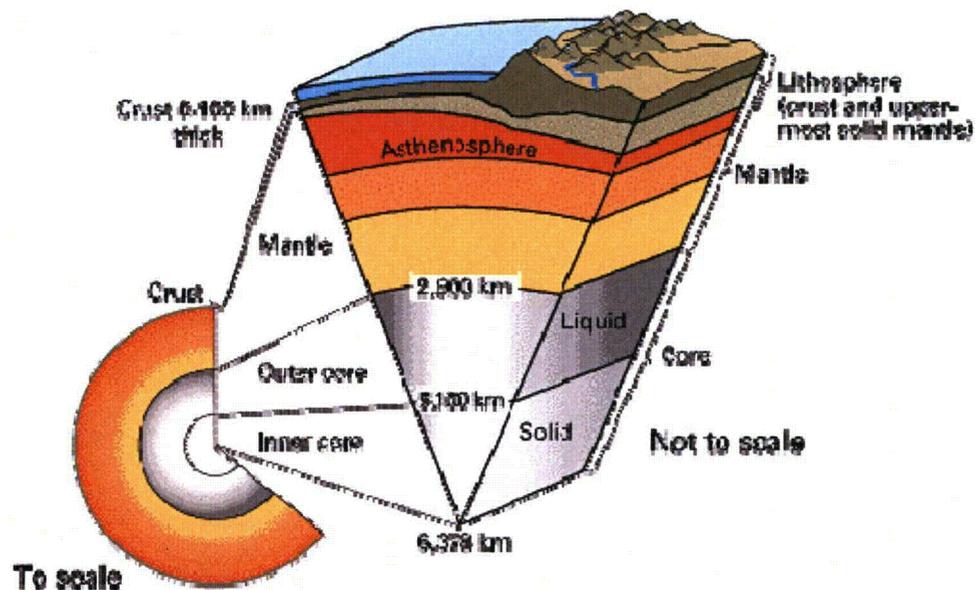
CREW Scenario: <http://www.crew.org/papers/CREWCascadiaFinal.pdf>

APPENDIX: EXPLANATION OF TERMS AND PROCESSES

Plate tectonics

This section is adapted from a USGS publication entitled *This Dynamic Earth*; see <http://pubs.usgs.gov/gip/dynamic/inside.html>

The interior of the Earth can be divided into three sections—the crust, mantle, and core. This layered structure can be compared to that of a boiled egg. The crust, the outermost layer, is rigid and very thin compared with the other two. Beneath the oceans, the crust is made up mostly of dense rocks such as gabbro and basalt and is only about 5 km thick. The thickness of the crust beneath continents is mostly made up of less dense granite and averages 30 km in thickness. The Earth's crust is brittle and can break.

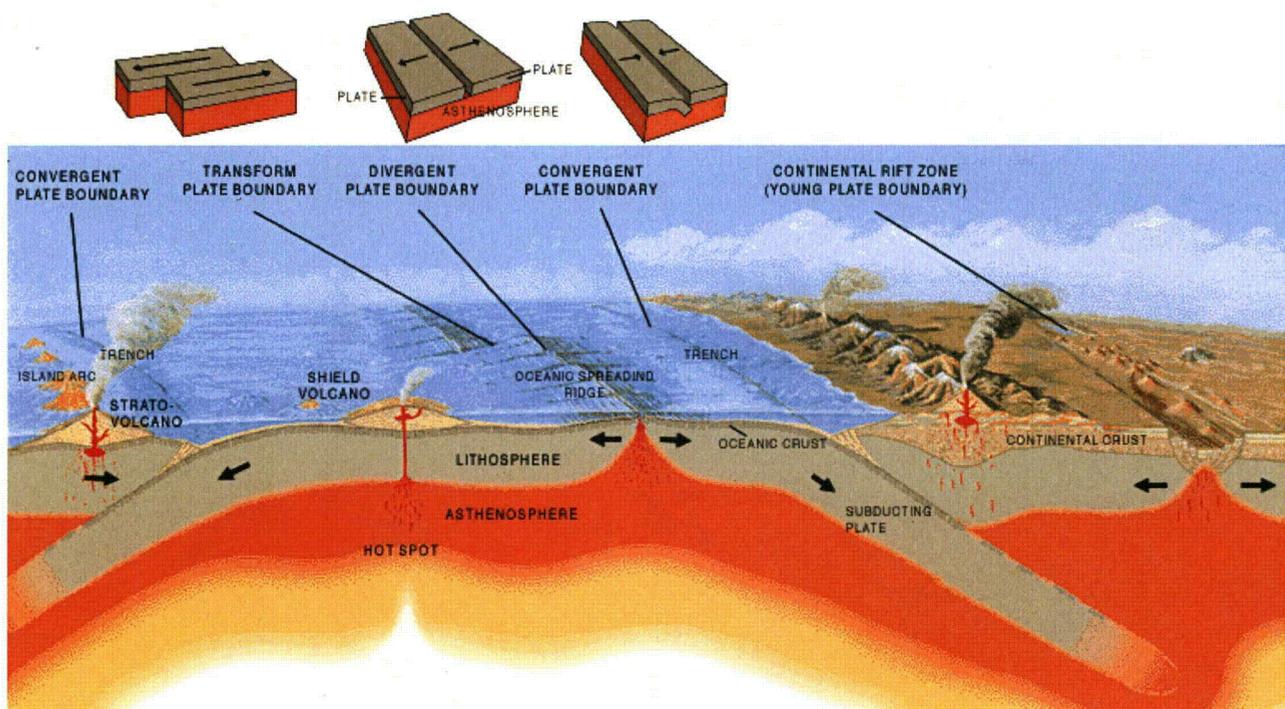


Below the crust is the mantle, a dense, hot layer of semi-solid rock approximately 2,900 km thick. The mantle is hotter and denser because temperature and pressure inside the Earth increase with depth. At the center of the Earth lies the core, which is nearly twice as dense as the mantle because its composition is metallic (iron-nickel alloy) rather than stony. The Earth's core is made up of two parts: a 2,200 km-thick liquid outer core and a 1,250 km-thick solid inner core.

The upper part of the mantle is cooler and more rigid than the deep mantle; in many ways, it behaves like the overlying crust. Together they form a rigid layer of rock called the lithosphere. Averaging 80 km in thickness, the lithosphere has been broken up into the moving plates that contain the world's continents and oceans. Below the lithosphere is a relatively narrow, mobile zone in the mantle called the asthenosphere. The rigid lithosphere is thought to "float" or move about on the slowly flowing asthenosphere. The

movement of the lithospheric plates atop the plastic asthenosphere is the root of plate tectonics. The plates interact at the Earth's surface in a number of ways, with three main types of boundaries between them:

- Divergent boundaries -- where new crust is generated as the plates pull away from each other.
- Convergent boundaries -- where crust is destroyed as one plate dives under another.
- Transform boundaries -- where crust is neither produced nor destroyed as the plates slide horizontally past each other



The earth's two largest plates interacted during the Tōhoku Earthquake of 11 March 2011:

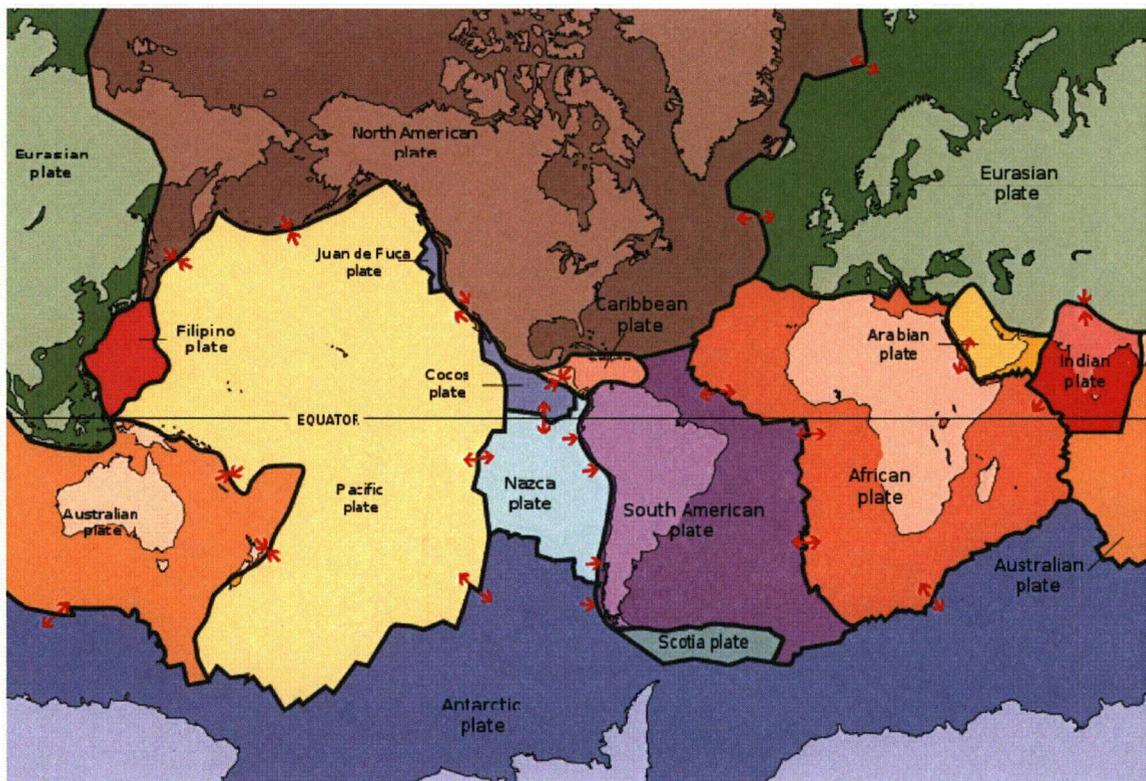
North America plate

The North American plate comprises most of North America, Greenland, Cuba, Bahamas, and parts of Siberia, Japan and Iceland. It extends eastward to the Mid-Atlantic Ridge and westward to the Chersky Range in eastern Siberia. The plate includes both continental and oceanic crust. The interior of the main continental landmass includes an extensive granitic core called a craton. Along most of the edges of this craton are fragments of crustal material called terranes, accreted to the craton by tectonic actions over the long span of geologic time. It

is believed that much of North America west of the Rockies is composed of such terranes.

Pacific plate

The Pacific lies beneath the Pacific Ocean and is made up almost entirely of oceanic crust. The north-eastern side is a divergent boundary with the Explorer, Juan de Fuca and Gorda plates.. In the middle of the eastern side is a transform boundary with the North American Plate along the San Andreas Fault, and a boundary with the Cocos Plate. The south-eastern side is a divergent boundary with the Nazca Plate forming the East Pacific Rise. The southern side is a divergent boundary with the Antarctic Plate forming the Pacific-Antarctic Ridge. On its western side, the plate is bounded by the Okhotsk Plate at the Kuril-Kamchatka Trench and the Japan Trench, forming a convergent boundary in which it is subducted under the Philippine Sea Plate creating the Mariana Trench. In the south-west, the Pacific Plate has a complex but generally convergent boundary with the Indo-Australian Plate, subducting under it north of New Zealand forming the Tonga Trench and the Kermadec Trench. The Alpine Fault marks a transform boundary between the two plates, and further south the Indo-Australian Plate subducts under the Pacific Plate forming the Puysegur Trench. The northern side is a convergent boundary subducting under the North American Plate forming the Aleutian Trench and the corresponding Aleutian Islands



Types of faults

This section is adapted from the USGS *Glossary of Earthquake terms*; see <http://earthquake.usgs.gov/learn/glossary/>

Faults can be divided into two broad categories, depending on the sense of movement on the dipping fault plane

- **Dip-slip faults** are inclined fractures where the blocks have mostly shifted mostly vertically. If the rock mass above an inclined fault moves down, the fault is termed **normal**, whereas if the rock above the fault moves up, the fault is termed **reverse**. A **thrust** fault is a reverse fault with a dip of 45 degrees or less. Oblique-slip faults have significant components of different slip styles. A **megathrust** earthquake refers to a large earthquake on a subduction zone with a thrust type of mechanism.

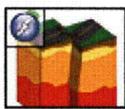


[Normal Fault Flash Animation](#)



[Thrust Fault Flash Animation](#)

- **Strike-slip faults** are vertical (or nearly vertical) fractures where the blocks have mostly moved horizontally. If the block opposite an observer looking across the fault moves to the right, the slip style is termed right lateral; if the block moves to the left, the motion is termed left lateral.



[Strike-slip Fault Flash Animation](#)

- A transform fault is a special variety of strike-slip fault that accommodates relative horizontal slip between oceanic crustal plates. They often extend from divergent plate boundaries at ocean ridges. Where no longer active, they are referred to as **healed transform faults**.

Measuring and locating earthquakes

Some of this section is adapted from the USGS *Glossary of Earthquake terms*; see <http://earthquake.usgs.gov/learn/glossary/>

Earthquake locations

Earthquakes cause slip of an area of the fault plane at depth. The size of this **rupture area** is proportional to the **magnitude** of the earthquake; the larger the

rupture area the larger the earthquake magnitude. The earthquake's **hypocenter** is its position in three dimensions beneath the earth. The earthquake's **epicenter** is the two dimensional projection of the hypocenter on the surface of the Earth.

Earthquake magnitude

The magnitude of an earthquake is a number that characterizes the relative size of an earthquake. Magnitude is based on measurement of the maximum motion recorded by a seismograph. Several scales have been defined, but the most commonly used scale for large earthquakes is the moment magnitude (M_w) scale. Like the other scales, the moment magnitude scale is logarithmic. That is, each numeric increase in the scale (from say to a M_w 8.0 to M_w 9.0) represents a ten-fold increase in ground shaking. The energy released increases by a factor of about 33 times.

Ground shaking intensity

Buildings are not designed to withstand an earthquake of a particular magnitude, but a particular level of ground shaking. Whereas earthquake magnitude is an intrinsic property of the earthquake, the level of ground shaking, or intensity, that is felt at any particular location is a function of a number of factors. These include the distance of the location from the earthquake's epicenter, the depth of the earthquake, and characteristics of the location (such as whether it is underlain by dense bedrock, soft sediments, or artificial fill). The intensity felt usually is measured on the **Modified Mercalli Intensity** scale, and is given as a number (written as a Roman numeral) describing the severity of an earthquake in terms of its effects on the earth's surface and on humans and their structures. Several other scales exist. There are many intensities for an earthquake, depending on where you are, unlike the magnitude, which is one number for each earthquake.

Ground acceleration

A more quantitative way to describe ground shaking intensity is to measure it by a strong motion accelerometer, a special type of seismograph. Ground motion is expressed as a comparison to the force of gravity – that is, the acceleration (the rate of change in speed) of the ground relative to the acceleration caused by gravity. For instance, ground shaking of 1.0 g is equal to the acceleration caused by gravity, shaking of 0.5 g is equal to half the acceleration of gravity, etc. This is also known as **peak ground acceleration**; the maximum amount of ground acceleration regardless of the characteristics of the seismic waves involved.

Spectral acceleration

In reality, ground shaking is caused by seismic waves emanating from the earthquake's hypocenter, and modified during the travel to any particular site. These waves have a variety of wavelengths, periods, and velocities. Buildings and other structures interact with these various waves in different ways. For example, waves with a frequency of 3 to 8.5 hertz (cycles per second) are of particular interest to nuclear power plants since

the critical components of the plants resonate at those frequencies. The level of ground acceleration at any particular seismic frequency is known as its spectral acceleration. A curve describing the acceleration at all frequencies is used to describe the total ground shaking environment at a site.

From: ET05 Hoc
Sent: Tuesday, March 29, 2011 2:44 PM
To: OST02 HOC
Subject: RE: Deputies Committee Meeting, 3/30/11
Attachments: image001.jpg

I believe that this is already on the tasker (record 2890).
-Melissa

From: OST02 HOC
Sent: Tuesday, March 29, 2011 2:44 PM
To: ET05 Hoc
Subject: FW: Deputies Committee Meeting, 3/30/11

Please make a tasking for this issue.

Thanks!

From: HOO Hoc
Sent: Tuesday, March 29, 2011 2:39 PM
To: LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Subject: FW: Deputies Committee Meeting, 3/30/11

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



From: Gibbs, Catina
Sent: Tuesday, March 29, 2011 2:16 PM
To: HOO Hoc; Stapleton, Bernard
Subject: Deputies Committee Meeting, 3/30/11

All, the Chairman has advised that he would like the ET Director to participate in the above referenced meeting via SVTC tomorrow at 8:00AM. I am awaiting SVTC instructions from my contact at the White House, Teresa Peterson. What is the name of the ET Director that will participate in this meeting tomorrow?

Thanks,

Catina M. Gibbs
Admin. Assistant to
Chairman Gregory B. Jaczko
U.S. Nuclear Regulatory Commission

APP/570

301-415-1750 (office)
301-415-3504 (fax)

From: Weber, Michael
Sent: Tuesday, March 29, 2011 9:48 AM
To: Sheron, Brian
Cc: LIA06 Hoc; LIA08 Hoc; OST02 HOC; FOIA Response.hoc Resource; ET07 Hoc; ET05 Hoc
Subject: RESPONSE - JAEA/NRC collaboration

Thanks, Brian

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

From: Sheron, Brian
Sent: Tuesday, March 29, 2011 7:30 AM
To: ET01 Hoc; RST01 Hoc; PMT01 Hoc
Cc: Weber, Michael; Virgilio, Martin
Subject: FW: JAEA/NRC collaboration

See below. In case you weren't aware.

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

From: Gibson, Kathy
Sent: Tuesday, March 29, 2011 6:29 AM
To: Sheron, Brian; Uhle, Jennifer; Tinkler, Charles; Lee, Richard
Subject: Fw: JAEA/NRC collaboration

Some plant info - you may already know...

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

From: Kazuhiko KUNITOMI <kunitomi.kazuhiko@jaea.go.jp>
To: Gibson, Kathy; Scott, Michael
Cc: Uhle, Jennifer; Valentin, Andrea; Zaki, Tarek; Rubin, Stuart; Sangimino, Donna-Marie; Carlson, Donald; 'Ogawa Masuro' <ogawa.masuro@jaea.go.jp>; 'Ohashi Hirofumii' <ohashi.hirofumi@jaea.go.jp>; 'Tachibana Yukio' <tachibana.yukio@jaea.go.jp>; 'iyoku.tatsuo' <iyoku.tatsuo@jaea.go.jp>
Sent: Tue Mar 29 05:48:52 2011
Subject: RE: JAEA/NRC collaboration

Kathy

Thank you very much for your support. Also, we appreciate very much the USNRC delegation came to Fukushima and works very hard to keep the reactor safe condition. Yesterday it was found that puddles of radioactive water remain in the reactor building and some of them leaked into the trenches outside the buildings. If the water overflows and goes into the sea, contamination will expand very badly. And the large amount of the high radiation level water points to the RPV failure. If so, it take a long time to fix the RPV and CV or add a shielding wall outside the buildings.

Regarding the HTGR collaboration, I will wait for Mike's response.

PPP/571

Best regards,

Kazu

From: Gibson, Kathy [mailto:Kathy.Gibson@nrc.gov]

Sent: Friday, March 25, 2011 9:48 PM

To: Kazuhiko KUNITOMI; Scott, Michael

Cc: Uhle, Jennifer; Valentin, Andrea; Zaki, Tarek; Rubin, Stuart; Sangimino, Donna-Marie; Carlson, Donald; Ogawa Masuro; Ohashi Hirofumii; Tachibana Yukio; 'iyoku.tatsuo'

Subject: RE: JAEA/NRC collaboration

Kazu,

It is good to hear from you. We are so sad about the situation in Japan and doing our best to support your efforts. Mike Scott is in Japan presently with our NRC delegation at the embassy. We would be happy to have you come to Washington in April, however it is likely that Mike will be going to the NGNP meeting in Albuquerque so it may be more convenient for you to meet with him there. Mike will be in touch with you next week after we finalize travel approvals for the Albuquerque meeting. Either way, we look forward to the HTTR cooperation and we are happy that, despite the tragedy in your country, this project can still proceed.

My very best wishes to you, your colleagues and families,

Kathy

From: Kazuhiko KUNITOMI [mailto:kunitomi.kazuhiko@jaea.go.jp]

Sent: Friday, March 25, 2011 12:15 AM

To: Scott, Michael

Cc: Uhle, Jennifer; Valentin, Andrea; Zaki, Tarek; Rubin, Stuart; Sangimino, Donna-Marie; Gibson, Kathy; Carlson, Donald; Ogawa Masuro; Ohashi Hirofumii; Tachibana Yukio; 'iyoku.tatsuo'

Subject: JAEA/NRC collaboration

Dear Dr. Scott,

CC Dr. Jennifer, Kathy, Stu, Don

We still have big aftershocks with the magnitude of 5 to 6. But electricity and water returned to normal. Now gasoline shortage is the biggest problem around here. Also, roads and train rails were damaged so badly that we have trouble commuting and going to Tokyo.

In Oarai, about 4 meter high tsunami hit the downtown. Some trucks and containers parked in the Oarai port were flown to the inland side. Fortunately, residents in the downtown managed to escape from the seaside to a hill or buildings and no casualties are reported so far because the tsunami hit Oarai about half an hour later than the tsunami in Tohoku area. The left lane of the route 51 along the sea coast (the road to JAEA) was collapsed and has been closed since the earthquake. Can you imagine this size of earthquake and tsunami? We Japanese get used to the earthquake. But nobody has experienced this magnitude. It was really scary.

Regarding the Fukushima LWRs, the situation is becoming better. However, it is still difficult to measure reactor internal condition. There are still the possibility that things will turn for the worse. The day before yesterday, after the electricity was restored into the No. 1 unit, some of the instruments showed the RPV temperatures were more than 400C that is in the creep range. Sea water was immediately pumped into the core to cool the RPV, and the temperature was stabilized under 370C. But the sea water injection would make the inside pressure of the RPV and CV higher than the limit. So it is very difficult to keep the LWRs a stable condition. Meanwhile, many engineers are working very hard to fix the cooling pumps, electricity equipments once drenched with the tsunami. If they finished repairing and restart the cooling system, cooling condition will be much better.

The radiation tainted milk and spinach in Fukushima, and Iodine contaminated water in Tokyo area made average people very nervous. All TV broadcasted this level of contamination will not pose a threat to health. On the other hand, they reported that many people rushed to denude bottled waters in all supermarkets and convenience stores, and now no bottled waters are left in there. I am afraid very much that this kind of bad rumors will make normal people much more nervous, and panic buying will happen. Actually, after this kinds of information, famers in Fukushima and Ibaraki got in a big trouble and are forced to dispose of all dairy products and vegetables. It's too bad.

It is not a good timing to sell the advantage of the HTGR. Yet, I think we should prepare for questions on the safety of the HTGR. I plan to attend the NGNP conference to be held at Albuquerque in April 26-29. Before that week, if possible April 22, I and my colleague Dr. Ohashi will visit to NRC to discuss on the HTGR safety. Of course we will discuss how to run the OECD/NEA LOFC project and how to use this project for not only V&V of safety codes but also examination of the safety standard of the HTGR.

I would appreciate very much if you could accept our visit proposal.

Best regards,
Kazu KUNITOMI

Kazuhiko KUNITOMI Ph.D

Division Leader

Small-sized HTGR Reseach and Development Division

Nuclear Hydrogen and Heat Application Research Center

Japan Atomic Energy Agency

Oarai-machi, Ibaraki-ken, JAPAN 311-1393

TEL +81-29-266-7897

FAX +81-29-266-7608

E-mail : kunitomi.kazuhiko@jaea.go.jp

From: Stahl, Eric
Sent: Tuesday, March 29, 2011 9:51 PM
To: LIA02 Hoc; LIA03 Hoc
Cc: Emche, Danielle
Subject: FW: POC request

Do you need anything else on this from us at this point?

Thanks,
Eric

From: Emche, Danielle
Sent: Tuesday, March 29, 2011 8:52 PM
To: Stahl, Eric
Subject: Fw: POC request

Danielle
Sent from an NRC BlackBerry.

From: Dorman, Dan
To: LIA02 Hoc; Smith, Brooke; Emche, Danielle; Casto, Chuck; Blamey, Alan
Cc: LIA03 Hoc; LIA06 Hoc; LIA08 Hoc
Sent: Tue Mar 29 20:43:08 2011
Subject: RE: POC request

Alan Blamey will be the POC for the NRC Japan Team. If possible please defer the meeting to 0900 Japan time. 0800 is in the middle of our daily team meeting.

Dan

From: LIA02 Hoc
Sent: Tuesday, March 29, 2011 4:20 PM
To: Smith, Brooke; Emche, Danielle; Casto, Chuck; Dorman, Dan
Cc: LIA03 Hoc; LIA06 Hoc; LIA08 Hoc
Subject: POC request

We need a team member to be the POC for the Consortium effort that will include vetting the "Japanese Government Action Items and Materials Request List to be Considered by the Consortium" and participate in future daily meetings starting March 31 at 8am Japan time. Please let us know if this time does NOT work for the POC. Once we have the name of the POC we will forward the list and other pertinent information.

Please let us know if you have any questions.

Thanks.

Nancy

PPP/572

From: LIA02 Hoc
Sent: Tuesday, March 29, 2011 9:19 PM
To: Dorman, Dan; Smith, Brooke; Emche, Danielle; Casto, Chuck; Blamey, Alan
Cc: LIA03 Hoc; LIA06 Hoc; LIA08 Hoc
Subject: RE: POC request

Dan, thanks. We have confirmed that the new time will be 0900 Japan time.

Nancy

From: Dorman, Dan
Sent: Tuesday, March 29, 2011 8:43 PM
To: LIA02 Hoc; Smith, Brooke; Emche, Danielle; Casto, Chuck; Blamey, Alan
Cc: LIA03 Hoc; LIA06 Hoc; LIA08 Hoc
Subject: RE: POC request

Alan Blamey will be the POC for the NRC Japan Team. If possible please defer the meeting to 0900 Japan time. 0800 is in the middle of our daily team meeting.

Dan

From: LIA02 Hoc
Sent: Tuesday, March 29, 2011 4:20 PM
To: Smith, Brooke; Emche, Danielle; Casto, Chuck; Dorman, Dan
Cc: LIA03 Hoc; LIA06 Hoc; LIA08 Hoc
Subject: POC request

We need a team member to be the POC for the Consortium effort that will include vetting the "Japanese Government Action Items and Materials Request List to be Considered by the Consortium" and participate in future daily meetings starting March 31 at 8am Japan time. Please let us know if this time does NOT work for the POC. Once we have the name of the POC we will forward the list and other pertinent information.

Please let us know if you have any questions.

Thanks.

Nancy

From: LIA02 Hoc
Sent: Tuesday, March 29, 2011 9:16 PM
To: ET05 Hoc
Cc: LIA06 Hoc; LIA08 Hoc
Subject: FW: POC request

FYI site team can support 2000 EDT not 1900 EDT for INPO consortium call. The earlier time is in the middle of their team meeting. The proposed new time is at the same time as the CA briefing. We would like to go ahead and schedule. Please confirm.

Thanks.
Nancy

From: Dorman, Dan
Sent: Tuesday, March 29, 2011 8:43 PM
To: LIA02 Hoc; Smith, Brooke; Emche, Danielle; Casto, Chuck; Blamey, Alan
Cc: LIA03 Hoc; LIA06 Hoc; LIA08 Hoc
Subject: RE: POC request

Alan Blamey will be the POC for the NRC Japan Team. If possible please defer the meeting to 0900 Japan time. 0800 is in the middle of our daily team meeting.

Dan

From: LIA02 Hoc
Sent: Tuesday, March 29, 2011 4:20 PM
To: Smith, Brooke; Emche, Danielle; Casto, Chuck; Dorman, Dan
Cc: LIA03 Hoc; LIA06 Hoc; LIA08 Hoc
Subject: POC request

We need a team member to be the POC for the Consortium effort that will include vetting the "Japanese Government Action Items and Materials Request List to be Considered by the Consortium" and participate in future daily meetings starting March 31 at 8am Japan time. Please let us know if this time does NOT work for the POC. Once we have the name of the POC we will forward the list and other pertinent information.

Please let us know if you have any questions.

Thanks.

Nancy

From: Goorevich, Richard <Richard.Goorevich@nnsa.doe.gov>
Sent: Tuesday, March 29, 2011 10:24 PM
To: LIA02 Hoc; Doane, Margaret; LIA03 Hoc
Subject: Re: Specialized Remote Control Helicopters for Japan

Thanks. I forwarded this to westinghouse.

Rich

From: LIA02 Hoc <LIA02.Hoc@nrc.gov>
To: Doane, Margaret <Margaret.Doane@nrc.gov>; LIA03 Hoc <LIA03.Hoc@nrc.gov>
Cc: Goorevich, Richard
Sent: Tue Mar 29 21:43:30 2011
Subject: RE: Specialized Remote Control Helicopters for Japan

Rich,

All equipment requests are now going through INPO. They are consolidating all available information. Contact information for INPO is 770-644-8118 or email at inpoercassistance@inpo.org.

Thanks.

Nancy

From: Doane, Margaret
Sent: Tuesday, March 29, 2011 5:55 PM
To: LIA02 Hoc; LIA03 Hoc
Cc: Goorevich, Richard
Subject: Specialized Remote Control Helicopters for Japan

Please give Rich Goorevich the contact at DOD who is handling equipment requests for Japan. Ed McDonough from Westinghouse called Rich about a request for specialized remote control helicopters. I've copied Rich on this note.

Thanks,
Margie

APP/513

From: Correia, Richard
Sent: Tuesday, March 29, 2011 12:37 PM
To: LIA03 Hoc; Henderson, Karen; LIA02 Hoc
Subject: RE: Japan team information

Thanks Karen. Very much appreciated. I'll let you know if we have any questions.

Rich

Richard Correia, PE
Director, Division of Risk Analysis
Office of Nuclear Regulatory Research
US NRC

richard.correia@nrc.gov

From: LIA03 Hoc
Sent: Tuesday, March 29, 2011 11:48 AM
To: Correia, Richard; Henderson, Karen; LIA02 Hoc
Subject: RE: Japan team information

Rich,

This is the most recent list we have. Let me know if you have any questions.

Cheers,

Karen

From: Correia, Richard
Sent: Tuesday, March 29, 2011 11:27 AM
To: Henderson, Karen; LIA03 Hoc; LIA02 Hoc
Subject: FW: Japan team information

Karen,

See my request below to jenny. She and I were on the 3-11 shift for 4 days/nights last week so I contacted her first.

Any assistance would be appreciated.

Regards

Richard Correia, PE
Director, Division of Risk Analysis
Office of Nuclear Regulatory Research
US NRC

richard.correia@nrc.gov

Prop/574

From: Tobin, Jennifer
Sent: Tuesday, March 29, 2011 10:56 AM
To: Correia, Richard
Subject: RE: Japan team information

Richard,
Periodically LIA02 (or LIA03) receives a list from the State Department that contains people in Japan from other agencies. I know that we got a new one the end of last week because we were requested to update the travel plans of NRC folks. The last one we got might even still be open on the computer (pretty sure it's in Excel). I don't know if it has EVERYBODY on it but it might be a start. We could probably request a new one from DoS. I'm filling in tomorrow for a few hours but Jill or Karen (currently on shift) should be able to help you out if you ask.

Thanks for asking!
-Jenny

Jenny (Tobin) Wollenweber
Export Licensing Officer
Office of International Programs
office: 301-415-2328

From: Correia, Richard
Sent: Tuesday, March 29, 2011 10:34 AM
To: Tobin, Jennifer
Subject: Japan team information

Hi jenny,

Hope you are doing well after the tour of the IRC (maybe you're still on shift?). Does OIP have a list of non-NRC people that are going to Japan in support of the events at Fukushima? We heard today that there is (are) DOE lab people going over (because they called us looking for reports etc). Any assistance would be very much appreciated.

Thanks

Richard Correia, PE
Director, Division of Risk Analysis
Office of Nuclear Regulatory Research
US NRC

richard.correia@nrc.gov

From: RST06 Hoc
Sent: Tuesday, March 29, 2011 6:00 AM
To: RST07 Hoc
Subject: Insert for Record#3183 (Borchardt Q&A)

From a regulatory perspective, heat generation is the limiting factor in moving spent fuel from the pool to dry cask storage.

From an industry perspective, potential limitations on moving spent fuel from wet to dry storage could include:

- The manufacturing capability of the storage cask vendors
- Limited number of qualified people to transfer the fuel
- Some licensees do not currently have dry storage facilities (ISFSIs)
- In many cases, the transport equipment for handling the dry storage casks is shared among several utilities

map/575

From: PMT02 Hoc
Sent: Tuesday, March 29, 2011 4:05 PM
To: PMT11 Hoc; PMT09 Hoc
Subject: RE: Followup from USAID call

See edit version below

From: PMT11 Hoc
Sent: Tuesday, March 29, 2011 3:38 PM
To: PMT02 Hoc
Subject: RE: Followup from USAID call

- (1) SOUCRE: Man-Made
- (2) HAS TO BE Pu239 and Pu-240
- (3) Pu-239 half-life is 24,200 years and Pu-240 half life is 6500 years
- (4) Background levels from global fallout resulting primarily from A-bombs dropped on Japan in World War II and the "Mike" atmospheric nuclear test in 1952

From: PMT02 Hoc
Sent: Tuesday, March 29, 2011 3:30 PM
To: PMT11 Hoc
Subject: FW: Followup from USAID call

From: Hoc, PMT12
Sent: Tuesday, March 29, 2011 3:17 PM
To: PMT09 Hoc; PMT02 Hoc; PMT03 Hoc
Subject: FW: Followup from USAID call

From: LIA06 Hoc
Sent: Tuesday, March 29, 2011 2:47 PM
To: Hoc, PMT12
Cc: Riley (OCA), Timothy
Subject: Followup from USAID call

At the USAID call today, Sen. Halpin's staff had questions on a Reuters story on the Pu found in samples at the Fukushima Daiichi site.

1. What is the source of the PU
2. Is it Pu-239
3. Confirm the half-life
4. What is the level of concern

Please provide to Tim Riley, OCA so he can transmit to the staffer.

Thank you

PPP/576

Liaison Team Director
U.S. Nuclear Regulatory Commission
Operations Center

From: LIA06 Hoc
Sent: Tuesday, March 29, 2011 7:38 PM
To: Riley (OCA), Timothy
Cc: LIA08 Hoc; LIA12 Hoc
Subject: FW: Followup from USAID call

Tim –

Responses to Sen. Halpin's staff's questions are provided below. Let us know if you need anything else.

Liaison Team Director
U.S. Nuclear Regulatory Commission
Operations Center

From: PMT09 Hoc
Sent: Tuesday, March 29, 2011 7:31 PM
To: LIA06 Hoc
Cc: Hoc, PMT12; PMT03 Hoc; PMT02 Hoc; FOIA Response.hoc Resource
Subject: RE: Followup from USAID call

From: LIA06 Hoc
Sent: Tuesday, March 29, 2011 2:47 PM
To: Hoc, PMT12
Cc: Riley (OCA), Timothy
Subject: Followup from USAID call

At the USAID call today, Sen. Halpin's staff had questions on a Reuters story on the Pu found in samples at the Fukushima Daiichi site.

1. What is the source of the PU

Although plutonium exists in trace amounts in nature, the majority of plutonium is man-made. Plutonium is a product of nuclear reactor operation and nuclear weapon detonations. Because of nuclear weapons testing during the cold war, trace quantities of plutonium are present in the environment.

Plutonium-239 (Pu-239) and other isotopes of plutonium (e.g., Pu-240, Pu-241) are created by neutron irradiation of the Uranium-238 (U-238) in nuclear reactors. The low enrichment fuel (LEU) used in most commercial reactors is U-238, enriched with U-235. Typically 1% of spent fuel removed from reactor cores is plutonium. There are reactor designs in which the U-238 fuel is enriched with Plutonium-239 obtained from re-processing spent reactor fuel. There are 32 mixed oxide fuel elements and 516 low enriched uranium fuel elements in the Fukushima Daiichi Unit 3 reactor core; the remaining reactors have all LEU fuel elements. Although MOX fuel has been used in U.S. reactor facilities in the past, there are currently no U.S. commercial reactors using MOX fuel.

2. Is it Pu-239

A press release issued by TEPCO provides results of plutonium measurement in soil at the Fukushima Daiichi Plant. This report identified isotopes Pu-238, and Pu-239+Pu-240. (Quantities of Pu-239 and Pu-240 are reported as "Pu-239+Pu-240.") The samples were obtained on the Fukushima site.

PPP/577

3. Confirm the half-life

The half-life of Pu-238 is 87 years; Pu-239 is 24,000 years; Pu-240 is 6500 years.

4. What is the level of concern

The NRC believes that there is no immediate concern for public health and safety in Japan, for the following reasons.

- Although there are reported indications that the origin of the measured plutonium is within the Fukushima plant, the reported concentrations are comparable to that measured by routine environmental monitoring conducted prior to the earthquake. The highest Pu-239+Pu-240 concentration reported 1.2 Bq/kg of dry soil at 0.5 km from the Unit 1 and 2 exhaust stack. The Japanese Atomic Energy Research Institute reported in 2003 that 21 Japanese soil samples taken at different Japanese locations following the Chernobyl event ranged from 0.15 to 4.3 Bq/kg.
- In Report 129, the National Council on Radiation Protection and Measurements (NCRP) developed screening criteria for contaminated soil for several radionuclides. For Pu-239+Pu-240, the screening criteria were set at concentrations of 290 – 310 Bq/kg. The screening criteria are equivalent to a public dose of 25 mrem in a year of exposure.
- The International Atomic Energy Agency (IAEA) reported that the quantity of plutonium found does not exceed background levels tracked by Japan's Ministry of Education, Culture, Sports, Science, and Technology over the past 30 years.
- TEPCO estimated that an individual who ingested 1 kg of the contaminated soil would receive an internal radiation dose of approximately 0.3 micro Sievert (0.03 mrem).
- For comparison, a typical U.S. citizen receives an annual radiation dose of approximately 600 mrem from natural sources, medical imaging and treatment, industrial use, and consumer products.

Please provide to Tim Riley, OCA so he can transmit to the staffer.

Thank you

Liaison Team Director
U.S. Nuclear Regulatory Commission
Operations Center

From: LIA05 Hoc
Sent: Tuesday, March 29, 2011 2:47 PM
To: Ward, Paul; michael.howe@dhs.gov
Cc: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: Monitoring Data 03292011
Attachments: (English)20110329_18.pdf

Please find the attached.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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ppp/578

Readings at Monitoring Post out of 20 Km Zone of Fukushima Dai-ichi NPP

As of 16:00 March 29, 2011
Ministry of Education, Culture, Sports, Science
and Technology (MEXT)

○ Monitoring Outputs by MEXT ***Boldface and underlined readings are new.**

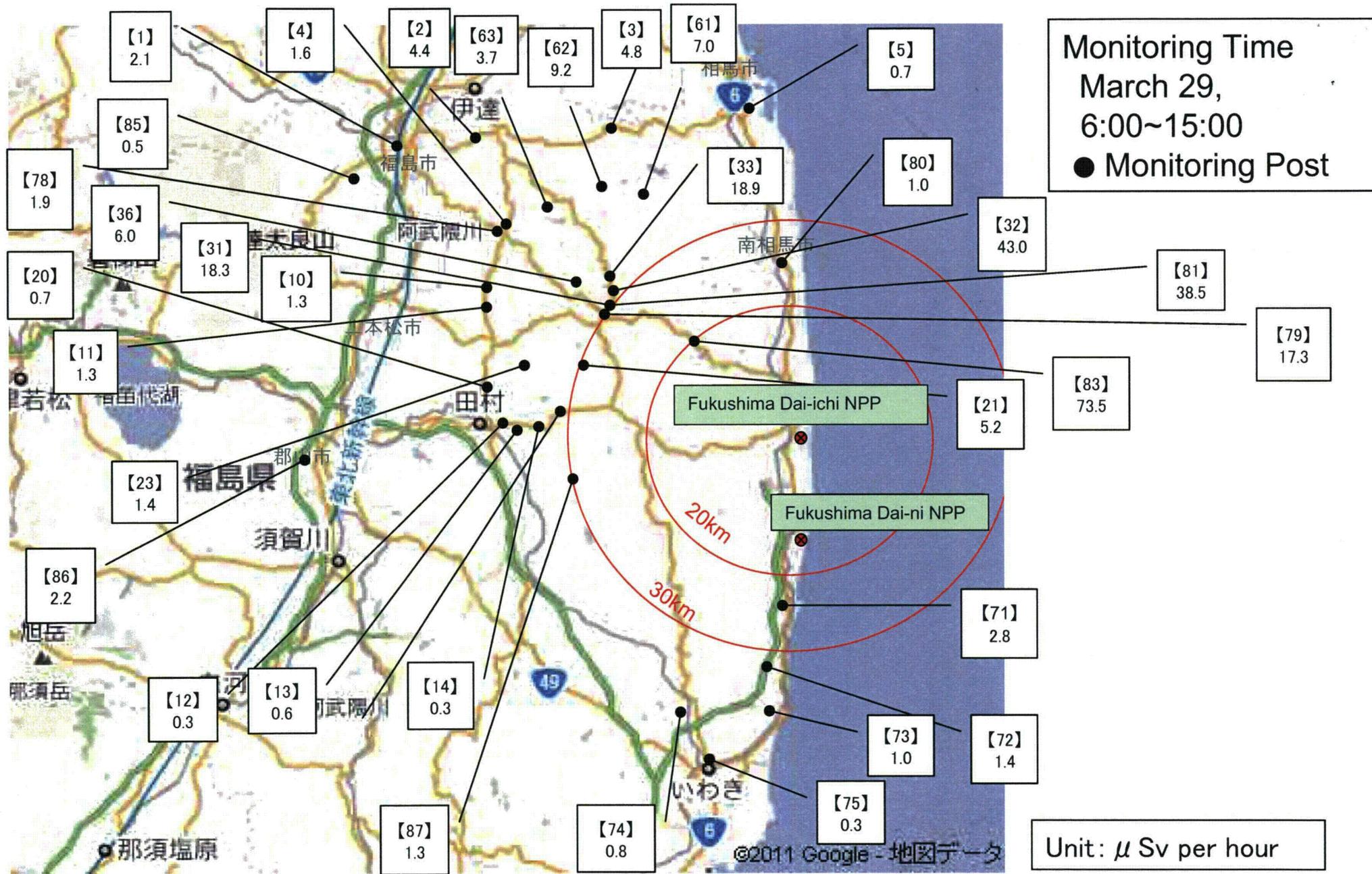
- * 1 measured by Geiger-Müller counter
- * 2 measured by ionization chamber type survey meter
- * 3 measured by NaI scintillator detector

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : $\mu\text{Sv} / \text{h}$)	Weather	Reading by
Reading Point 【1】 (About 60KmNorthwest)	2011/3/29 8:48	2.1 * ²	No Rain	MEXT
Reading Point 【2】 (About 55KmNorthwest)	2011/3/29 9:31	4.4 * ²	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【3】 (About 45KmNorthwest)	2011/3/29 10:00	4.8 * ²	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【4】 (About 50KmNorthwest)	2011/3/29 9:36	1.6 * ²	No Rain	MEXT
Reading Point 【5】 (About 45KmNorth)	2011/3/29 10:29	0.7 * ²	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【10】 (About 40KmNorthwest)	2011/3/29 9:59	1.3 * ²	No Rain	MEXT
Reading Point 【11】 (About 40KmNorthwest)	2011/3/29 10:12	1.3 * ²	No Rain	MEXT
<u>Reading Point 【12】 (About 40KmWest)</u>	<u>2011/3/29 12:43</u>	<u>0.3 *²</u>	<u>No Rain</u>	<u>MEXT</u>
<u>Reading Point 【13】 (About 40KmWest)</u>	<u>2011/3/29 12:58</u>	<u>0.6 *²</u>	<u>No Rain</u>	<u>MEXT</u>
<u>Reading Point 【14】 (About 35KmWest)</u>	<u>2011/3/29 13:19</u>	<u>0.3 *²</u>	<u>No Rain</u>	<u>MEXT</u>
Reading Point 【20】 (About 45KmNorthwest)	2010/3/29 10:49	0.7 * ²	No Rain	MEXT
Reading Point 【21】 (About 30KmWest-Northwest)	2010/3/29 11:30	5.2 * ²	No Rain	MEXT
Reading Point 【23】 (About 30KmWest-Northwest)	2010/3/29 11:00	1.4 * ²	No Rain	MEXT
Reading Point 【31】 (About 30KmWest-Northwest)	2010/3/29 9:59	18.3 * ²	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【32】 (About 30KmNorthwest)	2010/3/29 10:57	43.0 * ²	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【33】 (About 30KmNorthwest)	2010/3/29 11:19	18.9 * ²	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【36】 (About 40KmNorthwest)	2010/3/29 9:41	6.0 * ²	No Rain	JAEA (Japan Atomic Energy Agency)

- * 1 measured by Geiger-Müller counter
- * 2 measured by ionization chamber type survey meter
- * 3 measured by NaI scintillator detector

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : $\mu\text{Sv} / \text{h}$)	Weather	Reading by
Reading Point [61] (About 40KmNorthwest)	2010/3/29 12:47	7.0 ^{*2}	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point [62] (About 40KmNorthwest)	2010/3/29 12:38	9.2 ^{*2}	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point [63] (About 45KmNorthwest)	2010/3/29 11:36	3.7 ^{*2}	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point [71] (About 25KmSouth)	2010/3/29 9:20	2.8 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point [72] (About 30KmSouth)	2010/3/29 8:54	1.4 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point [73] (About 35KmSouth)	2010/3/29 8:30	1.0 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point [74] (About 35KmSouth)	2010/3/29 8:05	0.8 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point [75] (About 45KmSouth)	2010/3/29 7:20	0.3 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point [78] (About 45KmNorthwest)	2010/3/29 8:00	1.9 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point [79] (About 30KmNorthwest)	2010/3/29 9:01	17.3 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point [80] (About 25KmNorth)	2010/3/29 10:58	1.0 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point [81] (About 30kmWest-Northwest)	2010/3/29 8:43	38.5 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point [83] (About 20KmNorthwest)	2010/3/29 9:13	73.5 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point [85] (About 60kmNorthwest)	2011/3/29 6:00	0.5 ^{*2}	No Rain	Ministry of Defense
Reading Point [86] (About 55kmWest)	2011/3/29 6:00	2.2 ^{*2}	No Rain	Ministry of Defense
Reading Point [87] (About 30kmWest-Southwest)	2011/3/29 6:00	1.3 ^{*2}	No Rain	Ministry of Defense

Readings at Monitoring Post out of Fukushima Dai-ichi NPP



From: LIA05 Hoc
Sent: Tuesday, March 29, 2011 2:51 PM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Cc: Albert Coons; Bill Webb; Conrad Burnside; Craig Fiore; Darrell Hammons; Lisa Hammond; Rebecca Thomson; Ronald McCabe; Steve Colman; William King
Subject: Today's NRC News Releases
Attachments: 11-004.iii.pdf; 11-003.iii.pdf

Please find the attached.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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prep/579



NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs Region III

2443 Warrenville Road

Lisle IL 60532

Site: www.nrc.gov

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

No. III-11-004

March 28, 2011

Contact: Viktoria Mitlyng (630) 829-9662
Prema Chandrathil (630) 829-9663

E-Mail: OPA3.RegionIII@nrc.gov

NRC SCHEDULES OPEN HOUSE FOR APRIL 5 TO DISCUSS MONTICELLO NUCLEAR POWER PLANT PERFORMANCE AND NRC OVERSIGHT

The Nuclear Regulatory Commission staff has scheduled an open house for Tuesday, April 5, to discuss with local residents the agency's assessment of safety performance for last year at the Monticello nuclear power plant and other NRC oversight activities. The plant is operated by Northern States Power Company, Minnesota and is located in Monticello, Minn., about 40 miles northwest of Minneapolis.

The open house is informal and will begin at 2:30 p.m. CDT at the Monticello Public Library, 2807 W. County Road 75, in Monticello. NRC staff will be available to answer questions on the safety performance of the Monticello plant, as well as areas of NRC's regulatory activities not specifically associated with the Monticello station.

"The NRC continually reviews the performance of the Monticello plant and the nation's other commercial nuclear power facilities," said NRC Region III Administrator Mark Satorius. "This meeting allows us to discuss our annual assessment of safety performance with members of the local community. The goal of this open house is to explain how the NRC works and answer questions from residents about nuclear regulation."

A letter sent from the NRC Region III office to plant officials addressed the performance of the plant during 2010 and will serve as the basis for the discussion. It is available on the NRC Web site at: http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/LETTERS/mont_2010q4.pdf.

Overall, the NRC found that the Monticello plant operated safely in 2010. The NRC uses color-coded inspection findings and performance indicators to assess nuclear plant performance. The colors start with "green" and then increase to "white," "yellow" or "red," commensurate with the safety significance of the issues involved.

All performance indicators and inspection findings for Monticello during 2010 were determined to be "green." Performance indicators are a statistical measurement of plant and equipment performance.

Monticello will continue to receive the detailed inspection regime used by the NRC for plants that require no additional oversight. Routine inspections are performed by two NRC Resident Inspectors assigned to the plant and by inspection specialists from the Region III Office in Lisle, Ill., and the agency's headquarters in Rockville, Md. Among the areas of plant operations being inspected are radiation protection, dry cask spent fuel storage security and emergency preparedness exercise.

Current performance information for Monticello is available on the NRC website at: http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/MONT/mont_chart.html.

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



NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs Region III

2443 Warrenville Road

Lisle IL 60532

Site: www.nrc.gov

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

No. III-11-003

March 28, 2011

Contact: Viktoria Mitlyng (630) 829-9662
Prema Chandrathil (630) 829-9663

E-Mail: OPA3.RegionIII@nrc.gov

NRC SCHEDULES OPEN HOUSE FOR APRIL 5 TO DISCUSS QUAD CITIES NUCLEAR POWER PLANT PERFORMANCE AND NRC OVERSIGHT

The Nuclear Regulatory Commission officials have scheduled an open house for Tuesday, April 5, to discuss with local residents the agency's assessment of safety performance for last year at the Quad Cities nuclear power plant and other NRC oversight activities. The two-unit plant is operated by Exelon Generation Company is located in Cordova, Ill., about 20 miles northeast of Moline, Ill.

The open house is informal and will begin at 4 p.m. CDT at the Cordova Civic Center, 11th Street (just off IL Route 84 N), in Cordova. NRC staff will be available to answer questions on the safety performance of the Quad Cities plant, as well as areas of NRC's regulatory activities not specifically associated with this plant.

"The NRC continually reviews the performance of the Quad Cities plant and the nation's other commercial nuclear power facilities," said NRC Region III Administrator Mark Satorius. "This meeting allows us to discuss our annual assessment of safety performance with members of the local community. The goal of this open house is to explain how the NRC works and answer questions from residents about nuclear regulation."

A letter sent from the NRC Region III office to plant officials addressed the performance of the plant during 2010 and will serve as the basis for the discussion. It is available on the NRC Web site at: http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/LETTERS/quad_2010q4.pdf.

Overall, the NRC found that the Quad Cities plant operated safely in 2010. The NRC uses color-coded inspection findings and performance indicators to assess nuclear plant performance. The colors start with "green" and then increase to "white," "yellow" or "red," commensurate with the safety significance of the issues involved.

All performance indicators and inspection findings for Quad Cities during 2010 were determined to be "green." Performance indicators are a statistical measurement of plant and equipment performance.

Quad Cities will continue to receive the detailed inspection regime used by the NRC for plants that require no additional oversight. Routine inspections are performed by two NRC Resident Inspectors assigned to the plant and by inspection specialists from the Region III Office in Lisle, Ill., and the agency's headquarters in Rockville, Md. Among the areas of plant operations being inspected are radiation protection, dry cask spent fuel storage, emergency preparedness and fire protection.

Current performance information for Quad Cities is available on the NRC website at: http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/QUAD1/quad1_chart.html and http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/QUAD2/quad2_chart.html.

###

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

From: Tifft, Doug
Sent: Wednesday, March 30, 2011 9:03 AM
To: LIA04 Hoc; OST05 Hoc
Cc: Turtill, Richard; Virgilio, Rosetta
Subject: FW: NRC Issues Temporary Inspection Notice

FYI: please pass along feedback below from DE that there was not enough lines on yesterdays call.

Thanks,
-Doug

From: Fisher-Tyler Frieda (DHSS) [mailto:Frieda.Fisher-Tyler@state.de.us]
Sent: Wednesday, March 30, 2011 8:57 AM
To: McNamara, Nancy; Tifft, Doug
Subject: RE: NRC Issues Temporary Inspection Notice

Nancy & Doug,

Are there plans for any further conference calls with SLOs and EMA directors, or has that process been superceded by the HHS/NRC/NARR pacific rim earthquake calls?

I want to make sure I'm not missing any important calls for SLOs. Couldn't get on the 5 pm call yesterday, probably waited too long and lines were full.

Best, Frieda

From: McNamara, Nancy [mailto:Nancy.McNamara@nrc.gov]
Sent: Thursday, March 24, 2011 5:21 PM
To: McNamara, Nancy; Wilds, Edward; Fisher-Tyler Frieda (DHSS); Chomiszak Janet (DEMA); Tom Levering; rmuth@mema.state.md.us; Giarrusso, John (CDA); Christopher Pope; Kathryn Doutt; Paul Baldauf; Patrick Mulligan; Alyse Peterson; Feeney, Andrew; Sutton, Anthony; greeleyd@co.rockland.ny.us; AStiebeling@PCBES.org; \ \ sleary@co.orange.ny.us; Allard, David; Tamanini, Henry; Smith, James CIV; Vanags, Uldis; John Angil; meoneil@dps.state.vt.us; Nawoj, Mike; Janati, Rich; paul_eddy@dps.state.ny.us; Turner Jamie (DEMA); galefs@assembly.state.ny.us
Cc: Tifft, Doug; Thomson, Rebecca; Hammons, Darrell; Colman, Steve; Don.Boyce@dhs.gov
Subject: NRC Issues Temporary Inspection Notice

Today, the NRC issued Temporary Instruction 2515-183, entitled, "Followup to Fukushima Daiichi Nuclear Station Fuel Damage Event". The purpose of the instruction is to provide guidance to NRC inspectors to assess licensee activities and actions to assess its readiness to respond to an event similar to the Fukushima Daiichi nuclear plant fuel damage event. Included in that assessment will be the licensee's capability to mitigate station blackout conditions.

The inspections are to be completed by April 29, 2011 and report issued by May 13, 2011.

As per our MOU with our States, a State representative may observe these inspections. The inspection schedule has not been completed at this time. When we learn of the inspection dates, we will inform you immediately.

Regards,

PPP/580

Nancy

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 4:26 PM
To: FOIA Response.hoc Resource
Subject: FW: FEMA EPZ Fact Sheet

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Purvis, James [mailto:james.purvis@dhs.gov]
Sent: Friday, March 18, 2011 4:02 PM
To: LIA05 Hoc; Andrew Seward; Harry Sherwood; Michelle Ralston; Steve Horwitz; Tim Greten; Vanessa E. Quinn; Gardner, Patricia
Subject: RE: FEMA EPZ Fact Sheet

Processing . . .

From: prvs=0514256dd=LIA05.Hoc@nrc.gov [mailto:prvs=0514256dd=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Friday, March 18, 2011 3:58 PM
To: Andrew Seward; Harry Sherwood; Michelle Ralston; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Cc: Purvis, James
Subject: FW: FEMA EPZ Fact Sheet
Importance: High

Can someone at HQ or Mr. Purvis respond to this request?

Bonnie Sheffield 0700-1500
Ken Wierman 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: OST05 Hoc
Sent: Friday, March 18, 2011 3:56 PM
To: LIA05 Hoc
Subject: FW: FEMA EPZ Fact Sheet

ppp/587

From: Logaras, Harral
Sent: Friday, March 18, 2011 3:26 PM
To: OST05 Hoc
Subject: RE: FEMA EPZ Fact Sheet

Kim,

At the risk of being a pest, the information is indeed helpful, but I do not feel comfortable sharing it because the document doesn't have any source/authority identification. Please ask FEMA if they would consider branding the document.

Sincerely,

Harral Logaras
U. S. NRC Region III
Regional Government Liaison
630-829-9659

Link to the *Award Winning* NRC Information Digest <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1350/v22/sr1350v22.pdf>

Link to NRC Fact Sheets and Brochures <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/>

From: OST05 Hoc
Sent: Friday, March 18, 2011 9:48 AM
To: Logaras, Harral
Subject: RE: FEMA EPZ Fact Sheet

Harral,

Our FEMA coordinator has indicated that their regulations and procedures (44 CFR 350 and NUREG 0654) provided some of the context for the fact sheet.

From: Logaras, Harral
Sent: Friday, March 18, 2011 10:32 AM
To: OST05 Hoc
Subject: RE: FEMA EPZ Fact Sheet

Kim,

Thank you, your timing is absolutely perfect. Anticipating a questions from our State counterparts, I wonder if we know the context or document this information is taken from?

Sincerely,

Harral Logaras
U. S. NRC Region III
Regional Government Liaison
630-829-9659

Link to the *Award Winning* NRC Information Digest <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1350/v22/sr1350v22.pdf>

Link to NRC Fact Sheets and Brochures <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/>

From: OST05 Hoc

Sent: Friday, March 18, 2011 9:20 AM

To: McIntyre, David; Barker, Allan; Browder, Rachel; Erickson, Randy; Logaras, Herral; Maier, Bill; McNamara, Nancy; Tift, Doug; Trojanowski, Robert; Woodruff, Gena; Collins, Elmo; Dean, Bill; Heck, Jared; McCree, Victor; Pederson, Cynthia; Satorius, Mark; Easson, Stuart; Flannery, Cindy; LIA04 Hoc; Lukes, Kim; Maupin, Cardelia; Noonan, Amanda; OST05 Hoc; Rautzen, William; Rivera, Alison; Ryan, Michelle; Turtill, Richard; Virgilio, Rosetta

Subject: FEMA EPZ Fact Sheet

FYI –

Attached is a FEMA-generated fact sheet on EPZs that can be used for immediate use.

Kim Lukes
State Liaison – Liaison Team
Incident Response Center

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 4:25 PM
To: FOIA Response.hoc Resource
Subject: FW: Emergency Planning Zones

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Kish, James [mailto:James.Kish@dhs.gov]
Sent: Friday, March 18, 2011 3:11 PM
To: Purvis, James; LIA05 Hoc
Cc: Andrew Seward; Harry Sherwood; Michelle Ralston; Steve Horwitz; Tim Greten; Vanessa E. Quinn; Gardner, Patricia
Subject: RE: Emergency Planning Zones

Just a thought but shouldn't we segment the 10 and 50 mile zones referred to in this paper as '10 mile Emergency Planning Zone and 50 mile Ingestion Path Zone

From: Purvis, James
Sent: Friday, March 18, 2011 10:05 AM
To: 'LIA05 Hoc'
Cc: Andrew Seward; Harry Sherwood; Michelle Ralston; Steve Horwitz; Tim Greten; Vanessa E. Quinn; Kish, James; Gardner, Patricia
Subject: RE: Emergency Planning Zones

Attached is the final version of the subject document for immediate use.

James

From: prvs=0514256dd=LIA05.Hoc@nrc.gov [mailto:prvs=0514256dd=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Friday, March 18, 2011 9:34 AM
To: Purvis, James; Andrew Seward; Harry Sherwood; Michelle Ralston; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: FW: Emergency Planning Zones

FYI

FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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10pp/582

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From: Markley, Michael
Sent: Friday, March 18, 2011 9:33 AM
To: LIA05 Hoc
Subject: RE: Emergency Planning Zones

Thank you. Please forward the revised clean version when available.

From: LIA05 Hoc
Sent: Friday, March 18, 2011 9:20 AM
To: Markley, Michael
Subject: FW: Emergency Planning Zones

FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: LIA06 Hoc
Sent: Friday, March 18, 2011 8:48 AM
To: LIA05 Hoc
Subject: FW: Emergency Planning Zones

NRC comments on the draft EPZ document are attached.

Mark Lombard
Liaison Team Director
U.S. Nuclear Regulatory Commission
Operations Center

From: Williams, Kevin
Sent: Friday, March 18, 2011 8:42 AM
To: LIA06 Hoc
Cc: Kahler, Robert; LaVie, Steve; Anderson, Joseph
Subject: Emergency Planning Zones

Well-written document, attached are comments by NSIR/DPR regarding the EPZ overview.

Kevin

Kevin Williams, Chief
New Reactor Licensing Branch
Division of Preparedness and Response
Nuclear Security and Incident Response
301-415-3264

EMERGENCY PLANNING ZONES

EPZs in Brief

Federal Emergency Management Agency (FEMA) and Nuclear Regulatory Commission (NRC) emergency preparedness planning guidance provides for two emergency planning zones (EPZs) for U.S. commercial nuclear power plants (NPPs):

- **Plume** Exposure Pathway (apx. 10 Miles in radius)
 - Designed to safeguard the population most at risk from **direct exposure** to radiation levels in excess of Environmental Protection Agency Protective Action Guidelines (PAGs)
- **Ingestion** Exposure Pathway (apx. 50 Miles in radius)
 - **Designed to protect** the public from **secondary exposure** to radiation through the food chain or public water supplies

The planning zones are intended to be scalable over time to account for changing conditions that could possibly extend outside the initial EPZ.

Specifically, NUREG-0654/FEMA-REP-1 states: "In a particular emergency, protective actions might well be restricted to a small part of the planning zone. On the other hand, for the worst possible accidents, protective actions would need to be taken outside the planning zones" (I.D., p.11) **i.e., the EPZs are the base areas requiring emergency planning – they are designed to be expanded (beyond the base of 10, 50 miles), as necessary, during emergencies.**

Note: The 10 & 50 mile EPZs are the Federally required minimum. FEMA and NRC regulations state that the exact size and shape of the EPZs shall be determined by the State and local governments – in consultation with FEMA and the NRC, taking into account such local conditions as demography, topography, land characteristics, access routes and local jurisdiction boundaries.(44 CFR § 350.7).

EPZ Evacuations

FEMA affirms that evacuation of the public is the preferred initial protective action in the event of a severe (core damage) emergency occurring (or likely to occur) at NPPs. Federal requirements for NPPs include the establishment of EPZs at 10 and 50-mile distances surrounding the site that detail evacuation routes. Evacuation planning includes the development and incorporation of periodic evacuation time estimate studies to inform evacuation strategies such that prompt and effective actions can be taken by offsite response organizations to protect the public in the event of a radiological emergency. This includes accounting for both permanent and transient populations, persons with disabilities and access/functional needs, those whose mobility may be impaired because of institutional or other confinement as well as provisions for the monitoring, decontamination and congregate care of evacuees, as necessary.

Where immediate evacuation of an affected population within the EPZ is not practical due to impediments (e.g., debris blocking evacuation routes, severe weather, etc.) or where evacuation could pose a greater potential health risk, temporary sheltering-in-place of the public is the preferred protective action. State, Tribal and local evacuation plans and

procedures for NPP communities are reviewed and approved by FEMA. While actual evacuations of the public are not required in biennial FEMA evaluations, appropriate demonstrations by State, Tribal and local response agencies to direct and control a public evacuation is assessed.

EPZs in Detail

The Emergency Planning Zone (EPZ) is the area surrounding an commercial nuclear power plant (NPP) for which plans/procedures have been made to ensure that prompt and effective actions are taken to protect the health and safety of the public in case of an incident at the NPP. The Federal Emergency Management Agency (FEMA) recognizes two types of EPZs for planning purposes: the plume exposure pathway EPZ and the ingestion exposure pathway EPZ. The characteristics of these two types of EPZs are summarized in Exhibit I. Each EPZ is a roughly circular area, with the NPP at the center.

The EPZs sizes represent a technical judgment based on the type and quantity of hazardous materials present (source term) and the potential risks where detailed planning is needed to ensure adequate response to an emergency. An EPZ may include more than one State. "Split" jurisdictions (i.e., part of the jurisdiction is included in the EPZ and part is not) also exist. In these cases, EPZ boundaries are determined based on consultation with all parties involved, including OROs, FEMA, and the NRC. In some cases, a conservative option is taken and the entire jurisdiction is included in the EPZ.

Exhibit I: Plume and Ingestion EPZ Characteristics

Type of EPZ	Exposure Sources	Size
Plume Exposure Pathway	<ul style="list-style-type: none"> • Whole-body external exposure to gamma radiation from the passing plume and from deposited material • Thyroid exposure through inhalation from the passing plume • Committed effective dose equivalent exposure to other critical organs through inhalation 	Approximately 10-mile radius
Ingestion Exposure Pathway	<ul style="list-style-type: none"> • Ingestion of contaminated water or foods, such as milk, fresh vegetables, and aquatic foodstuffs, may result in increased risk of radiation-induced cancer to the thyroid, bone marrow, and other organs 	Approximately 50-mile radius

The size of the **plume exposure pathway** EPZ, about 10 miles in radius, is based on the following considerations from NUREG-0654/FEMA-REP-1:

- Projected doses from traditional design-basis accidents/incidents would not exceed the Environmental Protection Agency Protective Action Guideline (PAG) levels outside the zone;
- Projected doses from most core damage sequences would not exceed PAG levels outside the zone;
- For the worst-case core damage sequences, immediate life-threatening doses would generally not occur outside the zone; and

- **Detailed planning within approximately 10 miles would provide a substantial base for expansion of response efforts to a larger area, if necessary.**

The size of the **ingestion exposure pathway EPZ**, about 50 miles in radius, including the 10-mile radius plume exposure pathway EPZ, is based on the following considerations:

- The downwind range within which contamination may potentially exceed the PAGs is limited to about 50 miles from an NPP because of wind shifts during the release and travel periods;
- Atmospheric iodine (i.e., iodine suspended in the atmosphere for long periods) may be converted to chemical forms that do not readily enter the ingestion pathway; and
- Much of the particulate material in a radioactive plume would have been deposited on the ground within about 50 miles from the NPP.

The likelihood of exceeding ingestion exposure pathway PAG levels at 50 miles is comparable to the likelihood of exceeding plume exposure pathway PAG levels at 10 miles.

From: ET07 Hoc
Sent: Wednesday, March 30, 2011 5:36 AM
To: ET05 Hoc
Subject: FW: ACTION: WE'VE CONTACTE VINCE HOLAHAN

Tasker added to task tracker. Please don't add a duplicate action item.

From: Wiggins, Jim
Sent: Wednesday, March 30, 2011 5:24 AM
To: Virgilio, Martin; Weber, Michael; Zimmerman, Roy; ET05 Hoc; Boger, Bruce
Cc: Caldwell, Robert; LIA01 Hoc; ET07 Hoc; Holahan, Patricia; Masse, Todd; Stapleton, Bernard; Hoc, PMT12; Morris, Scott
Subject: ACTION: WE'VE CONTACTE VINCE HOLAHAN

Confirmed that Vince Holahan is on-station at PACOM. He's working out of a large SCIF so he can't use his BB. We would need to establish comm windows to talk to him.....reminds some of us of our former lives.

Days needs to work on other options....e.g. have ILTAB or ISB identify a STE phone number in the PACOM SCIF that we could use or develop some sort of ability to email him real-time.

ET05 – open a tasker on this, assigned to LT.

PPP/583

From: OST02 HOC
Sent: Wednesday, March 30, 2011 10:46 AM
To: ET07 Hoc
Subject: Book8.xlsx
Attachments: Book8.xlsx

PPP/584

EST Status Officer			
Sat-Sun	4/2-4/3	11pm - 7am	Jeff Grant
Sun	3-Apr	7am - 3pm	John Jolicoeur
Sun	3-Apr	3pm-11pm	
Sun-Mon	4/3-4/4	11pm - 7am	Jeff Grant
Mon	4-Apr	7am - 3pm	Jane Marshall
Mon	4-Apr	3pm-11pm	
Mon-Tue	4/4-4/5	11pm - 7am	
Tue	5-Apr	7am - 3pm	Jane Marshall
Tue	5-Apr	3pm-11pm	
Tue-Wed	4/5-4/6	11pm - 7am	Jeff Grant
Wed	6-Apr	7am - 3pm	Jane Marshall
Wed	6-Apr	3pm-11pm	
Wed-Thur	4/6-4/7	11pm - 7am	Jeff Grant
Thur	7-Apr	7am - 3pm	Jane Marshall
Thur	7-Apr	3pm-11pm	
Thur-Fri	4/7-4/8	11pm - 7am	Jeff Grant
Fri	8-Apr	7am - 3pm	Jane Marshall
Fri	8-Apr	3pm-11pm	
Fri-Sat	4/8-4/9	11pm-7am	Jeff Grant
Sat	9-Apr	7am - 3pm	Jane Marshall
Sat	9-Apr	3pm-11pm	
Sat-Sun	4/9-4/10	11pm - 7am	Jeff Grant

From: Weber, Michael
Sent: Monday, April 04, 2011 6:51 AM
To: LIA07 Hoc
Cc: ET01 Hoc; ET05 Hoc; OST02 HOC
Subject: RESPONSE - Go Book Update - 0700 EDT, April 4, 2011

Thanks. Check the second bullet under PMT regarding location where drinking water restrictions remain in place – should it be “litate” rather than “Lit~~at~~e”?

From: LIA07 Hoc
Sent: Monday, April 04, 2011 6:41 AM
To: LIA07 Hoc; Batkin, Joshua; Borchardt, Bill; Bradford, Anna; Coggins, Angela; Cohen, Shari; Collins, Elmo; Cooper, LaToya; Dyer, Jim; ET07 Hoc; Flory, Shirley; Gibbs, Catina; Haney, Catherine; Hudson, Sharon; Jaczko, Gregory; Johnson, Michael; Leeds, Eric; Loyd, Susan; Pace, Patti; Schwarz, Sherry; Sheron, Brian; Speiser, Herald; Sprogeris, Patricia; Taylor, Renee; Virgilio, Martin; Walker, Dwight; Walls, Lorena; Weber, Michael
Subject: Go Book Update - 0700 EDT, April 4, 2011

Attached, please find updated information for the “Go Books”.

The update includes:

- The 0700 04/04/11 One-Pager Briefing Sheet

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

-Jim

Jim Anderson
Executive Briefing Team Coordinator
US Nuclear Regulatory Commission
LIA07.HOC@nrc.gov (Operations Center)
James.anderson@nrc.gov

From: LIA06 Hoc
Sent: Wednesday, March 30, 2011 7:44 PM
To: ET05 Hoc
Subject: FW: RESPONSE - [NOVA] "Japan's Killer Quake"

Liaison Team Director
U.S. Nuclear Regulatory Commission
Operations Center

From: Weber, Michael
Sent: Wednesday, March 30, 2011 6:52 PM
To: Rihm, Roger
Cc: LIA08 Hoc; LIA06 Hoc; Zimmerman, Roy; McDermott, Brian; Brenner, Eliot; Hayden, Elizabeth; Trapp, James
Subject: RESPONSE - [NOVA] "Japan's Killer Quake"

Thanks, Roger. On tonight on the local PBS stations – WETA and MPT. Ops Center – may be time to change the channel on one of your screens tonight!

Subject: Fwd: [NOVA] "Japan's Killer Quake"



Japan's Killer Quake
Airing Wednesday,
March 30 at 9 pm on PBS
(Check local listings)
[Watch a preview](#)



In its worst crisis since World War II, Japan faces disaster on an epic scale: a death toll likely in the tens of thousands, massive destruction of homes and businesses, shortages of water and power, and the specter of nuclear meltdown. With exclusive footage, NOVA captures the unfolding human drama and offers a clear-headed investigation of what triggered the earthquake, tsunami, and subsequent nuclear crisis. Can

APP/585



YOUTUBE



RSS



INSIDE NOVA

science and technology ever prevent devastation in the face of overwhelmingly powerful forces of nature?

Web Features

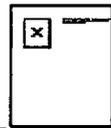
Watch a Preview

Watch a preview of the program online now.

Training For a Nuclear Crisis

Are workers at U.S. nuclear power plants prepared to deal with earthquakes, tsunamis, and other disasters?

Remember, most NOVA programs stream on our website the day after our premiere, so if you missed any broadcast, you can catch it at: <http://www.pbs.org/wgbh/nova/schedule.html>



"Japan's Killer Quake" is now available on DVD from ShopPBS.org. NOVA email subscribers get an exclusive offer of 20% off your entire order. Enter promotion code NOVAPBS at checkout to receive your discount. Cannot be combined with other offers. Offer valid through 5/31/11.

More NOVA News

"Japan's Killer Quake" Producer Callum Macrae

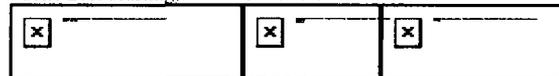
Producer Callum Macrae writes a moving blog post for [Inside NOVA](#) about his time filming in Japan.

Inside NOVA Op-Ed pieces on Nuclear Energy in the United States

NOVA asked a group of nuclear and environmental experts to participate in an "Op-Ed" blog series on [Inside NOVA](#) on what the situation in Japan means for the future of nuclear energy here in the United States. The series starts off with NOVA researcher Kate Becker asking if this is the end of nuclear renaissance.

Thank you for visiting NOVA on the Web. We welcome your questions, comments, and feedback. You can send a message directly to nova@wgbh.org, or use our [feedback form](#).

Funding for NOVA is provided by David H. Koch, the Howard Hughes Medical Institute, the Corporation for Public Broadcasting, and PBS viewers.



Additional funding for "Japan's Killer Quake" is provided by Millicent Bell, through the Millicent and Eugene Bell Foundation.

Exclusive funding for "The Secret Life of Scientists and Engineers" is provided by the Alfred P. Sloan Foundation.



You are receiving this e-mail because you subscribed to the NOVA Newsletter. To unsubscribe, or update your newsletter format preference, visit support.wgbh.org/site/CO. Please do not reply to this email. If you have feedback, please visit www.pbs.org/wgbh/nova/feedback/.



From: OST02 HOC
Sent: Wednesday, March 30, 2011 5:16 PM
To: ET05 Hoc
Subject: Schedule

Melissa...

Stop out when you have a minute regarding the schedule.

Thanks!

EST Administrative Support
NRC Operations Center
eMail: OST02.HOC@nrc.gov
301-816-5100

PPP/586

From: Zimmerman, Roy
Sent: Wednesday, March 30, 2011 9:30 PM
To: ET05 Hoc
Subject: Document1
Attachments: Doc1.docx

PPP/587

INDUSTRY CONSORTIUM TELECONFERENCE 3/30

APPRECIATE EACH OF YOU TAKING TIME OUT OF YOUR DAY TO PARTICIPATE IN THIS CALL.....I BELIEVE THIS MAY BE THE THIRD CALL SINCE THE INITIAL KICKOFF IN MARCH.

OUR GOAL IS TO SEE WHAT WE CAN DO, AS OUR PART, IN THE OVERALL SUPPORT OF THE REQUESTS RECEIVED FROM THE JAPANESE GOVT.

I'M ROY ZIMMERMAN, EXECUTIVE TEAM DIRECTOR TONIGHT IN OUR OPERATIONS CENTER..... AND I'D SUGGEST WE START BY GOING AROUND AND IDENTIFYING THE ATTENDEES ON THE CALL.

WE BELIEVE THAT PROGRESS IS BEING MADE, IN COUNTRY, WITH RESPECT TO ESTABLISHING AN INFRASTRUCTURE TO EFFECTIVELY COORDINATE U.S. SUPPORT ON THE NUCLEAR EMERGENCY IN JAPAN.

THE US EMBASSY IN TOKYO IS DEVELOPING A LIST OF REQUESTED MATERIALS AND NEEDS FROM THE JAPANESE GOVT. THIS LIST WILL CONSOLIDATE SEVERAL EFFORTS THAT HAVE BEEN OPERATING IN PARALLEL, AND WILL INCLUDE ITEMS THAT ARE REQUESTED OF THE U.S. INDUSTRY THROUGH THE CONSORTIUM. WE SEE THE BENEFIT OF IN A CONSOLIDATED LIST.

THIS ISSUE IS IMPORTANT ENOUGH THAT THE FEDERAL GOVT WILL HOLD A HIGH LEVEL PRINCIPALS MTG ON FRIDAY TO DISCUSS HOW WELL SUPPORT TO JAPAN IS PROCEEDING.

WE ARE BLAZING A BIT OF A NEW TRAIL, TYPICALLY U.S. SUPPORT PROCEEDS THRU HUMANITARIAN NEEDS BUT ALTHOUGH OUR WORK MAY COME CLOSE, IT MAY NOT FULLY MEET THAT DEFINITION AND PROCESS.....ITS IMPORTANT TO STAY WITHIN THE CORRECT PROCESS LANE AND THE FEDERAL GOVT RECOGNIZES IT IS OUR ROLE TO MAKE THIS SUPPORT FOR JAPAN HAPPEN AS EFFECTIVELY AND EFFICIENTLY AS POSSIBLE. THANK YOU.

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 4:16 PM
To: FOIA Response.hoc Resource
Subject: FW: FYI - GOVERNMENT EXECUTIVE ARTICLE ON GOVERNMENT LIABILITY FOR A LARGE-SCALE NUCLEAR EMERGENCY

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Weber, Michael
Sent: Wednesday, March 16, 2011 6:26 PM
To: LIA05 Hoc
Cc: Leeds, Eric; McDermott, Brian; Wiggins, Jim; Evans, Michele; Virgilio, Martin; Burnell, Scott; McIntyre, David
Subject: FYI - GOVERNMENT EXECUTIVE ARTICLE ON GOVERNMENT LIABILITY FOR A LARGE-SCALE NUCLEAR EMERGENCY

This article takes NRC to task for being a weak regulator.

A Japan-reactor repeat in the United States could cost the government dearly

By Jim Tankersley *National Journal* March 15, 2011

An American nuclear power-plant accident similar to the ongoing disaster in Japan would leave taxpayers on the hook for billions, and perhaps hundreds of billions, of dollars in health and economic damage claims, risk experts estimate.

Federal law puts most nuclear-accident liability on the shoulders of taxpayers, but regulators have not enforced safety standards vigorously enough to fully safeguard against those risks, economists Geoffrey Heal and Howard Kunreuther wrote in a 2009 [paper](#) that warned of excessive taxpayer exposure to the risks of nuclear catastrophe.

Heal, a professor at Columbia University, and Kunreuther, of the Risk Management and Decision Processes Center at the University of Pennsylvania's Wharton School of Business, acknowledge that the risks and costs of a nuclear accident in the United States are difficult to quantify. But they say that the upper-end damage estimates of a full core meltdown are almost "unimaginable."

The prospect of such an accident, while low, suddenly seems more imaginable in the wake of the simultaneous failures of three reactors at Japan's Fukushima Daiichi Nuclear Power Station, following the 8.9-scale earthquake and massive tsunami that struck the country on Friday.

PPP/588

Heal and Kunreuther sketch a deadly and expensive example of how bad a U.S. nuclear accident might be: A meltdown at the Indian Point nuclear-power station 25 miles north of New York City, they write, could eventually kill some 64,000 people - damage that they calculate at \$384 billion - and inflict \$50 billion to \$100 billion in economic costs. Nightmare scenarios involving lost nuclear material that ends up in terrorists' hands, or the long-term evacuation of New York City, would dramatically increase the costs.

The Price-Anderson act limits private liability for those costs to \$375 million for an individual company, plus \$12.6 billion from an industry liability pool, leaving taxpayers on the hook for the rest. That transfer of liability creates conditions for moral hazard - an incentive for an electric utility, in this case, to take on too much risk because the utility would not bear the full costs of a catastrophic event.

The Nuclear Regulatory Commission is supposed to be taxpayers' guard against that risk. But, Heal and Kunreuther write, it's far from clear that regulators have done the job adequately: "There is empirical evidence that the NRC does not aggressively pursue and penalize mismanagement of nuclear-power stations, and that the federal authorities are not sensitive to the increase in potential costs associated with siting near densely populated areas."

In a phone interview on Monday, Heal gave the NRC a "5 out of 10" on a regulatory rating scale and raised concerns over whether the agency had adequately prepared for the possibility of a large American earthquake shaking a nuclear facility. In California, home to two working nuclear plants, Heal said that a massive radiation release would inflict damage "in the billions and billions of dollars."

U.S. regulators must quickly learn the still-unfolding lessons from the Japanese plant failures, he said, including whether plant operators there took any safety shortcuts.

"The priority in this country now is to focus very heavily on reactors that are in a seismic zone," Heal said, adding, "The NRC is supposed to be our guarantee against moral hazard. But if the NRC isn't keeping its game up to scratch, the risk from moral hazard is tremendous."

Mike

Michael Weber
Deputy Executive Director for Materials, Waste, Research,
State, Tribal, and Compliance Programs
U.S. Nuclear Regulatory Commission

301-415-1705
Mail Stop O16E15

From: PMT07 Hoc
Sent: Wednesday, March 30, 2011 9:17 PM
To: PMT03 Hoc
Subject: FW: SONGS Samples for 3/30/11

From: LIA08 Hoc
Sent: Wednesday, March 30, 2011 8:50 PM
To: Hoc, PMT12; PMT07 Hoc
Subject: FW: SONGS Samples for 3/30/11

For your info. Jeff Temple

From: HOO Hoc
Sent: Wednesday, March 30, 2011 7:44 PM
To: LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC; LIA08 Hoc
Subject: FW: SONGS Samples for 3/30/11

From: Mike.McBrearty@sce.com [mailto:Mike.McBrearty@sce.com]
Sent: Wednesday, March 30, 2011 7:36 PM
To: Mike.McBrearty@sce.com; Hoc, PMT12; HOO Hoc; Reynoso, John; Warnick, Greg
Subject: SONGS Samples for 3/30/11

Below are the results of SONGS air samples for March 30, 2011.

Measured concentration of I-131 was 2.2E-13 microcuries/cc.

Measured concentration of Cs-137 ranged from 1.9E-13 to 3.1E-13 microcuries/cc.

Please let me know if you have any questions.

Mike McBrearty
Nuclear Regulatory Affairs
San Onofre Nuclear Generating Station

ppp/589

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 4:14 PM
To: FOIA Response.hoc Resource
Subject: FW: Rad Info
Attachments: image001.gif

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: LIA04 Hoc
Sent: Wednesday, March 16, 2011 1:19 PM
To: LIA05 Hoc
Subject: FW: Rad Info

From: Maier, Bill
Sent: Wednesday, March 16, 2011 12:19 PM
To: Jeff Eckerd
Subject: RE: Rad Info

Jeff,

NRC does not have a take on this concern as we are not the agency responsible for deciding whether or not to conduct such screenings. I will forward your question up to our Headquarters responders so that they may direct it to the appropriate group/agency.

Bill Maier

From: Jeff Eckerd [mailto:jeffrey.eckerd@doh.hawaii.gov]
Sent: Tuesday, March 15, 2011 9:28 PM
To: Maier, Bill
Subject: Rad Info

Aloha, Bill!

Does NRC have any take on whether planes departing from Japan should be checked for radiation contamination? I'm not sure if you guys have received any calls yet, but we are getting inquiries. Contamination should be very low, if any and is also dependent upon where the aircraft departs from. I just wanted to make sure we are all on the same page and not sending out mixed messages. Please advise.

APP/590

Thanks!

jeff



HAWAII STATE DEPARTMENT OF HEALTH
HEALTHY PEOPLE • HEALTHY COMMUNITIES • HEALTHY ISLANDS

Jeffrey M. Eckerd, Acting Program Manager
State of Hawaii - Dept. of Health
Indoor and Radiological Health Branch
591 Ala Moana Blvd., Rm. 133
Honolulu, HI 96813
Ph. (808) 586-4700 FAX (808) 586-5838
E-mail: jeffrey.eckerd@doh.hawaii.gov

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 4:15 PM
To: FOIA Response.hoc Resource
Subject: FW: Rad Info
Attachments: image001.gif

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: LIA04 Hoc
Sent: Wednesday, March 16, 2011 5:59 PM
To: Akstulewicz, Brenda
Cc: OST05 Hoc; Maier, Bill; LIA11 Hoc; LIA05 Hoc; Flannery, Cindy; Lukes, Kim; Noonan, Amanda; Rautzen, William; Rivera, Alison; Ryan, Michelle; Turtill, Richard; Virgilio, Rosetta; Barker, Allan; Browder, Rachel; Erickson, Randy; Logaras, Harral; McNamara, Nancy; Tift, Doug; Trojanowski, Robert; Woodruff, Gena
Subject: RE: Rad Info

Per the original e-mail in this thread, I called Hawaii's Jeffrey Eckerd just a few moments ago. I informed him that Federal partners (HHS, CDC, DHS/TSA,) are working to address in a public way how the U.S. is responding to concerns about planes coming in from Japan and contamination. I'll communicate more on this as I learn from HHS, CDC, and/or TSA.

Richard Turtill
State Liaison – Liaison Team
Incident Response Center

From: Akstulewicz, Brenda
Sent: Wednesday, March 16, 2011 4:37 PM
To: LIA04 Hoc
Subject: FW: Rad Info

State folks,
Could you please talk with the State of Hawaii's Dept. of Health? (if you haven't already) They had some questions below....

Thanks!
-Jenny

ppp/591

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 4:24 PM
To: FOIA Response.hoc Resource
Subject: FW: USAID Fact Sheet
Attachments: japan_eqtsu_fs07_03-17-2011.pdf

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: OST05 Hoc
Sent: Friday, March 18, 2011 2:19 PM
To: OST05 Hoc; Meighan, Sean; Nguyen, Quynh; McIntyre, David
Cc: Barker, Allan; Browder, Rachel; Erickson, Randy; Logaras, Harral; Maier, Bill; McNamara, Nancy; Tifft, Doug; Trojanowski, Robert; Woodruff, Gena; Collins, Elmo; Dean, Bill; Heck, Jared; McCree, Victor; Pederson, Cynthia; Satorius, Mark; Easson, Stuart; Flannery, Cindy; LIA04 Hoc; Lukes, Kim; Maupin, Cardelia; Noonan, Amanda; Rautzen, William; Rivera, Alison; Ryan, Michelle; Turtill, Richard; Virgilio, Rosetta; LIA05 Hoc
Subject: RE: USAID Fact Sheet

Dave,

The attached USAID Fact Sheet came across an e-mail and I sent this out to internal folks. Just sending it for your information and seeing if you would like to review it to determine if the information in the fact sheet could be provided in response to inquiries or just keep this internal?

Kim Lukes
State Liaison – Liaison Team
Incident Response Center

From: OST05 Hoc
Sent: Friday, March 18, 2011 1:47 PM
To: Meighan, Sean; Nguyen, Quynh
Cc: Barker, Allan; Browder, Rachel; Erickson, Randy; Logaras, Harral; Maier, Bill; McNamara, Nancy; Tifft, Doug; Trojanowski, Robert; Woodruff, Gena; Collins, Elmo; Dean, Bill; 'Heck, Jared'; McCree, Victor; Pederson, Cynthia; Satorius, Mark; Easson, Stuart; Flannery, Cindy; LIA04 Hoc; Lukes, Kim; Maupin, Cardelia; Noonan, Amanda; OST05 Hoc; Rautzen, William; Rivera, Alison; Ryan, Michelle; Turtill, Richard; Virgilio, Rosetta
Subject:

FYI – Attached is a USAID fact sheet that was just received.

PPP/592

Sean and Quynh – Please consider adding this to the Sharepoint site.



USAID

FROM THE AMERICAN PEOPLE

**BUREAU FOR DEMOCRACY, CONFLICT, AND HUMANITARIAN ASSISTANCE (DCHA)
OFFICE OF U.S. FOREIGN DISASTER ASSISTANCE (OFDA)**

Japan – Earthquake and Tsunami

Fact Sheet #7, Fiscal Year (FY) 2011

March 17, 2011

Note: The last fact sheet was dated March 16, 2011.

KEY DEVELOPMENTS

- The earthquake and tsunami have resulted in 5,692 deaths and left 9,522 people missing, as reported by the Government of Japan (GoJ) on March 17. The disasters have damaged or destroyed more than 86,000 buildings and 1,200 roads.
- On March 17, U.S. Government (USG) Disaster Assistance Response Team (DART) and U.N. Disaster Assessment and Coordination (UNDAC) staff conducted an aerial assessment of tsunami- and earthquake-affected areas from Tokyo to just south of Fukushima Prefecture and a ground assessment of Oarai village in Ibaraki Prefecture. In Oarai, DART staff observed some road damage but no significant levels of damage to houses in the areas visited, where the tsunami wave height was estimated at nearly 5 feet. No individuals are currently displaced in Oarai, according to village residents.
- On March 17, a 35-member U.S. Department of Energy (DoE) team in Japan began aerial surveillance missions to measure air contamination between Tokyo and Fukushima. The DoE continues to collect data to inform analysis.

NUMBERS AT A GLANCE¹		SOURCE
Confirmed Deaths	5,692	GoJ NPA ² – March 17, 2011
Missing Persons	9,522	GoJ NPA – March 17, 2011
Number of People in Evacuation Centers	413,516	JSDF ³ – March 17, 2011

FY 2011 HUMANITARIAN FUNDING PROVIDED TO JAPAN TO DATE

USAID/OFDA Assistance for the Japan Earthquake and Tsunami \$7,191,171
Total USAID Humanitarian Assistance for the Japan Earthquake and Tsunami \$7,191,171
Total Planned Assistance from USAID for the Japan Earthquake and Tsunami \$8,000,000

CONTEXT

- On March 11 at 0046 hours Eastern Standard Time (EST), or 1446 hours Japan Standard Time (JST), a magnitude 9.0 earthquake occurred east of Honshu—the largest and main island of Japan—at a depth of approximately 15 miles. The epicenter of the earthquake was located 80 miles east of Sendai, the capital of Miyagi Prefecture, and 231 miles northeast of Tokyo. The earthquake generated a large tsunami that resulted in additional fatalities and damage, particularly in Miyagi, Fukushima, and Iwate prefectures.
- On March 11, U.S. Ambassador John V. Roos declared a disaster due to the effects of the earthquake and tsunami in Japan. In response, USAID/OFDA provided an initial \$100,000 through the U.S. Embassy in Tokyo to assist with local relief efforts. USAID deployed a DART—including two urban search and rescue (USAR) teams from Fairfax County, Virginia, and Los Angeles County, California—to Japan to coordinate the USG response and support Japanese USAR efforts. In addition, USAID activated a Response Management Team (RMT) in Washington, D.C.
- InterAction, an alliance of U.S.-based non-governmental organizations (NGOs), maintains a list of organizations accepting donations for the Japanese earthquake response. The American Red Cross (AmRC) accepts donations of \$10 through text messages of “redcross” sent to 90999.

USAR Operations

- On March 17, U.S. and U.K. USAR teams conducted a joint mission in three previously unsearched sectors of Kamaishi City, Iwate Prefecture. USAR teams noted that the damages in Kamaishi were due to the tsunami, with no earthquake-related damages observed. The combined U.S. and U.K. teams searched a wide area of Kamaishi for five hours but did not detect any live victims.

¹ Figures remain preliminary and are expected to change.

² National Police Agency (NPA).

³ Japan Self Defense Force (JSDF).

- The L.A. County and Fairfax County USAR teams have completed all searches requested by the Osaka Fire Department, coordinator of USAR efforts in Ofunato and Kamaishi cities, with no live rescues.
- According to UNDAC, international teams are expected to finish rescue operations in the coming days as the priority shifts to relief and recovery. On March 17, UNDAC reported that three teams from Germany, Singapore, and Switzerland have closed their camps and are returning to their respective countries.
- To date, the U.S. Military has conducted 132 helicopter and 641 aircraft missions to assist in survivor recovery, personnel transport, and relief commodities distribution. The U.S. Department of Defense (DoD) continues to support search and rescue operations at sea through the use of aerial and surface assets.

Logistics and Relief Supplies

- To date, the GoJ has restored 18 main roads, 5 airports, and 6 ports to facilitate aid delivery in affected areas, according to the U.N. Office for the Coordination of Humanitarian Affairs (OCHA). The International Medical Corps (IMC) reported that systems for delivery of basic goods do not appear overwhelmed at this time in Sendai, with taxis, running water, and electricity available. However, the current shortage of fuel is limiting the aid delivery capacity of relief agencies, private transportation companies, municipalities, and the JSDF. Furthermore, poor communications and insufficient capacity in affected areas has also restricted the delivery of relief items.
- As reported by OCHA, the International Telecommunication Union has dispatched 37 broadband global area network terminals to Japan to aid rescue operations.
- OCHA also reports that All Nippon Airways Group has agreed to provide free air transport of humanitarian personnel and relief items.
- Approximately 13 NGOs—including Médecins Sans Frontières, Save the Children, and AmRC—are working through local partners to provide assistance in Japan's tsunami- and earthquake-affected areas, according to OCHA. In addition, the U.N. World Food Program is assisting in the transport of 60,000 blankets to affected areas.

Humanitarian Assessments

- On March 17, DART and UNDAC staff conducted an aerial assessment of tsunami- and earthquake-affected areas from Tokyo to just south of Fukushima Prefecture and a ground assessment of Oarai village in Ibaraki Prefecture. In Oarai, DART staff observed some road damage but no significant levels of damage to houses in the areas visited, where the tsunami wave height was estimated at nearly 5 feet. No individuals are currently displaced in Oarai, according to village residents. DART staff did not observe any dire humanitarian needs in Oarai but noted that residents reported fuel shortages, with numerous gas stations closed.
- On March 17, DART staff continued to engage at three levels to determine any possible humanitarian needs in Japan—nationally through Japan's Ministry of Foreign Affairs (MoFA) and other GoJ contacts, locally at the prefecture level and in coordination with U.S. Forces-Japan, and through Japanese civil society organizations, including Japan Platform (JP).

Humanitarian Needs and Response

- While complete information on the extent of needs remains unavailable at this time, IMC reported that the GoJ, the Japanese Red Cross Society, and the private sector appear to have significant resources and are providing a substantial amount of assistance to individuals in affected areas. To date, more than 72,400 JSDF personnel, as well as police, fire service, and Japanese coast guard personnel, are located throughout earthquake-, tsunami-, and nuclear-affected areas.
- Due to the significant capacity in Japan, DART staff reported that local and international NGOs likely will provide only a small, supporting role during the response targeting specific gaps. At present, a minimal number of local and international NGOs appear to be implementing programs in affected areas.
- Japan's NEC Corporation is working to restore information technology capabilities to affected prefectures, hospitals, and private companies in the northeastern region, according to OCHA.

Displacement

- According to the JSDF, approximately 413,516 people are currently staying in evacuation centers. Various agencies report differing numbers of people residing in these centers, with the U.N. reporting that up to 430,000 people may be staying in the centers. More than 90 percent of people in evacuation centers are in the prefectures of Iwate, Myagi, and Fukushima. An unconfirmed number of individuals are also staying with host families.

Emergency Food Assistance

- According to OCHA, the GoJ has delivered approximately 1.5 million meals to evacuation centers and hospitals in affected areas—a significant increase from the 483,550 meals delivered as of yesterday.

- Nearly 40 private sector companies have offered 2.4 million meals and 300,000 liters of water to assist affected populations, as reported by OCHA. The Japanese Consumers' Co-operative Union has delivered 1.3 million food and relief items to affected areas.

Water, Sanitation, and Hygiene

- OCHA reports that 1.6 million households in 12 prefectures remain without water. GoJ officials are coordinating with 245 water supply companies to secure an emergency water supply and have arranged to send 314 water supply vehicles to the most affected areas, including Fukushima, Iwate, Miyagi, and Ibaraki prefectures.

Health

- Humanitarian agencies have indicated concerns regarding the health of evacuees due to inadequate heating and medical supplies in evacuation centers, according to OCHA. Doctors deployed to affected areas have reported that a lack of clean water and the freezing weather are contributing to the poor health of evacuees, particularly the elderly. On March 17, GoJ officials announced that public services for people living in evacuation centers will be a priority and requested that psycho-social activities be a part of humanitarian assistance offered to affected populations and rescue teams.
- IMC staff have reported that the GoJ is supporting a robust medical response through Japanese Disaster Medical Assistance Teams (DMATs) in affected areas, augmented by the substantial medical capacity based in country and networks of local volunteers. According to OCHA, the number of Japanese DMATs operating in Iwate, Miyagi, and Fukushima prefectures has decreased from 100 to 30 as the GoJ response shifts away from emergency medical assistance.
- IMC staff reported that health staff in Sendai are not currently treating a large number of individuals with significant injuries or tsunami-related illnesses. According to medical personnel, the hospital in Sendai currently has approximately 200 vacant beds for patients.

Nuclear Infrastructure

- In addition to conducting aerial surveillance missions, DoE installed high volume air pump sensors on the roof of the U.S. Embassy for advanced radiation detection. To date, the sensors have not detected any increases in radiation in Tokyo.
- Eleven Nuclear Regulatory Commission (NRC) personnel remain on the DART to provide guidance to the U.S. Embassy in Tokyo regarding the evolving situation at the Fukushima Daiichi nuclear power plant.
- DoD has established a chemical, biological, radiological, and nuclear control center with limited decontamination assets at Yokota Air Force Base.

Humanitarian Coordination and Information Management

- In response to international offers of assistance, the GoJ maintains that officials continue to identify needs and establish mechanisms to store and transport relief commodities for affected populations. The GoJ has recommended that no individual, organization, or government send relief goods without coordination with the GoJ.
- Information regarding DoD activities may be available on the All Partners Access Network (APAN) at <https://community.apan.org>, an unclassified network connecting partners through various subscriber groups.
- DoE press releases are available at <http://www.energy.gov/news/releases.htm>.
- NRC press releases are available at <http://www.nrc.gov/reading-rm/doc-collections/news/2011/>.

U.S. Citizen Services

- U.S. citizens in need of emergency assistance should send an e-mail to JapanEmergencyUSC@state.gov with detailed information about their location and contact information and monitor the U.S. Department of State website at travel.state.gov. Individuals should also monitor the Embassy's website (<http://japan.usembassy.gov/>) for updated information. For telephone inquiries, individuals may call 202-501-4444 or 1-888-407-4747.

USAID HUMANITARIAN ASSISTANCE TO JAPAN

<i>Implementing Partner</i>	<i>Activity</i>	<i>Location</i>	<i>Amount</i>
USAID/OFDA ASSISTANCE¹			
U.S. Embassy in Tokyo	Emergency Relief Support	Affected Areas	\$100,000
DoD	USAR Operations (Transport of USAR teams)	Affected Areas	\$1,000,000
L.A. County USAR Team	USAR Operations	Affected Areas	\$2,058,000
Fairfax County USAR Team	USAR Operations	Affected Areas	\$2,058,000
U.S. Department of Health and Human Services	Health	Affected Areas	\$93,360
	USAID/DART Support Costs		\$1,599,600
	Administrative Support		\$282,211
TOTAL USAID/OFDA			\$7,191,171
TOTAL USAID HUMANITARIAN ASSISTANCE TO JAPAN (MARCH 17, 2011)			\$7,191,171

¹ USAID/OFDA funding represents anticipated or actual obligated amounts as of March 17, 2011.

PUBLIC DONATION INFORMATION

- The most effective way people can assist relief efforts is by making cash contributions to humanitarian organizations that are conducting relief operations. A list of humanitarian organizations that are accepting cash donations for earthquake and tsunami response efforts in Japan can be found at www.interaction.org.
- USAID encourages cash donations because they allow aid professionals to procure the exact items needed (often in the affected region); reduce the burden on scarce resources (such as transportation routes, staff time, warehouse space, etc.); can be transferred very quickly and without transportation costs; support the economy of the disaster-stricken region; and ensure culturally, dietary, and environmentally appropriate assistance.
- More information can be found at:
 - USAID: www.usaid.gov
 - The Center for International Disaster Information: www.cidi.org or (703) 276-1914
 - Information on relief activities of the humanitarian community can be found at www.reliefweb.int

USAID/OFDA bulletins appear on the USAID web site at http://www.usaid.gov/our_work/humanitarian_assistance/disaster_assistance/

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 4:29 PM
To: FOIA Response.hoc Resource
Subject: FW: Latest NRC Press Release

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

~~*****FOR OFFICIAL USE ONLY*****~~

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From: Horwitz, Steve [mailto:steve.horwitz@dhs.gov]
Sent: Friday, March 18, 2011 6:01 PM
To: LIA05 Hoc; Andrew Seward; Harry Sherwood; Michelle Ralston; Tim Greten; Vanessa E. Quinn
Subject: RE: Latest NRC Press Release

BONNIE/KEN –

When you send press releases, you can leave off “FOUO/FEDERAL FAMILY” caveat. Press releases do not warrant such restriction.

Steve

From: prvs=0514256dd=LIA05.Hoc@nrc.gov [mailto:prvs=0514256dd=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Friday, March 18, 2011 5:49 PM
To: Andrew Seward; Harry Sherwood; Michelle Ralston; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: Latest NRC Press Release

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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1799/5913

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 4:36 PM
To: FOIA Response.hoc Resource
Subject: FW: FEMA Log

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Feighert, Dan [mailto:dan.feighert@dhs.gov]
Sent: Monday, March 21, 2011 9:11 AM
To: LIA05 Hoc
Subject: RE: FEMA Log

Thanks Bonnie,
Looks good

From: prvs=054bd8b01=LIA05.Hoc@nrc.gov [mailto:prvs=054bd8b01=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Monday, March 21, 2011 6:52 AM
To: Feighert, Dan
Subject: RE: FEMA Log

This is draft, but this is what I have developed at this time.

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

~~*****FOR OFFICIAL USE ONLY*****~~
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From: Feighert, Dan [mailto:dan.feighert@dhs.gov]
Sent: Monday, March 21, 2011 8:44 AM
To: LIA05 Hoc
Subject: RE: FEMA Log

Bonnie,
Can you send me the Duties & Responsibilities SOP? I am assuming it is for your duties there.
Thanks

Dan

From: prvs=054bd8b01=LIA05.Hoc@nrc.gov [mailto:prvs=054bd8b01=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Monday, March 21, 2011 4:42 AM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Michelle Ralston; Steve Horwitz; Tim Greten;
Vanessa E. Quinn
Subject: FEMA Log

Per your request

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
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NRC Operations Center
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Sent: Wednesday, March 30, 2011 4:36 PM
To: FOIA Response.hoc Resource
Subject: FW:

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Hoc, PMT12
Sent: Monday, March 21, 2011 10:38 AM
To: LIA05 Hoc
Subject: RE:

Thanks!!

From: LIA05 Hoc
Sent: Monday, March 21, 2011 10:38 AM
To: Hoc, PMT12
Subject:

Per your request

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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PPP/594

From: Astwood, Heather
Sent: Thursday, March 31, 2011 8:00 AM
To: RST06 Hoc
Cc: Regan, Christopher; LIA07 Hoc; LIA08 Hoc; McDermott, Brian; Brown, Michael; Hoc, PMT12; Blount, Tom
Subject: RE: Requests for IAEA support on

Good Morning,

Yes, of course. I apologize. There has been some confusion and I thought this request had gone through the proper process.

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

From: RST06 Hoc
Sent: Wednesday, March 30, 2011 6:52 PM
To: Astwood, Heather
Cc: Regan, Christopher; LIA07 Hoc; LIA08 Hoc; McDermott, Brian; Brown, Michael; Hoc, PMT12; Blount, Tom
Subject: Requests for IAEA support on

Heather,

I understand that IAEA asked you to have someone work with them to do Fukushima accident analysis and questions such as "bounding assessments for Units 1-3," and "NRC assumptions on whether fuel has left the vessel."

These type requests should be routed through the Ops Center to ensure that the proper coordination goes on.

Thanks,
Fred Brown
RST on-shift Director

PPP/595

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 4:25 PM
To: FOIA Response.hoc Resource
Subject: FW: USAID Fact Sheet

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: McIntyre, David
Sent: Friday, March 18, 2011 2:27 PM
To: OST05 Hoc; Meighan, Sean; Nguyen, Quynh
Cc: Barker, Allan; Browder, Rachel; Erickson, Randy; Logaras, Harral; Maier, Bill; McNamara, Nancy; Tifft, Doug; Trojanowski, Robert; Woodruff, Gena; Collins, Elmo; Dean, Bill; Heck, Jared; McCree, Victor; Pederson, Cynthia; Satorius, Mark; Easson, Stuart; Flannery, Cindy; LIA04 Hoc; Lukes, Kim; Maupin, Cardelia; Noonan, Amanda; Rautzen, William; Rivera, Alison; Ryan, Michelle; Turtill, Richard; Virgilio, Rosetta; LIA05 Hoc
Subject: RE: USAID Fact Sheet

This is good. If USAID intended it to be public, I see no reason not to distribute it.

From: OST05 Hoc
Sent: Friday, March 18, 2011 2:19 PM
To: OST05 Hoc; Meighan, Sean; Nguyen, Quynh; McIntyre, David
Cc: Barker, Allan; Browder, Rachel; Erickson, Randy; Logaras, Harral; Maier, Bill; McNamara, Nancy; Tifft, Doug; Trojanowski, Robert; Woodruff, Gena; Collins, Elmo; Dean, Bill; Heck, Jared; McCree, Victor; Pederson, Cynthia; Satorius, Mark; Easson, Stuart; Flannery, Cindy; LIA04 Hoc; Lukes, Kim; Maupin, Cardelia; Noonan, Amanda; Rautzen, William; Rivera, Alison; Ryan, Michelle; Turtill, Richard; Virgilio, Rosetta; LIA05 Hoc
Subject: RE: USAID Fact Sheet

Dave,

The attached USAID Fact Sheet came across an e-mail and I sent this out to internal folks. Just sending it for your information and seeing if you would like to review it to determine if the information in the fact sheet could be provided in response to inquiries or just keep this internal?

Kim Lukes
State Liaison – Liaison Team
Incident Response Center

PPP/5916

From: OST05 Hoc

Sent: Friday, March 18, 2011 1:47 PM

To: Meighan, Sean; Nguyen, Quynh

Cc: Barker, Allan; Browder, Rachel; Erickson, Randy; Logaras, Herral; Maier, Bill; McNamara, Nancy; Tiff, Doug; Trojanowski, Robert; Woodruff, Gena; Collins, Elmo; Dean, Bill; 'Heck, Jared'; McCree, Victor; Pederson, Cynthia; Satorius, Mark; Easson, Stuart; Flannery, Cindy; LIA04 Hoc; Lukes, Kim; Maupin, Cardelia; Noonan, Amanda; OST05 Hoc; Rautzen, William; Rivera, Alison; Ryan, Michelle; Turtill, Richard; Virgilio, Rosetta

Subject:

FYI – Attached is a USAID fact sheet that was just received.

Sean and Quynh – Please consider adding this to the Sharepoint site.

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 5:10 PM
To: FOIA Response.hoc Resource
Subject: FW: NRC Status Update 3.24.11 -- 0600

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Feighert, Dan [mailto:dan.feighert@dhs.gov]
Sent: Thursday, March 24, 2011 1:29 PM
To: LIA05 Hoc
Subject: RE: NRC Status Update 3.24.11 -- 0600

Odis
I have not forgotten you. I am still waiting for our legal folks to review and ok.

From: prvs=0573bcf4e=LIA05.Hoc@nrc.gov [mailto:prvs=0573bcf4e=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Thursday, March 24, 2011 11:26 AM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Michelle Ralston; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: NRC Status Update 3.24.11 -- 0600

Per request.

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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ppp 1097

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 4:37 PM
To: FOIA Response.hoc Resource
Subject: FW: FRPCC

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: LIA11 Hoc
Sent: Tuesday, March 22, 2011 7:44 AM
To: LIA05 Hoc; LIA01 Hoc
Subject: FRPCC

FEMA do you have a time for today's meeting?

Beth Reed

From: LIA05 Hoc
Sent: Monday, March 21, 2011 11:48 AM
To: LIA11 Hoc; LIA01 Hoc
Subject:

Per your request

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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PPP/598

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 5:04 PM
To: FOIA Response.hoc Resource
Subject: FW: Requested Information on FRPCC Meeting

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Quinn, Vanessa [mailto:Vanessa.Quinn@dhs.gov]
Sent: Tuesday, March 22, 2011 8:08 AM
To: LIA05 Hoc
Subject: RE: Requested Information on FRPCC Meeting

THanks

From: prvs=0554e15a5=LIA05.Hoc@nrc.gov [mailto:prvs=0554e15a5=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Tuesday, March 22, 2011 8:07 AM
To: Quinn, Vanessa
Subject: RE: Requested Information on FRPCC Meeting

Not a problem, have a great FEMA day.

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Quinn, Vanessa [mailto:Vanessa.Quinn@dhs.gov]
Sent: Tuesday, March 22, 2011 7:56 AM
To: LIA05 Hoc
Subject: RE: Requested Information on FRPCC Meeting

Hi Harry:

Thank you for relieving Bonnie for a day.

PPP/599

From: prvs=0554e15a5=LIA05.Hoc@nrc.gov [mailto:prvs=0554e15a5=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Tuesday, March 22, 2011 7:48 AM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Michelle Ralston; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: FW: Requested Information on FRPCC Meeting

Harry Nash Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300

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NRC Operations Center
(301) 816-5187

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From: LIA11 Hoc
Sent: Tuesday, March 22, 2011 7:44 AM
To: LIA05 Hoc; LIA01 Hoc
Subject: FRPCC

FEMA do you have a time for today's meeting?

Beth Reed

From: LIA05 Hoc
Sent: Monday, March 21, 2011 11:48 AM
To: LIA11 Hoc; LIA01 Hoc
Subject:

Per your request

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 5:14 PM
To: FOIA Response.hoc Resource
Subject: FW:

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Greten, Timothy [mailto:Timothy.Greten@dhs.gov]
Sent: Monday, March 28, 2011 11:49 AM
To: LIA05 Hoc; Greten, Timothy; Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Vanessa E. Quinn
Subject: RE:

Of course-

From: prvs=0610c37e9=LIA05.Hoc@nrc.gov [mailto:prvs=0610c37e9=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Monday, March 28, 2011 11:49 AM
To: Greten, Timothy; Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Vanessa E. Quinn
Subject: RE:

Please let us know as soon as one is on the calendar.

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Greten, Timothy [mailto:Timothy.Greten@dhs.gov]
Sent: Monday, March 28, 2011 11:47 AM
To: LIA05 Hoc; Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: RE:

Next meeting hasn't been scheduled yet--

PPP/bod

From: prvs=0610c37e9=LIA05.Hoc@nrc.gov [mailto:prvs=0610c37e9=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Monday, March 28, 2011 11:46 AM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject:

NRC is requesting information on the FRPCC, when is the next meeting ?

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 10:10 AM
To: LIA01 Hoc; LIA08 Hoc; LIA11 Hoc; LIA06 Hoc; OST05 Hoc
Subject: NOC SITREP
Attachments: NOC Phase 1 - Awareness 0330-11 Update Report 44 - Earthquake - Tsunami - Japan (0600 EDT 30 Mar 11).ppt

Per your request

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

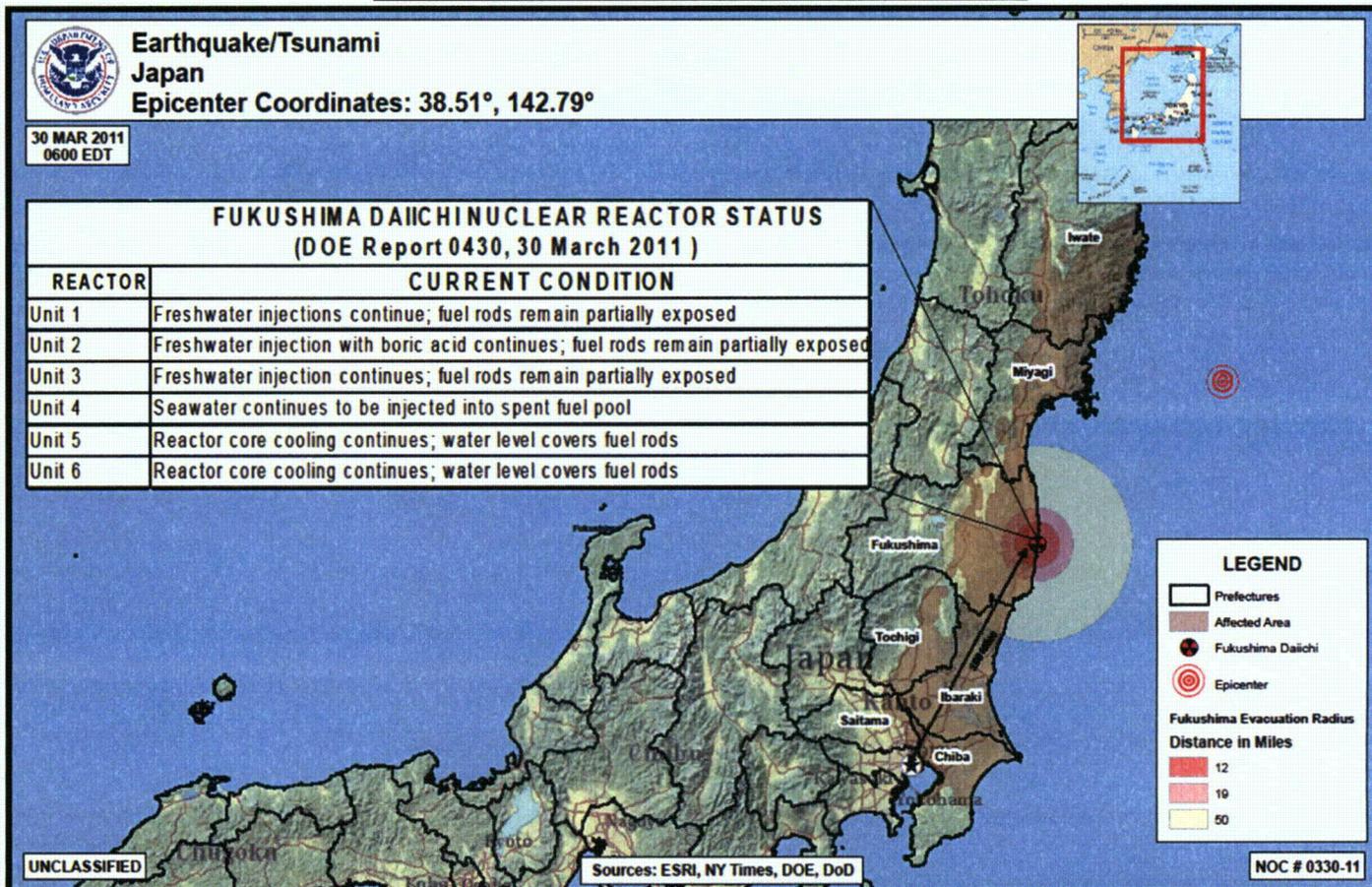
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ppp/601

NOC Phase 1 - Awareness 0330-11 Update Report 44

Earthquake - Tsunami - Japan



Current: The Japanese National Police Agency reports 11,257(+194) confirmed fatalities and 16,344 (-914) people missing. The Department of Energy reports the Tokyo Electric Power Company (TEPCO) Fukushima Daiichi Plant Operator plans to drain the basements of Unit Two and Unit Three, and transfer the leaked water into turbine condensers which are already full of water and will first have to be transferred to other tanks in the system. The International Atomic Energy Agency provided the following status regarding the Fukushima Daiichi Plant: fresh water has been continuously injected into the Reactor Pressure Vessels of Units One, Two and Three; some water has been discovered within trenches directly outside the closed pumping system. An investigation is underway as to how the water accumulated in the trenches. The Nuclear Safety Commission believed the water to be either condensed vapor emitted from containment vessels or from water being sprayed onto the damaged reactor buildings to aid in the cooling of spent fuel.

Future: The Department of Homeland Security National Operations Center will continue to monitor this event and will publish the next Update Report at 0600 EDT, 31 Mar.

Other: The Federal Emergency Management Agency reports the Region X Response Division and Mission Support Divisions continue to assist the National Incident Management Assistance Team and the Environmental Protection Agency in air monitoring operations.

Background: At approximately 0046 EST, 11 Mar, the US Geological Survey reported a 9.0 magnitude earthquake off the eastern coast of Honshu, Japan resulting in a tsunami affecting the Pacific region.

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 4:13 PM
To: FOIA Response.hoc Resource
Subject: FW: FYI - Assistant Secretary Level SVTC on Japan Earthquake - March 16, 2011 - 8:00-9:00am

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Virgilio, Martin
Sent: Tuesday, March 15, 2011 9:23 PM
To: Weber, Michael; ET01 Hoc
Cc: LIA05 Hoc; Dorman, Dan; Grobe, Jack
Subject: Re: FYI - Assistant Secretary Level SVTC on Japan Earthquake - March 16, 2011 - 8:00-9:00am

Mike

How can we help/support you beyond the paper we are already grinding out

Marty

From: Weber, Michael
To: ET01 Hoc
Cc: LIA05 Hoc; Virgilio, Martin; Dorman, Dan
Sent: Tue Mar 15 18:39:53 2011
Subject: FYI - Assistant Secretary Level SVTC on Japan Earthquake - March 16, 2011 - 8:00-9:00am

Here is the agenda for tomorrow morning's call at 0800, which I have been asked to attend.

ppp/leoz

Japanese Earthquake and Pacific Tsunami Response
IPC-Level SVTC

DATE: March 16, 2011
LOCATION: White House Situation Room
TIME: 8:00 - 9:00 a.m.

AGENDA

- I. Introduction/Update on Due-Outs NSS
- II. Brief Seismic and Weather Update USGS/NOAA
- III. Nuclear Reactor Update NRC/DOE
- IV. Humanitarian Response Update USAID/DOD
- V. Economic Impact Treasury
- VI. Next Steps/Summary..... NSS

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 5:13 PM
To: FOIA Response.hoc Resource
Subject: FW: NNSA DOE Contact

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Blumenthal, Daniel [mailto:Daniel.Blumenthal@nnsa.doe.gov]
Sent: Saturday, March 26, 2011 7:34 PM
To: LIA05 Hoc; Collins, Richard; LIA01 Hoc
Subject: RE: NNSA DOE Contact

Alan Remick and I are still in Japan.

What are we good contacts for?

From: LIA05 Hoc [mailto:LIA05.Hoc@nrc.gov]
Sent: Saturday, March 26, 2011 7:30 PM
To: Collins, Richard; LIA01 Hoc
Cc: Blumenthal, Daniel
Subject: RE: NNSA DOE Contact

Mr. Collins,

Thanks.

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Collins, Richard [mailto:Richard.Collins@dhs.gov]
Sent: Saturday, March 26, 2011 7:28 PM
To: LIA05 Hoc
Subject: Re: NNSA DOE Contact

ppp/1603

Dr. Dan Blumenthal is normally a good contact but he was in Japan a week & I am not sure about Mr. Remick.

From: prvs=05946cc35=LIA05.Hoc@nrc.gov <prvs=05946cc35=LIA05.Hoc@nrc.gov>
To: Collins, Richard <Richard.Collins@dhs.gov>
Cc: Dan Feighert <dan.feighert@dhs.gov>; Andrew Seward <Andrew.Seward1@dhs.gov>; Harry Sherwood <harry.sherwood@dhs.gov>; John Simpson <john.simpson@dhs.gov>; Lisa Hamilton <Lisa.Hamilton@dhs.gov>; Michelle Ralston <Michelle.Ralston@dhs.gov>; Rebecca Fontenot <Rebecca.Fontenot@dhs.gov>; Steve Horwitz <steve.horwitz@dhs.gov>; Tim Greten <Timothy.Greten@dhs.gov>; Vanessa E. Quinn <Vanessa.Quinn@dhs.gov>
Sent: Sat Mar 26 19:22:09 2011
Subject: NNSA DOE Contact

Mr. Collins,

Is Mr. Remick or Mr. Blumenthal good contacts for this organization? Please advise.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 5:14 PM
To: FOIA Response.hoc Resource
Subject: FW: Meeting Agenda on Small Modular Reactors

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Ralston, Michelle [mailto:Michelle.Ralston@dhs.gov]
Sent: Monday, March 28, 2011 2:49 PM
To: LIA05 Hoc
Subject: Re: Meeting Agenda on Small Modular Reactors

This should definitely go to our HPs.

Respectfully,

Michelle Ralston

(202) 280-9304

From: prvs=0610c37e9=LIA05.Hoc@nrc.gov <prvs=0610c37e9=LIA05.Hoc@nrc.gov>
To: Coons, Albert <albert.coons@dhs.gov>
Cc: Dan Feighert <dan.feighert@dhs.gov>; Andrew Seward <Andrew.Seward1@dhs.gov>; Harry Sherwood <harry.sherwood@dhs.gov>; John Simpson <john.simpson@dhs.gov>; Lisa Hamilton <Lisa.Hamilton@dhs.gov>; Michelle Ralston <Michelle.Ralston@dhs.gov>; Rebecca Fontenot <Rebecca.Fontenot@dhs.gov>; Steve Horwitz <steve.horwitz@dhs.gov>; Tim Greten <Timothy.Greten@dhs.gov>; Vanessa E. Quinn <Vanessa.Quinn@dhs.gov>
Sent: Mon Mar 28 14:37:00 2011
Subject: Meeting Agenda on Small Modular Reactors

Please find the attached.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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ppp/604

Starting new monitoring with the cooperation of universities

March 30, 2011

Ministry of Education, Culture, Sport,
Science and Technology (MEXT)

1. Objectives and Overview

MEXT is enhancing local monitoring program in the area farther than 20 km around Fukushima Dai-ichi NPP, in response to the accident at Fukushima Dai-ichi NPP.

Therefore, MEXT has monitored environmental radioactivity level in the air by prefecture and analysis of nuclide which is contained in drinking water and fallout. With the cooperation of universities and colleges of technology, MEXT started to measure the air dose rate on campus located in major cities.

2. Procedure

MEXT collects data, which will be measured from 2 pm for 24 hour everyday, from institutions located in mainly eastern area of Japan, and release the results.

Cities and districts where another monitoring of “Reading of environmental radioactivity level by prefecture” conducted will be excluded from the target of this monitoring to avoid duplication.

Reading of the radiation rate with the cooperation of universities

Upper column: Reading of the integrated dose(24h)
Lower column: the reference value which was calculated
as the number per one hour

Prefecture	Monitoring Point	City	3/28~29
Hokkaido	1	Muroran City	1 μ Sv (0.04 μ Sv/h)
	2	Obihiro City	2 μ Sv (0.08 μ Sv/h)
	3	Asahikawa City	2 μ Sv (0.08 μ Sv/h)
	4	Kitami City	—
	5	Kushiro City	1 μ Sv (0.04 μ Sv/h)
	6	Hakodate City	—
Aomori	7	Hirosaki City	1 μ Sv (0.04 μ Sv/h)
	8	Hachinohe City	1 μ Sv (0.04 μ Sv/h)
Miyagi	9	Sendai City	—
Yamagata	10	Yonezawa City	—
	11	Tsuruoka City	2 μ Sv (0.08 μ Sv/h)
Fukushima	12	Fukushima City	15 μ Sv (0.63 μ Sv/h)
Ibaraki	13	Tsukuba City	—
Tochigi	14	Oyama City	—
Gunma	15	Kiryu City	—
Chiba	16	Chiba City	4 μ Sv (0.2 μ Sv/h)
	17	Kisarazu City	7 μ Sv (0.3 μ Sv/h)
Tokyo	18	Bunkyo Ward	—
	19	Fuchu City	3 μ Sv (0.1 μ Sv/h)
	20	Meguro Ward	—
	21	Minato Ward	3 μ Sv (0.1 μ Sv/h)
	22	Hachioji City	2 μ Sv (0.08 μ Sv/h)
Kanagawa	23	Yokohama City	3 μ Sv (0.1 μ Sv/h)
Niigata	24	Nagaoka City	—
Nagano	25	Matsumoto City	2 μ Sv (0.08 μ Sv/h)
	26	Ueda City	3 μ Sv (0.1 μ Sv/h)

* We have measured the integrated dose(24h) from around 2PM (Mar.28) to Mar.29

* Reading of lower column is the reference value because of the lower limit of the pocket dosimeter (1 μ Sv).

* "—" in the column indicates that "now setting up for measuring".

Readings at Monitoring Post out of 20 Km Zone of Fukushima Dai-ichi NPP

As of 16:00 March 30, 2011
Ministry of Education, Culture, Sports, Science
and Technology (MEXT)

○Monitoring Outputs by MEXT ***Boldface and underlined readings are new.**

- * 2 measured by ionization chamber type survey meter
- * 3 measured by NaI scintillator detector
- * 4 variation range of the measuring data in

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : μ Sv / h)	Weather	Reading by
Reading Point 【1】 (About 60KmNorthwest)	2011/3/30 8:53	2.0	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【2】 (About 55KmNorthwest)	2011/3/30 9:23	4.0 ^{*2}	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【3】 (About 45KmNorthwest)	2011/3/30 9:50	4.6 ^{*2}	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【5】 (About 45KmNorth)	2011/3/30 10:21	1.0 ^{*2}	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【10】 (About 40KmNorthwest)	2011/3/30 10:07	0.8 ^{*2}	No Rain	MEXT
Reading Point 【11】 (About 40KmNorthwest)	2011/3/30 10:22	1.1 ^{*2}	No Rain	MEXT
Reading Point 【12】 (About 40KmWest)	2011/3/30 11:44	0.2 ^{*2}	No Rain	MEXT
<u>Reading Point 【13】 (About 40KmWest)</u>	<u>2011/3/30 12:03</u>	<u>0.4 ^{*2}</u>	<u>No Rain</u>	<u>MEXT</u>
<u>Reading Point 【14】 (About 35KmWest)</u>	<u>2011/3/30 12:11</u>	<u>0.1 ^{*2}</u>	<u>No Rain</u>	<u>MEXT</u>
<u>Reading Point 【15】 (About 35KmWest)</u>	<u>2011/3/30 12:25</u>	<u>0.9 ^{*2}</u>	<u>No Rain</u>	<u>MEXT</u>
Reading Point 【20】 (About 45KmNorthwest)	2011/3/30 10:49	0.7 ^{*2}	No Rain	MEXT
Reading Point 【21】 (About 30KmWest-Northwest)	2011/3/30 11:16	4.6 ^{*2}	No Rain	MEXT

* 2 measured by ionization chamber type survey meter

* 3 measured by NaI scintillator detector

* 4 variation range of the measuring data in

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : μ Sv / h)	Weather	Reading by
Reading Point 【22】 (About 30KmWest-Northwest)	2011/3/30 11:06	0.7 *2	No Rain	MEXT
Reading Point 【23】 (About 30KmWest-Northwest)	2011/3/30 10:58	0.8 *2	No Rain	MEXT
Reading Point 【71】 (About 25KmSouth)	<u>2011/3/30 8:00</u>	<u>2.5</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【72】 (About 30KmSouth)	<u>2011/3/30 8:24</u>	<u>1.0</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【73】 (About 35KmSouth)	<u>2011/3/30 8:47</u>	<u>0.7</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【74】 (About 35KmSouth)	<u>2011/3/30 9:21</u>	<u>0.5</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【75】 (About 45KmSouth)	<u>2011/3/30 7:03</u>	<u>0.2</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【76】 (About 25KmSouthwest)	<u>2011/3/30 12:26</u>	<u>0.2</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【77】 (About 25KmSouthwest)	<u>2011/3/30 12:48</u>	<u>2.2</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【78】 (About 45KmNorthwest)	<u>2011/3/30 8:00</u>	<u>1.6</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【79】 (About 30KmNorthwest)	<u>2011/3/30 9:05</u>	<u>16.7</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【80】 (About 25KmNorth)	<u>2011/3/30 11:33</u>	<u>0.6</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【80】 (About 25KmNorth)	<u>2011/3/30 11:09 ~14:41</u>	<u>0.0~1.3</u> *2*4	<u>No Rain</u>	<u>JAEA (Japan Atomic Energy Agency)</u>
Reading Point 【81】 (About 30KmWest-Northwest)	<u>2011/3/30 8:48</u>	<u>32.2</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【83】 (About 20KmNorthwest)	<u>2011/3/30 9:18</u>	<u>59.3</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【85】 (About 60kmNorthwest)	<u>2011/3/30 14:00</u>	<u>1.0</u> *2	<u>No Rain</u>	<u>Ministry of Defense</u>
Reading Point 【85】 (About 60kmNorthwest)	2011/3/30 6:00	0.4 *2	No Rain	Ministry of Defense
Reading Point 【86】 (About 55kmWest)	<u>2011/3/30 14:00</u>	<u>0.8</u> *2	<u>No Rain</u>	<u>Ministry of Defense</u>

- * 2 measured by ionization chamber type survey meter
- * 3 measured by NaI scintillator detector
- * 4 variation range of the measuring data in

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : $\mu\text{Sv} / \text{h}$)	Weather	Reading by
Reading Point 【86】 (About 55kmWest)	2011/3/30 6:00	1.3 *2	No Rain	Ministry of Defense
<u>Reading Point 【87】 (About 30kmWest-Southwest)</u>	<u>2011/3/30 14:00</u>	<u>1.2 *2</u>	<u>No Rain</u>	<u>Ministry of Defense</u>
Reading Point 【87】 (About 30kmWest-Southwest)	2011/3/30 6:00	1.3 *2	No Rain	Ministry of Defense

From: Holahan, Vincent
Sent: Thursday, March 31, 2011 7:30 PM
To: PMT09 Hoc
Subject: Out of Office: TEPCO Press Release detection of radioactive materials in the water.

I will be out of the office Friday, March 25, 2011, and will return to the office on Monday, April 18, 2011. I will be checking my email periodically during my absence.

PPP/605

From: Scipio, Tanya <Tanya.Scipio@dhs.gov>
Sent: Thursday, March 31, 2011 2:59 PM
To: LIA05 Hoc
Subject: RE: Updated VPN

Okay. Thanks.

From: prvs=064dea3aa=LIA05.Hoc@nrc.gov [mailto:prvs=064dea3aa=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Thursday, March 31, 2011 2:29 PM
To: tanya.scipio@dhs.gov
Cc: Coons, Albert; Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Raiston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: Updated VPN

Ms. Scipio,

FYI, I stopped at a McDonald's on my way to the NRC and clicked the link and filled out the form to register for the VPN Connection.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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pp p1 b02

From: ET07 Hoc
Sent: Thursday, March 31, 2011 10:24 PM
To: RST01 Hoc
Subject: RE: RST Question

They have a copy

From: RST01 Hoc
Sent: Thursday, March 31, 2011 10:08 PM
To: ET02 Hoc; ET07 Hoc
Subject: RST Question

We just wanted to follow-up for a member of the ET came by and said that you didn't receive the RST assessment that was sent out the Japanese Team. I think you have it now, but please let me know because that was sent out hours ago.

Thanks,

RST Coordinator

PPP/607

From: LIA05 Hoc
Sent: Thursday, March 31, 2011 11:46 AM
To: Feighert, Dan

Mr. Joe Anderson 301-415-4115

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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prop/608

From: LIA05 Hoc
Sent: Thursday, March 31, 2011 9:06 AM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Attachments: Log for FEMA Liaison 03302011.docx

Per your request

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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ppp 009

From: ET05 Hoc
Sent: Thursday, March 31, 2011 9:46 PM
To: LIA11 Hoc; LIA01 Hoc; LIA06 Hoc; LIA08 Hoc
Subject: Contacts for Consortium Call
Attachments: Sal Golub (DOE/NE); Lt. Cmdr. Robert Mercer; Rick M Nielsen (INPO); Southern (Naval Reactors); Vavoso (Naval Reactors)

Here are the contacts that have been emailed to me thus far.

10/22/10

From: Golub, Sal <sal.golub@nuclear.energy.gov>
Sent: Thursday, March 31, 2011 9:20 PM
To: ET05 Hoc
Subject: 2000 call

Please supply notes

Sal Golub
DOE-NE

PPP/6/11

From: RST06 Hoc
Sent: Thursday, March 31, 2011 10:00 PM
To: Wood, Kent
Subject: FW: Proposed Task Tracker

Fyi. RES is working this item.

From: Brown, Frederick
Sent: Thursday, March 31, 2011 9:35 AM
To: RST01 Hoc
Cc: RST06 Hoc; Ruland, William; Hackett, Edwin; Correia, Richard; Check, Michael; Gibson, Kathy; McDermott, Brian; Hoc, PMT12
Subject: Proposed Task Tracker

Peter,

There are two items being worked outside the Ops Center for the RST. The ET is aware of both, but they are not currently being tracked (or were not last night).

You may want to add the following two items to the task tracker so that everyone knows what has actually been requested, and who is working it. Also, if the tasks are reshaped, there will be a way of making the redirection visible to the ET and others.

Background e-mails are on the RST01 and RST06 systems from the last two evenings, subject: "Request for Ops Center RTS support"

Fred

Task 1:

Given the known, or assumed, status of the three units and four pools, what realistic scenarios exist for energetic dispersion of high quantities of radioactive material that would result in mobile plumes? The point of this question is that there are many clear scenarios that present significant near-area radiological challenges, but given the time since shutdown (for the operating units) and age of much of the fuel (in the SFPs) what are the remaining scenarios of concern with respect to more distant locations (Tokyo with a large concentration of US citizens, Alaska, Hawaii, etc).

Objective for first question (energetic release potential): this information is important to the Ambassador in Japan and the US military command that would be responsible for movement of US citizens who were ordered to be evacuated from any locations in the Pacific. In fact, the Pacific Command asked the same question of the NRC at today's Deputies Meeting that is attended by the Chairman. The answer to this question may also impact when we as the NRC ramp down our activities? **We should attempt to address this by Friday (4/1).**

This task was accepted by RES, and I understand that Kathy Gibson's Division (RES/DSA) has the lead supported by NRR/DE.

Task 2:

PPP/6/12

Given the assumed condition of the three units and four pools, can we generate basic event trees for the coming weeks/months? The point would be to identify key success criteria and to help identify key decision points/risk factors to be balanced (qualitative not quantitative analysis). For instance, take two units, each with significant core damage and prior release of volatile fission products, each with primary and secondary containment failure, but one with an intact RPV and the other with a breach of RPV - would there be a difference in potential releases that would lead to different strategies for flooding the primary containment of these two units? This question will make more sense if you look at the assumed conditions below and the attached assessment document where we recommend that TEPCO utilize the SAMG recommendation to flood all 3 units' containments.

Objective for the second question is to support multiple questions/actions. There have been many requests of the PMT for "realistic" dose models. The RST Assessment document (original e-mail was supposed to have it attached, but I've added to this incase it did not go out the first time) also contains recommended actions for the Japanese to consider. These recommendations are based on the SAMGS, which all are intended to protect primary containment. Since primary containment is damaged on at least two units, we need to assess whether there may be new considerations/priorities that are not captured by the SAMGs. Also, the product of this effort helps us better clarify the assessment of potential energetic releases, along with identifying the best strategies to ensure that they don't happen. **This item does not have as short a deliverable date unless the PMT has one that I'm not aware of, but is still very significant in terms of our recommendations. Can we complete by Monday (4/4)?**

Once NRC staff validates this concept, and creates a framework for the event trees, we may be able to turn it over to INPO/GEH for completion.

This task has also been accepted by RES, and Rich Correia's Division (RES/DRA) has the lead, with support from NRR/DE.

From: HOO Hoc
Sent: Thursday, March 31, 2011 8:19 PM
To: Pace, Patti
Cc: ET07 Hoc; ET05 Hoc
Subject: RE: UPDATE: ET Status Briefing for Chairman
Attachments: image001.jpg

Received. Thank you.

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



From: Pace, Patti
Sent: Thursday, March 31, 2011 8:18 PM
To: HOO Hoc
Subject: UPDATE: ET Status Briefing for Chairman
Importance: High

Please cancel the Chairman's morning briefing from the Executive Team tomorrow morning. Please confirm receipt of this message.

Many thanks,

Patti Pace
Assistant to Chairman Gregory B. Jaczko
U.S. Nuclear Regulatory Commission
301-415-1820 (office)
301-415-3504 (fax)

From: Pace, Patti
Sent: Thursday, March 31, 2011 7:52 PM
To: HOO Hoc
Subject: ET Status Briefing for Chairman

Good Evening,

Chairman Jaczko requests to move the time of his morning status briefing tomorrow, Friday April 1st, to 8:00AM (instead of 7:15AM). Still requests HOO to call him to initiate. Please confirm.

Thanks,

Patti Pace
Assistant to Chairman Gregory B. Jaczko

PPP/613

U.S. Nuclear Regulatory Commission

301-415-1820 (office)

301-415-3504 (fax)

From: HOO Hoc
Sent: Thursday, March 31, 2011 7:54 PM
To: ET07 Hoc; ET05 Hoc
Subject: FW: ET Status Briefing for Chairman

Please confirm and cc the HOO.

From: Pace, Patti
Sent: Thursday, March 31, 2011 7:52 PM
To: HOO Hoc
Subject: ET Status Briefing for Chairman

Good Evening,

Chairman Jaczko requests to move the time of his morning status briefing tomorrow, Friday April 1st, to 8:00AM (instead of 7:15AM). Still requests HOO to call him to initiate. Please confirm.

Thanks,

Patti Pace
Assistant to Chairman Gregory B. Jaczko
U.S. Nuclear Regulatory Commission
301-415-1820 (office)
301-415-3504 (fax)

PPP / 6/14

From: LIA11 Hoc
Sent: Thursday, March 31, 2011 8:11 AM
To: Aoki, Steven; Blamey, Alan; Blount, Tom; Boger, Bruce; Casto, Chuck; Christensen, Harold; DORL_DPR Resource; Dorman, Dan; DprNrrCal Resource; Emche, Danielle; ET05 Hoc; ET07 Hoc; FOIA Response.hoc Resource; Gambone Robert; Gitter, Joseph; Golub Sal; Good, Charles; Hoc, PMT12; Hochevar Al; HOO Hoc; INPO; LIA01 Hoc; LIA02 Hoc; LIA06 Hoc; LIA08 Hoc; LIA11 Hoc; Lyons, Peter; McDermott, Brian; McGinty, Tim; Miller, Chris; Monninger, John; Morris, Scott; Nielsen Rick; NRC Liaison functional account at USAID; OST02 HOC; PACOM Watch Officer; Pentagon Japan Crisis Team J-4 Desk; Ross-Lee, MaryJane; RST01 Hoc; RST01B Hoc; RST07 Hoc; RST08 Hoc; Vavoso Tom; Virgilio, Martin; Weber, Michael; Webster, William ; Wiggins, Jim; Zimmerman, Roy
Cc: LIA01 Hoc; LIA08 Hoc
Subject: Minutes from 03/30 Consortium call

Meeting summary and a transcript (detailed notes)for the 3/30 daily Consortium Call have been updated through the reoccurring calendar appointment request for 2000 hrs-

Please check your calendar for the updated materials.
Thank you

Federal Liaison Desk Officer

ppp/6/15

From: Zimmerman, Roy
Sent: Wednesday, March 23, 2011 9:39 PM
To: ET05 Hoc
Subject: ET Directors Schedule.docx
Attachments: ET Directors Schedule.docx

3/23/2011
4:25 pm

ET Director Schedule

March 18 – March 25, 2011

Shift	3/18 (Fri)	3/19 (Sat)	3/20 (Sun)	3/21 (Mon)	3/22 (Tues)	3/23 (Wed)	3/24 (Thur)	3/25 (Fri)
7am–3pm	J. Wiggins	J. Wiggins	J. Wiggins	M. Weber	M. Weber	M. Weber	M. Weber	J. Dyer
3pm–11pm	B. Boger	B. Sheron	B. Sheron	J. Wiggins	J. Wiggins	R. Zimmerman	R. Zimmerman	R. Zimmerman
11pm–7am	R. Zimmerman	M. Johnson	M. Johnson	M. Johnson	B. Boger	B. Boger	J. Uhle	J. Uhle

March 26 – April 2, 2011

Shift	3/26 (Sat)	3/27 (Sun)	3/28 (Mon)	3/29 (Tues)	3/30 (Wed)	3/31 (Thur)	4/1 (Fri)	4/2 (Sat)
7am–3pm	J. Dyer	J. Dyer	M. Weber	M. Weber				
3pm–11pm	B. Sheron	B. Sheron	R. Zimmerman	R. Zimmerman	R. Zimmerman	B. Sheron		
11pm–7am	J. Uhle	J. Wiggins	J. Wiggins	J. Wiggins	J. Wiggins	C. Carpenter	C. Carpenter	C. Carpenter

April 3 – April 10, 2011

Shift	4/3 (Sun)	4/4 (Mon)	4/5 (Tues)	4/6 (Wed)	4/7 (Thur)	4/8 (Fri)	4/9 (Sat)	4/10 (Sun)
7am–3pm		J. Wiggins	J. Wiggins	J. Wiggins	M. Weber	M. Weber		
3pm–11pm	B. Sheron			R. Zimmerman	R. Zimmerman	R. Zimmerman		
11pm–7am	M. Johnson	M. Johnson	M. Johnson	M. Johnson	J. Uhle	J. Uhle	J. Uhle	J. Uhle

From: ET02 Hoc
Sent: Thursday, March 31, 2011 12:45 PM
To: LIA02 Hoc; LIA03 Hoc
Cc: Heard, Robert
Subject: RE: New travelers going to Japan

Importance: High

Just talked with Mike Call – he would like a blackberry but no laptop (he is assuming he can use one of the laptops currently over in Japan if he needs to do any word processing). He would like to pick it up tomorrow (4/1/) around 1PM. Please let me know if you need further information...Karen
P.S. Lauren – he stated he was trying to go through the traveler's checklist.

From: LIA02 Hoc
Sent: Thursday, March 31, 2011 12:27 PM
To: ET02 Hoc; LIA03 Hoc
Cc: Heard, Robert
Subject: RE: New travelers going to Japan

Thanks Karen. I have tried to contact via phone all 4 and have not been successful. I emailed them this morning and asked them to let us know about laptops and have not heard back from any of them. Only Bernhard is being responsive. I will let you and Robert know if I hear anything. If we don't, I guess they won't be going with any laptops.

Lauren

From: ET02 Hoc
Sent: Thursday, March 31, 2011 11:16 AM
To: LIA02 Hoc; LIA03 Hoc
Subject: FW: New travelers going to Japan

Fyi...karen

From: Heard, Robert
Sent: Thursday, March 31, 2011 7:38 AM
To: ET02 Hoc
Cc: Reyes, Debra
Subject: RE: New travelers going to Japan

Please let me know as soon as possible if Laptops are needed. There have no requests for blackberrys for any of these travelers. However Michael Hay in Region IV has decided to take his Verizon Blackberry device.

Please let me know what they need so that requests can be put in.

Rob

From: ET02 Hoc
Sent: Thursday, March 31, 2011 7:29 AM
To: LIA02 Hoc

ppp/llk

Cc: Heard, Robert
Subject: RE: New travelers going to Japan

I have modified the Liaison Japan email group to include the 4 new travelers. Do you know if they need laptops or not? Thanks...karen

From: LIA02 Hoc
Sent: Thursday, March 31, 2011 1:45 AM
To: ET02 Hoc
Cc: Jackson, Karen; Heard, Robert
Subject: New travelers going to Japan

Good morning,

I'm not sure if this request has been brought to your attention on a previous shift; if it has, please disregard.

We have been informed that four new travelers will be going to Japan in the next few days: Michael Salay (RES), Michel Call (NMSS - note alternate spelling of Michel), Michael Hay (RIV) and Rudolph Bernhard (RII).

Could you please help get them added to the "Liaison Japan" email alias? Also, can you please confirm that requests have already been put into you concerning their blackberries?

Thank you,
LIA02

From: ET02 Hoc
Sent: Friday, April 01, 2011 7:57 PM
To: PMT03 Hoc

<http://148.184.213.135/eoc7/boards/boardfile.aspx?fileid=2496&tableid=84&fieldname=attachments&viewid=352>

ppp/617

From: Williams, Kevin
Sent: Friday, April 01, 2011 9:08 AM
To: Bowers, Anthony
Subject: RE: Updated Watchlist for March 27 - April 2 (Final)

Thanks!

From: Bowers, Anthony
Sent: Friday, April 01, 2011 9:03 AM
To: Williams, Kevin
Subject: FW: Updated Watchlist for March 27 - April 2 (Final)

From: OST02 HOC
Sent: Thursday, March 31, 2011 7:07 PM
To: Abrams, Charlotte; Abu-Eid, Bobby; Adams, John; Afshar-Tous, Mugeh; Ahn, Hosung; Alemu, Bezakulu; Algama, Don; Alter, Peter; Anderson, Brian; Anderson, James; Arndt, Steven; Arribas-Colon, Maria; Ashkeboussi, Nima; Athey, George; Baker, Stephen; Ballam, Nick; Barnhurst, Daniel; Barr, Cynthia; Barss, Dan; Bazian, Samuel; Benner, Eric; Bensi, Michelle; Bergman, Thomas; Berry, Rollie; Bhachu, Ujagar; Bloom, Steven; Blount, Tom; Boger, Bruce; Bonnette, Cassandra; Borchardt, Bill; Bowers, Anthony; Bowman, Gregory; Boyce, Tom (RES); Brandon, Lou; Brandt, Philip; Brenner, Eliot; Brock, Kathryn; Brown, Cris; Brown, David; Brown, Eva; Brown, Frederick; Brown, Michael; Bukharin, Oleg; Burnell, Scott; Bush-Goddard, Stephanie; Campbell, Stephen; Camper, Larry; Carlson, Donald; Carpenter, Cynthia; Carter, Mary; Case, Michael; Casto, Greg; Cecere, Bethany; Cervera, Margaret; Chazell, Russell; Chen, Yen-Ju; Cheng, May; Cheok, Michael; Chokshi, Nilesh; Chowdhury, Prosanta; Chung, Donald; Circle, Jeff; Clement, Richard; Clinton, Rebecca; Coe, Doug; Coggins, Angela; Collins, Frank; Cool, Donald; Correia, Richard; Corson, James; Costa, Arlon; Couret, Ivonne; Craffey, Ryan; Crutchley, Mary Glenn; Cruz, Zahira; Cuadrado, Leira; Dacus, Eugene; DeCicco, Joseph; Decker, David; Dembek, Stephen; Devlin, Stephanie; Dimmick, Lisa; Doane, Margaret; Dorman, Dan; Dorsey, Cynthia; Dozier, Jerry; Drake, Margaret; Droggitis, Spiros; Dube, Donald; Dudes, Laura; Eads, Johnny; Easson, Stuart; Emche, Danielle; English, Lance; Erlanger, Craig; Esmaili, Hossein; Evans, Michele; Faria-Ocasio, Carolyn; Figueroa, Roberto; Fiske, Jonathan; Flanders, Scott; Flannery, Cindy; Floyd, Daphene; Foggie, Kirk; Foster, Jack; Fragoyannis, Nancy; Franovich, Rani; Frazier, Alan; Freshman, Steve; Fuller, Edward; Galletta, Thomas; Gambone, Kimberly; Gardocki, Stanley; Gartman, Michael; Gibson, Kathy; Giitter, Joseph; Gilmer, James; Glenn, Nichole; Gordon, Dennis; Gott, William; Grant, Jeffery; Gray, Anita; Gray, Kathy; Greenwood, Carol; Grimes, Kelly; Grobe, Jack; Gross, Allen; Gulla, Gerald; Hackett, Edwin; Hale, Jerry; Hardesty, Duane; Hardin, Kimberly; Hardin, Leroy; Harrington, Holly; Harris, Tim; Harrison, Donnie; Hart, Ken; Hart, Michelle; Harvey, Brad; Hasselberg, Rick; Hayden, Elizabeth; Helton, Donald; Henderson, Karen; Hiland, Patrick; Hipschman, Thomas; Holahan, Patricia; Holahan, Vincent; Holian, Brian; HOO Hoc; Horn, Brian; Howard, Arlette; Howard, Tabitha; Howe, Allen; Huffert, Anthony; Hurd, Sapna; Huyck, Doug; Imboden, Andy; Isom, James; Jackson, Karen; Jacobson, Jeffrey; Jervey, Richard; Jessie, Janelle; Johnson, Michael; Jolicoeur, John; Jones, Andrea; Jones, Cynthia; Jones, Henry; Kahler, Carolyn; Kammerer, Annie; Karas, Rebecca; Kauffman, John; Khan, Omar; Kolb, Timothy; Kotzalas, Margie; Kowalczyk, Jeffrey; Kratchman, Jessica; Kugler, Andrew; Lamb, Christopher; Lane, John; Larson, Emily; Laur, Steven; LaVie, Steve; Lewis, Robert; Li, Yong; Lichatz, Taylor; Lising, Jason; Lombard, Mark; Lovell, Louise; Lubinski, John; Lui, Christiana; Lukes, Kim; Lynch, Jeffery; Ma, John; Mamish, Nader; Manahan, Michelle; Marksberry, Don; Marshall, Jane; Masao, Nagai; Maupin, Cardelia; Mayros, Lauren; Mazaika, Michael; McConnell, Keith; McCoppin, Michael; McDermott, Brian; McGinty, Tim; McGovern, Denise; McIntyre, David; McMurtray, Anthony; Merritt, Christina; Meyer, Karen; Miller, Charles; Miller, Chris; Milligan, Patricia; Miranda, Samuel; Mohseni, Aby; Moore, Scott; Morlang, Gary; Morris, Scott; Mroz (Sahm), Sara; Munson, Clifford; Murray, Charles; Musico, Bruce; Nerret, Amanda; Nguyen, Caroline; Norris, Michael; Norton, Charles; Nosek, Andrew; Opara, Stella; Ordaz, Vonna; Orr, Mark; Owens, Janice; Padovan, Mark; Parillo, John; Patel, Jay; Patel, Pravin; Patrick, Mark; Perin, Vanice; Pope, Tia; Powell, Amy; Purdy, Gary; Quinlan, Kevin; Raddatz, Michael; Ragland, Robert; Ralph, Melissa; Ramsey, Jack; Reed, Elizabeth; Reed, Sara; Reed, Wendy; Reeves, Rosemary; Reis, Terrence; Resner, Mark; Riley (OCA), Timothy; Riner, Kelly; Rini, Brett; Roach, Edward; Robinson, Edward; Rodriguez-Luccioni, Hector; Roggenbrodt, William; Ropon, Kimberly; Rosales-Cooper, Cindy; Rosenberg, Stacey; Ross-

PPP/6/8

Lee, MaryJane; Roundtree, Amy; Ruland, William; Russell, Tonya; Ryan, Michelle; Salay, Michael; Salter, Susan; Salus, Amy; Sanfilippo, Nathan; Santos, Daniel; Scarbrough, Thomas; Schaperow, Jason; Schmidt, Duane; Schmidt, Rebecca; Schoenebeck, Greg; Schrader, Eric; Schwartzman, Jennifer; Seber, Dogan; See, Kenneth; Shane, Raeann; Shea, James; Shepherd, Jill; Sheron, Brian; Skarda, Raymond; Skeen, David; Sloan, Scott; Smirolodo, Elizabeth; Smith, Brooke; Smith, Stacy; Smith, Theodore; Solorio, Dave; Stahl, Eric; Stang, Annette; Stark, Johnathan; Steger (Tucci), Christine; Stieve, Alice; Stone, Rebecca; Stransky, Robert; Sturz, Fritz; Sullivan, Randy; Summers, Robert; Sun, Casper; Susco, Jeremy; Takacs, Michael; Tappert, John; Tegeler, Bret; Temple, Jeffrey; Thaggard, Mark; Thomas, Eric; Thorp, John; Tiruneh, Nebiyu; Tobin, Jennifer; Trefethen, Jean; Tschiltz, Michael; Turtill, Richard; Uhle, Jennifer; Valencia, Sandra; Vaughn, James; Vick, Lawrence; Virgilio, Martin; Virgilio, Rosetta; Ward, Leonard; Ward, William; Wastler, Sandra; Watson, Bruce; Webber, Robert; Weber, Michael; White, Bernard; Wiggins, Jim; Williams, Donna; Williams, Joseph; Williams, Tamera; Williamson, Linda; Willis, Dori; Wimbush, Andrea; Wittick, Brian; Wray, John; Wright, Lisa (Gibney); Wright, Ned; Wunder, George; Young, Francis; Zimmerman, Jacob; Zimmerman, Roy

Subject: Updated Watchlist for March 27 - April 2 (Final)

Attached is the final updated schedule for this week through Sunday, April 3rd at 7 a.m.

The schedule for next week noting shifts for this Sunday and Monday, April 4th will be sent out tomorrow.

If you need to change the schedule, please contact your team coordinator and the following cognizant individuals:

Liaison Team – Jeff Temple

Reactor Safety Team – Rick Hasselberg or Peter Alter

Protective Measures Team – Lou Brandon

Thank You,
OST02

Position	Date	Time
Execut		
ET Director		
Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am
ET Response Advisor		
Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm

Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm-7am

ET Rx Prot Measures & State Coordinator

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

Executive I

EBT Admin. Assistant

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm

Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am-3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	Apr 2-Apr3	11pm-7am

EBT Coordinator

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

Executive

EST Status Officer

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am

Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

EST Actions Officer

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

EST Coordinator

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm

Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

EST Chronology Officer

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

EST Response Ops Mgr

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm

Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

EST Admin. Assistant		
Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

Liaiso

LT Director		
Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm

Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

LT Coordinator

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

LT State Liaison

Sat-Sun	3/26-3/27	9pm-7am
Sun	27-Mar	7am-2pm
Sun	27-Mar	2pm-9pm
Sun-Mon	3/27-3/28	9pm-7am
Mon	28-Mar	7am-2pm
Mon	28-Mar	2pm-9pm
Mon-Tue	3/28-3/29	9pm-7am
Tue	29-Mar	7am-2pm
Tue	29-Mar	2pm-9pm
Tue-Wed	3/29-3/30	9pm-7am
Wed	30-Mar	7am-2pm

Wed	30-Mar	2pm-9pm
Wed-Thur	3/30-3/31	9pm-7am
Thur	31-Mar	7am-2pm
Thur	31-Mar	2pm-9pm
Thur-Fri	3/31-4/1	9pm-7am
Fri	1-Apr	7am-2pm
Fri	1-Apr	2pm-9pm
Fri-Sat	4/1-4/2	9pm-7am
Sat	2-Apr	7am-2pm
Sat	2-Apr	2pm-9pm
Sat-Sun	2-Apr	9pm-7am

LT Federal Liaison (2)

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

LT Congressional Liaison (2)

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am

Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 2pm
Fri	1-Apr	2pm-9pm
Sat	2-Apr	7am - 2pm
Sat	2-Apr	2pm-9pm
Sun	3-Apr	7am-2pm

LT International Liaison (2)

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

Protective N

PMTR Director

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm

Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

PMTR Coordinator

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

PMTR Prot Actions Asst Dir

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm

Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

PMTR RAAD

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

PMTR Dose Assessment (RASCAL) - Need 2 people per d

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am

Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

PMTR GIS Analyst

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

PMTR Meteorologist

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm

Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

Reactor 5

RST Director

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

RST Coordinator

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am

Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

Severe Accident/PRA

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

BWR Expertise

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm

Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

RST Comm/ERDS Operator

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

RST Support (Seismology Q&A)

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm

Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tue	3/28-3/29	11pm - 7am
Tue	29-Mar	7am - 3pm
Tue	29-Mar	3pm-11pm
Tue-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

RST Support (Structural)

Sat-Sun	3/26-3/27	11pm - 7am
Sun	27-Mar	7am - 3pm
Sun	27-Mar	3pm-11pm
Sun-Mon	3/27-3/28	11pm - 7am
Mon	28-Mar	7am - 3pm
Mon	28-Mar	3pm-11pm
Mon-Tues	3/28-3/29	11pm - 7am
Tues	29-Mar	7am - 3pm
Tues	29-Mar	3pm-11pm
Tues-Wed	3/29-3/30	11pm - 7am
Wed	30-Mar	7am - 3pm
Wed	30-Mar	3pm-11pm
Wed-Thur	3/30-3/31	11pm - 7am
Thur	31-Mar	7am - 3pm
Thur	31-Mar	3pm-11pm
Thur-Fri	3/31-4/1	11pm - 7am
Fri	1-Apr	7am - 3pm
Fri	1-Apr	3pm-11pm
Fri-Sat	4/1-4/2	11pm-7am
Sat	2-Apr	7am - 3pm
Sat	2-Apr	3pm-11pm
Sat-Sun	4/2-4/3	11pm - 7am

Staff
ive Team
Jennifer Uhle
Jim Dyer
Brian Sheron
Jim Wiggins
Mike Weber
Roy Zimmerman
Jim Wiggins
Mike Weber
Roy Zimmerman
Jim Wiggins
Bruce Boger
Roy Zimmerman
Jim Wiggins
Bruce Boger
Brian Sheron
Cynthia Carpenter
Mike Weber
Bruce Boger
Cynthia Carpenter
Eric Leeds
Mike Weber
Cynthia Carpenter
Chris Miller
Tom Blount
Brian McDermott
Chris Miller
Tom Blount
Brian McDermott
Scott Morris
Tom Blount
Brian McDermott
Scott Morris
Tom Blount
Brian McDermott
Scott Morris
Joe Gitter
Mark Thaggard
Scott Morris
Tom Blount
Mark Thaggard
Scott Morris
Tom Blount

N/A
Tonya Russell
Andrea Wimbush
N/A

Jim Anderson
Eddie Robinson
Nichole Glenn
Caroline Nguyen
Yen Chen
Sara Mroz
Jim Anderson
Yen Chen
Sara Mroz
Jim Anderson
Yen Chen
Sara Mroz
Jim Anderson
Yen Chen
Sara Mroz
Jim Anderson
Yen Chen
Sara Mroz
Jim Anderson
Jeremy Susco
Nichole Glenn
Yen Chen

Support Team

Jeff Grant
Jane Marshall
Bill Gott
Jeff Grant
Jane Marshall
Bill Gott
Jeff Grant
Jane Marshall
Bill Gott
Jeff Grant
Jane Marshall
Bill Gott
Jeff Grant
Jane Marshall
Bill Gott
Jeff Grant

Jane Marshall
Bill Gott
Jeff Grant
John Jolicoeur
Bill Gott
Jeff Grant

N/A
Kelly Grimes
Melissa Ralph
N/A
Zahira Cruz
Melissa Ralph
N/A
Bezakulu Alemu/Kelly Grimes
Melissa Ralph
N/A
Wendy Reed
Melissa Ralph
N/A
Jonathan Fiske
Melissa Ralph
N/A
Wendy Reed
Kelly Grimes
N/A
Melissa Ralph
Bezakulu Alemu
N/A

Steve Campbell
Tonya Russell
Stella Opara
Taylor Lichatz
Tony McMurtray
Rebecca Stone
Stacy Smith
Tony McMurtray
Tony Bowers
Rebecca Stone
Tony McMurtray
Stacy Smith
Rebecca Stone
Tony Bowers
Tony McMurtray

Rebecca Stone
Steve Campbell
Tony McMurtray
Rebecca Stone
Stacy Smith
Steve Campbell
Tony Bowers

Thomas Scarbrough
Hector Rodriguez
Rebecca Karas
Thomas Scarbrough
Hector Rodriguez
Rebecca Karas
Nick Ballam
Vanice Perin
Rebecca Karas
Nick Ballam
Hector Rodriguez
Rebecca Karas
Thomas Scarbrough
Vanice Perin
Rebecca Karas
Nick Ballam
Sandra Valencia
Margie Kotzalas/Rebecca Karas
Nick Ballam
Mark Resner
Rebecca Karas
Nick Ballam

Roberto Figueroa
Omar Khan
Cris Brown
Roberto Figueroa
Karen Jackson
Cris Brown
Omar Khan
Bob Stransky
Cris Brown
Karen Jackson
Omar Khan
Cris Brown
Bob Stransky
Karen Jackson

Omar Khan
Bob Stransky
Roberto Figueroa
Karen Jackson
Omar Khan
Roberto Figueroa
Karen Jackson
Omar Khan

N/A
Tonya Russell
Cynthia Dorsey
N/A
Michelle Manahan
Carol Greenwood
N/A
Michelle Manahan
Mary Glenn Crutchley
N/A
Cynthia Dorsey
Mary Glenn Crutchley
N/A
Amy Salus
Andrea Wimbush (arrive at 4:00pm)
N/A
Carol Greenwood
Tabitha Howard
N/A
Don Algama
Cynthia Dorsey
N/A

in Team

Marissa Bailey
Mike Tschiltz
Marrisa Bailey
Mark Thaggard
Allen Howe
Marrisa Bailey
Bob Caldwell
Allen Howe
Marrisa Bailey
Bob Caldwell
Allen Howe
Marrisa Bailey

Andy Campbell
John Adams
Mark Lombard
N/A (Eliminated per Temple and Evans)
John Adams
Mark Lombard
N/A
John Adams
Marissa Bailey
N/A

Milt Murray
Lisa Gibney
Jeff Temple
Milt Murray
Jeff Temple
Rani Franovich
Janelle Jessie
Milt Murray
Rani Franovich
Janelle Jessie
Milt Murray
Jeff Temple
Janelle Jessie
Milt Murray
Jeff Temple
Rani Franovich
Jeff Temple
Janelle Jessie
Rani Franovich
Jeff Temple
Milt Murray
Joe Rivers

A. Rivera/A. Noonan (ON CALL)
Alison Rivera (ON CALL)
Alison Rivera (ON CALL)
Alison Rivera (ON CALL)
C. Maupin/C. Flannery (ON CALL)
Stuart Easson
R. Virgilio (ON CALL)
C. Maupin/R. Turttil (ON CALL)
Stuart Easson
Richard Turttil (ON CALL)
Cindy Flannery

Amy Powell (ON CALL)

Cindy Rosales/ Elizabeth Smioldo
Jill Shepard/ Karen Henderson
Nancy Fragoyannis/ Jenny Tobin
Steve Baker / Brian Wittick
Jill Shepard/ Karen Henderson
Nancy Fragoyannis / Cindy Rosales
Steve Baker / Brian Wittick
Jill Shepard/ Karen Henderson
Nancy Fragoyannis / Gerri Fehst
Steve Baker / Brian Wittick
Charlotte Abrahams / Lauren Mayros (J. Tobin 12-3)
Gerri Fesht / Mugah Afshar-Tous
Jen Schwartzman / Charlotte Abrams
Jill Shepard/Lauren Mayros
Gerri Fehst/Mugah Afshar-Tous
Jen Schwartzman / Charlotte Abrams
Cindy Rosales/ Lauren Mayros
Gerri Fehst/Mugah Afshar-Tous
Jen Schwartzman / Charlotte Abrams
Steve Bloom/ Karen Henderson
Janice Owens / Jenny Tobin
Gerri Fehst / Elizabeth Smioldo

Measures Team

Randy Sullivan
Don Cool
Christiana Lui
John Tappert
Don Cool
Doug Coe
John Tappert
Don Cool
Doug Coe

Greg Casto
Don Cool
Doug Coe
Greg Casto
Randy Sullivan
John Lubinski
Christiana Lui
Randy Sullivan
Don Cool
Christiana Lui
Randy Sullivan
Don Cool
Christiana Lui

Lou Brandon
Ryan Craffey
Jay Patel
Lou Brandon
Duane Hardesty
Nima Ashkeboussi
Lou Brandon
Duane Hardesty
Nima Ashkeboussi
Lou Brandon
Michael Raddatz
Jay Patel
Ryan Craffey
Duane Hardesty
Michael Raddatz
Kimberly Hardin/ Lou Brandon
Duane Hardesty
Nima Ashkeboussi
Lou Brandon
Prosanta Chowdhury
Kimberly Hardin
Lou Brandon

Greg Casto
Kevin Williams
Tim Harris
Greg Casto
Sandra Wastler
Mike McCoppin
Greg Casto
Michael Takacs

Tim Harris
Bruce Musico
Michael Takacs
Sandra Wastler
Bruce Musico
Jessica Kratchman
Tim Harris

Eric Benner
Jessica Kratchman
Stewart McGruder
Bruce Musico
Richard Jervey
Sandra Wastler
Bruce Musico

Mike Norris
Michelle Hart
Leroy Hardin
Mike Norris
Steve LaVie
Michelle Hart
Mike Norris
Bruce Watson
Steve LaVie
Mike Norris
Bruce Watson
Steve LaVie
Eric Benner
Michelle Hart
Eric Schrader
Mike Norris
Duane Schmidt
Steve LaVie
Michelle Hart
Eric Schrader
Bobby Abu-Eid
Mike Norris

lay
John Parillo/Ron LaVera
Tony Huffert/Larry Wheeler
Casper Sun/Ed Roach
Margaret Cervera/John Parillo
Rich Clement/Tony Huffert
Bernie White/Casper Sun
Margaret Cervera/John Parillo

Tony Huffert/Rich Clement
Casper Sun/Fritz Sturtz
Margaret Cervera/Bernie White
Tony Huffert/Rich Clement
Casper Sun/Ron LaVera
Margaret Cervera/John Parillo
Rich Clement/Joe DeCicco
Casper Sun/
John Parillo/Leroy Hardin
Margaret Cervera/Rich Clement
Casper Sun/Fritz Sturtz
John Parillo/AJ Nosek
Ronald LaVera/Bernie White
Casper Sun/Leroy Hardin
John Parillo/Fritz Sturtz

N/A
(ON CALL)
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Safety Team

Dave Skeen
Pat Hiland
Fred Brown
Dave Skeen
Pat Hiland
Fred Brown
Dave Skeen
Ed Hackett
Fred Brown
Dave Skeen
Brian Holian
Fred Brown
Mike Case
Ed Hackett
Bill Ruland
Mike Case
Allen Howe
Bill Ruland
Mike Case
Brian Holian
Pat Hiland
Mike Case

Brett Rini
Peter Alter
Rick Hasselberg
Frank Collins

Peter Alter
Tom Boyce (RES)/Dion
Mike Morlang
Brett Rini
Greg Schoenebeck
Mike Morlang
Peter Alter
Greg Schoenebeck
Frank Collins
Peter Alter
Greg Schoenebeck
Frank Collins
Brett Rini
Mark Orr
Frank Collins
Peter Alter
Brett Rini
Oleg Bukharin

Ray Skarda
Andy Howe
Jeff Mitman
Jim Gilmer
Jeff Circle
Len Ward
Donnie Harrison
Hossein Esmaili
Ed Fuller
Donnie Harrison
Jim Gilmer
Hossein Esmaili
Steve Arndt
Don Chung
Hossein Esmaili
Steve Arndt
Jeff Mitman
Don Hilton
Ray Skarda
Hossein Esmaili
Don Chung
Ray Skarda

Eva Brown
Mike Brown
Chuck Norton

Eva Brown
Mike Brown
Chuck Norton
Jim Shea
Mike Brown
Chuck Norton
Jim Shea
Mike Brown
Chuck Norton
Jim Shea
Mike Brown
Chuck Norton
Jim Shea
Mike Brown
Chuck Norton
Eva Brown
Larry Vick
Chuck Norton
Eva Brown

Denise McGovern
Mark Padovan
Bill Roggenbrodt
Denise McGovern
Mark Padovan
Rick Jervey
Brian Horn
John Thorp
Andy Kugler
Brian Horn
Steve Bloom
Bill Roggenbrodt
Liliana Ramadan
Jon Thompson
John Thorp
Mark Padovan
Andy Kugler
David Solario
Liliana Ramadan
John Thorp
Stan Gardocki
Margie Kotzalas

(ON CALL)
(ON CALL)

From: Virgilio, Rosetta
Sent: Friday, April 01, 2011 4:30 PM
To: OST05 Hoc
Subject: Out of Office: 04/01/2011 Press Release: Task Force on Japan Events

Hello - I am currently out of the office and will return Monday, April 4. If you have a pressing liaison matter, please contact my supervisor at Richard.Turtill@nrc.gov 301-415-2308, or my colleague at Michelle.Ryan@nrc.gov 301-415-1071.

PPP/6/9

From: McNamara, Nancy
Sent: Friday, April 01, 2011 4:30 PM
To: OST05 Hoc
Subject: Out of Office: 04/01/2011 Press Release: Task Force on Japan Events

Doug Tift and I will be out of office on 4/1/11. If you need SLO assistance, please contact Monica Orendi at 610-337-5214. During off hours and over the weekend, Doug and I will be available by cell.

PPP/620

From: ET05 Hoc
Sent: Friday, April 01, 2011 11:29 AM
To: Anderson, James
Cc: Marshall, Jane
Subject: Current ongoing OST tasks

#2931: ** This supersedes records 2927 and 2536. Please add comments to this record instead of adding additional records related to TMI. **

The Japanese government requests that we provide available documents on our experience with TMI-2, including how fuel was removed from the vessel and lessons learned from the process.

Please assign this task as appropriate. There is no specific due date, but the effort to determine what to do with damaged fuel should be a high priority.

For awareness, INPO was requested to provide similar information.

LT Director to discuss this assignment to ensure it is tasked to the appropriate folks. Tony McMurtry assigning to organization outside this tasking list. As such, the task is rejected by the LT.

Awaiting response from OEDO on process for ticketing actions outside of the Ops Center into the line organization, especially those that are longer term.

Due: 04/01/2011; 23:24:00; Requester: Mike Scott (site team)

#2242: Desc: Craft response to inquiry by R. Reed which asked that the NRC assess the ability of the US infrastructure to handle the current emergency in Japan (earthquake, tsunami, reactor, etc) if it were to occur to a domestic reactor. This is tasked to Charles Miller per Martin Virgilio using SRM and Charter.

Response: When SRM is issued forward to R. Reed for response.

Due: 04/04/2011, 06:22:14; Requester: WH

ppp/624

From: Browder, Rachel
Sent: Friday, April 01, 2011 4:30 PM
To: OST05 Hoc
Subject: Out of Office: 04/01/2011 Press Release: Task Force on Japan Events

I will be out of the office until Monday, April 11th. If you need immediate assistance, please contact one of the DNMS secretary's for assistance. I'll be checking my emails and will respond as soon as practical.

PPP/622

From: LIA05 Hoc
Sent: Friday, April 01, 2011 3:08 PM
To: FOIA Response.hoc Resource
Subject: FW: Lastest Q&A's

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Horwitz, Steve [mailto:steve.horwitz@dhs.gov]
Sent: Thursday, March 31, 2011 12:16 PM
To: LIA05 Hoc
Subject: RE: Lastest Q&A's

THANKS/sh

From: prvs=064dea3aa=LIA05.Hoc@nrc.gov [mailto:prvs=064dea3aa=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Thursday, March 31, 2011 12:09 PM
To: Steve Horwitz
Subject: FW: Lastest Q&A's

Per your request

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: LIA04 Hoc
Sent: Thursday, March 31, 2011 12:07 PM
To: LIA05 Hoc
Subject: Lastest Q&A's

As requested

ppp / 623

From: LIA05 Hoc
Sent: Friday, April 01, 2011 3:07 PM
To: FOIA Response.hoc Resource
Subject: FW: Lastest Q&A's
Attachments: Q&A.docx; boardfile.docx

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: LIA04 Hoc
Sent: Thursday, March 31, 2011 12:07 PM
To: LIA05 Hoc
Subject: Lastest Q&A's

As requested

Frequently Asked Questions

1. What is the Price-Anderson Act?

In 1957, a federal law called the Price-Anderson Act was established to ensure that adequate money would be available to pay insurance claims following an accident at a commercial nuclear power plant. That law is still in place to protect those that live around nuclear power plants.

2. My insurance agent said that my homeowner's insurance does not cover nuclear accidents. Does Price-Anderson protect me?

Your homeowner's insurance policy does not cover nuclear accidents because Price-Anderson covers claims related to nuclear accidents. By law, owners of nuclear power plants are required to purchase \$375 million of offsite liability insurance for each reactor at the plant. If a nuclear accident causes damages of more than \$375 million, the insurance is supplemented by additional coverage that is shared by every nuclear power plant in the country. There are currently 104 reactors licensed to operate in the United States, so this secondary pool of money contains about \$12.6 billion. If all of this secondary money is used, Congress would determine whether to provide additional disaster relief.

3. The Price-Anderson Act is a federal law? Why does the government spend my tax dollars on providing nuclear insurance to big energy companies?

The Price-Anderson Act is a federal law, but your tax dollars do not pay for the insurance it requires owners of nuclear power plants to purchase. The extra insurance protection required for large commercial nuclear power companies is purchased at no cost to the public or the federal government.

4. My insurance company is a nationally known, reputable business that I trust. What insurance company does the nuclear plant use – a good one or the cheapest one they can find?

All U.S. nuclear power plant owners purchase their Price-Anderson insurance from American Nuclear Insurers (ANI), which is made of several large and reputable insurance companies. About half of the ANI companies are foreign insurance businesses. On average, a nuclear power plant owner pays about \$400,000 per year for Price-Anderson insurance at a single-unit reactor site. For power plants with more than one reactor, the total annual insurance cost is typically discounted, similar to automobile insurance for households with more than one car.

5. More than a million people live within 50 miles of Plant X. How is a \$375 million insurance policy supposed to cover all of us?

The Price-Anderson Act is a federal law that requires owners of nuclear power plants to purchase \$375 million of offsite liability insurance for each reactor at the plant. If a nuclear accident causes damages of more than \$375 million, the insurance is supplemented by additional coverage that is shared by every nuclear power plant in the country. There are currently 104 reactors licensed to operate in the United States, so this secondary pool of money

contains about \$12.6 billion. If all of this secondary money is used, Congress would determine whether to provide additional disaster relief.

6. Why does the NRC let a private insurance company determine the amount of insurance coverage? Why does this private company control public protection?

The intent of the Price-Anderson Act was to allow the government to regulate the safety of nuclear power while allowing the private insurance industry to provide financial protection. The NRC is the government agency that is responsible for ensuring that nuclear power plants are designed and operated in a way that protects public health and safety. The NRC is confident that the amount of insurance coverage determined by the private insurance company is adequate to provide financial compensation in the event of a nuclear accident.

7. The accidents in Japan affected the reactors and the spent fuel pools. Does the Price-Anderson Act cover all nuclear plant accidents or just some of them?

The Price-Anderson Act covers all property and liability claims resulting from nuclear accidents at commercial nuclear power plants. This includes any incident related to the reactor or the spent fuel pool. Price-Anderson also covers claims related to transporting nuclear fuel and nuclear waste in and out of the plant.

8. I'll have to find another place to stay if I have to evacuate my home during a nuclear accident. I can't afford to pay for a hotel or apartment for several months while the government tries to clean things up. How am I supposed to pay for that?

Insurance under the Price-Anderson Act covers bodily injury, sickness, disease or resulting death, property damage and loss, and reasonable living expenses for people who are evacuated from a nuclear accident. The Stafford Act is another federal law that provides disaster relief to state and local governments. If a nuclear accident is declared an emergency or major disaster by the President, the Stafford Act will also be available to provide assistance to accident victims. The Stafford Act allows the federal and state governments to share costs of temporary housing for up to 18 months. It also provides additional money for home repair and temporary mortgage or rental payments. Distribution of Stafford Act funding is done through the Federal Emergency Management Agency. Together, the Price-Anderson and Stafford Acts provide money for a variety of expenses following a nuclear accident.

9. Has Price-Anderson ever been used?

Only once. During the 1979 accident at the Three Mile Island Nuclear Power Plant, the Price-Anderson Act provided liability insurance to the public. The day after the accident, insurance company representatives established a local claims office in Pennsylvania. Advertisements were placed in local newspapers to inform residents of claims procedures. The insurance paid for the living expenses of families who decided to evacuate, although evacuation was not immediately ordered. When Pennsylvania's governor recommended the evacuation of pregnant women and families with young children who lived near the plant, the insurance paid for those evacuation expenses, too. In 1979, more than 3000 people received nearly \$1.2 million in evacuation claims. More than 600 people were also reimbursed for lost wages as a result of the accident. In the months after the accident, numerous lawsuits were filed alleging various

injuries and property damages. To date, the Price-Anderson insurance has paid about \$71 million in claims and litigation costs associated with the Three Mile Island accident. All payments were made from the primary insurance coverage. Money from the secondary layer of insurance was not needed.

10. When does the Price-Anderson Act expire?

In 2005, the Price-Anderson Act was extended through December 31, 2025.

GI-199 Safety Risk Assessment Background Information UPDATED

Talking Points

- The NRC's GI-199 safety risk assessment was completed in August 2010. It is publically available. <http://pbadupws.nrc.gov/docs/ML1002/ML100270582.html>
- The purpose of the GI-199 safety risk assessment was to perform a conservative, screening-level assessment to determine whether additional seismic safety review was needed for nuclear plants in the Central and Eastern United States (CEUS).
- Updates to seismic data and models indicate increased seismic hazard estimates for some operating nuclear power plant sites in CEUS.
- The results of this assessment are not final estimates of plant-specific seismic risk.
- The NRC does not rank plants by seismic risk.
- The NRC continues to conclude that all plants have adequate seismic safety margin and continue to operate safely.

Q&A

1. What is GI-199?

Generic Issue 199 investigates the safety implications of updated earthquake-related data and models. These updated data and models suggest that the probability for earthquake ground shaking above the seismic design basis for some nuclear power plants in the Central and Eastern United States (CEUS) is still low, but larger than previous estimates.

2. Are the NRC reviews/analyses based on 2004 seismic data from USGS? Is there other updated earthquake information and modeling?

In 2004, preliminary results from United States Geological Survey (USGS) work indicated an increase in the probability of exceeding the Safe Shutdown Earthquake (SSE) for 29 nuclear power sites in the CEUS. The probability increases identified by USGS were primarily due to recent developments in the modeling of earthquake ground motion in the CEUS. USGS published updated data in 2008, which is what was used in the NRC's GI-199 safety risk assessment.

3. The NRC report talks about "screening reviews." What does that mean?

In December 2007, NRC completed a limited scope screening analysis, which is used by the NRC staff to decide whether an issue requires additional review. The screening compared the new seismic data with earlier seismic evaluations conducted by the NRC staff. The limited scope screening analysis concluded that seismic designs of plants in the CEUS continue to provide adequate safety margins. However, because the NRC recognized that this new seismic data could reduce available safety margins, the NRC staff conducted further analysis by performing NRC's GI-199 safety risk assessment.

4. Does the GI-199 study examine all nuclear power plants?

The GI-199 safety risk assessment is limited to all plants in the CEUS. Although plants at the Columbia, Diablo Canyon, Palo Verde, and San Onofre sites are not included in the GI-199 safety risk assessment, the NRC Information Notice on GI-199 is addressed to all operating power plants in the U.S. (as well as all independent spent fuel storage installation licensees). The NRC will also consider inclusion of operating reactors in the Western U.S. in its future generic communication information requests.

5. Does the GI-199 study consider spent fuel pools?

Spent fuel pools (SFPs) were not specifically evaluated as part of GI-199 safety risk assessment. However, based on their design characteristics, the NRC concludes that SFPs remain safe. SFPs are constructed of reinforced concrete, several feet thick, with a stainless steel liner to prevent leakage and maintain water quality. SFPs are inherently structurally-rugged and are designed to the same seismic requirements as the nuclear plant.

6. Is the NRC performing any inspections for GI-199?

The NRC is not currently performing inspections that are directly related to GI-199. However, on March 23, 2011, the NRC directed its inspectors to assess the actions taken by nuclear plant licensees in response to events at the Fukushima Daiichi nuclear station in Japan. NRC inspectors were given direction in the form of a Temporary Instruction (TI), which is one of the processes that NRC inspectors use to perform inspections following specific events. Using TI 2515/183, NRC inspectors will verify that important equipment and materials are adequate and properly staged, tested, and maintained in order to respond to a severe earthquake, flooding event, or loss of all electrical power. This inspection is an additional NRC activity. It does not replace any of the routine reviews that NRC inspectors perform daily at every nuclear power plant. Inspection activities for TI 2515/183 are expected to be completed by April 29, 2011. The results will be issued in a publically available inspection report by May 13, 2011.

7. What happens next with GI-199?

The NRC is developing a Generic Letter (GL) to request information from all 104 U.S. nuclear plants. The GL will be issued in draft form to support a public meeting in late Spring 2011. In addition, in accordance with its internal review processes, the NRC will also present the GL to the Advisory Committee on Reactor Safeguards. The draft GL will also be issued for formal public comment in late Summer 2011. The final GL is expected to be issued by end of 2011, near the time when new seismic models become available. These new seismic models are being developed by NRC, DOE, and EPRI. In addition the USGS will review the model. Information requested in the GL will likely require 3 to 6 months for nuclear plant licensees to prepare. NRC's review will be on-going as information is collected. Based on NRC's review of that information, a determination will be made regarding potential changes at nuclear plants based on cost-benefit backfit analysis.

8. What if the GI-199 is wrong and an unexpected earthquake happens?

Following the events of September 11, 2001, NRC required all nuclear plant licensees to take additional steps to protect public health and safety in the event of a large fire or explosion. If needed, these additional steps could also be used during natural phenomena such as earthquakes, tornadoes, floods, and tsunamis. In general, these additional steps are plans, procedures, and pre-staged equipment whose intent is to minimize the effects of adverse events. In accordance with NRC regulations, all nuclear power plants are required to maintain or restore cooling for the reactor core, containment building, and spent fuel pool under the circumstances associated with a large fire or explosion. These requirements include using existing or readily available equipment and personnel, having strategies for firefighting, operations to minimize fuel damage, and actions to minimize radiological release to the environment.

Date: March 25, 2011

From: Fontenot, Rebecca <Rebecca.Fontenot@dhs.gov>
Sent: Friday, April 01, 2011 3:12 PM
To: LIA05 Hoc
Subject: RE: Files and DRAFT FEMA Liaison SOG

Ok, I will do so.

Sincerely,

Rebecca Fontenot
REP Program
(202) 212-2315

From: prvs=065cfa8ba=LIA05.Hoc@nrc.gov [mailto:prvs=065cfa8ba=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Friday, April 01, 2011 3:11 PM
To: Fontenot, Rebecca
Cc: Coons, Albert; Dan Feighert
Subject: RE: Files and DRAFT FEMA Liaison SOG

Ms. Fontenot<

Yes, and pass on the FEMA Liaison SOG for review. Thanks.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Fontenot, Rebecca [mailto:Rebecca.Fontenot@dhs.gov]
Sent: Friday, April 01, 2011 3:08 PM
To: LIA05 Hoc
Subject: RE: Files and DRAFT FEMA Liaison SOG

I am the action officer. I just didn't know why you sent them. You didn't say anything in the email except here are the attached. I will create a file on the T-drive for them. Is that what you are expecting?

Sincerely,

Rebecca Fontenot
REP Program
(202) 212-2315

From: prvs=065cfa8ba=LIA05.Hoc@nrc.gov [mailto:prvs=065cfa8ba=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Friday, April 01, 2011 3:02 PM
To: Fontenot, Rebecca

PPP / 624

Cc: Coons, Albert; Dan Feighert
Subject: RE: Files and DRAFT FEMA Liaison SOG

Ms.Fontenot,

Are you not the Action Officer and I am sure we have to save some of this information somewhere?

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: Fontenot, Rebecca [mailto:Rebecca.Fontenot@dhs.gov]
Sent: Friday, April 01, 2011 3:00 PM
To: LIA05 Hoc
Subject: RE: Files and DRAFT FEMA Liaison SOG

Ken, why did you send these to me specifically, am I to do something with them?

Sincerely,

Rebecca Fontenot
REP Program
(202) 212-2315

From: prvs=065cfa8ba=LIA05.Hoc@nrc.gov [mailto:prvs=065cfa8ba=LIA05.Hoc@nrc.gov] **On Behalf Of** LIA05 Hoc
Sent: Friday, April 01, 2011 2:55 PM
To: Rebecca Fontenot
Cc: Coons, Albert; Dan Feighert
Subject: Files and DRAFT FEMA Liaison SOG

Please find the attached.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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From: LIA05 Hoc
Sent: Friday, April 01, 2011 2:52 PM
To: Ward, Paul; michael.howe@dhs.gov
Cc: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: Latest Radiological Monitoring Data
Attachments: MEXT Radiation Data 20110401_15.pdf; MEXT Radiation Data 20110401_18 (unofficial).pdf; MEXT Radiation Data 20110401_23.pdf; MEXT Radiation Data 20110401_16.pdf; MEXT Radiation Data 20110401_09with lat_long (unofficial).pdf; MEXT Radiation Data 20110401_15with lat_long (unofficial).pdf; MEXT Radiation Data 20110401_17.pdf; MEXT Radiation Data 20110401_19.pdf; MEXT Radiation Data 20110401_18.pdf; MEXT Radiation Data 20110401_18with lat_long (unofficial).pdf

Please find the attached.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
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PPP/625

福島第一原子力発電所の20km以遠のモニタリング結果について

平成23年4月1日 19時00分現在
文 部 科 学 省

○文部科学省が集計した結果 注)太下線データが今回追加分

- * 1 GM(ガイガー=ミューラー計測管)における値
- * 2 電離箱における値
- * 3 NaI(ヨウ化ナトリウム)シンチレータにおける値
- * 4 測定時間内における測定値の変動範囲

場所(福島第1発電所からの距離)	測定日時	数値(マイクロシーベルト/時) (記載のない限り屋外)	測定位置	天候	実施者
測定エリア【1】 (約60Km北西)	4月1日8時48分	2.7 ^{*2}	N: 37° 44' 12.6" E: 140° 28' 02.9"	降雨無し	日本原子力研究開発機構
測定エリア【2】 (約55Km北西)	4月1日9時18分	3.8 ^{*2}	N: 37° 41' 03.5" E: 140° 33' 08.2"	降雨無し	日本原子力研究開発機構
測定エリア【3】 (約45Km北西)	4月1日10時14分	3.3 ^{*2}	N: 37° 45' 12.6" E: 140° 44' 05.5"	降雨無し	日本原子力研究開発機構
測定エリア【5】 (約45Km北)	4月1日11時12分	0.8 ^{*2}	N: 37° 47' 04.8" E: 140° 55' 16.4"	降雨無し	日本原子力研究開発機構
測定エリア【6】 (約45Km北)	4月1日11時34分	1.0 ^{*2}	N: 37° 42' 02.7" E: 140° 58' 00.0"	降雨無し	日本原子力研究開発機構
測定エリア【7】 (約45Km北)	4月1日11時43分	1.1 ^{*2}	N: 37° 41' 13.6" E: 140° 57' 16.0"	降雨無し	日本原子力研究開発機構
測定エリア【10】 (約40Km北西)	<u>4月1日16時03分</u>	<u>1.6^{*2}</u>	<u>N: 37° 35' 00.1"</u> <u>E: 140° 35' 00.0"</u>	降雨無し	文部科学省
測定エリア【12】 (約40Km西)	4月1日11時39分	0.5 ^{*2}	N: 37° 25' 14.9" E: 140° 35' 12.3"	降雨無し	文部科学省
測定エリア【13】 (約40Km西)	4月1日11時53分	0.5 ^{*2}	N: 37° 26' 06.0" E: 140° 37' 05.8"	降雨無し	文部科学省
測定エリア【14】 (約35Km西)	4月1日12時06分	0.2 ^{*2}	N: 37° 26' 02.6" E: 140° 38' 13.8"	降雨無し	文部科学省
測定エリア【15】 (約35Km西)	4月1日12時19分	0.6 ^{*2}	N: 37° 26' 15.0" E: 140° 40' 14.8"	降雨無し	文部科学省
測定エリア【20】 (約45Km北西)	4月1日10時37分	0.6 ^{*2}	N: 37° 29' 06.7" E: 140° 34' 15.1"	降雨無し	文部科学省
測定エリア【21】 (約30Km西北西)	4月1日11時09分	2.3 ^{*2}	N: 37° 30' 08.0" E: 140° 42' 02.4"	降雨無し	文部科学省
測定エリア【22】 (約30Km西北西)	4月1日11時00分	0.6 ^{*2}	N: 37° 30' 11.5" E: 140° 39' 08.0"	降雨無し	文部科学省
測定エリア【23】 (約30Km西北西)	4月1日10時48分	0.6 ^{*2}	N: 37° 30' 05.3" E: 140° 34' 11.3"	降雨無し	文部科学省
測定エリア【31】 (約30Km西北西)	4月1日10時33分	15.4 ^{*2}	N: 37° 33' 30.0" E: 140° 44' 54.0"	降雨無し	日本原子力研究開発機構
測定エリア【32】 (約30Km北西)	4月1日10時56分	36.2 ^{*2}	N: 37° 35' 30.0" E: 140° 45' 54.0"	降雨無し	日本原子力研究開発機構
測定エリア【33】 (約30Km北西)	4月1日11時22分	18.2 ^{*2}	N: 37° 36' 30.0" E: 140° 45' 54.0"	降雨無し	日本原子力研究開発機構

- * 1 GM(ガイガー=ミュラー計測管)における値
- * 2 電離箱における値
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- * 4 測定時間内における測定値の変動範囲

場所(福島第1発電所からの距離)	測定日時	数値(マイクロシーベルト/時) (記載のない限り屋外)	測定位置	天候	実施者
測定エリア【34】(約30Km北西)	4月1日13時02分	5.8 ^{*2}	N: 37° 33' 00.8" E: 140° 44' 07.0"	降雨無し	日本原子力研究開発機構
測定エリア【36】(約40Km北西)	4月1日10時08分	5.7 ^{*2}	N: 37° 36' 18.8" E: 140° 40' 07.9"	降雨無し	日本原子力研究開発機構
測定エリア【37】(約50km北西)	4月1日9時57分	4.6 ^{*2}	N: 37° 45' 06.7" E: 140° 41' 29.2"	降雨無し	日本原子力研究開発機構
測定エリア【38】(約35km南)	4月1日11時37分	1.0 ^{*2}	N: 37° 07' 30.7" E: 140° 57' 06.4"	降雨無し	文部科学省
測定エリア【39】(約45km北)	4月1日10時53分	1.3 ^{*2}	N: 37° 45' 52.7" E: 140° 51' 47.1"	降雨無し	日本原子力研究開発機構
測定エリア【51】(約40Km南西)	4月1日13時45分	0.3 ^{*3}	N: : : : E: : : : "	降雨無し	福島県
測定エリア【51】(約40Km南西)	4月1日10時42分	0.3 ^{*3}	N: : : : E: : : : "	降雨無し	福島県
測定エリア【52】(約40Km西)	4月1日14時23分	0.3 ^{*3}	N: : : : E: : : : "	降雨無し	福島県
測定エリア【52】(約40Km西)	4月1日12時05分	0.3 ^{*3}	N: : : : E: : : : "	降雨無し	福島県
測定エリア【61】(約40Km北西)	4月1日14時59分	6.1 ^{*3}	N: : : : E: : : : "	降雨無し	福島県
測定エリア【61】(約40Km北西)	4月1日12時46分	7.1 ^{*3}	N: : : : E: : : : "	降雨無し	福島県
測定エリア【62】(約40Km北西)	4月1日15時15分	7.4 ^{*3}	N: : : : E: : : : "	降雨無し	福島県
測定エリア【62】(約40Km北西)	4月1日12時34分	7.7 ^{*3}	N: : : : E: : : : "	降雨無し	福島県
測定エリア【63】(約45Km北西)	4月1日15時49分	3.2 ^{*3}	N: : : : E: : : : "	降雨無し	福島県
測定エリア【63】(約45Km北西)	4月1日11時13分	2.8 ^{*3}	N: : : : E: : : : "	降雨無し	福島県
測定エリア【71】(約25Km南)	4月1日8時31分	2.5 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【72】(約30Km南)	4月1日12時42分	1.6 ^{*2}		降雨無し	文部科学省
測定エリア【72】(約30Km南)	4月1日9時11分	0.8 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【73】(約35Km南)	4月1日11時57分	1.4 ^{*2}		降雨無し	文部科学省
測定エリア【73】(約35Km南)	4月1日9時27分	0.7 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【74】(約35Km南)	4月1日11時08分	0.2 ^{*2}		降雨無し	文部科学省
測定エリア【74】(約35Km南)	4月1日9時55分	0.3 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【75】(約45Km南)	4月1日10時30分	0.8 ^{*2}		降雨無し	文部科学省

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場所(福島第1発電所からの距離)	測定日時	数値(マイクロシーベルト/時) (記載のない限り屋外)	測定位置	天候	実施者
測定エリア【75】 (約45Km南)	4月1日7時00分	0.8 *2		降雨無し	警察(NBC対策部隊)
測定エリア【76】 (約25Km南西)	4月1日11時03分	0.6 *2		降雨無し	警察(NBC対策部隊)
測定エリア【77】 (約25Km南西)	4月1日10時45分	2.2 *2		降雨無し	警察(NBC対策部隊)
測定エリア【78】 (約45Km北西)	4月1日7時47分	0.8 *2		降雨無し	警察(NBC対策部隊)
測定エリア【79】 (約30Km北西)	4月1日12時26分	16.5 *2		降雨無し	日本原子力研究開発機構
測定エリア【79】 (約30Km北西)	4月1日9時56分	15.5 *2		降雨無し	警察(NBC対策部隊)
測定エリア【80】 (約25Km北)	4月1日12時33分	0.7 *2		降雨無し	日本原子力研究開発機構
測定エリア【80】 (約25Km北)	4月1日12時02分	0.7 *2		降雨無し	警察(NBC対策部隊)
測定エリア【81】 (約30Km西北西)	4月1日8時34分	34.5 *2		降雨無し	警察(NBC対策部隊)
測定エリア【83】 (約20Km北西)	4月1日12時47分	70.9 *2		降雨無し	日本原子力研究開発機構
測定エリア【83】 (約20Km北西)	4月1日10時11分	60.5 *2		降雨無し	警察(NBC対策部隊)
測定エリア【84】 (約40km南西)	4月1日9時50分	0.5 *2		降雨無し	文部科学省
測定エリア【85】 (約60km北西)	4月1日14時00分	1.0 *2	N: 37° 42' 45.0" E: 140° 22' 59.0"	降雨無し	防衛省
測定エリア【85】 (約60km北西)	4月1日6時00分	0.3 *2	N: 37° 42' 45.0" E: 140° 22' 59.0"	降雨無し	防衛省
測定エリア【86】 (約55km西)	4月1日14時00分	1.1 *2	N: 37° 23' 57.0" E: 140° 19' 35.0"	降雨無し	防衛省
測定エリア【86】 (約55km西)	4月1日6時00分	1.3 *2	N: 37° 23' 57.0" E: 140° 19' 35.0"	降雨無し	防衛省
測定エリア【87】 (約30km西南西)	4月1日14時00分	1.2 *2	N: 37° 23' 57.0" E: 140° 19' 35.0"	降雨無し	防衛省
測定エリア【87】 (約30km西南西)	4月1日6時00分	1.0 *2	N: 37° 23' 57.0" E: 140° 19' 35.0"	降雨無し	防衛省

Readings of the radiation rate with the cooperation of universities

Upper column: Reading of the integrated dose(24h)
Lower column: the reference value which was calculated as the number per one hour

Prefecture	Monitoring Point	City	3/31~4/1
Hokkaido	1	Muroran City	1 μ Sv (0.04 μ Sv/h)
	2	Obihiro City	1 μ Sv (0.04 μ Sv/h)
	3	Asahikawa City	1 μ Sv (0.04 μ Sv/h)
	4	Kitami City	2 μ Sv (0.08 μ Sv/h)
	5	Kushiro City	1 μ Sv (0.04 μ Sv/h)
	6	Hakodate City	1 μ Sv (0.04 μ Sv/h)
Aomori	7	Hirosaki City	2 μ Sv (0.08 μ Sv/h)
	8	Hachinohe City	1 μ Sv (0.04 μ Sv/h)
Miyagi	9	Sendai City	3 μ Sv (0.1 μ Sv/h)
Yamagata	10	Yonezawa City	3 μ Sv (0.1 μ Sv/h)
	11	Tsuruoka City	2 μ Sv (0.08 μ Sv/h)
Fukushima	12	Fukushima City	12 μ Sv (0.50 μ Sv/h)
Ibaraki	13	Tsukuba City	5 μ Sv (0.2 μ Sv/h)
Tochigi	14	Oyama City	2 μ Sv (0.08 μ Sv/h)
Gunma	15	Kiryu City	2 μ Sv (0.08 μ Sv/h)
Chiba	16	Chiba City	4 μ Sv (0.2 μ Sv/h)
	17	Kisarazu City	5 μ Sv (0.2 μ Sv/h)
Tokyo	18	Bunkyo Ward	4 μ Sv (0.2 μ Sv/h)
	19	Fuchu City	3 μ Sv (0.1 μ Sv/h)
	20	Meguro Ward	3 μ Sv (0.1 μ Sv/h)
	21	Minato Ward	2 μ Sv (0.08 μ Sv/h)
	22	Hachioji City	3 μ Sv (0.1 μ Sv/h)
Kanagawa	23	Yokohama City	2 μ Sv (0.08 μ Sv/h)
Niigata	24	Nagaoka City	—
Nagano	25	Matsumoto City	2 μ Sv (0.08 μ Sv/h)
	26	Ueda City	2 μ Sv (0.08 μ Sv/h)

* We have measured the integrated dose(24h) from around 2PM to the next
* Readings of lower column are the reference value because of the lower
* "—" in the column indicates that "now setting up for measuring".

福島第一原子力発電所の20km以遠のモニタリング結果について

平成23年4月1日 13時00分現在
文 部 科 学 省

○文部科学省が集計した結果

- * 1 GM(ガイガー=ミューラー計測管)における値
- * 2 電離箱における値
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場所(福島第1発電所からの距離)	測定日時	数値(マイクロシーベルト/時) (記載のない限り屋外)	測定位置	天候	実施者
測定エリア【1】(約60Km北西)	4月1日8時48分	2.7 ^{*2}	N: 37° 44' 12.6" E: 140° 28' 02.9"	降雨無し	日本原子力研究開発機構
測定エリア【2】(約55Km北西)	4月1日9時18分	3.8 ^{*2}	N: 37° 41' 03.5" E: 140° 33' 08.2"	降雨無し	日本原子力研究開発機構
測定エリア【3】(約45Km北西)	4月1日10時14分	3.3 ^{*2}	N: 37° 45' 12.6" E: 140° 44' 05.5"	降雨無し	日本原子力研究開発機構
測定エリア【5】(約45Km北)	4月1日11時12分	0.8 ^{*2}	N: 37° 47' 04.8" E: 140° 55' 16.4"	降雨無し	日本原子力研究開発機構
測定エリア【6】(約45Km北)	4月1日11時34分	1.0 ^{*2}	N: 37° 42' 02.7" E: 140° 58' 00.0"	降雨無し	日本原子力研究開発機構
測定エリア【7】(約45Km北)	4月1日11時43分	1.1 ^{*2}	N: 37° 41' 13.6" E: 140° 57' 16.0"	降雨無し	日本原子力研究開発機構
測定エリア【12】(約40Km西)	4月1日11時39分	0.5 ^{*2}	N: 37° 25' 14.9" E: 140° 35' 12.3"	降雨無し	文部科学省
測定エリア【13】(約40Km西)	4月1日11時53分	0.5 ^{*2}	N: 37° 26' 06.0" E: 140° 37' 05.8"	降雨無し	文部科学省
測定エリア【20】(約45Km北西)	4月1日10時37分	0.6 ^{*2}	N: 37° 29' 06.7" E: 140° 34' 15.1"	降雨無し	文部科学省
測定エリア【21】(約30Km西北西)	4月1日11時09分	2.3 ^{*2}	N: 37° 30' 08.0" E: 140° 42' 02.4"	降雨無し	文部科学省
測定エリア【22】(約30Km西北西)	4月1日11時00分	0.6 ^{*2}	N: 37° 30' 11.5" E: 140° 39' 08.0"	降雨無し	文部科学省
測定エリア【23】(約30Km西北西)	4月1日10時48分	0.6 ^{*2}	N: 37° 30' 05.3" E: 140° 34' 11.3"	降雨無し	文部科学省
測定エリア【31】(約30Km西北西)	4月1日10時33分	15.4 ^{*2}	N: 37° 33' 30.0" E: 140° 44' 54.0"	降雨無し	日本原子力研究開発機構
測定エリア【32】(約30Km北西)	4月1日10時56分	36.2 ^{*2}	N: 37° 35' 30.0" E: 140° 45' 54.0"	降雨無し	日本原子力研究開発機構
測定エリア【33】(約30Km北西)	4月1日11時22分	18.2 ^{*2}	N: 37° 36' 30.0"	降雨無し	日本原子力研究開発機構

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場所(福島第1発電所からの距離)	測定日時	数値(マイクロシーベルト/時) (記載のない限り屋外)	測定位置	天候	実施者
測定エリア【35】(約50km北西)	4月1日11時22分	10.2 ^{*2}	E: 140° 45' 54.0"	降雨無し	日本原子力研究開発機構
測定エリア【36】(約40km北西)	4月1日10時08分	5.7 ^{*2}	N: 37° 36' 18.8" E: 140° 40' 07.9"	降雨無し	日本原子力研究開発機構
測定エリア【37】(約50km北西)	4月1日9時57分	4.6 ^{*2}	N: 37° 45' 06.7" E: 140° 41' 29.2"	降雨無し	日本原子力研究開発機構
測定エリア【38】(約35km南)	4月1日11時37分	1.0 ^{*2}	N: 37° 07' 30.7" E: 140° 57' 06.4"	降雨無し	文部科学省
測定エリア【74】(約35km南)	4月1日11時08分	0.2 ^{*2}		降雨無し	文部科学省
測定エリア【75】(約45km南)	4月1日10時30分	0.8 ^{*2}		降雨無し	文部科学省
測定エリア【84】(約40km南西)	4月1日9時50分	0.5 ^{*2}		降雨無し	文部科学省
測定エリア【85】(約60km北西)	4月1日6時00分	0.3 ^{*2}	N: 37° 42' 45.0"	降雨無し	防衛省
			E: 140° 22' 59.0"		
測定エリア【86】(約55km西)	4月1日6時00分	1.3 ^{*2}	N: 37° 23' 57.0"	降雨無し	防衛省
			E: 140° 19' 35.0"		
測定エリア【87】(約30km西南西)	4月1日6時00分	1.0 ^{*2}	N: 37° 23' 57.0"	降雨無し	防衛省
			E: 140° 19' 35.0"		

Readings at Monitoring Post out of 20 Km Zone of Fukushima Dai-ichi NPP

As of 19:00 April 1, 2011
Ministry of Education, Culture, Sports, Science
and Technology (MEXT)

○Monitoring Outputs by MEXT *Boldface and underlined readings are new.

- * 1 measured by Geiger-Müller counter
- * 2 measured by ionization chamber type survey meter
- * 3 measured by NaI scintillator detector
- * 4 variation range of the measuring data in measuring

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : μ Sv / h)	測定位置	Weather	Reading by
Reading Point 【1】 (About60KmNorthWest)	2011/4/1 8:48	2.7 *2	N: 37° 44' 12.6" E: 140° 28' 02.9"	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【2】 (About55KmNorthWest)	2011/4/1 9:18	3.8 *2	N: 37° 41' 03.5" E: 140° 33' 08.2"	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【3】 (About45KmNorthWest)	2011/4/1 10:14	3.3 *2	N: 37° 45' 12.6" E: 140° 44' 05.5"	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【5】 (About45KmNorth)	2011/4/1 11:12	0.8 *2	N: 37° 47' 04.8" E: 140° 55' 16.4"	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【6】 (About45KmNorth)	2011/4/1 11:34	1.0 *2	N: 37° 42' 02.7" E: 140° 58' 00.0"	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【7】 (About45KmNorth)	2011/4/1 11:43	1.1 *2	N: 37° 41' 13.6" E: 140° 57' 16.0"	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【10】 (About40KmNorthWest)	2011/4/1 16:03	1.6 *2	N: 37° 35' 00.1" E: 140° 35' "	No Rain	MEXT
Reading Point 【12】 (About40KmWest)	2011/4/1 11:39	0.5 *2	N: 37° 25' 14.9" E: 140° 35' 12.3"	No Rain	MEXT
Reading Point 【13】 (About40KmWest)	2011/4/1 11:53	0.5 *2	N: 37° 26' 06.0" E: 140° 37' 05.8"	No Rain	MEXT
Reading Point 【14】 (About35KmWest)	2011/4/1 12:06	0.2 *2	N: 37° 26' 02.6" E: 140° 38' 13.8"	No Rain	MEXT
Reading Point 【15】 (About35KmWest)	2011/4/1 12:19	0.6 *2	N: 37° 26' 15.0" E: 140° 40' 14.8"	No Rain	MEXT
Reading Point 【20】 (About45KmNorthWest)	2011/4/1 10:37	0.6 *2	N: 37° 29' 06.7" E: 140° 34' 15.1"	No Rain	MEXT

- * 1 measured by Geiger-Müller counter
- * 2 measured by ionization chamber type survey meter
- * 3 measured by NaI scintillator detector
- * 4 variation range of the measuring data in measuring

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : μ Sv / h)	測定位置	Weather	Reading by
Reading Point 【21】 (About30KmWestNorthWest)	2011/4/1 11:09	2.3 *2	N: 37° 30' 08.0" E: 140° 42' 02.4"	No Rain	MEXT
Reading Point 【22】 (About30KmWestNorthWest)	2011/4/1 11:00	0.6 *2	N: 37° 30' 11.5" E: 140° 39' 08.0"	No Rain	MEXT
Reading Point 【23】 (About30KmWestNorthWest)	2011/4/1 10:48	0.6 *2	N: 37° 30' 05.3" E: 140° 34' 11.3"	No Rain	MEXT
Reading Point 【31】 (About30KmWestNorthWest)	2011/4/1 10:33	15.4 *2	N: 37° 33' 30.0" E: 140° 44' 54.0"	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【32】 (About30KmNorthWest)	2011/4/1 10:56	36.2 *2	N: 37° 35' 30.0" E: 140° 45' 54.0"	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【33】 (About30KmNorthWest)	2011/4/1 11:22	18.2 *2	N: 37° 36' 30.0" E: 140° 45' 54.0"	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【34】 (About30KmNorthWest)	2011/4/1 13:02	5.8 *2	N: 37° 33' 00.8" E: 140° 44' 07.0"	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【36】 (About40KmNorthWest)	2011/4/1 10:08	5.7 *2	N: 37° 36' 18.8" E: 140° 40' 07.9"	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【37】 (About50kmNorthWest)	2011/4/1 9:57	4.6 *2	N: 37° 45' 06.7" E: 140° 41' 29.2"	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【38】 (About35kmSouth)	2011/4/1 11:37	1.0 *2	N: 37° 07' 30.7" E: 140° 57' 06.4"	No Rain	MEXT
Reading Point 【39】 (About45kmNorth)	2011/4/1 10:53	1.3 *2	N: 37° 45' 52.7" E: 140° 51' 47.1"	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【51】 (About40KmSouthWest)	2011/4/1 13:45	0.3 *3	N: : : " E: : : "	No Rain	Fukushima Pref.
Reading Point 【51】 (About40KmSouthWest)	2011/4/1 10:42	0.3 *3	N: : : " E: : : "	No Rain	Fukushima Pref.
Reading Point 【52】 (About40KmWest)	2011/4/1 14:23	0.3 *3	N: : : " E: : : "	No Rain	Fukushima Pref.
Reading Point 【52】 (About40KmWest)	2011/4/1 12:05	0.3 *3	N: : : " E: : : "	No Rain	Fukushima Pref.
Reading Point 【61】 (About40KmNorthWest)	2011/4/1 14:59	6.1 *3	N: : : " E: : : "	No Rain	Fukushima Pref.
Reading Point 【61】 (About40KmNorthWest)	2011/4/1 12:46	7.1 *3	N: : : " E: : : "	No Rain	Fukushima Pref.
Reading Point 【62】 (About40KmNorthWest)	2011/4/1 15:15	7.4 *3	N: : : " E: : : "	No Rain	Fukushima Pref.

- * 1 measured by Geiger-Müller counter
- * 2 measured by ionization chamber type survey meter
- * 3 measured by NaI scintillator detector
- * 4 variation range of the measuring data in measuring

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : μ Sv / h)	測定位置	Weather	Reading by
Reading Point 【62】 (About40KmnorthWest)	2011/4/1 12:34	7.7 *3	N: E:	No Rain	Fukushima Pref.
Reading Point 【63】 (About45KmnorthWest)	2011/4/1 15:49	3.2 *3	N: E:	No Rain	Fukushima Pref.
Reading Point 【63】 (About45KmnorthWest)	2011/4/1 11:13	2.8 *3	N: E:	No Rain	Fukushima Pref.
Reading Point 【71】 (About25KmnorthSouth)	2011/4/1 8:31	2.5 *2		No Rain	Police (counter NBC operations unit)
Reading Point 【72】 (About30KmnorthSouth)	2011/4/1 12:42	1.6 *2		No Rain	MEXT
Reading Point 【72】 (About30KmnorthSouth)	2011/4/1 9:11	0.8 *2		No Rain	Police (counter NBC operations unit)
Reading Point 【73】 (About35KmnorthSouth)	2011/4/1 11:57	1.4 *2		No Rain	MEXT
Reading Point 【73】 (About35KmnorthSouth)	2011/4/1 9:27	0.7 *2		No Rain	Police (counter NBC operations unit)
Reading Point 【74】 (About35KmnorthSouth)	2011/4/1 11:08	0.2 *2		No Rain	MEXT
Reading Point 【74】 (About35KmnorthSouth)	2011/4/1 9:55	0.3 *2		No Rain	Police (counter NBC operations unit)
Reading Point 【75】 (About45KmnorthSouth)	2011/4/1 10:30	0.8 *2		No Rain	MEXT
Reading Point 【75】 (About45KmnorthSouth)	2011/4/1 7:00	0.8 *2		No Rain	Police (counter NBC operations unit)
Reading Point 【76】 (About25KmnorthSouthWest)	2011/4/1 11:03	0.6 *2		No Rain	Police (counter NBC operations unit)
Reading Point 【77】 (About25KmnorthSouthWest)	2011/4/1 10:45	2.2 *2		No Rain	Police (counter NBC operations unit)
Reading Point 【78】 (About45KmnorthWest)	2011/4/1 7:47	0.8 *2		No Rain	Police (counter NBC operations unit)
Reading Point 【79】 (About30KmnorthWest)	2011/4/1 12:26	16.5 *2		No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【79】 (About30KmnorthWest)	2011/4/1 9:56	15.5 *2		No Rain	Police (counter NBC operations unit)
Reading Point 【80】 (About25Kmnorth)	2011/4/1 12:33	0.7 *2		No Rain	JAEA (Japan Atomic Energy Agency)

- * 1 measured by Geiger-Müller counter
- * 2 measured by ionization chamber type survey meter
- * 3 measured by NaI scintillator detector
- * 4 variation range of the measuring data in measuring

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : μ Sv / h)	測定位置	Weather	Reading by
Reading Point 【80】 (About25KmNorth)	2011/4/1 12:02	0.7 *2		No Rain	Police (counter NBC operations unit)
Reading Point 【81】 (About30KmWestNorthWest)	2011/4/1 8:34	34.5 *2		No Rain	Police (counter NBC operations unit)
Reading Point 【83】 (About20KmNorthWest)	2011/4/1 12:47	70.9 *2		No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【83】 (About20KmNorthWest)	2011/4/1 10:11	60.5 *2		No Rain	Police (counter NBC operations unit)
Reading Point 【84】 (About40kmSouthWest)	2011/4/1 9:50	0.5 *2		No Rain	MEXT
Reading Point 【85】 (About60kmNorthWest)	<u>2011/4/1 14:00</u>	<u>1.0</u> *2	N: <u>37° 42' 45.0"</u> E: <u>140° 22' 59.0"</u>	<u>No Rain</u>	<u>Ministry of Defense</u>
Reading Point 【85】 (About60kmNorthWest)	2011/4/1 6:00	0.3 *2	N: 37° 42' 45.0" E: 140° 22' 59.0"	No Rain	Ministry of Defense
Reading Point 【86】 (About55kmWest)	<u>2011/4/1 14:00</u>	<u>1.1</u> *2	N: <u>37° 23' 57.0"</u> E: <u>140° 19' 35.0"</u>	<u>No Rain</u>	<u>Ministry of Defense</u>
Reading Point 【86】 (About55kmWest)	2011/4/1 6:00	1.3 *2	N: 37° 23' 57.0" E: 140° 19' 35.0"	No Rain	Ministry of Defense
Reading Point 【87】 (About30kmWestSouthWest)	<u>2011/4/1 14:00</u>	<u>1.2</u> *2	N: <u>37° 23' 57.0"</u> E: <u>140° 19' 35.0"</u>	<u>No Rain</u>	<u>Ministry of Defense</u>
Reading Point 【87】 (About30kmWestSouthWest)	2011/4/1 6:00	1.0 *2	N: 37° 23' 57.0" E: 140° 19' 35.0"	No Rain	Ministry of Defense

Readings at Monitoring Post out of 20 Km Zone of Fukushima Dai-ichi NPP

As of 16:00 April 1, 2011
Ministry of Education, Culture, Sports, Science and
Technology (MEXT)

○Monitoring Outputs by MEXT ***Boldface and underlined readings are new.**

- * 1 measured by Geiger-Müller counter
- * 2 measured by ionization chamber type survey meter
- * 3 measured by NaI scintillator detector
- * 4 variation range of the measuring data in measuring

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : μ Sv / h)	Weather	Reading by
Reading Point 【1】 (About60KmNorthWest)	2011/4/1 8:48	2.7 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【2】 (About55KmNorthWest)	2011/4/1 9:18	3.8 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【3】 (About45KmNorthWest)	2011/4/1 10:14	3.3 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【5】 (About45KmNorth)	2011/4/1 11:12	0.8 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【6】 (About45KmNorth)	2011/4/1 11:34	1.0 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【7】 (About45KmNorth)	2011/4/1 11:43	1.1 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【12】 (About40KmWest)	2011/4/1 11:39	0.5 *2	No Rain	MEXT
Reading Point 【13】 (About40KmWest)	2011/4/1 11:53	0.5 *2	No Rain	MEXT
<u>Reading Point 【14】 (About35KmWest)</u>	<u>2011/4/1 12:06</u>	<u>0.2 *2</u>	<u>No Rain</u>	<u>MEXT</u>
<u>Reading Point 【15】 (About35KmWest)</u>	<u>2011/4/1 12:19</u>	<u>0.6 *2</u>	<u>No Rain</u>	<u>MEXT</u>
Reading Point 【20】 (About45KmNorthWest)	2011/4/1 10:37	0.6 *2	No Rain	MEXT
Reading Point 【21】 (About30KmWestNorthWest)	2011/4/1 11:09	2.3 *2	No Rain	MEXT
Reading Point 【22】 (About30KmWestNorthWest)	2011/4/1 11:00	0.6 *2	No Rain	MEXT
Reading Point 【23】 (About30KmWestNorthWest)	2011/4/1 10:48	0.6 *2	No Rain	MEXT

- * 1 measured by Geiger-Müller counter
- * 2 measured by ionization chamber type survey meter
- * 3 measured by NaI scintillator detector
- * 4 variation range of the measuring data in measuring

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : μ Sv / h)	Weather	Reading by
Reading Point 【31】 (About30KmWestNorthWest)	2011/4/1 10:33	15.4 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【32】 (About30KmNorthWest)	2011/4/1 10:56	36.2 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【33】 (About30KmNorthWest)	2011/4/1 11:22	18.2 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【34】 (About30KmNorthWest)	<u>2011/4/1 13:02</u>	<u>5.8</u> *2	<u>No Rain</u>	<u>JAEA (Japan Atomic Energy Agency)</u>
Reading Point 【36】 (About40KmNorthWest)	2011/4/1 10:08	5.7 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【37】 (About50kmNorthWest)	2011/4/1 9:57	4.6 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【38】 (About35kmSouth)	2011/4/1 11:37	1.0 *2	No Rain	MEXT
Reading Point 【71】 (About25KmSouth)	<u>2011/4/1 8:31</u>	<u>2.5</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【72】 (About30KmSouth)	<u>2011/4/1 12:42</u>	<u>1.6</u> *2	<u>No Rain</u>	<u>MEXT</u>
Reading Point 【72】 (About30KmSouth)	<u>2011/4/1 9:11</u>	<u>0.8</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【73】 (About35KmSouth)	<u>2011/4/1 11:57</u>	<u>1.4</u> *2	<u>No Rain</u>	<u>MEXT</u>
Reading Point 【73】 (About35KmSouth)	<u>2011/4/1 9:27</u>	<u>0.7</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【74】 (About35KmSouth)	2011/4/1 11:08	0.2 *2	No Rain	MEXT
Reading Point 【74】 (About35KmSouth)	<u>2011/4/1 9:55</u>	<u>0.3</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【75】 (About45KmSouth)	2011/4/1 10:30	0.8 *2	No Rain	MEXT
Reading Point 【75】 (About45KmSouth)	<u>2011/4/1 7:00</u>	<u>0.8</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【76】 (About25KmSouthWest)	<u>2011/4/1 11:03</u>	<u>0.6</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【77】 (About25KmSouthWest)	<u>2011/4/1 10:45</u>	<u>2.2</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【78】 (About45KmNorthWest)	<u>2011/4/1 7:47</u>	<u>0.8</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【79】 (About30KmNorthWest)	<u>2011/4/1 12:26</u>	<u>16.5</u> *2	<u>No Rain</u>	<u>JAEA (Japan Atomic Energy Agency)</u>
Reading Point 【79】 (About30KmNorthWest)	<u>2011/4/1 9:56</u>	<u>15.5</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>
Reading Point 【80】 (About25KmNorth)	<u>2011/4/1 12:33</u>	<u>0.7</u> *2	<u>No Rain</u>	<u>JAEA (Japan Atomic Energy Agency)</u>
Reading Point 【80】 (About25KmNorth)	<u>2011/4/1 12:02</u>	<u>0.7</u> *2	<u>No Rain</u>	<u>Police (counter NBC operations unit)</u>

- * 1 measured by Geiger-Müller counter
- * 2 measured by ionization chamber type survey meter
- * 3 measured by NaI scintillator detector
- * 4 variation range of the measuring data in measuring

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : μ Sv / h)	Weather	Reading by
Reading Point 【81】 (About30KmWestNorthWest)	2011/4/1 8:34	34.5 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point 【83】 (About20KmNorthWest)	2011/4/1 12:47	70.9 ^{*2}	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【83】 (About20KmNorthWest)	2011/4/1 10:11	60.5 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point 【84】 (About40kmSouthWest)	2011/4/1 9:50	0.5 ^{*2}	No Rain	MEXT
Reading Point 【85】 (About60kmNorthWest)	2011/4/1 6:00	0.3 ^{*2}	No Rain	Ministry of Defense
Reading Point 【86】 (About55kmWest)	2011/4/1 6:00	1.3 ^{*2}	No Rain	Ministry of Defense
Reading Point 【87】 (About30kmWestSouthWest)	2011/4/1 6:00	1.0 ^{*2}	No Rain	Ministry of Defense

Readings at Monitoring Post out of 20 Km Zone of Fukushima Dai-ichi NPP

As of 19:00 April 1, 2011
Ministry of Education, Culture, Sports, Science
and Technology (MEXT)

○Monitoring Outputs by MEXT *Boldface and underlined readings are new.

- * 1 measured by Geiger-Müller counter
- * 2 measured by ionization chamber type survey meter
- * 3 measured by NaI scintillator detector
- * 4 variation range of the measuring data in measuring

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : μ Sv / h)	Weather	Reading by
Reading Point 【1】 (About60KmNorthWest)	2011/4/1 8:48	2.7 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【2】 (About55KmNorthWest)	2011/4/1 9:18	3.8 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【3】 (About45KmNorthWest)	2011/4/1 10:14	3.3 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【5】 (About45KmNorth)	2011/4/1 11:12	0.8 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【6】 (About45KmNorth)	2011/4/1 11:34	1.0 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【7】 (About45KmNorth)	2011/4/1 11:43	1.1 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【10】 (About40KmNorthWest)	<u>2011/4/1 16:03</u>	<u>1.6</u> *2	<u>No Rain</u>	<u>MEXT</u>
Reading Point 【12】 (About40KmWest)	2011/4/1 11:39	0.5 *2	No Rain	MEXT
Reading Point 【13】 (About40KmWest)	2011/4/1 11:53	0.5 *2	No Rain	MEXT
Reading Point 【14】 (About35KmWest)	2011/4/1 12:06	0.2 *2	No Rain	MEXT
Reading Point 【15】 (About35KmWest)	2011/4/1 12:19	0.6 *2	No Rain	MEXT

- * 1 measured by Geiger-Müller counter
- * 2 measured by ionization chamber type survey meter
- * 3 measured by NaI scintillator detector
- * 4 variation range of the measuring data in measuring

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : $\mu\text{Sv} / \text{h}$)	Weather	Reading by
Reading Point 【20】 (About45KmNorthWest)	2011/4/1 10:37	0.6 *2	No Rain	MEXT
Reading Point 【21】 (About30KmWestNorthWest)	2011/4/1 11:09	2.3 *2	No Rain	MEXT
Reading Point 【22】 (About30KmWestNorthWest)	2011/4/1 11:00	0.6 *2	No Rain	MEXT
Reading Point 【23】 (About30KmWestNorthWest)	2011/4/1 10:48	0.6 *2	No Rain	MEXT
Reading Point 【31】 (About30KmWestNorthWest)	2011/4/1 10:33	15.4 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【32】 (About30KmNorthWest)	2011/4/1 10:56	36.2 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【33】 (About30KmNorthWest)	2011/4/1 11:22	18.2 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【34】 (About30KmNorthWest)	2011/4/1 13:02	5.8 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【36】 (About40KmNorthWest)	2011/4/1 10:08	5.7 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【37】 (About50kmNorthWest)	2011/4/1 9:57	4.6 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【38】 (About35kmSouth)	2011/4/1 11:37	1.0 *2	No Rain	MEXT
Reading Point 【39】 (About45kmNorth)	2011/4/1 10:53	1.3 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【51】 (About40KmSouthWest)	2011/4/1 13:45	0.3 *3	No Rain	Fukushima Pref.
Reading Point 【51】 (About40KmSouthWest)	2011/4/1 10:42	0.3 *3	No Rain	Fukushima Pref.
Reading Point 【52】 (About40KmWest)	2011/4/1 14:23	0.3 *3	No Rain	Fukushima Pref.
Reading Point 【52】 (About40KmWest)	2011/4/1 12:05	0.3 *3	No Rain	Fukushima Pref.
Reading Point 【61】 (About40KmNorthWest)	2011/4/1 14:59	6.1 *3	No Rain	Fukushima Pref.

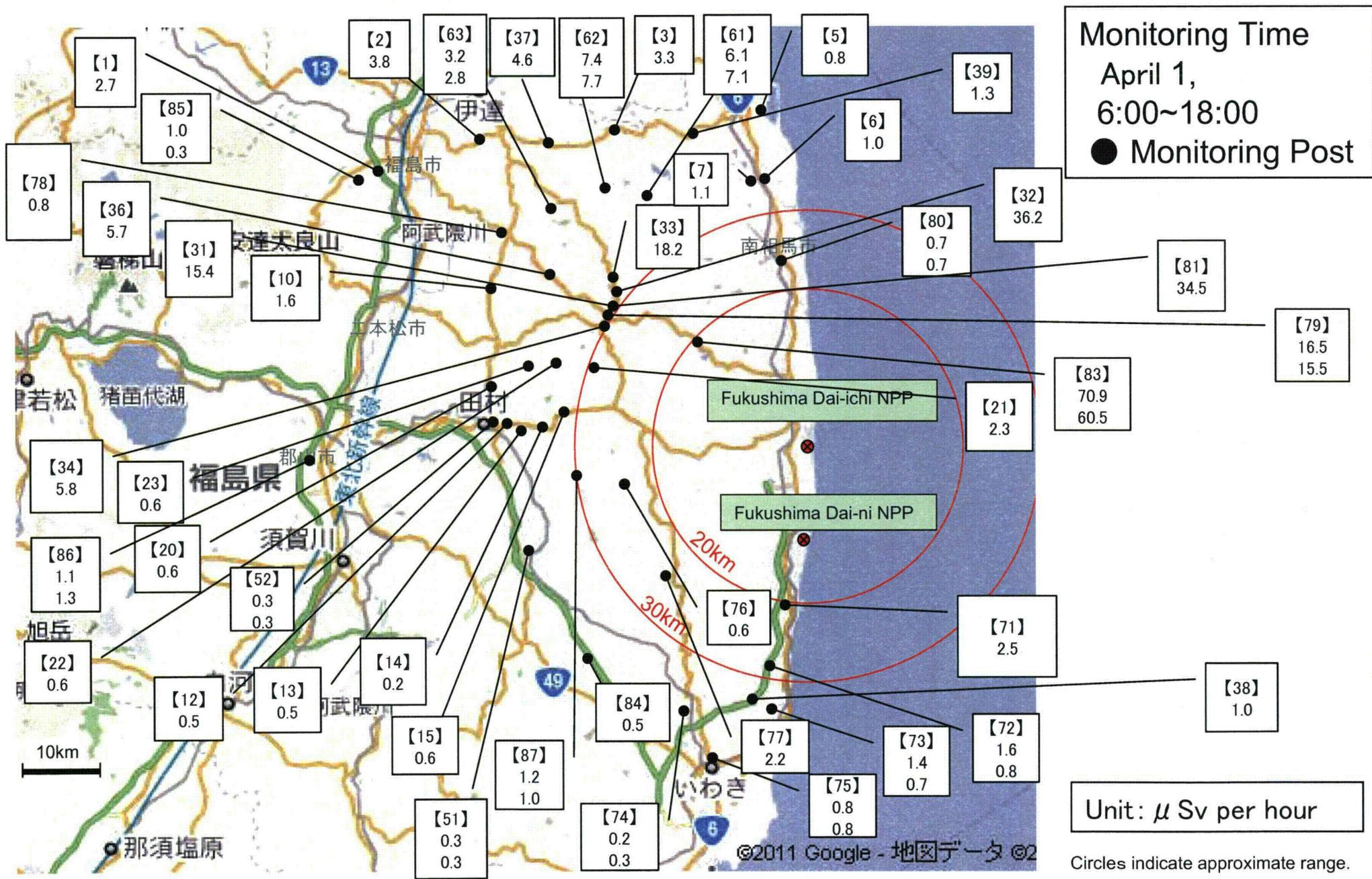
- * 1 measured by Geiger-Müller counter
- * 2 measured by ionization chamber type survey meter
- * 3 measured by NaI scintillator detector
- * 4 variation range of the measuring data in measuring

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : $\mu\text{Sv} / \text{h}$)	Weather	Reading by
Reading Point 【61】 (About40KmNorthWest)	2011/4/1 12:46	7.1 ^{*3}	No Rain	Fukushima Pref.
Reading Point 【62】 (About40KmNorthWest)	2011/4/1 15:15	7.4 ^{*3}	No Rain	Fukushima Pref.
Reading Point 【62】 (About40KmNorthWest)	2011/4/1 12:34	7.7 ^{*3}	No Rain	Fukushima Pref.
Reading Point 【63】 (About45KmNorthWest)	2011/4/1 15:49	3.2 ^{*3}	No Rain	Fukushima Pref.
Reading Point 【63】 (About45KmNorthWest)	2011/4/1 11:13	2.8 ^{*3}	No Rain	Fukushima Pref.
Reading Point 【71】 (About25KmSouth)	2011/4/1 8:31	2.5 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point 【72】 (About30KmSouth)	2011/4/1 12:42	1.6 ^{*2}	No Rain	MEXT
Reading Point 【72】 (About30KmSouth)	2011/4/1 9:11	0.8 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point 【73】 (About35KmSouth)	2011/4/1 11:57	1.4 ^{*2}	No Rain	MEXT
Reading Point 【73】 (About35KmSouth)	2011/4/1 9:27	0.7 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point 【74】 (About35KmSouth)	2011/4/1 11:08	0.2 ^{*2}	No Rain	MEXT
Reading Point 【74】 (About35KmSouth)	2011/4/1 9:55	0.3 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point 【75】 (About45KmSouth)	2011/4/1 10:30	0.8 ^{*2}	No Rain	MEXT
Reading Point 【75】 (About45KmSouth)	2011/4/1 7:00	0.8 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point 【76】 (About25KmSouthWest)	2011/4/1 11:03	0.6 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point 【77】 (About25KmSouthWest)	2011/4/1 10:45	2.2 ^{*2}	No Rain	Police (counter NBC operations unit)
Reading Point 【78】 (About45KmNorthWest)	2011/4/1 7:47	0.8 ^{*2}	No Rain	Police (counter NBC operations unit)

- * 1 measured by Geiger-Müller counter
- * 2 measured by ionization chamber type survey meter
- * 3 measured by NaI scintillator detector
- * 4 variation range of the measuring data in measuring

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : μ Sv / h)	Weather	Reading by
Reading Point 【79】 (About30KmNorthWest)	2011/4/1 12:26	16.5 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【79】 (About30KmNorthWest)	2011/4/1 9:56	15.5 *2	No Rain	Police (counter NBC operations unit)
Reading Point 【80】 (About25KmNorth)	2011/4/1 12:33	0.7 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【80】 (About25KmNorth)	2011/4/1 12:02	0.7 *2	No Rain	Police (counter NBC operations unit)
Reading Point 【81】 (About30KmWestNorthWest)	2011/4/1 8:34	34.5 *2	No Rain	Police (counter NBC operations unit)
Reading Point 【83】 (About20KmNorthWest)	2011/4/1 12:47	70.9 *2	No Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【83】 (About20KmNorthWest)	2011/4/1 10:11	60.5 *2	No Rain	Police (counter NBC operations unit)
Reading Point 【84】 (About40kmSouthWest)	2011/4/1 9:50	0.5 *2	No Rain	MEXT
Reading Point 【85】 (About60kmNorthWest)	<u>2011/4/1 14:00</u>	<u>1.0</u> *2	<u>No Rain</u>	<u>Ministry of Defense</u>
Reading Point 【85】 (About60kmNorthWest)	2011/4/1 6:00	0.3 *2	No Rain	Ministry of Defense
Reading Point 【86】 (About55kmWest)	<u>2011/4/1 14:00</u>	<u>1.1</u> *2	<u>No Rain</u>	<u>Ministry of Defense</u>
Reading Point 【86】 (About55kmWest)	2011/4/1 6:00	1.3 *2	No Rain	Ministry of Defense
Reading Point 【87】 (About30kmWestSouthWest)	<u>2011/4/1 14:00</u>	<u>1.2</u> *2	<u>No Rain</u>	<u>Ministry of Defense</u>
Reading Point 【87】 (About30kmWestSouthWest)	2011/4/1 6:00	1.0 *2	No Rain	Ministry of Defense

Readings at Monitoring Post out of Fukushima Dai-ichi NPP



福島第一原子力発電所の20km以遠のモニタリング結果について

平成23年4月1日 16時00分現在
文 部 科 学 省

○文部科学省が集計した結果 注)太下線データが今回追加分

- * 1 GM(ガイガー=ミューラー計測管)における値
- * 2 電離箱における値
- * 3 NaI(ヨウ化ナトリウム)シンチレータにおける値
- * 4 測定時間内における測定値の変動範囲

場所(福島第1発電所からの距離)	測定日時	数値(マイクロシーベルト/時) (記載のない限り屋外)	測定位置	天候	実施者
測定エリア【1】 (約60Km北西)	4月1日8時48分	2.7 ^{*2}	N: 37° 44' 12.6" E: 140° 28' 02.9"	降雨無し	日本原子力研究開発機構
測定エリア【2】 (約55Km北西)	4月1日9時18分	3.8 ^{*2}	N: 37° 41' 03.5" E: 140° 33' 08.2"	降雨無し	日本原子力研究開発機構
測定エリア【3】 (約45Km北西)	4月1日10時14分	3.3 ^{*2}	N: 37° 45' 12.6" E: 140° 44' 05.5"	降雨無し	日本原子力研究開発機構
測定エリア【5】 (約45Km北)	4月1日11時12分	0.8 ^{*2}	N: 37° 47' 04.8" E: 140° 55' 16.4"	降雨無し	日本原子力研究開発機構
測定エリア【6】 (約45Km北)	4月1日11時34分	1.0 ^{*2}	N: 37° 42' 02.7" E: 140° 58' 00.0"	降雨無し	日本原子力研究開発機構
測定エリア【7】 (約45Km北)	4月1日11時43分	1.1 ^{*2}	N: 37° 41' 13.6" E: 140° 57' 16.0"	降雨無し	日本原子力研究開発機構
測定エリア【12】 (約40Km西)	4月1日11時39分	0.5 ^{*2}	N: 37° 25' 14.9" E: 140° 35' 12.3"	降雨無し	文部科学省
測定エリア【13】 (約40Km西)	4月1日11時53分	0.5 ^{*2}	N: 37° 26' 06.0" E: 140° 37' 05.8"	降雨無し	文部科学省
測定エリア【14】 (約35Km西)	4月1日12時06分	0.2^{*2}	N: 37° 26' 02.6" E: 140° 38' 13.8"	降雨無し	文部科学省
測定エリア【15】 (約35Km西)	4月1日12時19分	0.6^{*2}	N: 37° 26' 15.0" E: 140° 40' 14.8"	降雨無し	文部科学省
測定エリア【20】 (約45Km北西)	4月1日10時37分	0.6 ^{*2}	N: 37° 29' 06.7" E: 140° 34' 15.1"	降雨無し	文部科学省
測定エリア【21】 (約30Km西北西)	4月1日11時09分	2.3 ^{*2}	N: 37° 30' 08.0" E: 140° 42' 02.4"	降雨無し	文部科学省
測定エリア【22】 (約30Km西北西)	4月1日11時00分	0.6 ^{*2}	N: 37° 30' 11.5" E: 140° 39' 08.0"	降雨無し	文部科学省
測定エリア【23】 (約30Km西北西)	4月1日10時48分	0.6 ^{*2}	N: 37° 30' 05.3" E: 140° 34' 11.3"	降雨無し	文部科学省
測定エリア【31】 (約30Km西北西)	4月1日10時33分	15.4 ^{*2}	N: 37° 33' 30.0"	降雨無し	日本原子力研究開発機構

- * 1 GM(ガイガー=ミューラー計測管)における値
- * 2 電離箱における値
- * 3 NaI(ヨウ化ナトリウム)シンチレータにおける値
- * 4 測定時間内における測定値の変動範囲

場所(福島第1発電所からの距離)	測定日時	数値(マイクロシーベルト/時) (記載のない限り屋外)	測定位置	天候	実施者
測定エリア【31】(約30Km北西)	4月1日10時56分	16.7 ^{*2}	E: 140° 44' 54.0"	降雨無し	日本原子力研究開発機構
測定エリア【32】(約30Km北西)	4月1日10時56分	36.2 ^{*2}	N: 37° 35' 30.0" E: 140° 45' 54.0"	降雨無し	日本原子力研究開発機構
測定エリア【33】(約30Km北西)	4月1日11時22分	18.2 ^{*2}	N: 37° 36' 30.0" E: 140° 45' 54.0"	降雨無し	日本原子力研究開発機構
測定エリア【34】(約30Km北西)	4月1日13時02分	5.8 ^{*2}	N: 37° 33' 00.8" E: 140° 44' 07.0"	降雨無し	日本原子力研究開発機構
測定エリア【36】(約40Km北西)	4月1日10時08分	5.7 ^{*2}	N: 37° 36' 18.8" E: 140° 40' 07.9"	降雨無し	日本原子力研究開発機構
測定エリア【37】(約50km北西)	4月1日9時57分	4.6 ^{*2}	N: 37° 45' 06.7" E: 140° 41' 29.2"	降雨無し	日本原子力研究開発機構
測定エリア【38】(約35km南)	4月1日11時37分	1.0 ^{*2}	N: 37° 07' 30.7" E: 140° 57' 06.4"	降雨無し	文部科学省
測定エリア【71】(約25Km南)	4月1日8時31分	2.5 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【72】(約30Km南)	4月1日12時42分	1.6 ^{*2}		降雨無し	文部科学省
測定エリア【72】(約30Km南)	4月1日9時11分	0.8 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【73】(約35Km南)	4月1日11時57分	1.4 ^{*2}		降雨無し	文部科学省
測定エリア【73】(約35Km南)	4月1日9時27分	0.7 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【74】(約35Km南)	4月1日11時08分	0.2 ^{*2}		降雨無し	文部科学省
測定エリア【74】(約35Km南)	4月1日9時55分	0.3 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【75】(約45Km南)	4月1日10時30分	0.8 ^{*2}		降雨無し	文部科学省
測定エリア【75】(約45Km南)	4月1日7時00分	0.8 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【76】(約25Km南西)	4月1日11時03分	0.6 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【77】(約25Km南西)	4月1日10時45分	2.2 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【78】(約45Km北西)	4月1日7時47分	0.8 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【79】(約30Km北西)	4月1日12時26分	16.5 ^{*2}		降雨無し	日本原子力研究開発機構

- * 1 GM(ガイガー=ミュラー計測管)における値
- * 2 電離箱における値
- * 3 NaI(ヨウ化ナトリウム)シンチレータにおける値
- * 4 測定時間内における測定値の変動範囲

場所(福島第1発電所からの距離)	測定日時	数値(マイクロシーベルト/時) (記載のない限り屋外)	測定位置	天候	実施者
測定エリア【79】(約30Km北西)	4月1日9時56分	15.5 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【80】(約25Km北)	4月1日12時33分	0.7 ^{*2}		降雨無し	日本原子力研究開発機構
測定エリア【80】(約25Km北)	4月1日12時02分	0.7 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【81】(約30Km西北西)	4月1日8時34分	34.5 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【83】(約20Km北西)	4月1日12時47分	70.9 ^{*2}		降雨無し	日本原子力研究開発機構
測定エリア【83】(約20Km北西)	4月1日10時11分	60.5 ^{*2}		降雨無し	警察(NBC対策部隊)
測定エリア【84】(約40km南西)	4月1日9時50分	0.5 ^{*2}		降雨無し	文部科学省
測定エリア【85】(約60km北西)	4月1日6時00分	0.3 ^{*2}	N: 37° 42' 45.0"	降雨無し	防衛省
			E: 140° 22' 59.0"		
測定エリア【86】(約55km西)	4月1日6時00分	1.3 ^{*2}	N: 37° 23' 57.0"	降雨無し	防衛省
			E: 140° 19' 35.0"		
測定エリア【87】(約30km西南西)	4月1日6時00分	1.0 ^{*2}	N: 37° 23' 57.0"	降雨無し	防衛省
			E: 140° 19' 35.0"		

Readings of Radioactivity Concentration of Nuclide in the air by aircraft of Ministry of Defense

【**Boldface and underlined readings are new.**】

As of 16:00 April 1, 2011

Ministry of Education, Culture, Sports, Science and Technology (MEXT)

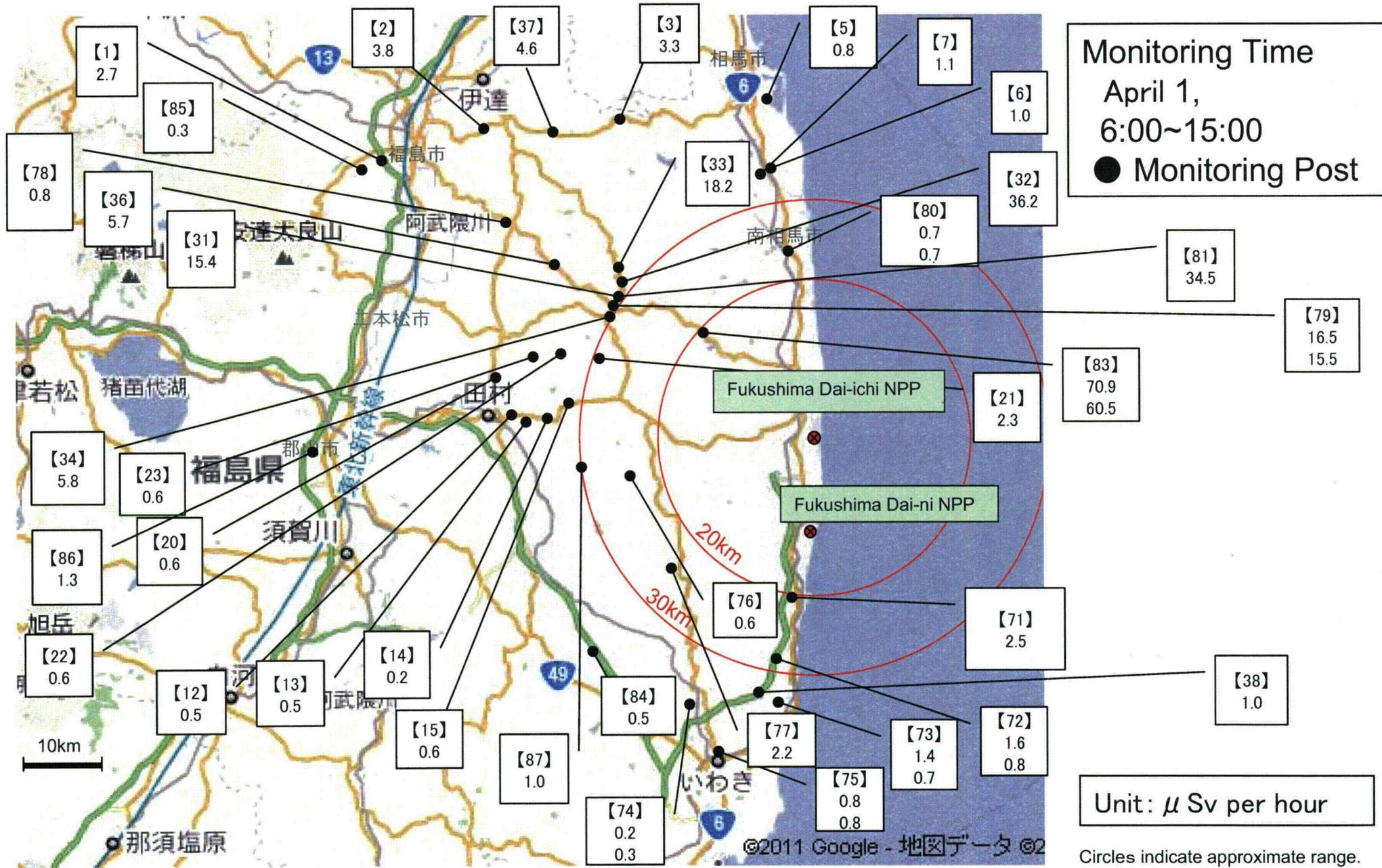
Monitoring Area	Altitude	Sampling Term	Nuclide (Bq/m ³)	
			I-131	Cs-137
Hyakuri-Niigata ^{※1}	About 3000m (10000feet)	2011/3/24 11:12~ 11:40	0.039	0.0019
Hyakuri-Niigata ^{※1}	About 3000m (10000feet)	2011/3/25 9:28~ 9:59	0.019	0.0015
Hyakuri-Niigata ^{※1}	About 3200m~5600m (10500~18500feet)	2011/3/26 13:10~13:42	0.0283	0.0011
Hyakuri-Niigata ^{※1}	About 4400m~4700m (14500~15500feet)	2011/3/27 13:11~13:42	0.0069	0.0010
Hyakuri-Niigata ^{※1}	About 2300m (7500feet)	2011/3/28 9:29~10:14	0.0059	0.0012
Hyakuri-Niigata ^{※1}	About 2300m (7500feet)	2011/3/29 13:10 ~13:52	0.018	0.0027
offshore of Fukushima ^{※1}	About 1500~3000m (5000~10000feet)	2011/3/24 15:25~16:00	0.46	0.017
offshore of Fukushima ^{※1}	About 1500m (5000feet)	2011/3/25 9:30~10:07	0.20	0.011
offshore of Fukushima ^{※1}	About1000m (3500feet)	2011/3/31 9:34 ~10:24	0.061	0.0138

※1 Analyzed by Japan Chemical Analysis Center

※2 Analyzed by Technical Research and Development Institute(Ministry of Defence)

※3 Analyzed by the Radioisotope Center, University of Tsukuba

Readings at Monitoring Post out of Fukushima Dai-ichi NPP



From: LIA05 Hoc
Sent: Friday, April 01, 2011 2:50 PM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: NRC News Releases for Today
Attachments: 11-061.pdf; 11-010.iv.pdf; 11-060.pdf

Please find the attached.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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PPP/626



NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs Telephone: 301/415-8200

Washington, D.C. 20555-0001

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

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

No. 11-061

April 1, 2011

LICENSING BOARD ADMITS ADDITIONAL CONTENTIONS REGARDING MIXED-OXIDE FUEL FABRICATION FACILITY LICENSE APPLICATION

A three-judge Atomic Safety and Licensing Board (ASLB) has concluded that opponents of an operating license application for the proposed Mixed-Oxide (MOX) Fuel Fabrication Facility in South Carolina have offered acceptable additional arguments that should be considered in an eventual hearing regarding the application. The ASLB is the independent body within the NRC that presides over hearings where the public can challenge proposed licensing and enforcement actions.

In its 2-1 decision, the ASLB accepted for further review the arguments from Blue Ridge Environmental Defense League, Nuclear Watch South, and the Nuclear Information and Resource Service. The arguments revolve around the adequacy of aspects of the proposed facility's procedures for controlling the plutonium and enriched uranium that the facility would combine to create MOX; the security-related focus of these matters means they cannot be discussed in detail. While the NRC technical staff have found the proposed procedures acceptable, the Board will now subject the facility's procedures and the staff's position to additional scrutiny.

The Board majority rejected objections from the applicant, Shaw Areva MOX Services, and NRC legal staff that the additional arguments were offered too late in the NRC's hearing process. The Board's dissenting judge noted that, regardless of the arguments' timing, the Board should take up the issues involved, given their importance. The majority agreed, and all concurred that NRC regulations would require the Board to seek Commission approval if that course of action were necessary.

Shaw Areva MOX Services submitted an operating license application for the facility in 2006 and has updated the application since then. The NRC technical staff issued its safety evaluation report on the proposed facility in December 2010. The ASLB hearing must be concluded and the staff must verify the facility's proper construction before any license could be issued.

Documents related to the license application are available on the NRC website at: <http://www.nrc.gov/materials/fuel-cycle-fac/mox/licensing.html>. Documents pertaining to the ASLB proceeding are available in the agency's Electronic Hearing Docket at: <http://ehd1.nrc.gov/EHD/>.

More information about the ASLB can be found at: <http://www.nrc.gov/about-nrc/organization/aslbfuncdesc.html>.

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NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs Region IV

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

No. IV-11-010

Contact: Victor Dricks (817) 860-8128

Lara Uselding (817) 276-6519

April 1, 2011

E-Mail: OPA4.Resource@nrc.gov

NRC TO DISCUSS 2010 PERFORMANCE ASSESSMENT FOR GRAND GULF NUCLEAR PLANT APRIL 13

The Nuclear Regulatory Commission staff will meet with representatives of Entergy Operations, Inc., on April 13, to discuss the agency's 2010 assessment of safety performance for the Grand Gulf nuclear plant, located near Port Gibson, Miss.

The meeting, which will be open to the public, is scheduled to begin at 4 p.m. at the Port Gibson City Hall, 1005 College St., Port Gibson. The NRC staff will present the results of the assessment, talk about the NRC and its range of activities, and be available to respond to questions or comments from the public.

"The NRC continually reviews the safety performance of Grand Gulf and each of the nation's commercial nuclear power plants," said Region IV Administrator Elmo E. Collins. "The meeting provides an opportunity for us to discuss our annual assessment of safety performance with the company, local officials and members of the public. We look forward to meeting with members of the community and answering any questions they may have about our oversight."

A letter sent from the NRC Region IV office to plant officials will serve as the basis for the meeting discussion. It is available on the NRC web site at:
http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/LETTERS/gg_2010q4.pdf.

The NRC said Grand Gulf operated safely during 2010 and will receive the very detailed inspection regime during 2011 used by the NRC for plants that are operating well. These inspections are performed by resident inspectors stationed at the plant and by specialists from the Region IV office in Arlington, Texas.

Current performance information for Grand Gulf is available on the NRC web site at:
http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/GG1/gg1_chart.html.

###

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NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs Telephone: 301/415-8200

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

No. 11-060

April 1, 2011

NRC ISSUES FINAL ENVIRONMENTAL IMPACT STATEMENT AND SAFETY EVALUATION REPORTS FOR SALEM AND HOPE CREEK NUCLEAR POWER PLANTS' LICENSE RENEWAL APPLICATION

The Nuclear Regulatory Commission staff has issued its final supplemental environmental impact statement (SEIS) and the final safety evaluation reports (SERs) for the proposed renewal of the operating licenses for Salem and Hope Creek nuclear power plants located in Hancocks Bridge (Salem County), N.J. The reports concluded that there are no environmental impacts or open items that would preclude license renewal for an additional 20 years of operation.

The applicant, PSEG Nuclear LLC., is seeking license extensions for Salem Nuclear Generating Station Units 1 and 2, which are pressurized-water reactors, and Hope Creek Generating Station, which is a boiling-water reactor. Both plants are located at the same site about 18 miles south of Wilmington, Del. The company submitted the applications on Aug. 18, 2009.

Under NRC regulations, the original operating license for a nuclear power plant has a term of 40 years. The license may be renewed for up to an additional 20 years, provided that NRC requirements are met. The current operating licenses for the plants are set to expire as follows: Salem 1 – Aug. 13, 2016; Salem 2 – April 18, 2020; and Hope Creek – April 11, 2026.

The license renewal review process proceeds along two tracks – one for the review of safety issues and another for the environmental issues. As part of its environmental review of the application, the NRC held public meetings near the plants to discuss the review process and the draft version of the environmental impact statement. Comments were received and considered from members of the public, local officials, and representatives of state and federal agencies.

The SER documents the results of the NRC staff's safety review of the license renewal application. In addition, NRC performs site audits of plant aging management programs to address the safety of plant operations during the period of extended operation. Overall, the results show that the applicant has identified actions that have been or will be taken to manage the effects of aging in the appropriate safety systems, structures and components of the plant and that their functions will be maintained during the period of extended operation.

Publication of the final environmental impact statement or the final safety evaluation report does not represent final NRC action on the license renewal application.

The SERs and the license renewal application have been provided and will be publicly discussed by the agency's Advisory Committee on Reactor Safeguards (ACRS), an independent body of experts that advises the Commission on reactor safety matters. The ACRS will discuss the SERs during its May

12 meeting, details of which will be posted on the NRC website at <http://www.nrc.gov/reading-rm/doc-collections/acrs/agenda/2011/>. The ACRS will later issue a letter to discuss the results of its review and provide a recommendation to the Commission regarding license renewal for Salem and Hope Creek.

Documents related to Salem Units 1 and 2, and Hope Creek are also located on the NRC's website at <http://www.nrc.gov/reactors/operating/licensing/renewal/applications.html>. The SERs and SEIS will be viewed on the NRC's website through ADAMS online documents system at <http://www.nrc.gov/reading-rm/adams/web-based.html> by entering accession number Hope Creek SER at ML110690244 ; Salem 1, 2 and Hope Creek SEIS at ML11089A021 and Salem SER at ML110900295 in the search window. Help in using ADAMS is available by contacting the NRC's Public Document Room at 1-800-397-4209 or 301-415-4737, or by e-mail at pdr.resource@nrc.gov.

The reports will also be available at the Salem Free Library, at 112 W. Broadway in Salem, N.J. Additional information about the license renewal process is available at <http://www.nrc.gov/reactors/operating/licensing/renewal.html>.

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

From: LIA05 Hoc
Sent: Friday, April 01, 2011 2:48 PM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: NRC One Pager for Today
Attachments: April 1 0600 EDT one pager.pdf

Please find the attached.

Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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PPP/627

April 1, 2011

0600 EDT

Briefing Sheet Fukushima Daiichi

No significant changes in plant conditions reported.

Highly radioactive water (approx 100 R/hr) found in a "trench" (pipe and cable chase) outside Unit 2; source of water unclear. TEPCO stated that this water is not flowing into the ocean, though the water will overflow this trench if it rises about 1 meter (trench is 4 meters deep). There is water in the trenches outside of Units 1 and 3 as well. Actions have been taken, or are in progress, to preclude contaminated water in trenches from reaching the ocean (e.g., sandbags).

A Japanese newspaper (AJW) has reported that TEPCO is testing a new way to treat radioactive contamination at the site through the use of a special resin. The resin is a water-soluble synthetic resin used for dust suppressant. The test will be conducted for two weeks. Potential application in mid-April.

The Unit 1 containment inerting effort has been postponed for several days (originally planned for Thursday 31 March) while TEPCO continues to evaluate the best means for accomplishing this task. High radiation level in the area is a factor in the delay.

One train of the Bechtel pumping system is now on the Fukushima site, along with the first fresh water barge. The second barge is being outfitted with a higher capacity transfer pump at Ohama prior to final move to the site. J4 stated during the industry consortium call that this barge is being delayed because of problems with a pump.

NEI is collecting U.S. nuclear plant environmental monitoring sample data and has made an online database available for viewing by NRC and other agencies.

The RST (in coordination with GEH, EPRI, INPO, NR, and DOE) issued a revised version of the Severe Accident Management Strategies document. The revision addresses suspected (unconfirmed) Unit 2 and Unit 3 core and containment conditions. RST is coordinating with the RES to assess what possible means for an energetic release of fission products might remain, given the extent of damage suspected to have already occurred. The RST also began work on a SF pools assessment and recommendations.

The path forward on the coordination of USG support to Japan is gaining clarity. The US Embassy in Japan plans to consolidate the list of support requested by GOJ. USG representatives in Japan are working to establish a "requirements validation process" for review and processing official GOJ requests. The 31 March consortium call focused on the list of requested material to clarify the lead organization for each item. NRC is working to merge the consortium list with the embassy staff list.

IAEA Director General is convening a meeting of the member states regarding the events at Fukushima. Seeking additional insight regarding the date, purpose and expected outcomes from Mark Schaeffer.

U.S. Ambassador in Japan requested a forward looking pessimistic scenario calculation. The request was forwarded to White House to gain alignment prior to moving forward. A source term has been provided to NARAC.

Review of DOE measurements (aerial and ground based) in areas around site show a continued downward trend in exposure rates. IAEA reports I-131 and Cs-137 levels in soil sampled at Iitate village, 40 km NW of Fukushima, which exceeds IAEA operational criteria for evacuation. PMT calculates (RASCAL) that the contamination levels reported would result in exposure that exceeds the annual relocation dose, but not the immediate evacuation dose. The IAEA report seems to indicate immediate evacuation was appropriate. PMT staff contacted the IAEA (IEC) and were told that no additional information would be forthcoming. PMT plans to make follow-up calls with the IAEA.

HHS (during a USAID call) indicated that additional KI would be shipped to Japan on 1 April.

From: Mamish, Nader
Sent: Friday, April 01, 2011 8:58 AM
To: LIA03 Hoc; Doane, Margaret; Abrams, Charlotte
Subject: RE: Were you aware of this and what is OIP's guidance?

Thanks for following up on the item. Please feel free to call for needed guidance after you get the details.

From: LIA03 Hoc
Sent: Friday, April 01, 2011 8:49 AM
To: Doane, Margaret; Mamish, Nader; Abrams, Charlotte
Subject: Were you aware of this and what is OIP's guidance?

From today's Ops Center Situation Report:

The NRC RST and PMT will have a call with Taiwan early next week to discuss current status and source term issues.

Guidance from OIP management would be appreciated. Am not sure who generated the item, am checking here.

PPP/628

From: Muessle, Mary
Sent: Friday, April 01, 2011 12:21 PM
To: ET05 Hoc
Subject: Out of Office: Longer Term Actions

I am out of the office. Please contact Jim Andersen for 301-415-1725 assistance.

PPP/629

From: ET07 Hoc
Sent: Friday, April 01, 2011 11:07 AM
To: Shepherd, Jill
Subject: RE: OIP Import Authority for radioactive materials

Thanks.

From: Shepherd, Jill
Sent: Friday, April 01, 2011 11:06 AM
To: ET07 Hoc
Subject: RE: OIP Import Authority for radioactive materials

Hi Jane,

The International liaison desk does have a running list with our best information as to who is still there and who has returned. However, there are some who keep getting extended and they don't always let us know in a timely manner. I believe Karen Henderson is at the international desk right now and could send you a copy of the list if you need it. Thanks,

Jill

From: ET07 Hoc
Sent: Friday, April 01, 2011 11:01 AM
To: Shepherd, Jill
Subject: RE: OIP Import Authority for radioactive materials

Thanks.

By the way, do you have a list of the NRC folks currently in Japan? I thought one guy came back earlier this week, but then I found out today that he was in a meeting in Japan a few hours ago...

Jane

From: Shepherd, Jill
Sent: Friday, April 01, 2011 10:32 AM
To: ET07 Hoc
Cc: Mamish, Nader; Owens, Janice; Smith, Brooke; Lewis, Robert; Kim, Grace
Subject: OIP Import Authority for radioactive materials

OIP regulatory import authority considerations for the discussion regarding contaminated containers.

PPP/630

Contaminated materials arriving at U.S Ports

Import Licensing Questions

The NRC regulations regarding the import of radioactive material are found in 10 CFR Part 110. Most radioactive material can be imported into the United States pursuant to the requirements in §110.27, "General License for Import." In order to use the general license for import, the U.S. consignee must be authorized to receive and possess the material under a general or specific NRC or Agreement State license issued by the Commission or a State with which the Commission has entered into an agreement under Section 274b. of the Atomic Energy Act. General or specific NRC licenses are issued pursuant to 10 CFR Parts 30, 40, 70, etc. wherein specific activity levels or quantities are specified. Therefore, knowledge of the activity level(s) for the radionuclide at issue is necessary in order to determine applicability of NRC's import licensing requirements.

There is considerable interagency cooperation and experience dealing with detections at ports of entry; for example, NRC, CBP, and others have worked effectively to disposition many cases such as irradiated gemstones, contaminated steel products from source meltings in scrap, or naturally occurring materials.

The immediate issue of concern appears to be that the outside of containers for general merchandise, not the merchandise itself, is contaminated and is not otherwise contained in a packaging.

However, it is likely that instances of contaminated merchandise may be detected in the coming weeks. The NRC recommends establishing an interagency working group to determine policy regarding disposition of contaminated consumer goods coming out of Japan.

From: Maupin, Cardelia
Sent: Friday, April 01, 2011 4:30 PM
To: OST05 Hoc
Subject: Out of Office: 04/01/2011 Press Release: Task Force on Japan Events

I will be out of the office on leave for the period March 31-April 6, 2011. Any urgent requests should be directed to my manager, Mr. James Danna at 301-415-7422.

mpg/631

From: Maier, Bill
Sent: Friday, April 01, 2011 4:30 PM
To: OST05 Hoc
Subject: Out of Office: 04/01/2011 Press Release: Task Force on Japan Events

I am out of the office until Monday morning, April 4, 2011. If your message is urgent and requires immediate action or reply, please forward it on to the following individual on the date indicated:
Thursday, March 31st - rachel.browder@nrc.gov (Tel: 817-860-8116)
Friday, April 1st - tom.andrews@nrc.gov (Tel: 817-860-8233)
Otherwise, I will respond to your message on Monday morning.

Thank You,

Bill Maier

PPP/632

From: LIA05 Hoc
Sent: Friday, April 01, 2011 7:03 AM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Attachments: Log for FEMA Liaison 03312011.docx

Per your request

Bonnie Sheffield Dayshift 0700-1500
Ken Wierman Nightshift 1500-2300
FEMA REP Liaison
NRC Operations Center
(301) 816-5187

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ppp/633

FEMA Liaison LOG
NRC Operations Center
DATE: 31 March 2011

From: OST05 Hoc
Sent: Tuesday, August 02, 2011 3:07 PM
To: LIA04 Hoc; LIA08 Hoc
Subject: FW: USNRC Earthquake-Tsunami Update 042811 Revision 0, 1200 EDT
Attachments: USNRC Earthquake-Tsunami Update 042811 Revision 0, 1200 EDT

PPP/634

From: OST05 Hoc
Sent: Tuesday, August 02, 2011 3:07 PM
To: LIA04 Hoc; LIA08 Hoc
Subject: FW: USNRC Earthquake-Tsunami Update 042811 Revision 1, 1230 EDT
Attachments: USNRC Earthquake-Tsunami Update 042811 Revision 1, 1230 EDT

PPP/635

From: McDermott, Brian
Sent: Saturday, April 02, 2011 8:39 AM
To: Morris, Scott; Miller, Chris
Cc: Evans, Michele; OST02 HOC; Khan, Omar; Jackson, Karen
Subject: RE: Watch list for April 3-9

Follow Up Flag: Follow up
Flag Status: Flagged

OK. Thanks for looking ahead.

OST02 – please make the change Scott has requested below, and post the updated list. (it would be nice to find a spot in the WebEOC libraries that you could keep the master for viewing by all.)

Thanks,
Brian

From: Morris, Scott
Sent: Saturday, April 02, 2011 12:27 AM
To: McDermott, Brian
Cc: Evans, Michele; OST02 HOC
Subject: FW: Watch list for April 3-9

Brian .I noticed that I'm only on the watchbill once next week ... I am happy to take your midnight shift Tues-Weds and Chris' midnight shift Thurs-Friday. I can't work next Friday through Sunday as I'll be in southern Maryland for a swim meet.

Please advise

From: OST02 HOC
Sent: Friday, April 01, 2011 5:25 PM
To: Abrams, Charlotte; Abu-Eid, Boby; Adams, John; Afshar-Tous, Mugeh; Ahn, Hosung; Alemu, Bezakulu; Algama, Don; Alter, Peter; Anderson, Brian; Anderson, James; Arndt, Steven; Arribas-Colon, Maria; Ashkeboussi, Nima; Athey, George; Baker, Stephen; Ballam, Nick; Barnhurst, Daniel; Barr, Cynthia; Barss, Dan; Bazian, Samuel; Benner, Eric; Bensi, Michelle; Bergman, Thomas; Berry, Rollie; Bhachu, Ujagar; Bloom, Steven; Blount, Tom; Boger, Bruce; Bonnette, Cassandra; Borchardt, Bill; Bowers, Anthony; Bowman, Gregory; Boyce, Tom (RES); Brandon, Lou; Brandt, Philip; Brenner, Eliot; Brock, Kathryn; Brown, Cris; Brown, David; Brown, Eva; Brown, Frederick; Brown, Michael; Bukharin, Oleg; Burnell, Scott; Bush-Goddard, Stephanie; Campbell, Stephen; Camper, Larry; Carlson, Donald; Carpenter, Cynthia; Carter, Mary; Case, Michael; Casto, Greg; Cecere, Bethany; Cervera, Margaret; Chazell, Russell; Chen, Yen-Ju; Cheng, May; Cheok, Michael; Chokshi, Nilesh; Chowdhury, Prosanta; Chung, Donald; Circle, Jeff; Clement, Richard; Clinton, Rebecca; Coe, Doug; Coggins, Angela; Collins, Frank; Cool, Donald; Correia, Richard; Corson, James; Costa, Arlon; Couret, Ivonne; Craffey, Ryan; Crutchley, Mary Glenn; Cruz, Zahira; Cuadrado, Leira; Dacus, Eugene; DeCicco, Joseph; Decker, David; Dembek, Stephen; Devlin, Stephanie; Dimmick, Lisa; Doane, Margaret; Dorman, Dan; Dorsey, Cynthia; Dozier, Jerry; Drake, Margaret; Droggitis, Spiros; Dube, Donald; Dudes, Laura; Eads, Johnny; Easson, Stuart; Emche, Danielle; English, Lance; Erlanger, Craig; Esmaili, Hossein; Evans, Michele; Faria-Ocasio, Carolyn; Figueroa, Roberto; Fiske, Jonathan; Flanders, Scott; Flannery, Cindy; Floyd, Daphene; Foggie, Kirk; Foster, Jack; Fragoyannis, Nancy; Franovich, Rani; Frazier, Alan; Freshman, Steve; Fuller, Edward; Galletta, Thomas; Gambone, Kimberly; Gardocki, Stanley; Gartman, Michael; Gibson, Kathy; Gitter, Joseph; Gilmer, James; Glenn, Nichole; Gordon, Dennis; Gott, William; Grant, Jeffery; Gray, Anita; Gray, Kathy; Greenwood, Carol; Grimes, Kelly; Grobe, Jack; Gross, Allen; Gulla, Gerald; Hackett, Edwin; Hale, Jerry; Hardesty, Duane; Hardin, Kimberly; Hardin, Leroy; Harrington, Holly; Harris, Tim; Harrison, Donnie; Hart, Ken; Hart, Michelle; Harvey, Brad; Hasselberg, Rick; Hayden, Elizabeth; Helton, Donald; Henderson, Karen; Hiland, Patrick; Hipschman,

map 636

Thomas; Holahan, Patricia; Holahan, Vincent; Holian, Brian; HOO Hoc; Horn, Brian; Howard, Arlette; Howard, Tabitha; Howe, Allen; Huffert, Anthony; Hurd, Sapna; Huyck, Doug; Imboden, Andy; Isom, James; Jackson, Karen; Jacobson, Jeffrey; Jervy, Richard; Jessie, Janelle; Johnson, Don; Johnson, Michael; Jolicoeur, John; Jones, Andrea; Jones, Cynthia; Jones, Henry; Kahler, Carolyn; Kammerer, Annie; Karas, Rebecca; Kauffman, John; Khan, Omar; Kolb, Timothy; Kotzalas, Margie; Kowalczyk, Jeffrey; Kratchman, Jessica; Kugler, Andrew; Lamb, Christopher; Lane, John; Larson, Emily; Laur, Steven; LaVie, Steve; Lewis, Robert; Li, Yong; Lichatz, Taylor; Lising, Jason; Lombard, Mark; Lovell, Louise; Lubinski, John; Lui, Christiana; Lukes, Kim; Lynch, Jeffery; Ma, John; Mamish, Nader; Manahan, Michelle; Marksberry, Don; Marshall, Jane; Masao, Nagai; Maupin, Cardelia; Mayros, Lauren; Mazaika, Michael; McConnell, Keith; McCoppin, Michael; McDermott, Brian; McGinty, Tim; McGovern, Denise; McIntyre, David; McMurtray, Anthony; Merritt, Christina; Meyer, Karen; Miller, Charles; Miller, Chris; Milligan, Patricia; Miranda, Samuel; Mohseni, Aby; Moore, Scott; Morlang, Gary; Morris, Scott; Mroz (Sahm), Sara; Munson, Clifford; Murray, Charles; Musico, Bruce; Nerret, Amanda; Nguyen, Caroline; Norris, Michael; Norton, Charles; Nosek, Andrew; Opara, Stella; Ordaz, Vonna; Orr, Mark; Owens, Janice; Padovan, Mark; Parillo, John; Patel, Jay; Patel, Pravin; Patrick, Mark; Perin, Vanice; Pope, Tia; Powell, Amy; Purdy, Gary; Quinlan, Kevin; Raddatz, Michael; Ragland, Robert; Ralph, Melissa; Ramsey, Jack; Reed, Elizabeth; Reed, Sara; Reed, Wendy; Reeves, Rosemary; Reis, Terrence; Resner, Mark; Riley (OCA), Timothy; Riner, Kelly; Rini, Brett; Roach, Edward; Robinson, Edward; Rodriguez-Luccioni, Hector; Roggenbrodt, William; Ropon, Kimberly; Rosales-Cooper, Cindy; Rosenberg, Stacey; Ross-Lee, MaryJane; Roundtree, Amy; Ruland, William; Russell, Tonya; Ryan, Michelle; Salay, Michael; Salter, Susan; Salus, Amy; Sanfilippo, Nathan; Santos, Daniel; Scarbrough, Thomas; Schaperow, Jason; Schmidt, Duane; Schmidt, Rebecca; Schoenebeck, Greg; Schrader, Eric; Schwartzman, Jennifer; Seber, Dogan; See, Kenneth; Shane, Raeann; Shea, James; Shepherd, Jill; Sheron, Brian; Skarda, Raymond; Skeen, David; Sloan, Scott; Smirolfo, Elizabeth; Smith, Brooke; Smith, Stacy; Smith, Theodore; Solorio, Dave; Stahl, Eric; Stang, Annette; Stark, Johnathan; Steger (Tucci), Christine; Stieve, Alice; Stone, Rebecca; Stransky, Robert; Sturz, Fritz; Sullivan, Randy; Summers, Robert; Sun, Casper; Susco, Jeremy; Takacs, Michael; Tappert, John; Tegeler, Bret; Temple, Jeffrey; Thaggard, Mark; Thomas, Eric; Thorp, John; Tiruneh, Nebiyu; Tobin, Jennifer; Trefethen, Jean; Tschiltz, Michael; Turtill, Richard; Uhle, Jennifer; Valencia, Sandra; Vaughn, James; Velazquez-Lozada, Alexander; Vick, Lawrence; Virgilio, Martin; Virgilio, Rosetta; Ward, Leonard; Ward, William; Wastler, Sandra; Watson, Bruce; Webber, Robert; Weber, Michael; White, Bernard; Wiggins, Jim; Williams, Donna; Williams, Joseph; Williams, Tamera; Williamson, Linda; Willis, Dori; Wimbush, Andrea; Wittick, Brian; Wray, John; Wright, Lisa (Gibney); Wright, Ned; Wunder, George; Young, Francis; Zimmerman, Jacob; Zimmerman, Roy

Subject: Watch list for April 3-9

Attached is the schedule for April 3-9 with all slots filled until Tuesday April 5th at 3pm.

If you would like to pick up additional shifts or need to change the schedule, please contact your team coordinator and the following cognizant individuals:

Liaison Team: Jeff Temple

Reactor Safety Team: Rick Hasselberg / Peter Alter

Protective Measures Team: Lou Brandon

Thank you,
OST02

From: RMTPACTSU_ELNRC <RMTPACTSU_ELNRC@ofda.gov>
Sent: Saturday, April 02, 2011 12:42 PM
To: LIA02 Hoc; LIA01 Hoc; LIA11 Hoc; ET07 Hoc
Cc: Way, Ralph
Subject: FYI: eInvoice, April 04 for WAY

Subject: eInvoice, April 04 for WAY

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PPP / 637

From: RMTPACTSU_ELNRC <RMTPACTSU_ELNRC@ofda.gov>
Sent: Saturday, April 02, 2011 1:41 PM
To: LIA02 Hoc; LIA01 Hoc; LIA11 Hoc; ET07 Hoc
Cc: Emche, Danielle
Subject: FYI: eInvoice, April 12 for EMCHE

Subject: eInvoice, April 12 for EMCHE

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PPP/638

From: RMPACTSU_ELNRC <RMPACTSU_ELNRC@ofda.gov>
Sent: Saturday, April 02, 2011 12:35 PM
To: LIA01 Hoc; LIA02 Hoc; LIA11 Hoc; ET07 Hoc; Monninger, John
Subject: FYI: eInvoice, April 07 for MONNINGER

Subject: eInvoice, April 07 for MONNINGER

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<https://www.virtuallythere.com/new/reservationsChron.html?host=1W&pnr=EL2EMFJ30T65&name=MONNINGER&language=0&email=2>

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MP/639

From: RMPACTSU_ELNRC <RMPACTSU_ELNRC@ofda.gov>
Sent: Saturday, April 02, 2011 12:37 PM
To: LIA02 Hoc; LIA01 Hoc; LIA11 Hoc; ET07 Hoc
Cc: Jackson, Todd
Subject: FYI: eInvoice, April 6 for JACKSON

Subject: eInvoice, April 6 for JACKSON

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PPP/640

From: RMTPACTSU_ELNRC <RMTPACTSU_ELNRC@ofda.gov>
Sent: Saturday, April 02, 2011 12:40 PM
To: LIA02 Hoc; LIA01 Hoc; LIA11 Hoc; ET07 Hoc
Cc: Sheikh, Abdul
Subject: FYI: eInvoice, April 04 for SHEIKH

Subject: eInvoice, April 04 for SHEIKH

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<https://www.virtuallythere.com/new/reservationsChron.html?host=1W&pnr=GEKH530H721D&name=SHEIKH&language=0&email=2>

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ppp/641

From: RMTPACTSU_ELNRC <RMTPACTSU_ELNRC@ofda.gov>
Sent: Saturday, April 02, 2011 12:41 PM
To: LIA02 Hoc; LIA01 Hoc; LIA11 Hoc; ET07 Hoc
Cc: Ali, Syed
Subject: FYI: eInvoice, April 04 for ALI

Subject: eInvoice, April 04 for ALI

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If the above link is inactive, please paste this URL into your browser to access your reservations:

<https://www.virtuallythere.com/new/reservationsChron.html?host=1W&pnr=NIBHA3CLFNXS&name=ALI&language=0&email=2>

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PPP/042

From: Brandon, Lou
Sent: Saturday, April 02, 2011 5:37 AM
To: PMT03 Hoc
Subject: FW: FYI - useful Japan web links

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

From: Cunningham, William C [mailto:William.Cunningham@fda.hhs.gov]
Sent: Tuesday, March 22, 2011 1:37 PM
To: Evans, Donna L. (CDC); Radke, Vincent J. (CDC); Talbert, Todd (CDC); 'Ferris.John@dol.gov';
'cardarelli.john@epa.gov'; 'boyd.mike@epa.gov'; Allen Jr, George T; Anderson, Jeri L. (CDC); Ansari, Armin J. (CDC);
Brandon, Lou; Brooks, Michael D. (ATSDR); Brozowski, George (EPA); Buzzell, Jennifer J. (CDC); Charp, Paul (ATSDR);
Cherniack, James; Cleveland, Gordon (USDA); Connell, Carol (ATSDR); DeCair, Sara (EPA); Dixon, John E. (CDC); Evans,
Rachel T; Funk, Renee H. (CDC); Goodman, Roger (EPA); Graham, Ron (USDA); Hargrave, Scotty L; Hornsby-Myers,
Jennifer L. (CDC); Jablonowski, Gene (EPA); Jensen, John (USDA); Jones, Terri; Keith, Sam (ATSDR); Liles, Darrell (EPA);
Lotz, William G. (CDC); Lough, Scott (USDA); Miller, Charles W. (CDC); Nemhauser, Jeffrey B. (CDC); Noska, Michael A;
Pavek, John (USDA); Petch, Peter (USDA); Russo, Mark; Sincek, Jeffrey; Smallwood, Karen R; Tupin, Ed (EPA); Veal, Lee
(EPA); Whitcomb, Robert (CDC)
Subject: FYI - useful Japan web links

In response to Charles' query about Japan's guidelines, I forward the following

<http://www.mhlw.go.jp/stf/houdou/2r9852000001558e-img/2r98520000015apy.pdf>

<http://www.mhlw.go.jp/stf/houdou/2r9852000001558e-img/2r98520000015av4.pdf>

<http://www.kantei.go.jp/foreign/index-e.html>

PPP/643

From: LIA07 Hoc
Sent: Saturday, April 02, 2011 6:35 PM
To: Batkin, Joshua; Borchardt, Bill; Bradford, Anna; Coggins, Angela; Cohen, Shari; Collins, Elmo; Cooper, LaToya; Dyer, Jim; ET07 Hoc; Flory, Shirley; Gibbs, Catina; Haney, Catherine; Hudson, Sharon; Jaczko, Gregory; Johnson, Michael; Leeds, Eric; Loyd, Susan; Pace, Patti; Schwarz, Sherry; Sheron, Brian; Speiser, Herald; Sprogeris, Patricia; Taylor, Renee; Virgilio, Martin; Walker, Dwight; Walls, Lorena; Weber, Michael
Subject: "Go Book" Update - 1800 EDT, April 2, 2011
Attachments: ET Chronology 4-2-11 1600.pdf; April 2 1500 EDT CA Brief one pager.pdf; TEPCO Press Release 248.pdf; TEPCO Press Release 251.pdf; TEPCO Press Release 250.pdf

Attached, please find updated information for the "Go Books".

The updates include:

- 1500 EDT, 04/02/11 One-pager
- 1800 EDT, 04/02/11 Status Update
- Latest ET Chronology
- TEPCO Press Releases (248, 250, 251)

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

Jeremy Susco
Executive Briefing Team Coordinator
US Nuclear Regulatory Commission
LIA07.HOC@nrc.gov (Operations Center)
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PPP/644

Press Releases

Press Release (Apr 02,2011)

Out flow of fluid containing radioactive materials to the ocean from areas near intake channel of Fukushima Daiichi Nuclear Power Station Unit 2

Today at around 9:30 am, we detected water containing radiation dose over 1,000 mSv/h in the pit* where supply cables are stored near the intake channel of Unit 2. Furthermore, there was a crack about 20 cm on the concrete lateral of the pit, from where the water in the pit was out flowing. At around 12:20 pm, we reaffirmed the event at the scene.

We have implemented sampling of the water in the pit, together with the seawater in front of the bar screen near the pit. These samples were sent to Fukushima Daini Nuclear Power Station for analysis.

In addition to seawater sampling conducted in the coastal areas of Fukushima Daiichi/Daini Nuclear Power Station (sampling conducted at 4 points), we have initiated additional seawater sampling at 3 points in the areas 15 km offshore from the relevant power stations. Taking into account the result of these monitoring, we are intending to conduct a comprehensive assessment.

Currently, we are preparing to block up the leakage by injecting concrete to the crack. Moreover, we will investigate the influx route of contaminated water in the pit and implement necessary measures to prevent such influx.

*pit: a shaft made of concrete

Appendices

Appendix1:Unit 2:Outline drawing of the out flow to ocean near discharge channel(PDF 10.8KB)

Appendix2:Plan for sampling and radiation measuring of seawater offshore (PDF 12.7KB)

Appendix3:Points for sampling and radiation measuring of seawater offshore(PDF 48.2KB)

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Press Releases

Press Release (Apr 02,2011) Plant Status of Fukushima Daiichi Nuclear Power Station (as of 9:00 PM, April 2)

*Updates are underlined>

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

Unit 1 (Shut down)

- Explosive sound and white smoke were confirmed after the big quake occurred at 3:36 pm on March 12th. It was assumed to be hydrogen explosion.
- At approximately 2:30 am on March 23rd, seawater injection to the nuclear reactor through the feed water system was initiated.
- At approximately 10:50 am on March 24th, white fog-like steam arising from the roof part of the reactor building was observed.
- We had been injecting seawater into the reactor, but from 3:37 pm on March 25th, we started injecting freshwater.
- We had been injecting fresh water to the reactor using fire engines; however we switched over utilizing temporary electrical pump at 8:32 am on March 29th.

Unit 2 (Shut down)

- At approximately 6:00 am on March 15th, an abnormal noise began emanating from nearby Pressure Suppression Chamber and the pressure within the chamber decreased.
- We have been injecting seawater into the reactor, but from 10:10 am on March 26th, we started injecting freshwater (with boric acid).
- We had been injecting fresh water in to the reactor utilizing fire pump, however, we switched over to utilizing temporary electrical pump from 6:31 pm on March 27th.

Unit 3 (Shut down)

- Explosive sound and white smoke were confirmed at 11:01am March 14th. It was assumed to be hydrogen explosion.
- We had been injecting seawater into the reactor pressure vessel, but from 6:02 pm on March 25th, we started injecting freshwater.
- We had been injecting fresh water in to the reactor utilizing fire pump, however, we switched over to utilizing temporary electrical pump from 8:30 pm on March 28th.

Unit 4 (outage due to regular inspection)

- At approximately 6 am on March 15th, we confirmed the explosive sound and the sustained damage around the 5th floor rooftop area of the Nuclear Reactor Building.
- At this moment, we do not consider any reactor coolant leakage inside the reactor happened.

Unit 5 (outage due to regular inspection)

- Sufficient level of reactor coolant to ensure safety is maintained.
- At 5 am, March 19th, we started the Residual Heat Removal System Pump (C) in order to cool the spent fuel pool.
- At 2:30 pm, March 20th, the reactor achieved reactor cold shutdown. At around 5:24 pm on March 23rd, when we switched the temporary Residual Heat Removal System Seawater Pump, it has stopped automatically. At around 4:14 pm, March 24th we replaced the pump, and restarted cooling of reactor at around 4:35 pm.
- At this moment, we do not consider any reactor coolant leakage inside the reactor happened.

Unit 6 (outage due to regular inspection)

- Sufficient level of reactor coolant to ensure safety is maintained.
- At 10:14 pm, March 19th, we started the Residual Heat Removal System Pump (B) of Unit 6 in order to cool the spent fuel pool.
- At 7:27 pm, March 20th, the reactor achieved reactor cold shutdown.
- In relation to the two seawater side pumps of the Residual Heat Removal System, we switched the power source from temporary to permanent at 3:38

PM and 3:42PM, Mar 25 respectively.
 -At this moment, we do not consider any reactor coolant leakage inside the reactor happened.

Today's work for cooling the spent fuel pools

-Water spray by the concrete pump truck to Unit 3 started at 9:53 am and continued until 0:54 pm.
 -Water spray by the concrete pump truck to Unit 1 started at 5:16 pm and continued until 5:19 pm.
 -We are considering further spraying subject to the conditions of spent fuel pools.

Draining water from underground floor of turbine buildings

-In regard with transferring water from a condensate storage tank to a suppression pool water surge-tank in unit 1, work began at 0:00 pm March 31st and continued until around 3:30 pm on April 2nd.
 -Water transfer from a condenser to a condensate storage tank in unit 2, began at approximately 5:10 pm, April 2nd.

Casualties

-Presence of 2 TEPCO employees at the site is not confirmed on March 11th.
 -On March 24th, it was confirmed that 3 workers from cooperative companies who were in charge of cable laying work in the 1st floor and the underground floor of turbine building were exposed to the radiation dose of more than 170 mSv. 2 of them were confirmed that their skins on legs were contaminated. After they were decontaminated, since there was a possibility of beta ray burn injury, they were transferred to Fukushima Medical University Hospital. The third worker was also transferred to Fukushima Medical University Hospital on March 25th. Later, the 3 workers were transferred to National Institute of Radiological Sciences in Chiba Prefecture. They all left the hospital on March 28th.
 Regarding this event, TEPCO has reported to the related government ministries and agencies on measures to be taken to assure appropriate radiation dose control and radiation exposure related operations. We will inform the related parties of countermeasures and continue to take all possible measures to future management.

Others

-We measured radioactive materials (iodine etc.) inside of the nuclear power station area (outdoor) by monitoring car and confirmed that radioactive materials level is getting higher than ordinary level. As listed below, we have determined that specific incidents stipulated in article 15, clause 1 of Act on Special Measures Concerning Nuclear Emergency Preparedness (Abnormal increase in radiation dose measured at site boundary) have occurred.

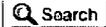
- Determined at 4:17 pm Mar 12th (Around Monitoring Post 4)
- Determined at 8:56 am Mar 13th (Around Monitoring Post 4)
- Determined at 2:15 pm Mar 13th (Around Monitoring Post 4)
- Determined at 3:50 am Mar 14th (Around Monitoring Post 6)
- Determined at 4:15 am Mar 14th (Around Monitoring Post 2)
- Determined at 9:27 am Mar 14th (Around Monitoring Post 3)
- Determined at 9:37 pm Mar 14th (Around main entrance)
- Determined at 6:51 am Mar 15th (Around main entrance)
- Determined at 8:11 am Mar 15th (Around main entrance)
- Determined at 4:17 pm Mar 15th (Around main entrance)
- Determined at 11:05 pm Mar 15th (Around main entrance)
- Determined at 8:58 am Mar 19th (Around MP5)

From now on, if the measured figure fluctuates and goes above and below 500 micro Sv/h, we deem that as the continuous same event and will not regard that as a new specific incidents stipulated in article 15, clause 1 of the Act on Special Measures Concerning Nuclear Emergency Preparedness (Abnormal increase in radiation dose measured at site boundary) has occurred. In the interim, if we measure a manifestly abnormal figure and it is evident that the event is not the continuous same event, we will determine and notify.

-The national government has instructed evacuation for those local residents within 20km radius of the periphery and evacuation to inside for those residents from 20km to 30km radius of the periphery, because it is possible that radioactive materials are discharged.
 -At around 10:37 am March 21st, water spraying to common spent fuel pool and finished at 3:30 pm (conducted by TEPCO).
 -At around 3:37 pm, March 24th, electricity supply to common spent fuel pool has started from external power source. At around 6:05 pm, fuel pool cooling pump was started to cool the pool.
 -We found no signs of abnormal situation for the casks by visual observation during the patrol activity. A detailed inspection is under preparation.
 -At Units 5 and 6, in order to prevent hydrogen gas from accumulating within the buildings, we have made three holes on the roof of the reactor building for each unit.
 -In total 12 fire engines are lent for the water spraying to the spent fuel pools and water injection to the nuclear reactors by various regional fire departments as well as Tokyo Fire Department. Also, instruction regarding the setting and operation of large scale decontamination system was provided by Niigata City Fire Headquarter and

- Hamamatsu City Fire Headquarter.
- *:Koriyama Fire Department, Iwaki Fire Brigade Headquarters, Fire Headquarters of Sukagawa District Wide Area Fire-fighting Association, Yonezawa City Fire Headquarters, Utsunomiya City Fire Headquarters, Fire Headquarters of Aizu-Wakamatsu wide area municipal association, Saitama City Fire Bureau, and Niigata City Fire Bureau.
 - By March 22nd, Units 1 through 6 were started to be energized from the external power source.
 - At 3:30PM, March 27th, we found that there was water in the trenches of Units 1 to 3. The radioactive emission at the surface of the water was 0.4mSv/h for Unit 1 and over 1,000mSv/h for Unit 2. As for Unit 3, we couldn't have access to the surface because of debris. We will continue to monitor water in the trenches.
 - On March 28th, a puddle of water was found at a centralized environmental facility process main building. As a result of a radioactivity analysis, on March 29th, we detected approximately 1.2 x 10Bq/cm³ in a full dose at a radiation controlled area and 2.2 x 10Bq/cm³ in a full dose at a non-controlled area.
 - At 12:03 pm, March 29th, when taking off the flange of the pipe of the seawater piping of the Residual Heat Removal System, 3 workers from our subcontractor were soaked with water in the pipe. After wiping the water off, we confirmed that there was no radioactive contamination to their bodies.
 - At 12:21 pm, March 31st, campaigner's sound truck (1 driver) tried to enter the site from the site's main gate, however it left after it was blocked to enter. We reported this incident to Fukushima Prefectural Police Department.
 - A barge (the first barge) of the U.S. Forces with freshwater to be used to cool down reactors etc. was towed by a ship of Maritime Self-Defense Force and at 3:42 pm on March 31st 2011, came alongside the pier. We began to replenish the filtrate tanks with the freshwater at around 3:58 pm April 1st.
 - The second barge of the U.S. Forces with freshwater to be used to cool down the reactors etc. was towed by a ship of Maritime Self-Defense Force and came alongside the pier at 9:10 am on April 2nd. We will replenish the filtrate tanks with water as soon as the preparation is ready. In addition, we began to replenish the filtrate tanks with water of a barge (the first barge) at around 10:20 am on April 2nd and continued until 4:40 pm, having finished today's work.
 - At around 11:35 am April 1st, a worker fell into the sea when he got into a barge of the U.S. Forces to repair a hose of the ship. The worker was rescued immediately, and was not injured and not contaminated. The worker will be checked using the whole-body counter to ensure his health.
 - Monitoring posts of No. 1 - No.8 set up near the boundary of power station area have been restored. We will periodically monitor the data and announce the results of monitoring.
 - We will continue to take all measures to ensure the safety and to continue monitoring the surrounding environment around the Power Station.

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Press Releases

Press Release (Apr 02,2011)

Status of TEPCO's Facilities and its services after the Tohoku-Taiheiyou-Oki Earthquake (as of 10:00PM)

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

Below is the status of TEPCO's major facilities.

*new items are underlined

[Nuclear Power Station]

Fukushima Daiichi Nuclear Power Station:

Units 1 to 3: shutdown due to the earthquake

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

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

*Off-site power has been connected to Unit 1 to 6 by March 22, 2011..

* Unit 1

- The explosive sound and white smoke was confirmed near Unit 1 when the big quake occurred at 3:36pm, March 12th.
- We started injection of sea water at 8:20 pm, March 12th, and then boric acid which absorbs neutron into the reactor afterwards.
- At approximately 2:30 am, March 23rd, we started the injection of sea water into the reactor from feed water system. After that, the injection of freshwater was started from 3:37 pm on March 25th (switched from the seawater injection). At 8:32 am, Mar 29th, transfer from the fire fighting pump to a temporary motor driven pump was made.
- At approximately 10:50 am on March 24th, white smoke was confirmed arising from the top of the reactor building.
- At approximately 11:30 am, March 24th, lights in the main control room were restored.
- At approximately 5:00 pm, March 24th, draining water from underground floor of turbine buildings into a condenser was started and it was paused at approximately 7:30 am, March 29th because we confirmed that the water level reached almost full capacity of a condenser. In order to move the water in the condenser into condensate reservoirs, water transfer from the condensate reservoirs to suppression pool's water surge-tanks was conducted from around 0:00 pm, March 31st to 3:26 pm, April 2nd.
- From 1:03 pm, March 31st, the water spray by the concrete pumping vehicle was started, and finished at 4:04 pm.
- In order to confirm the position of water spray to the spent fuel pool by the concrete pumping vehicle, the water spray was conducted from 5:16 pm to 5:19 pm.

*Unit 2

- At 1:25 pm, March 14th, since the Reactor Core Isolation Cooling System has failed, it was determined that a specific incident stipulated in Clause 1, Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness occurred (failure of reactor cooling function). At 5:17 pm, March 14th, while the water level in the reactor reached the top of the fuel rod, we have restarted the water injection with the valve operation.
- At approximately 6:14 am, March 15th, the abnormal sound was confirmed near the suppression chamber and the pressure inside the chamber decreased afterwards. It was determined that there is a possibility that something happened in the suppression chamber. While sea water injection to the reactor continued, TEPCO employees and workers from other companies not in charge of injection work started tentative evacuation to a safe location.

- Sea water injection to the reactor continued.
- On March 18th, power was delivered up to substation for backup power through offsite transmission line. We completed laying cable further to unit receiving facility in the building, and at 3:46 pm, March 20th the load-side power panel of the receiving facility started to be energized.
- From 3:05 pm to 5:20 pm on March 20th, about 40 tons of seawater was injected into Unit 2 by TEPCO employees.
- At approximately 6:20 pm on March 21st, white smoke was confirmed arising from the top of the reactor building. As of 7:11 am on March 22nd, smoke decreased to the level where we could hardly confirm.
- From around 4:00 pm to 5:00 pm on March 22nd, approximately 18 tons of sea water was injected into the spent fuel pool by TEPCO employees.
- From 10:10 am on March 26th, freshwater (with boric acid) injection was initiated. (switched from the seawater injection) At 6:31pm, March 27th, transfer from the fire fighting pump to a temporary motor driven pump was made.
- From 10:30 am on March 25th, seawater injection through Fuel Pool Cooling and Filtering System was initiated. The work was finished at 12:19 pm, March 25th. From 4:30 pm, March 29th, freshwater injection through Fuel Pool Cooling and Filtering System was initiated. (We switched from seawater to freshwater). The work was finished at 6:25 pm on March 29th. At 9:25 am, March 30th, we started fresh water injection by a temporary motor driven pump, but we switched the pump to the fire fighting pump due to the pump trouble. At 1:10 pm, March 30th, freshwater injection was suspended, because we found the crack on a part of the hose. At 7:05 pm, March 30th, freshwater injection was resumed and finished at 11:50 pm, March 31.
- At approximately 4:46 pm, March 26th, lights in the main control room were restored.
- At approximately 4:45 pm, March 29th, the water in condensate reservoirs was being transferred to suppression pool water surge-tanks to prepare for water transfer from a condenser to condensate reservoirs in order to drain water on the underground floor of the turbine building into a condenser. At 11:50 am, April 1st, transfer was completed.
- At 14:56 pm, April 1st, water injection into spent fuel pool in Unit 2 by temporary motor driven pump was initiated. At 5:05 pm on April 1st, the water injection was finished.
- The water transfer from the condenser to the condensate reservoirs has been conducted since 5:10 pm, April 2nd.

*Unit 3

- At 6:50 am, March 14th, while water injection to the reactor was under operation (injection of boric acid was done on Mar 13th), the pressure in the reactor containment vessel increased to 530 kPa. As a result, at 7:44 am, it was determined that a specific incident stipulated in the Article 15, the Clause 1 of Act on Special Measures Concerning Nuclear Emergency Preparedness occurred (abnormal increase of the pressure of reactor containment vessel). Afterwards, the pressure gradually decreased (as of 9:05 am, 490 kPa).
- At approximately 11:01 am, March 14th, an explosion followed by white smoke occurred near Unit 3. 4 TEPCO employees and 3 workers from other companies (all of them were conscious) sustained injuries and were taken to the hospital by ambulances.
- As the temperature of water in the spent fuel pool rose, spraying water by helicopters with the support of the Self Defense Force was considered. However the operation on March 16th was cancelled.
- At 6:15 am, March 17th, the pressure of the Suppression Chamber temporarily increased, but currently it is stable within a certain range. On March 20th, we were preparing to implement measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive material to outside) in order to fully secure safety. However, at present, it is not a situation to immediately implement measures and discharge air containing radioactive material to outside. We will continue to monitor the status of the pressure of the reactor containment vessel.
- In order to cool spent fuel pool, water was sprayed by helicopters on March 17th with the cooperation of Self-Defense Forces.
- At approximately past 7:00 pm, March 17th, Self-Defense Forces and the police started spraying water by water cannon trucks upon our request for the cooperation. At 8:09 pm, March 17th, they finished the operation.
- At 2:00 pm, March 18th, spraying water by fire engines was started with the cooperation of Self-Defense Forces and the United States Armed Forces. At 2:45 pm, March 18th, the operation was finished.
- At approximately 12:30 am, March 19th, spraying water was started with the cooperation of Fire Rescue Task Forces of Tokyo Fire Department. At approximately 1:10 am, March 19th, the operation was finished. They resumed spraying water at 2:10 pm and finished at approximately 3:40 am, March 20th.
- At approximately 9:30 pm, March 20th, spraying water was started with the cooperation of Fire Rescue Task Forces of Tokyo Fire Department. At approximately 3:58 am, March 21th, they the operation was finished.
- At approximately 3:55 pm, March 21st, light gray smoke was confirmed arising from the southeast side of the 5th floor roof of the Unit 3 building. The situation was reported to the fire department at approximately 4:21 pm. The parameters of reactor pressure vessel, reactor containment vessel, and monitored environmental data remained stable without significant change. However, employees working around

Unit 3 evacuated to a safe location. On March 22nd, the color of smoke changed to somewhat white and it is slowly dissipating.

- At approximately 3:10 pm on March 22nd, spraying water to Unit 3 by Tokyo Fire Department's Hyper Rescue and Osaka City Fire Department was conducted, and completed at approximately 4:00 PM on the same day.
- At approximately 10:45 pm on March 22nd, lights in the main control room were restored.
- At 11:00 am on March 23rd, the injection of sea water to spent fuel pool was conducted, and finished approximately at 1:20 pm on the same day.
- At 4:20 pm on March 23rd, light gray smoke was observed belching from Unit 3 building. The situation was reported to the fire department at 4:25 pm on March 23rd. The parameters of the reactor, the reactor containment vessel of Unit 3, and monitored figures around the site's immediate surroundings remained stable without significant change. To be safe, workers in the main control room of Unit 3 and around Unit 3 evacuated to a safe location. At approximately 11:30 pm on March 23rd and 4:50 am on March 24th, TEPCO employees confirmed the smoke has disappeared. Accordingly, workers evacuation was lifted.
- From approximately 5:35 am on March 24th, sea water injection through Fuel Pool Cooling and Filtering System was initiated, and finished at approximately 4:05 pm on the same day.
- From 1:28 pm on March 25th, Hyper Rescue team started water spray. The work finished at 4:00 pm on March 25th.
- From 6:02 pm on March 25th, the injection of freshwater to the reactor was started (switched from the seawater injection). At 8:30 pm on March 28th, the injection of fresh water is switched to temporary electricity pumps from the fire engine pumps.
- At approximately 12:34pm March 27th, the injection of water by the concrete pump truck was started. At approximately 2:36 pm, March 27th, the operation was finished.
- At approximately 2:17pm March 29th, the injection of fresh water by the concrete pump truck was started. (Sea water had been injected so far and transfer from seawater to freshwater was made). The water injection was finished at 6:18 PM, March 29th.
- At approximately 5:40 pm, March 28th, the water in condensate reservoirs was being transferred to suppression pool water surge-tanks to prepare for water transfer from a condenser to condensate reservoirs in order to drain water on the underground floor of the turbine building into a condenser. We finished the transfer work at approximately 8:40 am, March 31st.
- From 4:30 pm, March 31st, the water spray by the concrete pumping vehicle was started, and finished at 7:33 pm.
- From 9:52 am, April 2nd, the water spray by the concrete pumping vehicle was started, and finished at 0:54 pm.

*Unit 4

- At approximately 6:00 am, March 15th, an explosive sound was heard and the damage in the 5th floor roof of Unit 4 reactor building was confirmed. At 9:38 am, the fire near the north-west part of 4th floor of Unit 4 reactor building was confirmed. At approximately 11:00 am, TEPCO employees confirmed that the fire was out.
- At approximately 5:45 am on March 16th, a TEPCO employee discovered a fire at the northwest corner of the Nuclear Reactor Building. TEPCO immediately reported this incident to the fire department and the local government and proceeded with the extinction of fire. At approximately 6:15 am, TEPCO staff confirmed at the site that there are no signs of fire.
- At approximately 8:21 am on March 20th, spraying water by fire engines was started with the cooperation of Self-Defense Forces and they finished the operation at approximately 9:40 am. At approximately 6:45 pm spraying water was started by Self-Defenses' water cannon trucks and finished at approximately 7:45 pm.
- At approximately 6:30 am, March 21st, spraying water by fire engines was started with the cooperation of Self-Defense Forces and the United States Armed Forces. At approximately 8:40 am, March 21, they had finished the operation.
- On March 21st, cabling has been completed from temporary substation to the main power center.
- From approximately 5:20 pm on March 22nd, spraying water from the concrete pumping vehicle was conducted and ended at approximately 8:30 pm on the same day.
- From approximately 10:00 am on March 23rd, spraying water from the concrete pumping vehicle was conducted and ended at approximately 1:00 pm on the same day.
- From approximately 2:35 pm on March 24th, spraying water by the concrete pumping vehicle was conducted and ended at approximately 5:30 pm on the same day.
- From 6:05 am on March 25th, seawater injection through Fuel Pool Cooling and Filtering System was initiated and finished at approximately 10:20 am on the same day.
- From 7:05 pm on March 25th, water spray by the concrete pumping vehicle was started and finished at 10:07 pm on March 25th.
- From 4:55 pm on March 27th, water spray by the concrete pumping vehicle was started and finished at 7:25 pm on March 27th.
- At approximately 11:50 am on March 29th, lights in the main control room were restored.
- From 2:04 pm on March 30th, water spray by the concrete pumping vehicle

- was started and finished at 6:33 pm on March 30th.
- From 8:28am, April 1st, the water spray by the concrete pumping vehicle was started. At 14:14 pm, the water spray finished.
- *Unit 5 and 6
- At 5:00 am on March 19th, we started the Residual Heat Removal System Pump (C) of Unit 5 in order to cool the spent fuel pool. At 10:14 pm, we started the Residual Heat Removal System Pump (B) of Unit 6 in order to cool the spent fuel pool.
- Unit 5 has been in reactor cold shutdown since 2:30 pm on March 20th. Unit 6 has been in reactor cold shutdown since 7:27 pm on March 20th.
- At Units 5 and 6, in order to prevent hydrogen gas from accumulating within the buildings, we have made three holes on the roof of the reactor building for each unit.
- At approximately 5:24 pm on March 23rd, the temporary Residual Heat Removal System Seawater Pump automatically stopped when its power source was switched. We restarted the pump at around 4:14 pm, March 24th, and resumed cooling of reactor at around 4:35 pm.
- *On March 18th, regarding the spent fuel in the common spent fuel pool, we have confirmed that the water level of the pool is secured. At around 10:37 am March 21st, water spraying to common spent fuel pool and finished at 3:30 pm. At around 6:05 pm, fuel pool cooling pump was started to cool the pool.
- *common spent fuel pool: a spent fuel pool for common use set in a separate building in a plant site in order to preserve spent fuel which are transferred from the spent fuel pool in each Unit building.
- *On March 17th, we patrolled buildings for dry casks and found no signs of abnormal situation for the casks by visual observation. A detailed inspection is under preparation.
- *dry cask: a measure to store spent fuel in a dry storage casks in storages. Fukushima Daiichi Nuclear Power Station started to utilize the measure from August 1995.
- *On March 21st, 23rd to 30th, we detected technetium, cobalt, iodine, cesium, tellurium, barium, lanthanum and molybdenum from the seawater around the discharge canal of the station.
- *On March 20th, 21st, 23rd to 30th, we detected iodine, cesium, tellurium and ruthenium in the air collected at the site of Fukushima Daiichi Nuclear Power Station.
- *Plutonium has detected from the sample of soil at the site of Fukushima Daiichi Nuclear Power Station collected on 21st and 22nd of March, Concentration level of Plutonium detected was same as that of under usual environment and it is thought not to be harmful to human health. We will strengthen environmental monitoring of power station and surrounding environment.
- *We detected radioactive materials contained in the puddles found in the turbine building of Unit 1 to 4.
- *At approximately 3:30 pm, March 27th, we found water pooling in the vertical shaft of the trench outside of the turbine buildings for Units 1 to 3. The radiation dose at the surface of the water amounted 0.4 mSv/h in Unit 1 and over 1,000 mSv/h in Unit 2. We could not confirm the amount of the radiation dose in Unit 3. We will keep observing the condition of the water in the vertical shaft.
- On March 29th, we detected niobium, tellurium, ruthenium, silver, tellurium, iodine, cesium, and ruthenium in the water collected at the trench of unit 1.
- On March 30th, we took samples from the water in the trench of Unit 2 and 3, and conducted nuclide analysis on them. We are now confirming the results of the analysis.
- At approximately 9:30 am, April 2nd, we found that there was water in the shaft for storing power cable (concrete product) at near the intake of water of Unit 2, the radioactive air dose was over 1,000mSn/h and the water spilled into the sea from the crack (approximately 20 cm) of the side of the shaft. We injected fresh concrete to the shaft twice, however, we could not observe a change in the amount of spilled water into the sea. Therefore, we considered that a new method of water shutoff and determined to use the polymeric macromolecule. Necessary equipments and experts of water shutoff will be dispatched to the site. Tonight, they will depart from Tokyo and will start the work with survey of the site conditions tomorrow morning. There is a connection point between the trench of unit 2 and this shaft. It was assumed that a puddle of water of the turbine building of unit 2, out flowed through this connection point and spilled into the sea from the crack of the shaft. Therefore, we will investigate out flowed route to the shaft and implement the water analysis by taking samples in the shaft and at near the spilling point in the sea. In addition, from April 2nd, we will implement to take samples at 15km offshore Fukushima Daiichi and Fukushima Daini Nuclear Power Stations and will evaluate these samples comprehensively.
- *Since around 9:20 am, March 31st, the water transfer from the vertical

shaft of Unit 1 to the reservoir of the centralized environmental facility was conducted. We finished the task around 11:25 am of the same day.

*We found a puddle of water at the main building of the centralized environmental facility process. We analyzed and detected approximately $1.2 \times 10^3 \text{Bq/cm}^3$ of radioactivity in full dose in the Controlled Area and $2.2 \times 10^3 \text{Bq/cm}^3$ in full dose in the Non-Controlled Area on March 29.

*The first barge of the U.S. Forces with fresh water to be used to cool down reactors etc. was towed by a ship of Maritime Self-Defense Force and at 3:42 pm on March 31st 2011, came alongside the pier. At approximately 3:58 pm, April 1st, we started to replenish filtrate tanks with the fresh water, and finished at 4:25 pm. At approximately 10:20 am, April 2nd, we resumed to replenish filtrate tanks with the fresh water, and finished at 4:40 pm. The second barge of the U.S. Forces with the fresh water towed by the ship of Maritime Self-Defense Force came alongside the pier at approximately 9:10 am, April 2nd. It is in preparation for replenishing filtrate tanks with the fresh water.

*At 11:35 am, April 1st, a worker fell into the sea while stepping into the ship from the pier during the hose laying work of the barge. Other crew immediately rescued the worker. While no injury or contamination was confirmed, whole body counter will be implemented to check the contamination inside the body just in case.

*From 3:00 pm, April 1st, we started spraying inhibitor in order to prevent diffusion of radioactive materials. This attempt was conducted on a trial basis at the mountain side area of the common spent fuel pool in the range of 500m². The spraying finished at 4:05 pm.

*Monitoring posts (no.1 to no.8) which were installed around the site boundary have been restored. We will continue monitoring the measured value and make announcements on those values accordingly.

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

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

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

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

*At 2:30 pm on March 30th, the power source of the residual heat removal system(B) to cool the reactor of Unit 1 was secured from an emergency power source in addition to an offsite power. This means that all the units secure backup power sources (emergency power sources) for the residual heat removal systems(B).

*(Unit 1)

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

*(Unit 4)

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

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

Kashiwazaki Kariwa Nuclear Power Station:
Units 1, 5, 6, 7: normal operation
(Units 2 to 4: outage due to regular inspection)

[Thermal Power Station]

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

earthquake

[Hydro Power Station]

-All the stations have been restored.
(Facilities damaged by the earthquake are now being repaired in a timely manner.)

[Transmission System, etc.]

-All substation failed due to the earthquake have been restored.
(Facilities damaged by the earthquake are now being repaired in a timely manner.)

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

-Considering the critical balance of our power supply capacity and expected power demand forward, in order to avoid unexpected blackout, TEPCO has been implementing rolling blackout (planned blackout alternates from one area to another) since Mar 14th. We will make our utmost to secure the stable power supply as early as possible. For customers who will be subject to rolling blackout, please be prepared for the announced blackout periods. Also for customers who are not subject to blackouts, TEPCO appreciates your continuous cooperation in reducing electricity usage by avoiding using unnecessary lighting and electrical equipment.

[Others]

-Please do NOT touch cut-off electric wires.
-In order to prevent fire, please make sure to switch off the electric appliances such as hair driers when you leave your house.
-For the customer who has in-house power generation, please secure fuel for generator.

[Back to Page Top](#)

From: Blount, Tom
Sent: Saturday, April 02, 2011 7:09 AM
To: Blount, Tom; LIA06 Hoc; LIA08 Hoc; RST06 Hoc; RST01 Hoc; Hoc, PMT12
Subject: Re-sent w/ attachment 0830 Comm assts Brief
Attachments: April 21000 EDT CA Brief one pager.docx

Sorry...sheet attached...

From: Blount, Tom
Sent: Saturday, April 02, 2011 7:03 AM
To: LIA06 Hoc; LIA08 Hoc; RST06 Hoc; RST01 Hoc; Hoc, PMT12
Subject: 0830 Comm assts Brief

Please provide your top 3 items your team is focused on for today. This is intended to be for the Commissioner Asst's this morning. Please provide your input by 0745 so I can consolidate....

PPP/045

April 2, 2011

0830 EDT

Briefing Sheet Fukushima Daiichi

ET Overview and Priorities:

No significant changes in plant conditions reported.

- Focused on coordination with other principal stakeholders.
-
-

RST Overview and Priorities:

-

PMT Overview and Priorities:

-

LT Overview and Priorities:

-

From: Marshall, Michael
Sent: Saturday, April 02, 2011 9:38 AM
To: ET05 Hoc
Subject: Out of Office: Summary of Source Terms

Hello,

I will be out of the office until April 7, 2011. If you need immediate assistance, please, call 301-415-1750.

Best Regards,
Michael Marshall

ppp/b46

From: RMPACTSU_ELNRC <RMPACTSU_ELNRC@ofda.gov>
Sent: Saturday, April 02, 2011 12:42 PM
To: LIA02 Hoc; LIA01 Hoc; LIA11 Hoc; ET07 Hoc
Cc: Blamey, Alan
Subject: FYI: Travel Reservation April 6 for BLAMEY

Subject: Travel Reservation April 6 for BLAMEY

Your Travel Arranger is pleased to deliver your complete travel itinerary through Sabre® Virtually There®.

[Click here to access your reservation on the web or a mobile device.](#)

Virtually There® allows you to review or print your reservations, as well as:

- Register for trip reminders and cancellation/delay notifications
- View maps & driving directions
- Review city guides & restaurant recommendations
- Get up-to-date weather and much more!

You may also access your reservation on the web or from your mobile device at www.virtuallythere.com. Simply enter your last name and the six-character reservation code provided to you by Your Travel Arranger. As a security measure, you will be prompted to enter your e-mail address or a password that Your Travel Arranger may have provided to you. If you have any question about which e-mail address to use, we recommend that you use the one that received this e-mail.

[CLICK HERE to opt out of receiving future e-mails from Virtually There.](#)

If the above link is inactive, please paste this URL into your browser to access your reservations:

<https://www.virtuallythere.com/new/reservationsChron.html?host=1W&pnr=A11EBDPD395A&name=BLAMEY&language=0&email=2>

Please do not reply to this e-mail. Your Travel Consultant has not provided Virtually There with an e-mail address to which replies may be sent. If you have questions, please contact your Travel Consultant through other means.

PPP/647

From: Morris, Scott
Sent: Saturday, April 02, 2011 2:40 AM
To: McDermott, Brian; Evans, Michele; Wiggins, Jim
Cc: RST01 Hoc; ET07 Hoc
Subject: High Resolution Photos from Fukushima Daiichi on March 24

<http://cryptome.org/eyeball/daiichi-npp/daiichi-photos.htm>

PPP/6445

From: LIA11 Hoc
Sent: Saturday, April 02, 2011 5:57 PM
To: Al Hochevar; Alice Caponiti; Blamey, Alan; Blount, Tom; Boger, Bruce; Casto, Chuck; Christensen, Harold; Craig Gaddis; DORLCAL Resource; Dorman, Dan; DprNrrCal Resource; Emche, Danielle; ET05 Hoc; ET07 Hoc; FOIA Response.hoc Resource; Gitter, Joseph; Glenn Southern; HOO Hoc; INPO; INPO; INPO; INPO; INPO; INPO; INPO; INPO; Jay Tilden; LIA01 Hoc; LIA06 Hoc; LIA08 Hoc; LIA11 Hoc; McDermott, Brian; McGinty, Tim; Miller, Chris; Monninger, John; Morris, Scott; NRC Liaison at USAID; OST02 HOC; PACOM Watch Officer; Pentagon Japan Crisis Team J-4 Desk; Peter Lyons; Hoc, PMT12; Rick Nielsen; Robert Gambone; Robert Mercer; Ross-Lee, MaryJane; RST01 Hoc; RST01B Hoc; Sal Golub; Sal Golub; Steve Aoki; Tom Vavoso; Virgilio, Martin; Weber, Michael; Wiggins, Jim; William Webster; Zimmerman, Roy
Subject: ACTION ITEM MATRIX for 2000 hour April 2 Consortium Call
Attachments: Japanese Government Action Items and Material Request List (Consortium Call) Rev 4.02.11 1609.xlsx

See attached

ppp/b49

From: Weber, Michael
Sent: Saturday, April 02, 2011 6:58 PM
To: Casto, Chuck; Collins, Elmo
Cc: Ross-Lee, MaryJane; ET05 Hoc; ET07 Hoc; RST01 Hoc; OST02 HOC; FOIA Response.hoc Resource
Subject: RESPONSE - CHECKED WITH RST

They are wrapping up the document now that assesses feed and bleed. It is specific to unit 1, due to damaged condition of containment for units 2 and 3. The difference as we understand between the 1-9% H2 in containment estimated by TEPCO and the 70% H2 estimated by GEH is attributed to the difference in assumption on the leakage rate (TEPCO at 10-20%; GEH assumes 0%). This will all be described in the assessment that we are about to clear here.

ppp/650

From: Casto, Chuck
Sent: Saturday, April 02, 2011 4:44 PM
To: Weber, Michael; Collins, Elmo
Cc: OST02 HOC; ET05 Hoc; ET07 Hoc; LIA06 Hoc; LIA08 Hoc; FOIA Response.hoc Resource
Subject: Re: FYI - Potential Interest in Deploying RADNET Units to Japan

We have contacts. Marie can get them to you in the morning.

Thank you.

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

From: Weber, Michael
To: Casto, Chuck; Collins, Elmo
Cc: OST02 HOC; ET05 Hoc; ET07 Hoc; LIA06 Hoc; LIA08 Hoc; FOIA Response.hoc Resource
Sent: Sat Apr 02 16:02:51 2011
Subject: FYI - Potential Interest in Deploying RADNET Units to Japan

We're pushing this on our end. Having some difficulty contacting someone at EPA by phone, but will continue trying through alternative contacts.

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

From: PMT09 Hoc
Sent: Saturday, April 02, 2011 3:47 PM
To: EOC_Planning@epamail.epa.gov; EOC_Manager@epamail.epa.gov; boyd.mike@epamail.epa.gov; edwards.jonathan@epamail.epa.gov; decair.sara@epa.gov
Cc: Fraass.Ron@epamail.epa.gov; Miller, Marie; Jackson, Todd; decair.sara@epa.gov; PMT03 Hoc; Hoc, PMT12; Weber, Michael
Subject: RE: ACTION REQUEST: Potential Interest in Deploying RADNET Units to Japan

EPA Emergency Operations Center

Good Afternoon

This is a follow up to yesterday evenings request for consideration of deployment of RADNET resources. The NRC Chairman, and the U.S. Ambassador in Japan, are strongly supportive of EPA providing support for monitoring of conditions, particularly in the vicinity of Tokyo, as part of a plan to relax the travel advisory and voluntary departure of personnel from the Tokyo area.

If it would be helpful to have a contact from Senior NRC management, we would be please to make that call.

On a separate matter, we have been asked questions about the integration of the data from the various RADNET and other monitoring information which you are receiving. If you are developing products that provide updated information, we would appreciate receiving a copy, or the link to the posting of the materials on your web site.

Thank you

Donald A. Cool
Protective Measures Team

ppp/051

U.S. Nuclear Regulatory Commission

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

From: PMT09 Hoc
Sent: Friday, April 01, 2011 10:05 PM
To: EOC_Planning@epamail.epa.gov; EOC_Manager@epamail.epa.gov
Cc: 'Fraass.Ron@epamail.epa.gov'; Miller, Marie; Jackson, Todd; 'decair.sara@epa.gov'; PMT03 Hoc; Hoc, PMT12
Subject: ACTION REQUEST: Potential Interest in Deploying RADNET Units to Japan

EPA EOC:

This is a formal follow up on the possibility of deploying RADNET units. The NRC PMT understands from our NRC staff in Japan that the U.S. Ambassador in Japan is interested in knowing if this capability is available and could be deployed. His interest follows conversations between the NRC Chairman and the Ambassador during the Chairman's recent visit.

It may be that DOE assets would provide the similar, or even better capabilities, and that the EPA resource may not be available. Nevertheless, please consider this a formal request from the Ambassador in Japan for consideration. A phone message has also been left with Sara DeCair.

We would appreciate your direct follow up with the DOE assets, and response back to the Ambassador.

Donald A. Cool
NRC Protective Measures Team

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

From: Fraass.Ron@epamail.epa.gov [mailto:Fraass.Ron@epamail.epa.gov]
Sent: Friday, April 01, 2011 11:43 AM
To: PMT09 Hoc
Subject: RE: Potential Interest in Deploying RADNET Units to Japan

Understood. Hi Randy.
Ron

Ronald G. Fraass, Director
National Air and Radiation Environmental Laboratory U.S. Environmental Protection Agency
540 South Morris Avenue
Montgomery, AL 36115-2601
Phone: 334 270-3401
FAX: 334 270-3454
Fraass.Ron@epa.gov
URL www.epa.gov/narel

|----->

| From: |

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>-----
|PMT09 Hoc <PMT09.Hoc@nrc.gov> |

>----->

| To: |

|----->
>-----|
| Ron Fraass/MTG/USEPA/US@EPA, Mike Flynn/DC/USEPA/US@EPA, Jonathan Edwards/DC/USEPA/US@EPA, EOC
Manager@EPA, EOC Planning@EPA, EOC |
| Environmental Unit@EPA |
>-----|
|----->
| Cc: |
|----->
>-----|
| "Hoc, PMT12" <PMT12.Hoc@nrc.gov> |
>-----|
|----->
| Date: |
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>-----|
| 04/01/2011 10:36 AM |
>-----|
|----->
| Subject: |
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>-----|
| RE: Potential Interest in Deploying RADNET Units to Japan |
>-----|

Ron

Just to follow up. Our inquiry was for information only. Please do not do anything. We note that DOE has remote monitoring capability in country and it may make more sense to deploy that rather than ask EPA to spin up resources from US. In any case, the decision to deploy is not NRC's area of authority. Although the information would be useful, etc.

Thanks for the information

Randy Sullivan NRC HQ PMT Director

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

From: Fraass.Ron@epamail.epa.gov [mailto:Fraass.Ron@epamail.epa.gov]
Sent: Friday, April 01, 2011 9:50 AM
To: PMT09 Hoc; Flynn.Mike@epamail.epa.gov; Edwards.Jonathan@epamail.epa.gov; EOC_Manager@epamail.epa.gov;
EOC_Planning@epamail.epa.gov; EOC_Environmental_Unit@epamail.epa.gov
Cc: Hoc, PMT12
Subject: Re: Potential Interest in Deploying RADNET Units to Japan

Spoke with Duane and indicated the limitations of the deployable units. I explained that the request and any decisions will need to flow through our EOC. I suggest the planning unit be in contact with NRC's PMT unit to further discuss the options.

Deployables will need electrical power and a local operator. Filters need to be changed daily and sent to a lab for analysis. For deployables, the only near real time data about radiation comes from the onboard compensated GM system. No spectral data is available unlike the RadNet fixed (permanent) monitors.

Ron

Ronald G. Fraass, Director
National Air and Radiation Environmental Laboratory U.S. Environmental Protection Agency
540 South Morris Avenue
Montgomery, AL 36115-2601
Phone: 334 270-3401
FAX: 334 270-3454
Fraass.Ron@epa.gov
URL www.epa.gov/narel

|----->
| From: |
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>-----|

|PMT09 Hoc <PMT09.Hoc@nrc.gov>
|

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|----->
| To: |
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>-----|

|Ron Fraass/MTG/USEPA/US@EPA
|

>-----|

|----->
| Cc: |
|----->

>-----|

|"Hoc, PMT12" <PMT12.Hoc@nrc.gov>
|

>-----|

|----->
| Date: |
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>-----|
|04/01/2011 08:40 AM
|

>-----|
|----->
| Subject: |
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>-----|
|Potential Interest in Deploying RADNET Units to Japan
|

Ron,

Thanks for talking. This is a follow-up, in part to establish e-mail contact as we discussed. The best e-mail contact for us here is the PMT12 e-mail (PMT12.hoc@nrc.gov), which I'm copying.

Our interest in potential deployment of RadNet units is only preliminary at this time. We will be having further discussions here, and will let our managers know the capabilities of the deployable RadNet units. So I would not push this much with your management just yet.

Thanks,

Duane Schmidt
Protective Measures Team
US Nuclear Regulatory Commission

Please confirm with the PMT that this arrangement is acceptable to RES.

Cheers,

Tim Harris,
PMT - PAAD

From: LIA06 Hoc
Sent: Sunday, April 03, 2011 10:16 PM
To: LIA04 Hoc; OST05 Hoc
Cc: LIA06 Hoc; LIA08 Hoc
Subject: request to take action to respond to request for info from NY

There is an item on the task tracker to respond to an email request from NY state forwarded to LIA04 on 4/1/11 by Doug Tiffit. TEPCO's status posted on their website says:

We found no signs of abnormal situation for the casks by visual observation during the patrol activity. A detailed inspection is under preparation.

Can you send that info to NY to see if it closes the item please?

Thanks,

Mark Lombard
Liaison Team Director
U.S. Nuclear Regulatory Commission
Operations Center

PPP/653

From: HOO Hoc
Sent: Monday, April 04, 2011 11:28 AM
To: ET07 Hoc
Subject: RE: Chairman call today
Attachments: image002.gif; image003.jpg

Roger that.

Howie Crouch

Headquarters Operations Officer
U.S. Nuclear Regulatory Commission
Phone: (301) 816-5148
Fax: (301) 816-5151
Email: hoo.hoc@nrc.gov
Secure Email: hoo@nrc.sgov.gov



From: ET07 Hoc
Sent: Monday, April 04, 2011 11:28 AM
To: HOO Hoc
Subject: RE: Chairman call today

Ok, now you're back on the hook to call Chuck when the Chairman calls (chuck just hung up... he's expecting your call once we have the Chairman on the line.)

From: HOO Hoc
Sent: Monday, April 04, 2011 10:57 AM
To: ET07 Hoc
Subject: RE: Chairman call today

Yep

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



From: ET07 Hoc
Sent: Monday, April 04, 2011 10:56 AM

PPP/USA

From: ET07 Hoc
Sent: Monday, April 04, 2011 11:51 AM
To: HOO Hoc
Subject: RE: Chairman call today
Attachments: image001.jpg

Getting chuck?

From: HOO Hoc
Sent: Monday, April 04, 2011 11:31 AM
To: ET07 Hoc
Subject: RE: Chairman call today

OK

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



From: ET07 Hoc
Sent: Monday, April 04, 2011 11:28 AM
To: HOO Hoc
Subject: RE: Chairman call today

Ok, now you're back on the hook to call Chuck when the Chairman calls (chuck just hung up... he's expecting your call once we have the Chairman on the line.)

From: HOO Hoc
Sent: Monday, April 04, 2011 10:57 AM
To: ET07 Hoc
Subject: RE: Chairman call today

Yep

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



PPP/655

From: ET07 Hoc
Sent: Monday, April 04, 2011 10:56 AM
To: HOO Hoc
Subject: RE: Chairman call today

Ok. Chuck may be on hold awhile if the Chairman gets held up, but I suppose he's aware.

From: HOO Hoc
Sent: Monday, April 04, 2011 10:45 AM
To: ET07 Hoc
Subject: RE: Chairman call today

Chuck will be calling in about 1130, but if the Chairman calls in earlier we will contact Chuck.

John Knoke

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



From: ET07 Hoc
Sent: Monday, April 04, 2011 10:41 AM
To: HOO Hoc
Subject: Chairman call today

As soon as the Chairman calls in, please contact Chuck Casto and put him up on the bridge as well. The Chairman is expected to call in about 11:30-ish this morning.

Thanks

From: LIA06 Hoc
Sent: Monday, April 04, 2011 10:15 PM
To: ET05 Hoc
Subject: RE: Link to Good Photos of the Fukushima Daiichi Site. Note the location of the fire trucks

Thank you!

Liaison Team Director
U.S. Nuclear Regulatory Commission
Operations Center

From: ET05 Hoc
Sent: Monday, April 04, 2011 10:15 PM
To: LIA06 Hoc
Subject: FW: Link to Good Photos of the Fukushima Daiichi Site. Note the location of the fire trucks

Site Info. See below

From: Giitter, Joseph
Sent: Monday, April 04, 2011 7:38 PM
To: ET05 Hoc
Subject: FW: Link to Good Photos of the Fukushima Daiichi Site. Note the location of the fire trucks

From: Giitter, Joseph
Sent: Monday, April 04, 2011 7:34 PM
To: RST01 Hoc; PMT_Distribution
Subject: Link to Good Photos of the Fukushima Daiichi Site. Note the location of the fire trucks

<http://cryptome.org/eyeball/daiichi-npp/daiichi-photos.htm>

ppp / 656

From: LIA06 Hoc
Sent: Monday, April 04, 2011 10:16 PM
To: LIA01 Hoc; LIA02 Hoc; LIA03 Hoc; LIA04 Hoc; LIA05 Hoc; LIA06 Hoc; LIA07 Hoc; LIA08 Hoc; LIA09 Hoc; LIA10 Hoc; LIA11 Hoc; LIA12 Hoc; OST05 Hoc
Subject: FW: Link to Good Photos of the Fukushima Daiichi Site. Note the location of the fire trucks

Follow Up Flag: Follow up
Flag Status: Flagged

This is a link to some good pics from the Fukushima site.

Liaison Team Director
U.S. Nuclear Regulatory Commission
Operations Center

From: ET05 Hoc
Sent: Monday, April 04, 2011 10:15 PM
To: LIA06 Hoc
Subject: FW: Link to Good Photos of the Fukushima Daiichi Site. Note the location of the fire trucks

Site Info. See below

From: Giitter, Joseph
Sent: Monday, April 04, 2011 7:38 PM
To: ET05 Hoc
Subject: FW: Link to Good Photos of the Fukushima Daiichi Site. Note the location of the fire trucks

From: Giitter, Joseph
Sent: Monday, April 04, 2011 7:34 PM
To: RST01 Hoc; PMT_Distribution
Subject: Link to Good Photos of the Fukushima Daiichi Site. Note the location of the fire trucks

<http://cryptome.org/eyeball/daiichi-npp/daiichi-photos.htm>

ppp/657

Sanfilippo, Nathan

From: Trapp, James
Sent: Monday, April 04, 2011 2:21 PM
To: Sanfilippo, Nathan; HOO Hoc
Subject: FW: Link: Fukushima Daiichi Nuclear Plant Hi-Res Photos

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

From: Ulses, Anthony
Sent: Monday, April 04, 2011 2:00 PM
To: Trapp, James; 'moralesra@state.gov'; 'russ@earthmobi.com'
Subject: FW: Link: Fukushima Daiichi Nuclear Plant Hi-Res Photos

Some good shots from earlier.

Tony

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

From: Rutz, Wayne
Sent: Monday, April 04, 2011 1:03 PM
To: Stapleton, Bernard; Mangefrida, Michael; Parsons, Darryl
Cc: Melendez, Israel; Ulses, Anthony
Subject: FW: Link: Fukushima Daiichi Nuclear Plant Hi-Res Photos

An additional link to some photos of the plants in Japan.

Wayne

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

From: aaronad@nctc.gov [mailto:aaronad@nctc.gov]
Sent: Monday, April 04, 2011 12:28 PM
To: Rutz, Wayne; English, Lance; Whitney, James; Warren, Roberta
Subject: Link: Fukushima Daiichi Nuclear Plant Hi-Res Photos

This is better than commercial imagery, and in color.

Fukushima Daiichi Nuclear Plant Hi-Res Photos

<http://cryptome.org/eyeball/daiichi-npp/daiichi-photos.htm>

PPP/658

From: Hackett, Edwin
Sent: Monday, April 04, 2011 8:43 AM
To: RST06 Hoc; Holian, Brian; Boyce, Tom (RES); RST01 Hoc
Subject: RST Assessment Document

Brian, Tom,

Could you e-mail me a copy of the latest update of the assessment document when you have a chance?

Thanks,

Ed

PPP/BSA

From: Jolicoeur, John
Sent: Monday, April 04, 2011 1:30 PM
To: ET07 Hoc
Subject: RE: EST Status Officer

It would be difficult. I have a conference call that I have rescheduled twice already scheduled for Friday afternoon.

From: ET07 Hoc
Sent: Monday, April 04, 2011 1:20 PM
To: Jolicoeur, John
Subject: RE: EST Status Officer

Any chance you'd like to take Bill Gott's shift (3-11) on Thursday? I know you can't on Tuesday, and I was really trying to give him two days off in a row (he's worked two weeks straight)

From: Jolicoeur, John
Sent: Monday, April 04, 2011 1:18 PM
To: ET07 Hoc
Subject: RE: EST Status Officer

Thanks Jane

John

From: ET07 Hoc
Sent: Monday, April 04, 2011 1:17 PM
To: Grant, Jeffery; Gott, William; Billings, Sally; Huyck, Doug; Erlanger, Craig; Jolicoeur, John
Subject: FW: EST Status Officer

All:
Since there have been a few trades this week, I thought it would be helpful for everyone to have the current schedule.

Jane

From: OST02 HOC
Sent: Monday, April 04, 2011 1:15 PM
To: ET07 Hoc
Subject: EST Status Officer

EST Status Officer			
Sat-Sun	4/2-4/3	11pm - 7am	Jeff Grant
Sun	3-Apr	7am - 3pm	John Jolicoeur
Sun	3-Apr	3pm-11pm	Bill Gott
Sun-Mon	4/3-4/4	11pm - 7am	Sally Billings
Mon	4-Apr	7am - 3pm	Jane Marshall
Mon	4-Apr	3pm-11pm	Bill Gott

PPP/6/20

Mon-Tue	4/4-4/5	11pm - 7am	Sally Billings
Tue	5-Apr	7am - 3pm	Doug Huyck
Tue	5-Apr	3pm-11pm	Bill Gott
Tue-Wed	4/5-4/6	11pm - 7am	Jeff Grant
Wed	6-Apr	7am - 3pm	Jane Marshall
Wed	6-Apr	3pm-11pm	John Jolicoeur
Wed-Thur	4/6-4/7	11pm - 7am	Jeff Grant
Thur	7-Apr	7am - 3pm	Jane Marshall
Thur	7-Apr	3pm-11pm	Bill Gott
Thur-Fri	4/7-4/8	11pm - 7am	Jeff Grant
Fri	8-Apr	7am - 3pm	Jane Marshall
Fri	8-Apr	3pm-11pm	Bill Gott
Fri-Sat	4/8-4/9	11pm-7am	Jeff Grant
Sat	9-Apr	7am - 3pm	Jane Marshall
Sat	9-Apr	3pm-11pm	Bill Gott
Sat-Sun	4/9-4/10	11pm - 7am	Jeff Grant

From: Orders, William
Sent: Monday, April 04, 2011 8:50 AM
To: ET07 Hoc
Cc: Franovich, Mike; Castleman, Patrick; Snodderly, Michael; Hipschman, Thomas; Marshall, Michael; Andersen, James
Subject: RE: Japan Earthquake 4 April 2011 0600 EDT Situation Report

I do not know if you have a standing request, if not please let this serve as a request for us to receive every update.

Thanks
Bill

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

From: ET07 Hoc
Sent: Monday, April 04, 2011 7:27 AM
To: Franovich, Mike; Castleman, Patrick; Snodderly, Michael; Hipschman, Thomas; Marshall, Michael; Orders, William
Cc: Andersen, James
Subject: FW: Japan Earthquake 4 April 2011 0600 EDT Situation Report
Importance: High

Forwarded DOE update, per request. Please note that the attachment is OUO.

ET Status Officer

ppp/671

From: OST05 Hoc
Sent: Monday, April 04, 2011 8:40 AM
To: FOIA Response.hoc Resource
Subject: SL Desk 04/01-04/03/11
Attachments: FW: ACTION from White House; request to take action to respond to request for info from NY ; RE: FOIA folder copies of all emails; FOIA folder copies of all emails; 1800 EDT (April 3, 2011) USNRC Earthquake/Tsunami Status Update; 0430 EDT (April 3, 2011) USNRC Earthquake/Tsunami Status Update; 1800 EDT (April 2, 2011) USNRC Earthquake/Tsunami Status Update; 0430 EDT (April 2, 2011) USNRC Earthquake/Tsunami Status Update; Daily: 4 New Items from Friday, April 1, 2011; Ops Center State Liaison Turnover from 4/1/11 (2PM - 9PM EDT); FYI: Minutes from the 4/1/11 6 PM EDT White House Briefing Call; 1800 EDT (April 1, 2011) USNRC Earthquake/Tsunami Status Update; 04/01/2011 Press Release: Task Force on Japan Events; FW: Questions for this afternoon's conference call; Ops Center State Liaison Turnover from 4/1/11 (7AM - 2PM EDT); NEW TAC'S ASSOCIATED WITH SUPPORTING THE EVENTS IN JAPAN; FW: Update on DHEC actions and finding; RE: Population maps surrounding the nuclear power plants.; FW: science facility in Japan; RE: Briefing of NH Legislature on 04/04/11; FW: EPZ Maps; FW: NOC Phase 1 - Awareness 0330-11 Update Report 46 - Earthquake - Tsunami - Japan (0600 EDT 1 Apr 11); 0430 EDT (April 1, 2011) USNRC Earthquake/Tsunami Status Update

ppp/672

From: ET07 Hoc
Sent: Monday, April 04, 2011 8:05 AM
To: Casto, Chuck
Subject: RE: Chairman Call Tonight (your time)

Thanks. Sorry to keep you up.

From: Casto, Chuck
Sent: Monday, April 04, 2011 7:36 AM
To: ET07 Hoc; Collins, Elmo; Dorman, Dan
Subject: Re: Chairman Call Tonight (your time)

Yes. 24/7. I will call in.

Chuck

From: ET07 Hoc
To: Casto, Chuck; Collins, Elmo; Dorman, Dan
Sent: Mon Apr 04 07:14:12 2011
Subject: Chairman Call Tonight (your time)

The Chairman has delayed the call from 8AM EDT to 11:30 am EDT, which is midnight-ish in Tokyo. Will anyone from the Tokyo Team be up and available to call in?

ppp/673

From: Wiggins, Jim
Sent: Monday, April 04, 2011 7:11 AM
To: ET05 Hoc; ET07 Hoc; LIA01 Hoc; RST01 Hoc; Hoc, PMT12
Cc: Leeds, Eric; Johnson, Michael; Miller, Charles; FOIA Response.hoc Resource
Subject: FYI:Statement on the implications of the Fukushima nuclear accident.htm

Note that, along with organizing the NES review, Mike has been tasked to conduct a domestic review presumably analogous to what Charlie is leading for us.

Office for Nuclear Regulation
An agency of HSE

Search

[] [Search]

Statement from HM Chief Inspector of Nuclear Installations on the implications of the Fukushima nuclear accident

29 March 2011

On 12 March 2011, the Secretary of State for Energy and Climate Change, Chris Huhne, requested Mike Weightman, HM Chief Inspector of Nuclear Installations, to produce a report on the implications for the UK nuclear industry of the accident that took place at the Fukushima Dai-ichi nuclear power station in Japan. The purpose of the report is to identify any lessons to be learnt, taking forward this work in co-operation and co-ordination with national stakeholders and international colleagues. The Secretary of State asked for an interim report by the middle of May 2011, with a final report in September.

The Secretary of State's request has made clear that Mike Weightman has full independence to determine the scope of the report and the arrangements for conducting it. The Chief Inspector has since indicated that the reports would be:

- comprehensive and wide in scope;
- based on firm evidence and facts using the best independent scientific and technical advice available;
- informed by stakeholders with access to relevant information; and
- produced in an open and transparent way.

The reports will not address nuclear or energy policy issues as these are outside the role and responsibilities of the nuclear regulator.

ppp/674

It is not possible to define the final scope of the report at this stage. The events in Japan are not yet clear and relevant issues may emerge over the coming days or weeks that Mike Weightman would need to take into account in the final report. It is also possible that, once defined, the scope of the full report will need to be refined as further information becomes available. However, we can confirm that the scope for the final report will include the following broad areas:

General

- General background on nuclear power technology and the approach to nuclear safety and security regulation in the UK, internationally and in Japan.

Events in Japan

- A high-level description of the nuclear power station at Fukushima;
- Design provisions for resilience against natural hazards;
- The events at site, including timeline and impact and actions taken to protect people;
- Key on-site factors, including operator actions, contributing to the events; and
- Key off-site factors, including emergency response provisions, affecting the control and mitigation of events;

Lessons for the UK

- A comparison of UK nuclear power station designs with those at Fukushima;
- Natural hazards and other potential threats to UK nuclear facilities;
- Potential lessons for the UK; and
- Any recommendations regarding the lessons learnt.

Given the timing, and the fact that there is likely to be only limited information available, the scope for the interim report will necessarily be less comprehensive than the final report. It will focus on any immediate lessons to be learnt for existing nuclear power stations in the UK and for any prospective nuclear power stations, based on the information available up to the middle of April.

Mike Weightman is setting up an independent expert technical advisory panel to assist in the report. He would also like to receive submissions from all those with technical information about the accident or thoughts about any lessons from it that can be learnt to enhance nuclear safety in the UK. We will send out further information on this in the coming days.

From: Brandon, Lou
Sent: Monday, April 04, 2011 8:58 AM
To: PMT03 Hoc
Subject: FW: PMT Directors - Week of April 10-16

fyi

From: Brandon, Lou
Sent: Monday, April 04, 2011 6:43 AM
To: Lui, Christiana; Reis, Terrence; Mohseni, Aby; Cool, Donald; Milligan, Patricia; Sullivan, Randy; Tappert, John; Jones, Cynthia; Flanders, Scott; Holahan, Patricia; Gibson, Kathy
Cc: Holahan, Vincent; Lubinski, John; OST02 HOC; OST01 HOC; Brandon, Lou
Subject: PMT Directors - Week of April 10-16

PMT Directors,

Heads up! Other than Vince Holahan being scheduled for the 4/9-4/10 11pm-7am slot (questionable) all Director slots are unassigned. Please notify OST of times that you're interested in, or come to the Ops Center and update the working roster so that we can completely assign the week, by midweek of this week. By the way John Lubinski is not available for the week of April 10-16.

Thanks for your attention to this.

Lou

PPP/675

From: LIA02 Hoc
Sent: Monday, April 04, 2011 3:11 PM
To: Hoc, PMT12; PMT09 Hoc; RST01 Hoc
Subject: FW: TEPCO Earthquake Information Update on April 4: Fukushima-Daiichi Status
Attachments: image001.jpg; image002.jpg; EPCO Earthquake Information Update on April 4.pdf

All,
Thought the attachment might be helpful since all of the pictures can be seen now.

Thanks,
-Jenny

From: Aono Kenjiro [mailto:aono-kenjiro@jnes-usa.org]
Sent: Monday, April 04, 2011 3:07 PM
To: LIA02 Hoc
Cc: 'Yamachika, Hidehiko'; 'Michael Chinworth'; Aono Kenji
Subject: RE: TEPCO Earthquake Information Update on April 4: Fukushima-Daiichi Status

I will send this pdf file as it is difficult to save the data in word file.

Kenjiro

From: LIA02 Hoc [mailto:LIA02.Hoc@nrc.gov]
Sent: Monday, April 04, 2011 2:39 PM
To: Aono, Kenjiro
Cc: Yamachika, Hidehiko; Michael Chinworth
Subject: RE: TEPCO Earthquake Information Update on April 4: Fukushima-Daiichi Status

Sorry, the last two graphics are being removed. Please cut and paste them into a word document and send the word document as an attachment. Thank you.

Steve

From: Aono Kenjiro [mailto:aono-kenjiro@jnes-usa.org]
Sent: Monday, April 04, 2011 2:37 PM

PPP/676

To: LIA02 Hoc

Cc: yamachika-hidehiko@jnes-usa.org; Aono Kenji; michael-chinworth@jnes-usa.org

Subject: FW: TEPCO Earthquake Information Update on April 4: Fukushima-Daiichi Status

I will send you this information from TEPCO again.

I think you can see the last 2 graphics.

From: 松尾 建次 [mailto:matsuo.kenji@wash.tepco.com] **On Behalf Of** matsuo.kenji@tepco.co.jp

Sent: Monday, April 04, 2011 11:50 AM

To: matsuo.kenji@tepco.co.jp

Subject: TEPCO Earthquake Information Update on April 4: Fukushima-Daiichi Status

Dear Friends,

Please take a look for updates at Fukushima-Daiichi NPS.

- (1) Discharge of low level radioactive accumulated water in the Fukushima Daiichi NPS to the sea
- (2) Outflow of fluid containing radioactive materials to the sea from areas near intake channel of Fukushima Daiichi NPS Unit 2
- (3) Missing TEPCO Employees at Fukushima Daiichi NPS

Contacts:

TEPCO Washington Office 202-457-0790

Kenji Matsuo, Director and General Manager

Yuichi Nagano, Deputy General Manager,

Masayuki Yamamoto, Manager, Nuclear Power Programs

=====

(1) Discharge of low level radioactive accumulated water in the Fukushima Daiichi NPS to the sea

There is currently great amount of radioactive waste water in the turbine buildings of the Fukushima Daiichi NPS and especially the turbine building of Unit 2 has extremely high level radioactive waste water.

We think it is necessary to transfer the radioactive waste water to the Central Radioactive Waste Disposal Facility in order to store it in a stable condition. However, ten thousand tons of low level radioactive waste water has been already stored and we have to discharge the existing low level radioactive waste water to receive new liquids.

In addition, as low radioactive subsurface water is piling up in sub drain pits of Unit 5 and 6 and a part of subsurface water is running into buildings, important equipment to secure the safety of reactors will be submerged.

Based on the Section 1 of the Article 64 of the Nuclear Reactor Regulation Law, we have decided to discharge to the sea approximately ten thousand tons of the accumulated low level radioactive water and a total of 1,500 tons of the low level radioactive subsurface water stored in the sub drain pits of Unit 5 and 6.

We evaluate approximately 0.6 mSv of effective radioactive doses per year for adults as the impact on the discharge of the low radioactive waste water to the sea if they eat adjacent fish and seaweeds every day. The amount (0.6 mSv of effective radioactive doses per year) is one-fourth of annual radioactive dose to which the general public is exposed in nature.

Afterwards, we were preparing to discharge the low radioactive waste water to the sea. We started discharging the low radioactive waste water stored in the Central Radioactive Waste Disposal Facility to the sea at 7:00 pm on April 4th. In addition, at 9:00 pm on April 4, we started discharging the low level radioactive subsurface water stored in the sub drain pits to the sea.

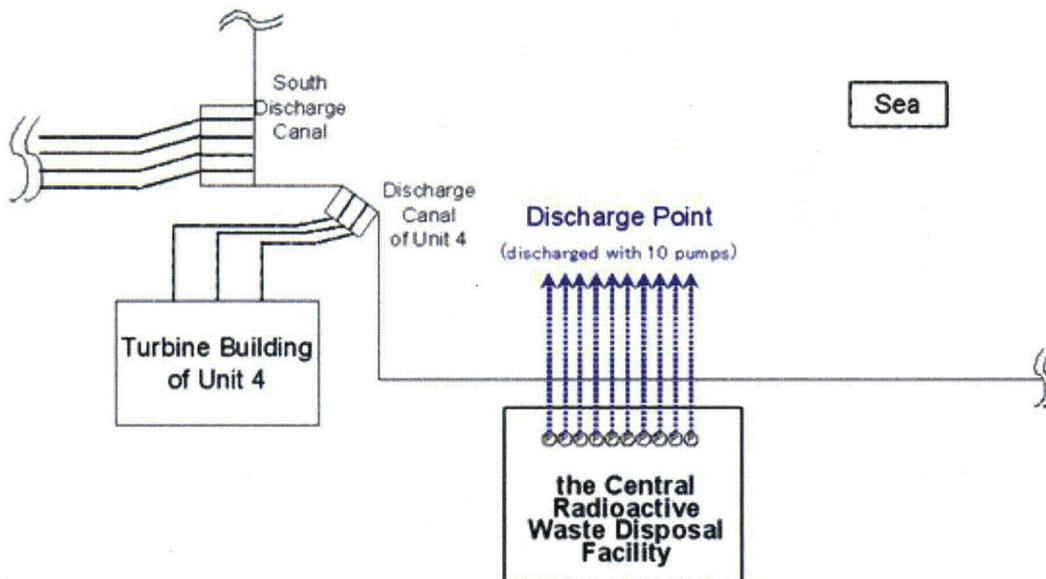
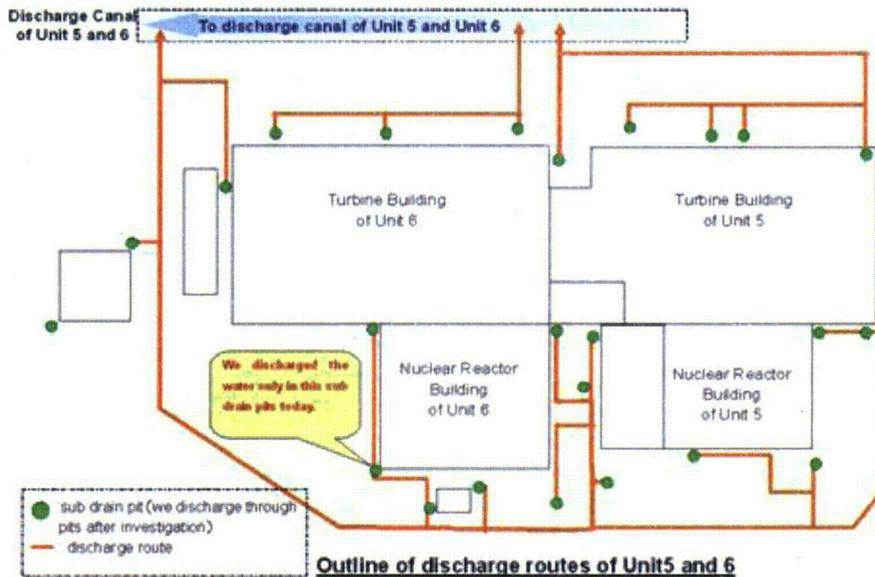


Image of discharge of the low radioactive waste water to the sea
at Fukushima Daiichi Power Station



(2) Outflow of fluid containing radioactive materials to the sea from areas near intake channel of Fukushima Daiichi NPS Unit 2

On April 2, at around 9:30 am, TEPCO detected water containing radiation dose over 1,000 mSv/h in the pit* where supply cables are stored near the intake channel of Unit 2. Furthermore, there was a crack about 20 cm on the concrete lateral of the pit, from where the water in the pit was outflowing. At around 12:20 pm, we reaffirmed the event at the scene.

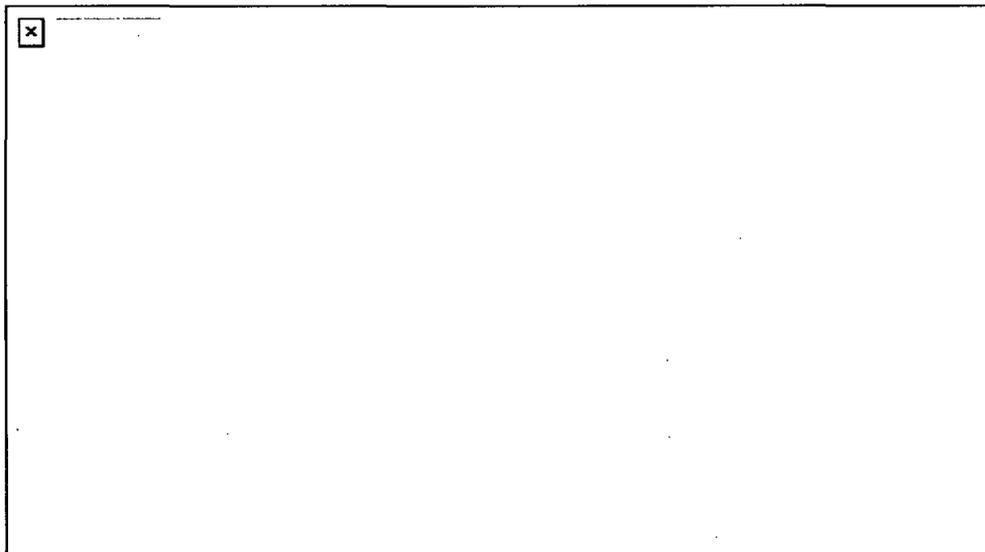
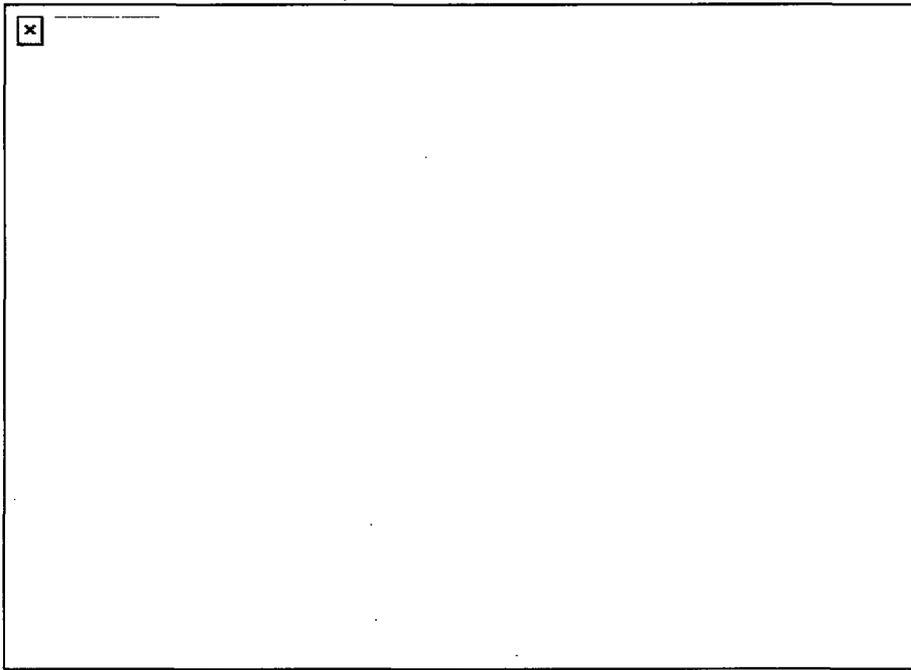
We have implemented sampling of the water in the pit, together with the seawater in front of the bar screen near the pit. These samples were sent to Fukushima Daini NPS for analysis.

In addition to seawater sampling conducted in the coastal areas of Fukushima Daiichi /Daini NPS (sampling conducted at 4 points), we have initiated additional seawater sampling at 3 points in the areas 15 km offshore from the relevant power stations. Taking into account the result of these monitoring, we are intending to conduct a comprehensive assessment.

In order to block the leakage, we have injected concrete to fill up the pit and close the crack. But it turned out that leakage into the sea still continues. Then we tried to plug the path by putting sawdust, polymer and newspaper into the path from the afternoon on April 3. The water still keep spilling into the sea. This morning (April 4th), from 7:08 to 7:11 am, tracer (opaque white powder) was poured into the pit through the horizontal shaft of the trench for seawater piping and began to investigate the water path. The amount of tracer power was approx 13kg.

We will investigate the influx route of contaminated water in the pit and implement necessary measures to prevent such influx.

*pit: a shaft made of concrete



(3) Missing TEPCO Employees at Fukushima Daiichi NPS

Due to the Tohoku-Taiheiyu-Oki Earthquake which occurred on March 11th 2011, two TEPCO employees, who had been working at the turbine building of Unit 4 for site investigation, went missing.

We had put all our efforts to search them, and approximately at 3:25 pm and at 3:53 pm, March 30, those employees were found at the basement of the turbine building and we confirmed their death on March 31.

. We would like to offer our deep regret that our employees died while working at the plant and heartfelt condolences to the bereaved families.

Aono Kenjiro

差出人: 松尾 建次 [matsuo.kenji@wash.tepco.com] は matsuo.kenji@tepco.co.jp の代理
送信日時: Monday, April 04, 2011 11:50 AM
宛先: matsuo.kenji@tepco.co.jp
件名: TEPCO Earthquake Information Update on April 4: Fukushima-Daiichi Status
添付ファイル: image005.wmz; image003.wmz

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Please take a look for updates at Fukushima-Daiichi NPS.

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Contacts:

TEPCO Washington Office 202-457-0790

Kenji Matsuo, Director and General Manager

Yuichi Nagano, Deputy General Manager,

Masayuki Yamamoto, Manager, Nuclear Power Programs

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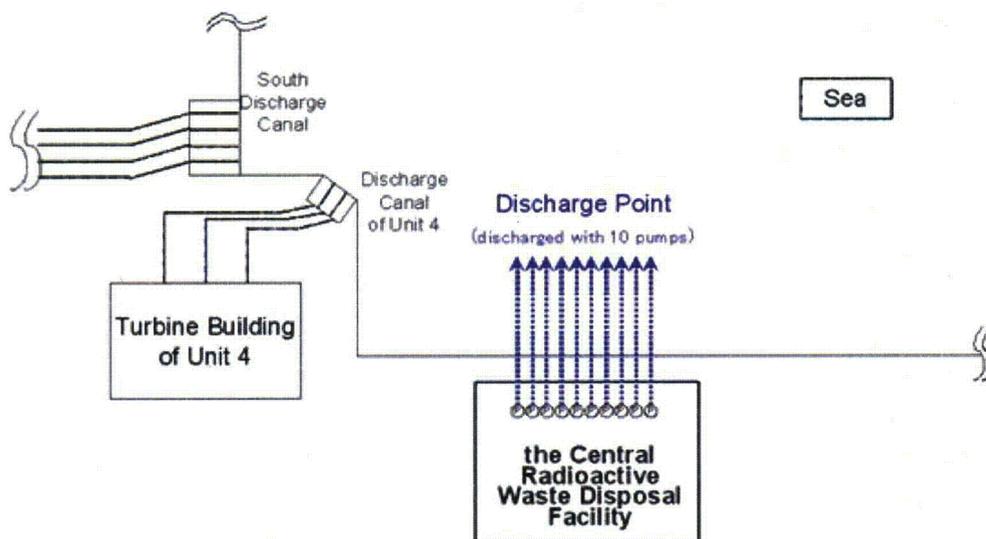
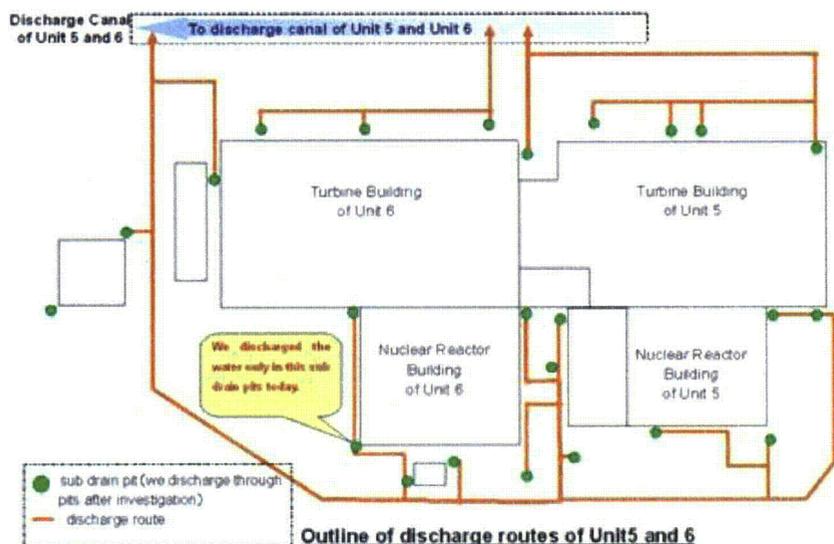


Image of discharge of the low radioactive waste water to the sea
at Fukushima Daiichi Power Station



(2) Outflow of fluid containing radioactive materials to the sea from areas near intake channel of Fukushima Daiichi NPS Unit 2

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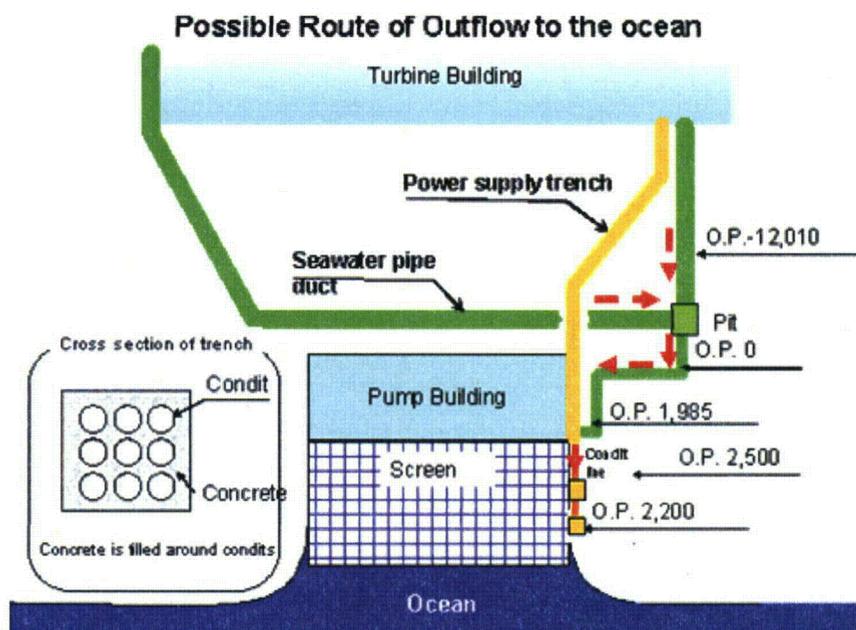
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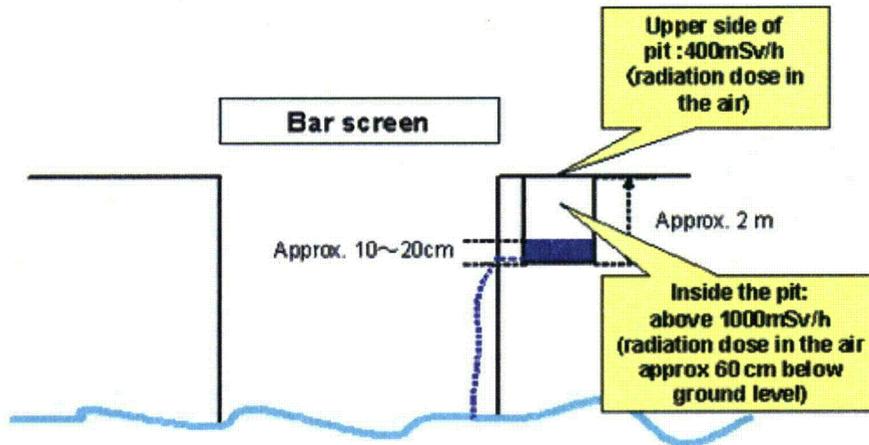
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In order to block the leakage, we have injected concrete to fill up the pit and close the crack. But it turned out that leakage into the sea still continues. Then we tried to plug the path by putting sawdust, polymer and newspaper into the path from the afternoon on April 3. The water still keep spilling into the sea. This morning (April 4th), from 7:08 to 7:11 am, tracer (opaque white powder) was poured into the pit through the horizontal shaft of the trench for seawater piping and began to investigate the water path. The amount of tracer power was approx 13kg.

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*pit: a shaft made of concrete





Unit 2: Outline of the outflow to ocean near discharge channel

(3) Missing TEPCO Employees at Fukushima Daiichi NPS

Due to the Tohoku-Taiheiyou-Oki Earthquake which occurred on March 11th 2011, two TEPCO employees, who had been working at the turbine building of Unit 4 for site investigation, went missing.

We had put all our efforts to search them, and approximately at 3:25 pm and at 3:53 pm, March 30, those employees were found at the basement of the turbine building and we confirmed their death on March 31.

We would like to offer our deep regret that our employees died while working at the plant and heartfelt condolences to the bereaved families.

From: RST01 Hoc
Sent: Monday, April 04, 2011 11:59 PM
To: RST06 Hoc
Subject: FW: Task 2
Attachments: japan accident progression for cont flooding REV 2 8x14.pptx

From: Correia, Richard
Sent: Monday, April 04, 2011 1:06 PM
To: Brown, Frederick; RST01 Hoc
Cc: RST06 Hoc; Ruland, William; Hackett, Edwin; Cheok, Michael; Gibson, Kathy; McDermott, Brian; Hoc, PMT12; Drouin, Mary; Demoss, Gary; Tinkler, Charles; Coe, Doug
Subject: Task 2

Fred et al.,

Attached are the results of Task 2 (described below) in three slides: two contain the requested basic event tree diagrams; one has information about the diagrams, assumptions and considerations.

Several folks in RES & NRR contributed. Mary Drouin (RES) is the primary POC should there any questions or a need for a meeting/discussion to assist in anyway.

Regards,

Rich

Richard Correia, PE
Director, Division of Risk Analysis
Office of Nuclear Regulatory Research
US NRC

richard.correia@nrc.gov

From: Brown, Frederick
Sent: Thursday, March 31, 2011 9:35 AM
To: RST01 Hoc
Cc: RST06 Hoc; Ruland, William; Hackett, Edwin; Correia, Richard; Cheok, Michael; Gibson, Kathy; McDermott, Brian; Hoc, PMT12
Subject: Proposed Task Tracker

Peter,

There are two items being worked outside the Ops Center for the RST. The ET is aware of both, but they are not currently being tracked (or were not last night).

You may want to add the following two items to the task tracker so that everyone knows what has actually been requested, and who is working it. Also, if the tasks are reshaped, there will be a way of making the redirection visible to the ET and others.

APP/677

Background e-mails are on the RST01 and RST06 systems from the last two evenings, subject: "Request for Ops Center RTS support"

Fred

Task 1:

Given the known, or assumed, status of the three units and four pools, what realistic scenarios exist for energetic dispersion of high quantities of radioactive material that would result in mobile plumes? The point of this question is that there are many clear scenarios that present significant near-area radiological challenges, but given the time since shutdown (for the operating units) and age of much of the fuel (in the SFPs) what are the remaining scenarios of concern with respect to more distant locations (Tokyo with a large concentration of US citizens, Alaska, Hawaii, etc).

Objective for first question (energetic release potential): this information is important to the Ambassador in Japan and the US military command that would be responsible for movement of US citizens who were ordered to be evacuated from any locations in the Pacific. In fact, the Pacific Command asked the same question of the NRC at today's Deputies Meeting that is attended by the Chairman. The answer to this question may also impact when we as the NRC ramp down our activities? **We should attempt to address this by Friday (4/1).**

This task was accepted by RES, and I understand that Kathy Gibson's Division (RES/DSA) has the lead supported by NRR/DE.

Task 2:

Given the assumed condition of the three units and four pools, can we generate basic event trees for the coming weeks/months? The point would be to identify key success criteria and to help identify key decision points/risk factors to be balanced (qualitative not quantitative analysis). For instance, take two units, each with significant core damage and prior release of volatile fission products, each with primary and secondary containment failure, but one with an intact RPV and the other with a breach of RPV - would there be a difference in potential releases that would lead to different strategies for flooding the primary containment of these two units? This question will make more sense if you look at the assumed conditions below and the attached assessment document where we recommend that TEPCO utilize the SAMG recommendation to flood all 3 units' containments.

Objective for the second question is to support multiple questions/actions. There have been many requests of the PMT for "realistic" dose models. The RST Assessment document (original e-mail was supposed to have it attached, but I've added to this incase it did not go out the first time) also contains recommended actions for the Japanese to consider. These recommendations are based on the SAMGS, which all are intended to protect primary containment. Since primary containment is damaged on at least two units, we need to assess whether there may be new considerations/priorities that are not captured by the SAMGs. Also, the product of this effort helps us better clarify the assessment of potential energetic releases, along with identifying the best strategies to ensure that they don't happen. **This item does not have as short a deliverable date unless the PMT has one that I'm not aware of, but is still very significant in terms of our recommendations. Can we complete by Monday (4/4)?**

Once NRC staff validates this concept, and creates a framework for the event trees, we may be able to turn it over to INPO/GEH for completion.

This task has also been accepted by RES, and Rich Correia's Division (RES/DRA) has the lead, with support from NRR/DE.

Accident Sequence Diagrams For Containment/Vent Flooding

Two diagrams for two sets of initial conditions

- Path 1: There is inadequate core cooling, no breach of the RPV, no core outside of reactor vessel
- Path 2: There is inadequate core cooling, breach of the RPV, and some degraded core outside of reactor vessel on DW floor

Development of diagrams primarily focused on impact of containment flooding

No consideration of impact of possible H₂ events

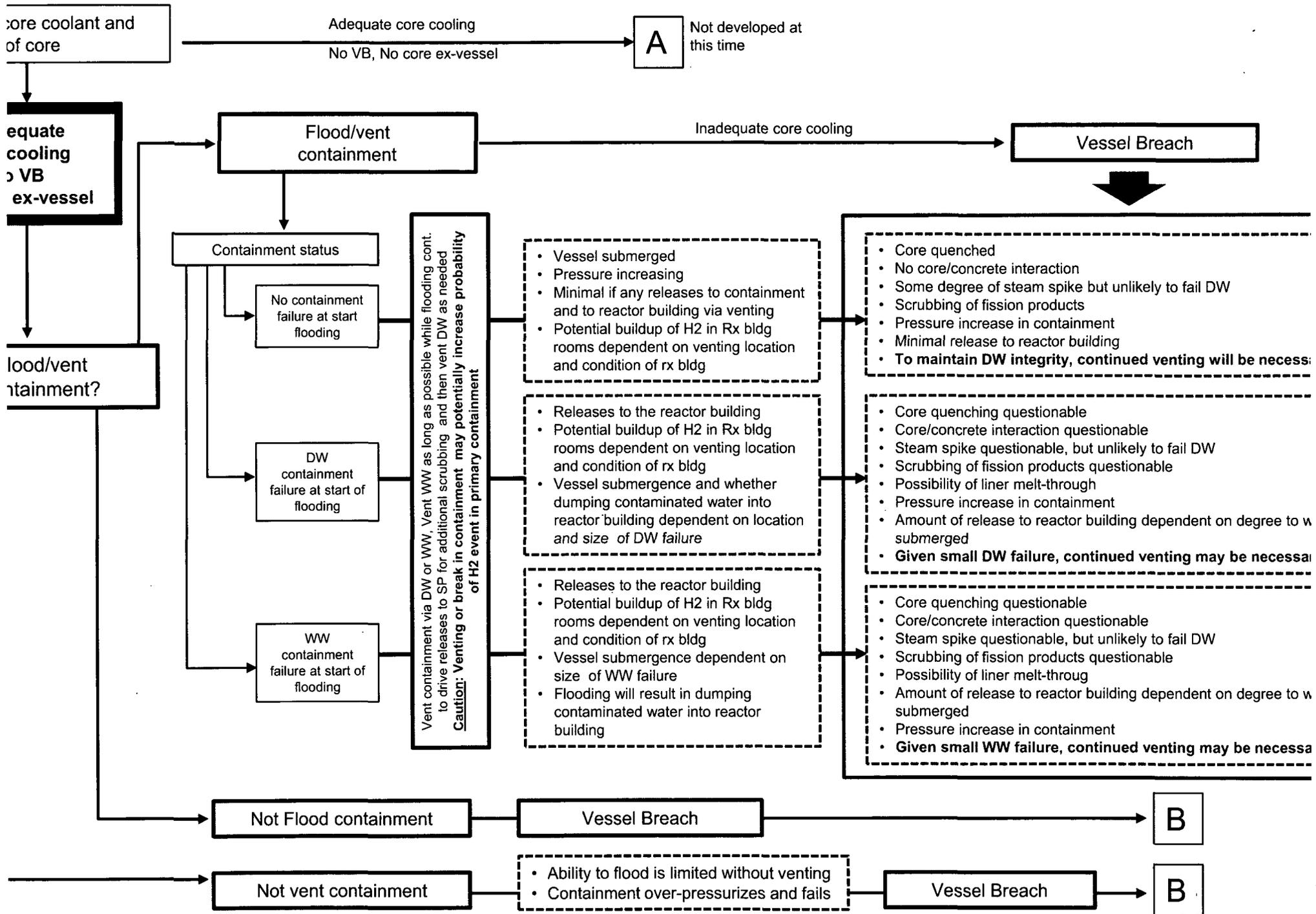
Containment flooding assumed from flooding into the SP, impacts of flooding containment via different pathways not considered

No consideration of impact of nitrogen purging containment

No development for initial conditions for adequate core cooling (with or without breach of RPV): no development of containment heat removal, venting, nitrogen purging containment

Color Coded:

- Green: decision box
- Red: key event
- Blue: consequences of event



RPV
e of
ed
DW

Water on DW floor when VB occurs and degraded core ejected from vessel

Flood/vent containment?

Flood containment

Additional core relocated to drywell while flooding containment

Sufficient water to initially quench core

- Some degree of a steam spike but unlikely to fail containment
- Initially no core/ concrete interaction,
- releases to DW
- releases still occurring from SP to WW and DW

Insufficient water to quench core

- Some degree of a steam spike (dependent on amount of core and water)
- Initially core/ concrete interaction
- Potential liner melt-through causing DW failure
- Releases to DW
- releases still occurring from SP to WW and DW

Not Flood containment

Additional core relocated to drywell because on inadequate cooling to vessel

Adverse conditions intensify

- Core/ concrete interaction continues, fission product and non-condensable gases generated
- Pressure and temperature in containment continues to increase at a more rapid rate
- Potential over-pressurization / temperature failure of DW
- Liner melt-through occurs causing DW failure
- Releases of fission products and non-condensable gases to reactor building via venting (if vented) or via containment failure
- No scrubbing via SP

Containment status

No containment failure at VB

DW containment failure at VB

WW containment failure at VB

Vent containment via DW or WW, Vent WW as long as possible while flooding cont. to drive releases to SP for additional scrubbing and then vent DW as needed
Caution: Venting or break in containment may potentially increase probability of H2 event in primary containment

- Core and vessel submerged
- Pressure increasing
- Minimal if any releases to containment and to environment via venting

- Releases to the environment
- Dependent on location and : determine if able to submerge and bottom of vessel to maintain quenching, and whether dump contaminated water into reactor building

- Releases to the environment
- Dependent on size and nature break will determine if able to submerge core and bottom c to maintain quenching
- To inject sufficient water will dumping contaminated water reactor building

Not vent containment

- Ability to flood is limited without venting
- Containment over-pressurizes and fails

- Core/ concrete interaction continues, fission product and non-condensable gases generated
- Liner melt-through occurs
- Releases of fission products and non-condensable gases to reactor building via containment failure
- No scrubbing via SP

From: LIA01 Hoc
Sent: Monday, April 04, 2011 12:42 PM
To: ET07 Hoc
Subject: Action Items and Materiel List
Attachments: Japanese Government Action Items and Material Request List 4 4 1030 Version.xlsx

See attached

APP/678

From: Jaczko, Gregory
To: Taylor, Robert
Subject: Re: NRC's Daily Assesment of Conditions at Fukushima Daiichi
Date: Monday, April 04, 2011 4:47:12 AM

Thanks

From: Taylor, Robert
To: Jaczko, Gregory
Cc: Borchardt, Bill; Virgilio, Martin; Weber, Michael; Holahan, Vincent; Casto, Chuck; Leeds, Eric
Sent: Mon Apr 04 02:55:53 2011
Subject: NRC's Daily Assesment of Conditions at Fukushima Daiichi

Dear Mr. Chairman,

Attached please find the NRC Japan Team's Daily Assessment of conditions at the Fukushima Daiichi nuclear power plants and spent fuel pools.

There is only one change of note for today. This involves TEPCO's throttling back of injection flow to the Unit 1 reactor. The team's assessment is that this reduces the margin available to ensure adequate cooling flow to the core and is reflected with a down arrow on the attached.

If you have any questions, please don't hesitate to ask.

Best regards,
Rob Taylor
NRC Japan Team

PPP/679

From: Giessner, John 12/11
To: Taylor, Robert
Date: Monday, April 04, 2011 3:48:52 AM

4/2 bullets

- Another day with more data being provided on a daily basis.
- TEPCO/NISA provided their assessment of the RST consortium information.
 - o Overall they understood and agreed with the concepts; they noted the many items which need to be considered. For unit 1 specifically:
 - Concerns: venting and plume
 - Concerns: rad waste if leaking to turbine bldg
 - Concerns: creating explosive concentration in containment
 - o Unit 1 containment pressure is dropping (now 23 psia, dropping slowly 1-2 psia a day). TEPCO assessment of containment leakage is 10-30 wt% /day.

Background

TEPCO/NISA provided a model for two phases:

Phase One –condition satisfied –No additional major event; no major release

Phase Two-stable cold shutdown- releases in accordance design

They asked for our opinion on our view on what would be phase I (possible lift evac order)

PPP/630

From: Zdenka S. Willis <Zdenka.S.Willis@noaa.gov>
Sent: Tuesday, April 05, 2011 8:10 AM
To: info.japan@noaa.gov
Cc: Hoc, PMT12; 'Steven Fine'; 'john.cortinas@noaa.gov'
Subject: Re: Oceanic monitoring
Attachments: zsig_feb2010.jpg

Follow Up Flag: Follow up
Flag Status: Completed

PMT,

Clarifying question - is your question about what we might do wrt to monitoring along our West Coast, HI? Or is your question who is monitoring the water in Japan? Through the National Water Quality monitoring network, NOAA, EPA and USGS have water quality monitoring but this is focused on things like Harmful Algal Blooms, and contaminates focused on beach closure.

If you can clarify the question, than I can work across the observing contacts to get answers.

Zdenka

Zdenka Willis
Director, IOOS® Program - NOAA
www.ioos.gov



Info Japan wrote, On 4/5/2011 7:19 AM:
PMT,

NOAA has not been tasked to lead the water monitoring. We do not have capacity for radiation monitoring at this time.

Zdenka Willis, IOOS, is the observation leader within NOAA. I am copying her on this email.

Tony

From: john.cortinas@noaa.gov [mailto:John.Cortinas@noaa.gov]
Sent: Monday, April 04, 2011 5:03 PM
To: info.japan
Cc: Steven Fine
Subject: Fwd: Oceanic modeling

Scott - Can you respond to Steve? Thanks, John

Begin forwarded message:

From: Steven Fine <Steven.Fine@noaa.gov>
Date: April 4, 2011 3:12:24 PM EDT

PPP / 681

To: John Cortinas <John.Cortinas@noaa.gov>
Subject: Fwd: Oceanic modeling

John,

Reading NRC's note more closely, they are looking for a water monitoring (not modeling) contact. Do we have a single POC for that within NOAA for this incident?

Thanks.

Steve

----- Forwarded message -----

From: Hoc, PMT12 <PMT12.Hoc@nrc.gov>

Date: Mon, Apr 4, 2011 at 1:24 PM

Subject: Oceanic modeling

To: "steven.fine@noaa.gov" <steven.fine@noaa.gov>

Cc: "FOIA Response.hoc Resource" <FOIAResponse.hoc.Resource@nrc.gov>, PMT09 Hoc <PMT09.Hoc@nrc.gov>, PMT03 Hoc <PMT03.Hoc@nrc.gov>

Hello from the NRC Protective Measures Team (PMT).

Are you involved in the Japan response? We have been asked a been a number of questions about oceanic water monitoring and radiation levels. This is not an activity that is done by NRC, but we are trying to figure out if NOAA is working on this or has the capability to do this monitoring/analysis. Perhaps you are working with Naval Reactors on this? Any information would be appreciated. Please email or call the number below if you would like clarification.

PMT

301-816-5100 (ask for PMT)

From: [Weber, Michael](#)
To: [Taylor, Robert](#)
Subject: Response - NRC's Daily Assessment of Conditions at Fukushima Daiichi
Date: Tuesday, April 05, 2011 5:08:27 AM

Thanks, Rob

From: Taylor, Robert
To: Jaczko, Gregory
Cc: Borchardt, Bill; Weber, Michael; Virgilio, Martin; Casto, Chuck; Leeds, Eric; RST01 Hoc; Holahan, Vincent
Sent: Tue Apr 05 04:37:49 2011
Subject: NRC's Daily Assessment of Conditions at Fukushima Daiichi

Dear Chairman,

Attached please find the NRC Japan Team's Daily Assessment of conditions at the Fukushima Daiichi nuclear power plants and spent fuel pools.

There is only one change of note for today. This involves the cooling of the Unit 2 reactor vessel. The team's assessment is that observed increasing temperature on the upper vessel skirt, as well as other incrementally increasing temperatures, may be an indication of insufficient cooling to the core. Our assessment is reflected by a down arrow on the attached. We are continuing to monitor this and inquired about TEPCO's assessment of the temperature trend. We will have further discussion of this tomorrow with NISA and TEPCO.

If you have any questions, please don't hesitate to ask.

Best regards,
Rob Taylor
NRC Japan Team

prop/682

From: RST06 Hoc
Sent: Tuesday, April 05, 2011 6:04 AM
To: McDermott, Brian
Subject: RST briefing Sheet-0600 EDT-4/5/11

Brian,
RST Overview and Priorities:

- RST and industry consortium continue to recommend TEPCO increase the Unit 1 feed rate. Per 0300 EDT telecon with site team, TEPCO is aware of the recommendation and at this time is not changing the feed flow rate. The consortium document, "Additional Measures in Light of TEPCO Current Strategies," includes this issue and has been and sent to the site team at 0100 EDT.
- SFP white paper has been completed and sent to site team and consortium members for final comments and concurrence. RST should finalize document and provide to site team by 4/7/11, 0800 JST.
- RST continuing to work with consortium on defining "stable" site conditions.
- RST should establish new roles and responsibilities regarding the industry consortium now that INPO has established clear communication paths and points of contact with TEPCO. The industry consortium should deal directly with TEPCO on all technical assessment requests and the NRC RST should focus on supporting the site team in advising the Japanese regulator, NISA as requested.

PPP/683

From: Hoc, PMT12
Sent: Tuesday, April 05, 2011 10:23 PM
To: PMT01 Hoc; PMT03 Hoc; PMT02 Hoc
Subject: FW: Revised Recommendation on KI
Attachments: Recommendation on KI Administration (Final).docx

fyi

From: Jackson, Todd
Sent: Tuesday, April 05, 2011 10:20 PM
To: Miller, Marie; Call, Michel; Hay, Michael
Cc: Hoc, PMT12
Subject: Fw: Revised Recommendation on KI

This attachment should go in the health effects task force package.

From: Sano, Mikako <SanoMX@state.gov>
To: Coleman, Norman (NIH/NCI) [E] <ccoleman@mail.nih.gov>; Howard, E. Bruce <HowardEB@state.gov>; tbowman@cdc.gov <tbowman@cdc.gov>; Jackson, Todd; Nicholas, Richard A (MED) <NicholasRA4@state.gov>; Petrie, Ronald C <PetrieRC@state.gov>; Telfer, Jana L. (CDC/ONDIEH/NCEH) <jqt1@CDC.GOV>; Nakanishi, Akihito <NakanishiAX@state.gov>; Simon, Steve (NIH/NCI) [E] <ssimon@mail.nih.gov>; Geoffrey.Wiggin@usda.gov <Geoffrey.Wiggin@usda.gov>; alan.remick@nnsa.doe.gov <alan.remick@nnsa.doe.gov>
Sent: Tue Apr 05 20:52:52 2011
Subject: Revised Recommendation on KI

Dear all,

Attached is revised English recommendation on KI based on the final recommendation agreed at the WG meeting. We made some changes to reflect the concept in the recommendation written in Japanese into English one.

Mikako Sano

From: Sano, Mikako
Sent: Thursday, March 31, 2011 5:19 PM
To: 'Coleman, Norman (NIH/NCI) [E]'; Howard, E. Bruce; 'tbowman@cdc.gov'; 'todd.jackson@nrc.gov'; Nicholas, Richard A (MED); Petrie, Ronald C; 'Telfer, Jana L. (CDC/ONDIEH/NCEH)'; Nakanishi, Akihito; 'Simon, Steve (NIH/NCI) [E]'; 'Geoffrey.Wiggin@usda.gov'; 'alan.remick@nnsa.doe.gov'
Subject: Recommendation on KI

Please see recommendation by KI Working Group in Japanese and English.

Mikako Sano

PPP/684

---- Translation ----

P.1 Recommendation by KI Working Group

P.2

Notes on excessive administration of stable iodine agent by disaster responders

- Strict adherence to dosage is required otherwise excessive administration of the agent may cause significant unexpected side effects.
- Administer the agent once a day.
- Administer two tables (potassium iodine 100mg) on the first day, and one tablet (50 mg) on the second day and each day thereafter.
- Avoid continuous administration of the agent. Try to take the agent up to 14 days in a row even in an unavoidable circumstance.
- In a case of intermittent administration of the agent, administer two tablets a day when an official resumes to work.

P.3

Measures for residents in the area of 20 km or far from Fukushima NPP.

1. Concept of KI administration

US-J participants discussed Japan's concept as below.

<Conditions for administration of KI>

- Case: in case that radiation exposure of more than 100mSv is expected.
- Object: personnel under 40 years old.
- Dose and direction for use: administer internally 100mg per administration as iodine agent for an adult.

The WG evaluated that the concept is reasonable.

P.4

Measures for residents in the area of 20 km or far from Fukushima NPP.

2. Concerns on administration of KI by individual decision.

The WG discussed and shared the ideas below.

- Under the current circumstance, no need of KI administration.
- KI should be taken with authority's instruction.

From: LIA07 Hoc
Sent: Tuesday, April 05, 2011 3:14 PM
To: Batkin, Joshua; Borchardt, Bill; Bradford, Anna; Coggins, Angela; Cohen, Shari; Collins, Elmo; Cooper, LaToya; Dyer, Jim; ET07 Hoc; Flory, Shirley; Gibbs, Catina; Haney, Catherine; Hudson, Sharon; Jaczko, Gregory; Johnson, Michael; Leeds, Eric; Loyd, Susan; Pace, Patti; Schwarz, Sherry; Sheron, Brian; Speiser, Herald; Sprogeris, Patricia; Taylor, Renee; Virgilio, Martin; Walker, Dwight; Walls, Lorena; Weber, Michael
Subject: "One Pager" - April 5, 1500 EDT
Attachments: April 5 1500 EDT Brief one pager .pdf

Attached is the 1500 EDT, April 5, 2011 one pager.
-Sara

PPP/685

From: ET02 Hoc
Sent: Tuesday, April 05, 2011 4:24 PM
To: ET07 Hoc
Subject: FW: Method for plugging the containment leaks at the Japanese reactor--please relay to Director of USGS

From: ET01 Hoc
Sent: Tuesday, April 05, 2011 4:23:37 PM
To: ET02 Hoc
Subject: FW: Method for plugging the containment leaks at the Japanese reactor--please relay to Director of USGS Auto forwarded by a Rule

From: Weber, Michael
Sent: Tuesday, April 05, 2011 4:23:36 PM
To: Sheron, Brian; ET01 Hoc; RST01 Hoc; Virgilio, Martin
Subject: Response - Method for plugging the containment leaks at the Japanese reactor--please relay to Director of USGS Auto forwarded by a Rule

I heard on the radio today that the Japanese were injecting "liquid glass" (aka Sodium Silicate) in the gravel on the back side of the concrete wall. I would refer this to the site team for its consideration/coordination with the Japanese. In my view, however, this is a secondary priority behind cooling the cores and spent fuel pools.

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

From: Sheron, Brian
To: ET01 Hoc; RST01 Hoc; Weber, Michael; Virgilio, Martin
Sent: Tue Apr 05 16:00:31 2011
Subject: FW: Method for plugging the containment leaks at the Japanese reactor--please relay to Director of USGS

See below. Should RST contact DOE and see if this is a recommendation we want to pursue?

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

From: SCHU [mailto:SCHU@hq.doe.gov]
Sent: Tuesday, April 05, 2011 3:43 PM
To: Adams, Ian; Adams, Ian; Aoki, Steven; Binkley, Steve; Budnitz, Bob; Sheron, Brian; Brinkman, Bill; DAgostino, Thomas; Garwin, Dick (EOP); Garwin, Dick (IBM); Finck, Phillip; Grossenbacher, John (INL); Hurlbut, Brandon; John Holdren; Kelly, John E (NE); Koonin, Steven; Lyons, Peter; McFarlane, Harold; Owens, Missy; Peterson, Per; Poneman, Daniel; Steve Fetter; Szilard, Ronaldo
Cc: ddeberl@usgs.gov; PHN@statoil.com
Subject: RE: Method for plugging the containment leaks at the Japanese reactor--please relay to Director of USGS

Dear Science team,

I think the idea is worth thinking about. Expanding from the idea of using the synthetic drilling mud (bentonite), one could also a mixture of larger packing materials, followed by progressively finer grained stuff, and finally going to the

ppp/b86

synthetic mud. If the leak or leaks have a big aperture, the "mud" may not be good enough. Once flow has stopped, or slowed a lot, one can follow up with more permanent cements.

In trying to kill the Macondo well, the "junk shot" approach was used. What bigger materials should be tried depends on where they think the leak is, its potential apertures, and what are the risks of getting the coarser stuff blocking something else they don't want to block.

It is my understanding that they were trying to use polymer bags, but I may be wrong.

Steve Chu

Steven Chu

Department of Energy

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

From: Adams, Ian

Sent: Tuesday, April 05, 2011 3:02 PM

To: SCHU

Subject: FW: Method for plugging the containment leaks at the Japanese reactor--please relay to Director of USGS

Sir, Steve Fetter wanted you to pass this along to you.

Ian

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

From: Steve Fetter

Sent: Tuesday, April 05, 2011 8:29 AM

To: Adams, Ian

Subject: FW: Method for plugging the containment leaks at the Japanese reactor--please relay to Director of USGS

FYI

----- Forwarded by Jerad D Bales/WRD/USGS/DOI on 04/04/2011 03:19 PM -----

From: Dennis D. Eberl" <ddeberl@usgs.gov>

To: jdbales@usgs.gov, Donald H Campbell <dhcampbe@usgs.gov>, Peter G Griffiths <pggriffi@usgs.gov>

Date: 04/04/2011 03:17 PM

Subject: Method for plugging the containment leaks at the Japanese reactor--please relay to Director of USGS

Dear Don-

I just heard from a friend of mine, Dr. Paul Nadeau, who is a leading scientist at the Norwegian oil company, Statoil. He has a suggestion for plugging the leaks in the Fukushima Daiichi Nuclear Power Station in Japan.

As you know, news reports have indicated that radioactive elements, including iodine 131, cesium 137 and other toxic materials are escaping through leaks in the containment building, and into the ocean. The Japanese have tried to plug the leaks with concrete, but with no success, and now are trying to use a polymer.

Paul's suggestion is that the best substance to use to plug the leaks is weighted drilling mud. This substance is composed of a swelling clay, known as bentonite, and a weighting agent such as barite or siderite. The clay is so fine grain and impermeable that it can penetrate and seal any crack. The weighting agent is a heavy mineral that is mixed with the bentonite to cause the mud to sink to the bottom of the pool. Once the cracks have been sealed in this manner, then concrete can be added to finish the job.

Drilling mud technology is a very mature engineering science, and is used in most oil company drilling operations. It may be that the Japanese scientists who are working on the reactor problem are unaware of this well developed technology, because there is so little oil well drilling in Japan. One company that may have the expertise to supply and formulate the correct mud for the problem is Baker Hughes in Houston.

Please forward this suggestion to Marcia McNutt if you think that it is worthwhile. Perhaps it also should go to the office of Presidential science advisor, Dr. Steven Chu. As you can imagine, time is of importance, so a direct appeal to McNutt may be the best way to put this suggestion forward.

Sincerely,
Dennis

--

Dennis D. Eberl
USGS
3215 Marine St., Suite E127
Boulder, CO USA
303-541-3028
FAX 303-447-2505
ddeberl@usgs.gov

From: ET07 Hoc
Sent: Tuesday, April 05, 2011 4:16 AM
To: McDermott, Brian
Subject: FW: NRC Timeline for Japan
Attachments: NRC Timeline for Response to Tsunami in Japan on 3.docx; image001.jpg

From: HOO Hoc
Sent: Tuesday, April 05, 2011 4:07 AM
To: ET07 Hoc
Subject: NRC Timeline for Japan

Brian:

Per your request, I have developed a rough timeline for NRC's response to the beginning Japan's events. See attachment.

John Knoke

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



APP/687

NRC Timeline for Response to Tsunami in Japan on 3/11/11

- 0400 EST – Diablo Canyon declared NOUE due to Tsunami warning issued by NOAA.
- 0452 EST – NRC made the decision to stay in Normal Mode in HQ Operations Center.
- 0508 EST – Scott Burnell (OPA) was notified and starts to drive into HQ.
- 0528 EST – R4 assessing Tsunami information for Diablo Canyon and San Onofre.
- 0858 EST – FEMA provided update to NRC on Fukushima event.
- 0941 EST – HOO sets up open bridge with R4 IRC.
- 0946 EST – NRC entered Monitoring Mode for HQ HOC. This was based on events at Fukushima and not the NOUE at Diablo Canton. R4 Site Team took the lead for U.S. Sites and HQ took the lead for International sites.
- 1000 EST – News media starts to make inquiries to OPA about Japan.
- 1231 EST – Received GNOSIS Japan Update from Clarence Breskovic.
- 1300 EST – Commissioner Assistant’s Briefing held to discuss events in Japan.
- 1505 EST – NRC HQ moved to take the lead for Monitoring the events in Japan. R4 provided oversight for Diablo Canyon and San Onofre

From: Hoc, PMT12
Sent: Tuesday, April 05, 2011 6:24 PM
To: PMT03 Hoc
Subject: FW: for PMT Chron Log

From: PMT01 Hoc
Sent: Tuesday, April 05, 2011 6:18 PM
To: Hoc, PMT12
Subject: for PMT Chron Log

Call from John Cassidy and Valerie Myers (RSO) of Region III at about 17:45 on 4/5 regarding what radiological monitoring should be set up for Jack Geisner of Region III who is returning from a tour with the NRC site team at the Embassy. The PMT referred them to E. Roach and R. Pedersen of NRR for further information, as well as to MD 10.132. We suggested that their detailee had been issued dosimetry and that the airborne monitoring performed at the Embassy did not indicate that internal exposure should have been a problem.

PPP/688

From: Hoc, PMT12
Sent: Tuesday, April 05, 2011 2:45 PM
To: PMT03 Hoc
Subject: for PMT chronology

2pm Advisory Team Call- White House/ PMT; call with White House to coordinate and ensure PMT/ White House is aware of current information.

PMT dir on next shift need to call DOE NIT 202-287-2355 to get permission to be added to "CM Web" in order to get Domestic Interagency Products that are being generated as a result to the US response to the NPP event in Japan.

CM Web access- make sure we are getting emails from this source. We were supposed to be added for distribution of 2pm daily summary notes of Advisory Team.

PPP/689

From: LIA01 Hoc
Sent: Tuesday, April 05, 2011 7:11 PM
To: ET05 Hoc
Subject: RE: Updated Agenda and Action Item List

Thanks!

From: ET05 Hoc
Sent: Tuesday, April 05, 2011 6:50 PM
To: LIA01 Hoc
Subject: RE: Updated Agenda and Action Item List

I have printed both attachments for the ET.

EST Actions Officer

From: LIA01 Hoc
Sent: Tuesday, April 05, 2011 6:38 PM
To: Al Hochevar; Alice Caponiti; Blamey, Alan; Blount, Tom; Boger, Bruce; Casto, Chuck; Christensen, Harold; Craig Gaddis; DORLCAL Resource; Dorman, Dan; DprNrrCal Resource; Emche, Danielle; ET05 Hoc; ET07 Hoc; FOIA Response.hoc Resource; Giitter, Joseph; Glenn Southern; HOO Hoc; INPO; INPO; INPO; INPO; INPO; INPO; INPO; Jay Tilden; Lee A Gard, (INPO); LIA01 Hoc; LIA06 Hoc; LIA08 Hoc; LIA11 Hoc; McDermott, Brian; McGinty, Tim; Miller, Chris; Monninger, John; Morris, Scott; NRC Liaison at USAID; OST02 HOC; PACOM Watch Officer; Pentagon Japan Crisis Team J-4 Desk; Peter Lyons; Hoc, PMT12; Rick Nielsen; Robert Gambone; Robert Mercer; Ron Cherry, DOE-Japan Embassy; Ross-Lee, MaryJane; RST01 Hoc; RST01B Hoc; Sal Golub; Sal Golub; Samuel Young; Steve Aoki; Tom Vavoso; Virgilio, Martin; Weber, Michael; Wiggins, Jim; William Webster; Zimmerman, Roy
Subject: Updated Agenda and Action Item List

PPP/690