
From: OST01 HOC
Sent: Monday, March 28, 2011 3:44 PM
To: Campbell, Stephen; Russell, Tonya; Opara, Stella; Lichatz, Taylor; McMurtray, Anthony; Stone, Rebecca; Smith, Stacy; Bowers, Anthony; Meyer, Karen
Cc: Evans, Michele; Temple, Jeffrey; Hasselberg, Rick; Alter, Peter; Brandon, Lou
Subject: Changes to ERO Staffing Roster for the Japanese Earthquake

EST Coordinators and EST Admin. Assistants,

Please do not change the Master ERO Staffing Roster without first verifying any changes with the team coordinators and the following individuals: Executive Team (Michelle Evans), Liaison Team (Jeff Temple), Reactor Safety Team (Peter Alter or Rick Hasselberg), or Protective Measures Team (Lou Brandon). If you receive calls that someone needs to be added to the roster, changed in the roster, or deleted from the roster, please tell the individuals contact the team coordinators and the responsible team managers noted above and have the individuals coordinate through them. EST Coordinators should check with the team coordinators at least once per shift to see if there are any changes to the team rosters and use the team rosters to update the Master ERO Staffing Roster.

Tony McMurtray
EST Coordinator

VVV/221

From: [Goldberg, Francine](#)
To: [Garrity, Paula](#); [Reiter, Stuart](#)
Cc: [Hayden, Elizabeth](#); [Landau, Mindy](#); [Harrington, Holly](#); [Courret, Ivonne](#); [Rihm, Roger](#); [Ousley, Elizabeth](#); [Leong, Edwin](#); [Hoffman, Joan](#); [Partlow, Benjamin](#)
Subject: RE: Quarterly Update of OG Plan Status
Date: Monday, March 28, 2011 9:27:36 AM

Paula –

When will we have this information for March? The reason I ask is because the OG Advisory Group is briefing Darren on 4/5 and I would like to incorporate the April data if it is available. Otherwise I will use the February data.

Fran

From: Garrity, Paula
Sent: Friday, March 25, 2011 4:04 PM
To: Reiter, Stuart; Goldberg, Francine
Cc: Hayden, Elizabeth; Landau, Mindy; Harrington, Holly; Courret, Ivonne; Rihm, Roger; Ousley, Elizabeth; Leong, Edwin; Hoffman, Joan; Partlow, Benjamin
Subject: RE: Quarterly Update of OG Plan Status

Hi Fran/Stu,

We've added the [E-Government Transparency Index](#) to [Evaluating Our Progress on Open Government](#). Note that the NRC ranked 11th out of 32 Federal agencies in terms of transparency, with a score of 77 (scores for other agencies ranged from 69 to 86). We've also updated the following ACSI benchmark reports:

- [Online Transparency Benchmark Report](#) (October – December 2010)
- [Site Satisfaction Benchmark Report](#) (February 2011)
- [Site Satisfaction Survey Results](#) (February 2011)

In addition, Edwin updated our [NRC High-Value Dataset Metrics](#) to reflect downloads through March 7, 2011.

Hope this helps,

Paula

From: Reiter, Stuart
Sent: Thursday, March 24, 2011 9:04 AM
To: Hayden, Elizabeth; Landau, Mindy; Goldberg, Francine; Harrington, Holly; Courret, Ivonne; Rihm, Roger; Ousley, Elizabeth; Leong, Edwin
Cc: Garrity, Paula
Subject: Quarterly Update of OG Plan Status

At the end of the quarter I will provide an updated OG Milestone report and an updated OG Dashboard/Highlights to the WEB team to refresh what is currently there. Please let me have any comments on the attached by COB 3/30.

VVV/222

Thanks Stu

From: Leeds, Eric
To: Nichols, Russell
Cc: Brenner, Eliot; Hayden, Elizabeth; Virgilio, Martin; Ash, Darren; Boyce, Thomas (OIS); Holonich, Joseph; Rothschild, Trip; Hirsch, Patricia
Subject: RE: Query: MSNBC article.
Date: Monday, March 28, 2011 10:56:26 AM

Very helpful – thank you. I will share with the NRR staff.

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

From: Nichols, Russell
Sent: Monday, March 28, 2011 10:51 AM
To: Leeds, Eric
Cc: Brenner, Eliot; Hayden, Elizabeth; Virgilio, Martin; Ash, Darren; Boyce, Thomas (OIS); Holonich, Joseph; Rothschild, Trip; Hirsch, Patricia
Subject: FW: Query: MSNBC article.

Eric,

Trip asked me to respond to your question.

Unfortunately, we have no recourse. The FOIA law is clear that media get fee waivers and it does not require their requests to be their original thoughts. We often get requests from media that were fed to them from non-media individuals. Here are the comments Trip sent to me this morning on your question: "I don't think we will ever know whether a particular request comes from an MSNBC employee or one resulting from their public solicitation of requests. Therefore, I don't know how we could argue that they need to pay. The more FOIA requests they submit, the longer the wait for a response. So I am not sure what the solicitation will get them."

The OIS FOIA staff is thoroughly reviewing each and every request for expedited processing and fee waivers, and will only grant those that meet the criteria. We will coordinate with OGC if we have a doubt whether or not to grant a request, so as to have their legal advice and support in the event we deny one that looks close. However, it is much easier for the media to obtain expedited processing than the average citizen, which is why all of the ones that have been granted so far are from the media. It looks like this is going to become a part of our life for awhile. Our plan is to make the responses to all of these publicly available in hopes that it will reduce the duplicate requests. The sooner we can get these responses out on the web, the quicker we should see a decrease in requests.

Expedited processing does not mean you need to pull assets off of other critical missions in order to process these requests. The intent of the expedited processing category is to move these requests to the front of the existing FOIA queue. Therefore, using the first-in, first-out theory, they get priority for processing more quickly than would have otherwise occurred. However, the FOIA does not intend that agencies drop everything they are doing to process an expedited request. The FOIA says that expedited requests should be

VVV/223

processed "as soon as practicable." In other words, as soon as feasible with the resources you have available, but they cannot be set aside with no action being taken on them.

Russ Nichols, Branch Chief
Information Services Branch
Information and Records Services Division
Office of Information Services
(301) 415-6874

From: Rothschild, Trip
Sent: Friday, March 25, 2011 6:44 PM
To: Nichols, Russell; Sealing, Donna; Hirsch, Patricia
Subject: Fw: Query: MSNBC article.

From: Leeds, Eric
To: Burns, Stephen; Rothschild, Trip
Cc: Brenner, Eliot; Hayden, Elizabeth; Virgilio, Martin
Sent: Fri Mar 25 18:32:54 2011
Subject: Query: MSNBC article.

Steve/Trip –

Please see the email below. If you go to the website, you find how MSNBC is using their process to allow folks to bypass the fee rules for FOIAs. Is there any recourse the agency can take?

Thanks!

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

From: Meighan, Sean
Sent: Friday, March 25, 2011 4:27 PM
To: Leeds, Eric
Cc: Nguyen, Quynh
Subject: MSNBC article.

Eric:

As per our discussion the below site allows anyone to submit a FOIA request that MSNBC will submit. We have one example as to where a member of the public sent in a FOIA to the NRC, then 2 or 3 days later that exact FOIA was requested by MSNBC (thereby bypassing fee rules). The example is

- Any letters or memos documenting exemptions to NRC regulations at a nuclear facility. [PDF file](#).

Very Respectfully

Sean

http://openchannel.msnbc.msn.com/_news/2011/03/24/6335625-what-nrc-nuclear-documents-do-you-want-to-see-heres-our-list

From: Meighan, Sean

Sent: Friday, March 25, 2011 11:29 AM

To: Nichols, Russell; Sealing, Donna

Cc: Craver, Patti; Raphael, Mary Jean

Subject: FYI, MSNBC article.

Now, every member of the public effectively has a fee waiver because the reporter will submit any FOIA request.

http://openchannel.msnbc.msn.com/_news/2011/03/24/6335625-what-nrc-nuclear-documents-do-you-want-to-see-heres-our-list

From: [Reiter, Stuart](#)
To: [Goldberg, Francine](#); [Hayden, Elizabeth](#); [Landau, Mindy](#)
Cc: [Main, Jeffrey](#)
Subject: RE: Report of Stats from Public Site
Date: Monday, March 28, 2011 12:29:13 PM

Should we highlight the jump in web usage?

From: Goldberg, Francine
Sent: Monday, March 28, 2011 12:07 PM
To: Hayden, Elizabeth; Landau, Mindy
Cc: Reiter, Stuart; Main, Jeffrey
Subject: Report of Stats from Public Site

Beth, Mindy –

I spoke to Jeff and from now on we will be receiving a monthly report of the top pages viewed on the public site. Also FYI, according to Jeff, the volume of site usage during the Japan events has been 4 times our normal volume, but thanks to our arrangements with Akamai, there has been no impact on performance or downtime.

Fran

4/22/11

From: Cullingford, Michael
To: Hayden, Elizabeth
Subject: NRC Protective Action Recommendation; questions received from JANUS (consulting company) in Japan
Date: Monday, March 28, 2011 12:29:09 PM

Hi Beth: I received the below enquiry and now understand that it should go first to OPA. I am not sure of the process that is followed to respond. I would like to be copied on the response. Thank you.....mike

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

From: Junko Sugaya <jsugaya@janus.co.jp>
Sent: Thu, Mar 17, 2011 11:36 am
Subject: NRC Protective Action Recommendation

I would like to ask NRC one thing on NRC News No. 11-050. Please kindly let me know any appropriate person to contact.

I do not care how conservative NRC calculates but please add a little more description on the assumptions. Full core inventories release? People stay outside all day? Please understand how news media and people react the calculation results regardless the assumptions or the real conditions.

I carefully read real trends of radiation monitoring data. It is 0.05 micro Sv/hr, quite normal here in Tokyo. The dose staying here is lower than the dose I fly to DC. Somewhat higher in Ibaraki and Gumma, neighboring prefectures to Fukushima as 0.2 micro Sv/hr but it is still okay to calculate the annual dose of 1.7mSv/yr.

Radiation monitoring data (micro Sv/hr) at each prefecture: http://www.mext.go.jp/component/a_menu/other/detail/_icsFiles/afieldfile/2011/03/17/1303724_6_3.pdf

This mirror site is more user friendly.

<http://eq.yahoo.co.jp/>

You can see radiation monitoring data on a map around Fukushima NPPs with 20km and 30 km circle lines. This site also provides English table but the information is not as much as Japanese site.

Lastly, I'm fine in Tokyo. I'm so thankful that things are okay with me and my families in this historical disaster. I'm also very thankful for the international specialists' cooperation for this special "operating experience".

Sincerely,

Junko Sugaya
JAPAN NUS Co., Ltd.
TEL: +81-3-5925-6757
FAX: +81-3-5925-6735
E-MAIL: jsugaya@janus.co.jp
JANUS Home Page: <http://www.janus.co.jp/eng/index.html>

522/1111

From: [Reiter, Stuart](#)
To: [Goldberg, Francine](#)
Cc: [Hayden, Elizabeth](#); [Landau, Mindy](#)
Subject: RE: Quarterly Update of OG Plan Status
Date: Monday, March 28, 2011 12:27:50 PM

From what I can make out, we ranked 1st of the regulatory agencies (HHS/FDA, EPA), did not recognize any others.

From: Goldberg, Francine
Sent: Monday, March 28, 2011 8:51 AM
To: Reiter, Stuart
Subject: FW: Quarterly Update of OG Plan Status

Stu –

I think we should include the transparency score in the highlights: According to Paula , the NRC ranked 11th out of 32 Federal agencies in terms of transparency, with a score of 77

From: Garrity, Paula
Sent: Monday, March 28, 2011 8:41 AM
To: Goldberg, Francine; Reiter, Stuart
Cc: Hayden, Elizabeth; Landau, Mindy; Harrington, Holly; Couret, Ivonne; Rihm, Roger; Ousley, Elizabeth; Leong, Edwin; Hoffman, Joan; Partlow, Benjamin
Subject: RE: Quarterly Update of OG Plan Status

Hi Fran,

The Transparency Index and Online Transparency Benchmark Report are both issued quarterly. The current [E-Government Transparency Index](#) is the “2010 Year In Review” summary report. We’ll continue to update as new reports are received.

Hope this helps,

Paula

From: Goldberg, Francine
Sent: Friday, March 25, 2011 9:13 PM
To: Garrity, Paula; Reiter, Stuart
Cc: Hayden, Elizabeth; Landau, Mindy; Harrington, Holly; Couret, Ivonne; Rihm, Roger; Ousley, Elizabeth; Leong, Edwin; Hoffman, Joan; Partlow, Benjamin
Subject: RE: Quarterly Update of OG Plan Status

Thanks, Paula. This is very useful. I plan to incorporate our transparency score in the upcoming briefing for Darren. Are we now getting this report monthly versus quarterly?

From: Garrity, Paula
Sent: Friday, March 25, 2011 4:04 PM
To: Reiter, Stuart; Goldberg, Francine
Cc: Hayden, Elizabeth; Landau, Mindy; Harrington, Holly; Couret, Ivonne; Rihm, Roger; Ousley, Elizabeth; Leong, Edwin; Hoffman, Joan; Partlow, Benjamin

922/1111

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Hope this helps,

Paula

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Cc: Garrity, Paula

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At the end of the quarter I will provide an updated OG Milestone report and an updated OG Dashboard/Highlights to the WEB team to refresh what is currently there. Please let me have any comments on the attached by COB 3/30.

Thanks Stu

From: [Weber, Michael](#)
To: [PMT01 Hoc](#); [Hoc, PMT12](#); [LIA06 Hoc](#); [LIA08 Hoc](#); [Brenner, Eliot](#); [Hayden, Elizabeth](#)
Subject: RESPONSE - NCRP Publications and Current Activities Related to the Fukushima Nuclear Reactor Accident
Date: Monday, March 28, 2011 12:20:03 PM
Attachments: [Fukushima.pdf](#)

From: Shaffer, Vered

Sent: Monday, March 28, 2011 11:49 AM

To: Baggett, Steven; Bartlett, Matthew; Bernal, Sara; Brock, Terry; Burrows, Ronald; Burrows, Sheryl; Bush-Goddard, Stephanie; Cecere, Bethany; Clement, Richard; Conatser, Richard; Garry, Steven; Powers, George; Gibson, Kathy; Giebel, Stephen; Gran, Zachary; Hart, Michelle; Hernandez, Pete; Hogan, Rosemary; Holahan, Patricia; Holahan, Vincent; Holiday, Sophie; Kellner, Robert; Killian, Michelle; Klementowicz, Stephen; Kurian, Varughese; Kurian, Varughese; Lai, Sandra; LaVera, Ronald; LaVie, Steve; Lu, Shanlai; Lukes, Robert; Mamish, Nader; Cervera, Margaret; Markley, Michael; McCoppin, Michael; Meighan, Sean; Milligan, Patricia; Naquin, Tyrone; O'Donnell, John; Orendi, Monica; Pedersen, Roger; Saba, Mohammad; Sahle, Solomon; Sakai, Stacie; Hawkins, Sarenee; Schaffer, Steven; Schmitt, Ronald; Schneider, Stewart; Shaffer, Mark; Shaffer, Vered; Sherbini, Sami; Smith, Arthur; Struckmeyer, Richard; Sullivan, Randy; Oxenberg, Tanya; Taylor, Torre; Thaggard, Mark; Virgilio, Rosetta; Waters, Michael; Reed, Wendy; Whaley, Sheena; Williams, Stephen; Yin, Xiaosong; Young, Thomas; Youngblood, Thomas; Zelac, Ronald; Barr, Cynthia; Benton, Laray; Reed, Elizabeth; Bolling, Lloyd; Brandon, Lou; Broaddus, Doug; Brock, Kathryn; Brown, David; Camper, Larry; Carrera, Andrew; Chapman, Gregory; Clements, John; Clemons-Webb, Candace; Cockerham, Ashley; Compton, Keith; Cook, John; Cool, Donald; Damon, Dennis; DeCicco, Joseph; Dehmel, Jean-Claude; Dickson, Elijah; Dimmick, Lisa; Flannery, Cindy; Foster, Jack; Gambone, Kimberly; Goldfeiz, Eliezer; Gray, Anita; Hall, Holly; Hayes, John; Hinson, Charles; Howe, Donna-Beth; Hsueh, Kevin; Huffert, Anthony; Kowalczyk, Jeffrey; Jones, Andrea; Jones, Cynthia; Karagiannis, Harriet; Keegan, Elaine; Kock, Andrea; Gibson, Lauren; Lee, Jay; Lewis, Doris; Lohr, Edward; Markley, Anthony; Mattsen, Catherine; Maupin, Cardelia; McCraw, Aaron; McIntosh, Angela; McKenney, Christopher; Mike Boyd; Morell, Gregory; MorganButler, Kimyata; Palmrose, Donald; Persinko, Andrew; Pstrak, David; Purdy, Gary; Quichocho, Jessie; Roach, Edward; Schmidt, Duane; Schneider, Kathleen; Snyder, Amy; Sollenberger, Dennis; Streit, Katherine; Sturz, Fritz; Sun, Casper; Thompson, Elizabeth; Tobin, Jennifer; Tomon, John; Villamar, Glenda; Watson, Bruce; Webb, James; Weber, Michael; White, Duane; White, Duncan; Abogunde, Maryann; Aildredge, Casey; Bermudez, Hector; Bloomer, Tamara; Bonano, Eugenio; Bonser, Brian; Bramnik, Andrew; Cain, Chuck; Campbell, Vivian; Carrico, J Bruce; Carson, Louis; Casey, Colleen; Cassidy, John; Collins, David; Cook, Jackie; Courtemanche, Steven; Diaz, Jose; Dickson, Billy; DNMSIII; Donovan, Larry; Dykes, Carmen; Bonano, Eugenio; Evans, Robert; Everett, Vincent; Foster, Jennifer; Frazier, Cassandra; Furia, Joseph; Gabriel, Sandra; Gaines, Anthony; Gaskins, Farrah; Gattone, Robert; Gepford, Heather; Gersey, Linda; Gibson, Richard; Gloersen, William; Go, Tony; Gordon, Craig; Graves, Chris; Greene, Natasha; Griffis, Jeff; Guerra, Gilbert; Hamilton, Ruben; Hammann, Stephen; Hammond, Michelle; Hanson, Latischa; Hays, Robert; Henson, Jay; Herr, Michael; Jackson, Todd; Katanic, Janine; Kauffman, Laurie; Kulzer, Edward; Kuzo, George; LaFranzo, Michael; Lambert, Kenneth; Lanzisera, Penny; Lawyer, Dennis; Learn, Matthew; Lee, Peter; Lodhi, Sattar; Loo, Wade; Lynn, Henry; Mahlahla, Latonya; McCann, Mike; Mitchell, Mark; Modes, Kathy; Moslak, Thomas; Mulay, Sam; Munoz, Rick; Murnahan, Colleen; Myers, Valerie; Nguyen, Janice; Nicholson, John; Nielsen, Adam; Nimitz, Ronald; Noggle, James; Null, Kevin; Oxenberg, Tanya; Parker, Bryan; Patterson, Jan; Pelchat, John; Phalen, Martin; Piskura, Deborah; Poston-Brown, Martha; Powers, Dale; Pursley, William; Ragland, Randolph; Razo, Jason; Reed, Rodican; Reichard, Michael; Reichhold, William; Ricci, John; Ricketson, Larry; Rivera, Jonathan; Roberts, Mark; Rodriguez, Lionel; Roldan, Lizette; Rolph, Ronald; Schlapper, Gerald; Seeley, Shawn; Simmons, Michelle; Simmons, Toye; Slawinski, Wayne; Stearns, Don; Tapp, Jeremy; Taylor, Cynthia; Thomas, MaryLynne; Thompson, James; Thompson, Thomas; Torres, RobertoJ; Tran, Frank; Tripp, Lester; Ullrich, Elizabeth; Warren, Geoffrey; Weidner, Tara; Werner, Greg; White, John; Whitten, Jack; Wiedeman, Darrel; Wilson, Scott

Subject: NCRP Publications and Current Activities Related to the Fukushima Nuclear Reactor Accident

For general interest to the HP group:

VVV/227

Please find attached a Press Release regarding NCRP Publications and Current Activities Related to the Fukushima Nuclear Reactor Accident.

Additionally, NCRP has made its Commentary No. 10, *Advising the Public About Radiation Emergencies* available for free download. The report can be found here:

<http://www.ncrponline.org/Publications/Commentaries/NCRP%20Comm%20No.%2010.pdf>

Fukushima Nuclear Reactor Accident

The National Council on Radiation Protection and Measurements (NCRP) is actively advising U.S. federal and state agencies as they assist the Japanese government in their response to the Fukushima nuclear reactor accident. NCRP is also working closely with members of the media (*i.e.*, television, radio and print) to provide timely and accurate information related to the potential human and environmental health impacts of releases of radionuclides from the damaged reactors and spent fuel pools.

Once the situation in Japan is stabilized, the focus will shift to late-phase recovery and site restoration. In 2010, NCRP formed a scientific committee to define the process and procedures to be used in optimizing recovery and restoration following a radiological or nuclear incident. This effort is being funded by the U.S. Department of Homeland Security with an emphasis on incidents involving radiological dispersal devices and improvised nuclear devices.

The next meeting of the NCRP Committee on April 11-12, 2011 has been expanded to include a discussion of the Fukushima nuclear reactor accident. Members of the Committee are actively monitoring the situation and assembling relevant information to be discussed at the meeting. The lessons learned section of the report will include this accident.

NCRP has published a number of important reports that provide guidance at each phase of a nuclear or radiological accident.

Human Health

- Report No. 161, *Management of Persons Contaminated with Radionuclides*
- Report No. 159, *Risk to the Thyroid from Ionizing Radiation*
- Report No. 116, *Limitation of Exposure to Ionizing Radiation*

Environmental Health

- Report No. 154, *Cesium-137 in the Environment: Radioecology and Approaches to Assessment and Management*
- Report No. 109, *Effects of Ionizing Radiation on Aquatic Organisms*
- Report No. 52, *Cesium from the Environment to Man: Metabolism and Dose*

Emergency Response

- Commentary No. 19, *Key Elements of Preparing Emergency Responders for Nuclear and Radiological Terrorism*

Immediately following the Fukushima nuclear reactor accident, NCRP made Commentary No. 10, *Advising the Public About Radiation Emergencies*, available for free download from its website (<http://NCRPonline.org>).

All NCRP reports and commentaries are available from the NCRP website, <http://NCRPpublications.org>. For additional information contact David A. Schauer, ScD, CHP at schauer@NCRPonline.org, 301.657.2652 (x20) or 301.907.8768 (fax).

From: [Goldberg, Francine](#)
To: [Hayden, Elizabeth](#); [Landau, Mindy](#)
Cc: [Reiter, Stuart](#); [Main, Jeffrey](#)
Subject: Report of Stats from Public Site
Date: Monday, March 28, 2011 12:06:47 PM

Beth, Mindy –

I spoke to Jeff and from now on we will be receiving a monthly report of the top pages viewed on the public site. Also FYI, according to Jeff, the volume of site usage during the Japan events has been 4 times our normal volume, but thanks to our arrangements with Akamai, there has been no impact on performance or downtime.

Fran

8/22/11

From: Brenner, Eliot
To: Hayden, Elizabeth; Akstulewicz, Brenda; Chandrathil, Prema; McIntyre, David; Screnci, Diane; Harrington, Holly; Couret, Ivonne; Janbergs, Holly; Ledford, Joey; Sheehan, Neil; Hannah, Roger; Burnell, Scott; Uselding, Lara; Shannon, Valerie; Dricks, Victor; Mitlyng, Viktoria
Subject: FW: Query: MSNBC article.
Date: Monday, March 28, 2011 11:57:18 AM

I think this says get to it when you can get to it.

eliot

From: Nichols, Russell
Sent: Monday, March 28, 2011 10:51 AM
To: Leeds, Eric
Cc: Brenner, Eliot; Hayden, Elizabeth; Virgilio, Martin; Ash, Darren; Boyce, Thomas (OIS); Holonich, Joseph; Rothschild, Trip; Hirsch, Patricia
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Unfortunately, we have no recourse. The FOIA law is clear that media get fee waivers and it does not require their requests to be their original thoughts. We often get requests from media that were fed to them from non-media individuals. Here are the comments Trip sent to me this morning on your question: "I don't think we will ever know whether a particular request comes from an MSNBC employee or one resulting from their public solicitation of requests. Therefore, I don't know how we could argue that they need to pay. The more FOIA requests they submit, the longer the wait for a response. So I am not sure what the solicitation will get them."

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b22/NNN

Russ Nichols, Branch Chief
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Office of Nuclear Reactor Regulation
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301-415-1270

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To: Leeds, Eric
Cc: Nguyen, Quynh
Subject: MSNBC article.

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- Any letters or memos documenting exemptions to NRC regulations at a nuclear facility. [PDF file.](#)

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Sean

http://openchannel.msnbc.msn.com/_news/2011/03/24/6335625-what-nrc-nuclear-documents-do-you-want-to-see-heres-our-list

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http://openchannel.msnbc.msn.com/_news/2011/03/24/6335625-what-nrc-nuclear-documents-do-you-want-to-see-heres-our-list

From: Garrity, Paula
To: Nichols, Russell; Goldberg, Francine
Cc: Janney, Margie; Leong, Edwin; Ousley, Elizabeth; Sealing, Donna; McGowan, Anna; Hoffman, Joan; Landau, Mindy; Hayden, Elizabeth; Reiter, Stuart; Smith, Pat
Subject: RE: Open Government and the Japanese Events
Date: Monday, March 28, 2011 11:44:25 AM

Russ/Fran,

Safety Performance Summaries are available in the Facility Information Finder for each plant. In addition, the most significant inspection findings over the previous 4 quarters are summarized using color designations for all plants in an [Inspection Findings Summary](#) matrix, and the most recent quarterly performance indicators (PIs) are summarized for all plants in a [PI Summary](#) matrix. You can drill down into more detailed information from each of these summary matrices.

Once you work out the details with NRR, please let me know which links you'd like to add to our Open Gov Transparency page.

Paula

From: Nichols, Russell
Sent: Monday, March 28, 2011 8:08 AM
To: Goldberg, Francine
Cc: Janney, Margie; Leong, Edwin; Ousley, Elizabeth; Sealing, Donna; McGowan, Anna; Hoffman, Joan; Garrity, Paula; Landau, Mindy; Hayden, Elizabeth; Reiter, Stuart; Smith, Pat
Subject: RE: Open Government and the Japanese Events

Fran,

Thanks for helping with this and for the quick feedback. I didn't have a specific report in mind about "safety reports" and don't know if there is such a separate report. Maybe "inspection reports" is the correct term. I was thinking results of inspections that would show the public we are doing our job and that the plants are safe.

Russ

From: Goldberg, Francine
Sent: Monday, March 28, 2011 8:02 AM
To: Nichols, Russell
Cc: Janney, Margie; Leong, Edwin; Ousley, Elizabeth; Sealing, Donna; McGowan, Anna; Hoffman, Joan; Garrity, Paula; Landau, Mindy; Hayden, Elizabeth; Reiter, Stuart; Smith, Pat
Subject: RE: Open Government and the Japanese Events

Russ –

Thanks for this list of items that could help the agency reduce the burden of FOIA responses. See notes below

From: Nichols, Russell
Sent: Monday, March 28, 2011 7:35 AM
To: Goldberg, Francine; Reiter, Stuart

Cc: Janney, Margie; Leong, Edwin; Ousley, Elizabeth; Sealing, Donna; McGowan, Anna
Subject: RE: Open Government and the Japanese Events

Fran,

Here are some that you could ask about. I don't know if they are all feasible.

Evacuation plans for all US nuclear power plants – With NRR's assistance, these could be added to the items in the facility info finder for each plant and could be made into a new document collection. I am copying Pat Smith, our OG liaison in NRR and will follow up with a phone call.

Inspection/Safety Reports for all US nuclear power plants.- Non- Security Inspection reports for the last year are already posted at data.gov and are in the facility information finder for each plant. We also have them going back to 2000 here:

http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/listofrpts_body.html#nmp

I have also asked the Web team to cross-link to these in the document collections – will follow up. I think many people would look for them there and may not be finding them where they are.

What exactly do you mean by a "Safety Report"?

Exemptions and amendments to exemptions to 10 CFR Part 50.12 for power reactors .
This is something else we could take up with NRR.

Chairman's and Commissioners' calendars for FY11 – Beth, Mindy – any thoughts on this and the next one?

List of NRC assumptions used to determine the 50-mile safety radius around the Fukushima power plant.

Russ

From: Goldberg, Francine
Sent: Thursday, March 24, 2011 5:29 PM
To: Nichols, Russell; Reiter, Stuart
Cc: Janney, Margie; Leong, Edwin; Ousley, Elizabeth; Sealing, Donna; McGowan, Anna
Subject: RE: Open Government and the Japanese Events

Russ –

What types of data would be most useful? Edwin is working with RES and they told him they are thinking of publishing seismic data.

Fran

Francine.Goldberg@nrc.gov
(301) 415-6921 (O)
NRC Operator - Best way to reach me on Mondays and Wednesdays

From: Nichols, Russell

Sent: Thursday, March 24, 2011 1:58 PM

To: Goldberg, Francine; Reiter, Stuart

Cc: Janney, Margie; Leong, Edwin; Ousley, Elizabeth; Sealing, Donna; McGowan, Anna

Subject: Open Government and the Japanese Events

Fran and Stu,

I am writing this to you at Margie's request to see if you can help (wearing your Open Government hat) to get information or datasets from the offices/regions regarding the events in Japan and NRC's involvement in those events, and get that information posted to the NRC's Open Government site.

NRC normally receives about six or seven FOIA requests a week. As a result of the events in Japan, last week we received 18 FOIA requests and so far this week we've received 23. We're being flooded and the offices are being overwhelmed trying to do searches and review records responsive to these additional requests. The Public Document Room is also being flooded with requests for help and information. If information was publicly available we might be able to reduce future FOIA requests and the high level of requests to the PDR. Can you see what information could be made publicly available immediately regarding the events and NRC's involvement in them? That would be a great help. Thank you.

Regards,

Russ

From: [Goldberg, Francine](#)
To: [Reiter, Stuart](#); [Hayden, Elizabeth](#); [Landau, Mindy](#)
Cc: [Main, Jeffrey](#)
Subject: FW: Public Site Search Satisfaction since the Unified Search was released
Date: Monday, March 28, 2011 11:50:09 AM
Attachments: [image005.png](#)
[image006.png](#)
[comments.xls](#)

Stu, Beth, Mindy –

See below. I will be incorporating this information into our presentation for Darren next week (part of the impact summary slide).

The attached comments are interesting; I think at least some of them, particularly the ones concerning individual plants, will be addressed by the more prominent facility info finder in the redesign.

FYI Jeff is also getting me information on search usage that I can incorporate on the usage summary slide.

Fran

From: Main, Jeffrey
Sent: Monday, March 28, 2011 11:16 AM
To: Goldberg, Francine
Cc: Hoffman, Joan; Partlow, Benjamin; Hardy, Sally; Lee, Jun; Main, Jeffrey
Subject: Public Site Search Satisfaction since the Unified Search was released

Fran,

As requested, below is a look before and after the new Unified Public Web Site Search was released. The search went live December 20, 2010.

In the period from **September 20, 2010 – December 19, 2010**, the survey was completed 1,392 times.

- Overall Customer Satisfaction: **73**
- Search Satisfaction: **68**

In the period from **December 20, 2010 – March 19, 2011**, the survey was completed 2,401 times.

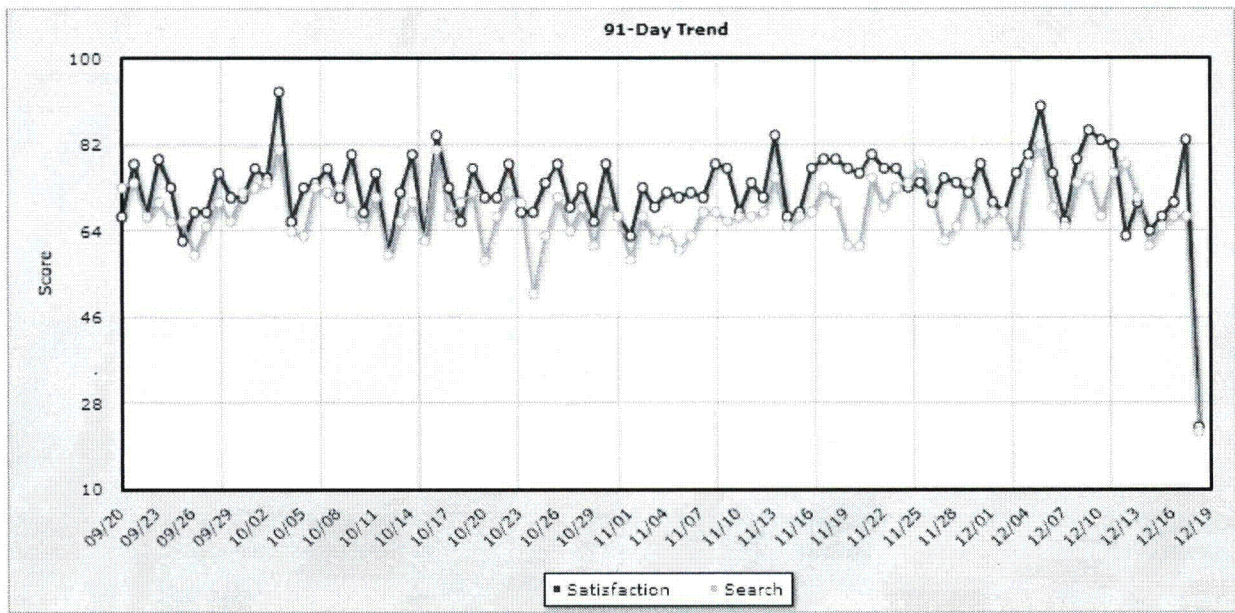
- Overall Customer Satisfaction: **74**
- Search Satisfaction: **72**
- I've also attached a spreadsheet detailing the 158 responses received during this period where people described what they looked for but could not find. It is not specified whether they were using only the search and were unable to find the items, or whether they also attempted navigating through the site to find them. Although it becomes obvious for some, based on the response itself.

Below are the four trend graphs corresponding to the above statistics.

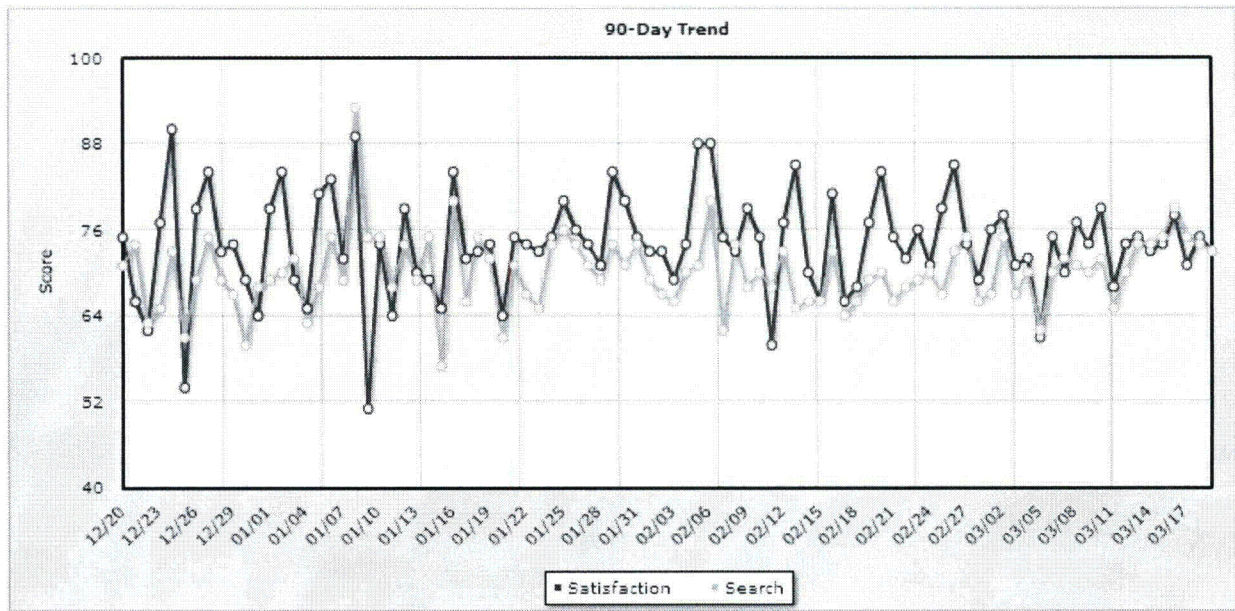
--Jeffrey

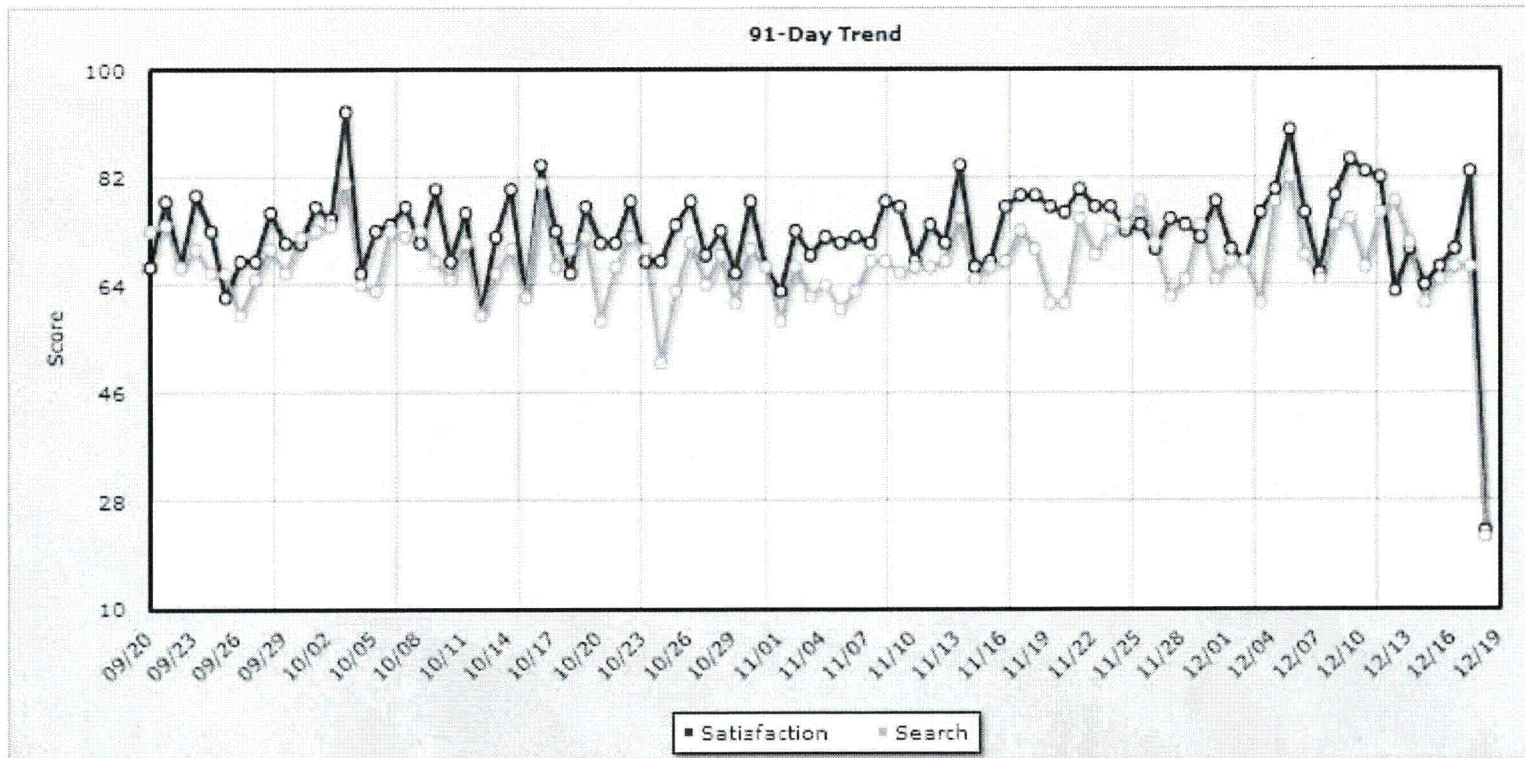
Trend Graph: Overall Public Site Satisfaction and Search Satisfaction for September 20, 2010 – December 19, 2010

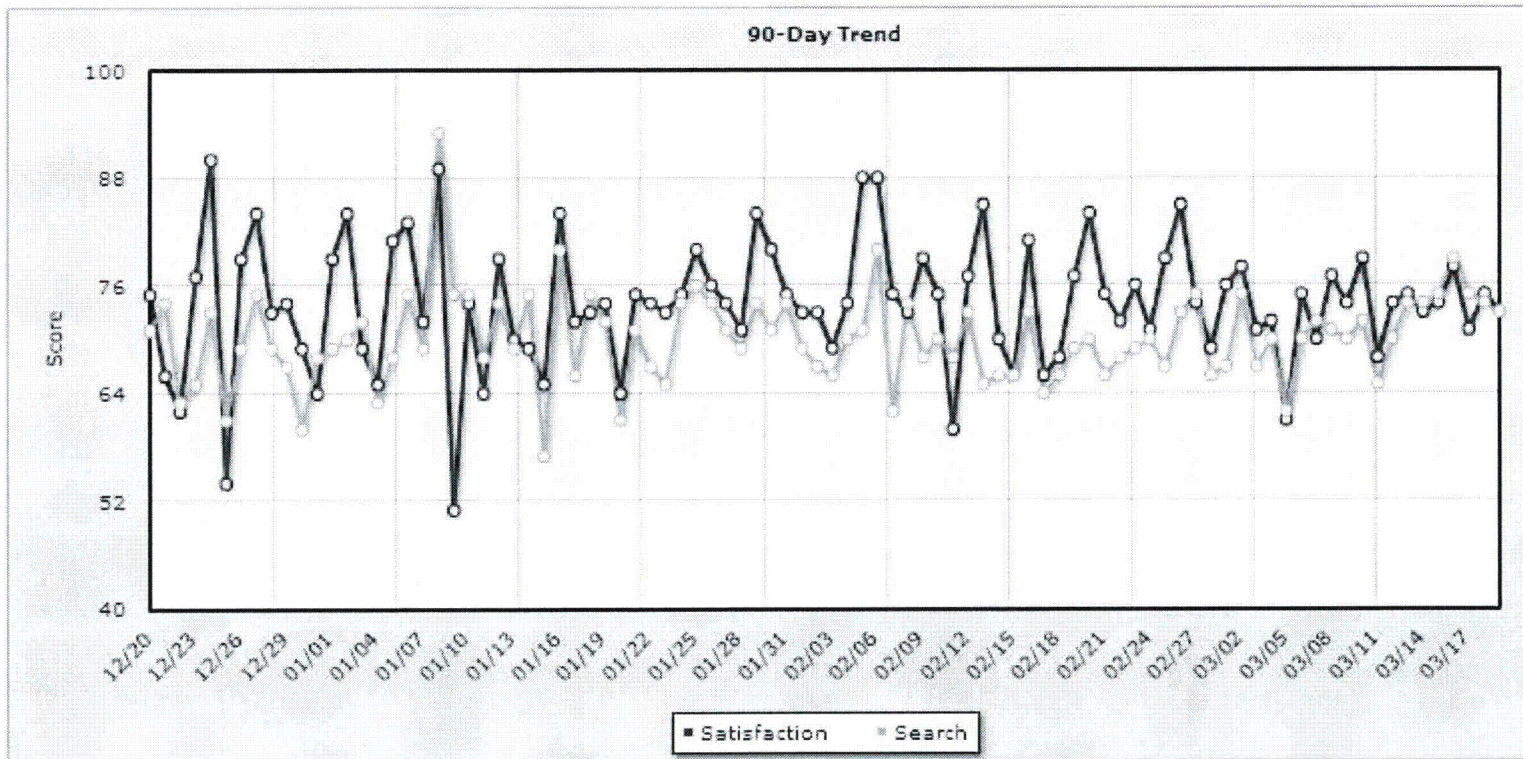
CS-2 / 11/11/11



Trend Graph: Public Site Search Satisfaction and Search Satisfaction for December 20, 2010 – March 19, 2011







Date: 12/20/2010 - 03/19/2011
Measurement: U.S. NRC Satisfaction Survey V2
Question: If "No", what were you looking for? Please be brief and specific.

	Clusters	Date	Sat.Score
1	Radiation	3/19/2011	45
2	(Other topics)	3/19/2011	0
3	Radiation	3/19/2011	11
4	Nuclear Locations,Plant Locations	3/19/2011	15
5	Radiation	3/19/2011	96
6	NRC (Other topics)	3/19/2011	67
7	(Other topics)	3/19/2011	11
8	(Other topics)	3/18/2011	45
9	Report,Document,Safety	3/18/2011	41
10	Plant Map,Plant Given	3/18/2011	37
11	Appear	3/18/2011	0
12	Reactors (Other topics)	3/18/2011	0
13	(Other topics)	3/18/2011	67
14	Report,Radiation	3/17/2011	56
15	Radioactive	3/17/2011	11
16	Japanese,Fallout	3/17/2011	11
17	Fukushima	3/17/2011	67
18	Japanese	3/17/2011	0
19	(Other topics)	3/17/2011	85
20	Reactors New Reactors	3/17/2011	19

21 Nuclear Locations,Safety	3/17/2011	30
22 Reactors Japan,Phone Number,Questions	3/17/2011	18
23 (Other topics)	3/17/2011	52
24 (Other topics)	3/17/2011	78
25 (Other topics)	3/17/2011	40
26 Nuclear (Other topics),Japanese,Radioactive	3/17/2011	27
27 Needed	3/17/2011	44
28 (Other topics)	3/17/2011	33
29 Nuclear Japan,Disaster,Fukushima	3/16/2011	56
30 Plant Map	3/16/2011	0
31 Not Available	3/16/2011	93
32 Nuclear (Other topics),Safety,Professional	3/16/2011	74
33 Reactors (Other topics)	3/16/2011	48

34 (Other topics)	3/16/2011	37
35 Reactors Japan,Safety	3/16/2011	100
36 Nuclear Locations,Plant Map,Plant Locations	3/16/2011	38
37 Reactors Nuclear Reactors,Nuclear Nuclear Reactors	3/15/2011	92
38 Fallout	3/15/2011	11
39 Nuclear Japan	3/15/2011	7
40 (Other topics)	3/15/2011	52
41 Plant (Other topics)	3/15/2011	60
42 Japanese	3/15/2011	63
43 Requirements	3/15/2011	48
44 Reactors (Other topics),Safety	3/15/2011	23
45 Reactors (Other topics)	3/15/2011	44
46 Nuclear Radiation Levels,Plant Map,Radiation	3/15/2011	0
47 Requirements	3/15/2011	33
48 Reactors (Other topics)	3/15/2011	52

49 Radiation	3/15/2011	30
50 Report	3/15/2011	71
51 Reactors Nuclear Reactors,Nuclear Nuclear Reactors,Nuclear Basic,NRC Basic,NRC Pdf	3/15/2011	37
52 (Other topics)	3/14/2011	33
53 Reactors Nuclear Reactors,Nuclear Nuclear Reactors	3/14/2011	63
54 Radiation	3/14/2011	4
55 Nuclear (Other topics),Plant (Other topics),Report,Safety	3/14/2011	37
56 Nuclear Power Plant,Plant Power Plant,Plant Wanted	3/14/2011	0
57 Report,NRC Html	3/14/2011	0
58 NRC Html,NRC Pdf	3/14/2011	8
59 Safety	3/14/2011	0
60 Plant Locations	3/13/2011	4
61 Reactors (Other topics),Japanese	3/13/2011	56

62 Nuclear Power Plant,Plant Power Plant	3/13/2011	19
63 Generic Letter	3/13/2011	100
64 (Other topics)	3/12/2011	26
65 Plant Power Plant,Plant Japan,Quality	3/12/2011	48
66 (Other topics)	3/12/2011	15
67 Nuclear Power Plant,Nuclear Japan,Plant Power Plant,Plant Japan,Disaster	3/12/2011	60
68 Nuclear Power Plant,Plant Power Plant,Plant Given	3/11/2011	45
69 Reactors New Reactors,Report	3/10/2011	89
70 Plant (Other topics)	3/10/2011	70
71 Reactors (Other topics)	3/10/2011	56
72 Trying	3/9/2011	7
73 (Other topics)	3/8/2011	63
74 Broken	3/7/2011	44
75 NRC Definitions,Radioactive	3/7/2011	0
76 Reactors Nuclear Reactors,Nuclear Nuclear Reactors	3/6/2011	63
77 (Other topics)	3/5/2011	34
78 Questions	3/4/2011	44
79 (Other topics)	3/3/2011	23
80 Document	3/3/2011	44

81 (Other topics)	3/2/2011	0
82 (Other topics)	3/1/2011	11
83 Radioactive	3/1/2011	74
84 Broken	3/1/2011	44
85 NRC (Other topics)	2/28/2011	56
86 (Other topics)	2/28/2011	41
87 Nuclear (Other topics)	2/25/2011	15
88 NRC (Other topics)	2/25/2011	78
89 Nuclear Basic,Plant (Other topics),NRC Basic,NRC Definitions	2/24/2011	56
90 (Other topics)	2/24/2011	59
91 (Other topics)	2/23/2011	0
92 NRC Recognized	2/22/2011	52
93 (Other topics)	2/22/2011	70
94 Reactors (Other topics),Document,Advanced Search	2/21/2011	0
95 Needed,Phone Number	2/18/2011	41
96 (Other topics)	2/17/2011	41

97 (Other topics)	2/17/2011	59
98 (Other topics)	2/17/2011	37
99 (Other topics)	2/17/2011	0
100 Email	2/16/2011	0
101 Reactors (Other topics),Reg Guide	2/16/2011	68
102 Reactors (Other topics)	2/14/2011	78
103 (Other topics)	2/12/2011	64
104 (Other topics)	2/11/2011	63
105 Document	2/11/2011	0
106 (Other topics)	2/10/2011	41
107 Report	2/10/2011	67
108 Radiation	2/8/2011	15
109 Document	2/8/2011	4
110 Email	2/7/2011	41
111 (Other topics)	2/7/2011	52
112 Professional	2/7/2011	0
113 Reg Guide	2/5/2011	100
114 (Other topics)	2/4/2011	78
115 Regulatory Guide	2/2/2011	25
116 (Other topics)	2/2/2011	81

117 NRC (Other topics),Document,Trying	2/1/2011	60
118 Report	1/29/2011	81
119 Reactors New Reactors	1/28/2011	55
120 NRC Recognized	1/27/2011	29
121 (Other topics)	1/27/2011	37
122 (Other topics)	1/26/2011	67
123 (Other topics)	1/26/2011	56
124 Regulatory Guide	1/25/2011	85
125 Not Available	1/22/2011	64
126 Report	1/21/2011	78
127 (Other topics)	1/20/2011	33
128 (Other topics)	1/20/2011	52
129 Advanced Search	1/20/2011	0
130 (Other topics)	1/19/2011	60
131 Disaster	1/19/2011	49
132 (Other topics)	1/18/2011	48
133 Document	1/18/2011	34
134 Radioactive	1/17/2011	63
135 Quality	1/17/2011	0
136 Nuclear Radiation Levels,Radiation	1/15/2011	0
137 Disaster	1/14/2011	100

138 Nuclear (Other topics),Requirements	1/14/2011	68
139 (Other topics)	1/13/2011	22
140 (Other topics)	1/13/2011	26
141 (Other topics)	1/12/2011	93
142 Document	1/12/2011	60
143 Report	1/11/2011	26
144 Plant Wanted	1/11/2011	15
145 (Other topics)	1/10/2011	52
146 (Other topics)	1/7/2011	22
147 Generic Letter	1/6/2011	78
148 Document	1/5/2011	70
149 Document	1/4/2011	11
150 Reactors (Other topics)	1/4/2011	33
151 Report	1/3/2011	67
152 Report,Safety	12/29/2010	0
153 (Other topics)	12/29/2010	12
154 Reactors (Other topics),Report	12/29/2010	37
155 (Other topics)	12/25/2010	67
156 Reactors (Other topics)	12/23/2010	59

157 Safety

12/21/2010

29

158 Appear

12/20/2010

11

Comment	Respondent
I was looking for graph of radiation levels for California	127958869
How to send an e-mail	127959316
Radiation readings in USA	127959501
Location of Nuclear plants where I live	127964760
Maximum Radiation of spent fuel rods	127964874
Looking for an outline on design criteria for NRC facilities.	127982345
who knows what a scram is? Jargon made to mislead or hide information that should be known	127991977
Info oneveny in Japan	127894186
Inspection reports 05000313/20100405 and 05000368/2010405 ...documents sited my Union of Concerned Scientists article on Safety. Interesting it couldn't be found!	127904513
I was looking for a map of all Nuc.power plants within a given State	127905851
did not appear in the directory	127913645
The current number of fuel assemblies in the reactor, Each storage pool, Dry cask and any other method.	127916936
see 24	127917078
I would like to see the report on where and amount of radiation is!	127802123
Live radioactivity levels detected in different areas in the U.S., including Hawaii.	127803610
Japanese fallout spread - predictions, modelling.	127805697
Fukushima	127810287
information that is not 4 days old about he japanese release.	127809542
N.O.R.M. and how it iw measured.	127816324
New reactor lic	127811650

INITIALY.INTERESTED IN LOCATIONS OF NUCLEAR POWER IN USA, NEXT ARE SAFETY MEASURES UP TO DATE? ARCHITECT/ENGINEER	127819707
contact phone number for public to use to ask questions or concerns. Information on the Japan reactors sending the plumes towards Los Angeles,Ca. What effects it will have on us and people with lung problems effects on them. There are alot of different reasons..	127816783
website is much to busy to many topic headers hard to understand for the average joe	127822314
What is the requirement for physical tracking of location of high energy sources like Co60. Our company makes satellite transponders for such purpose.	127819896
sensors	127827151
the GE BWR3;MARK I containment;MOX fuel;the difference of radioactivity release risk among Japanese nuclear accident and a nuclear bomb,and TMI or Chernobyl	127825859
Needed to talk to NEST Team , Team Chief	127831484
more information on how to protect agenst a Occurrence	127830073
Information on how our government is providing assistance to Japan in the wake of the Fukushima Dai-ichi nuclear complex disaster resulting from the March '11 earthquake and tsunami off the coast of Honshu.	127629552
a map showing how I can evacuate if case of an accident at the plant	127628738
Dosage: suggested site not available.	127636701
Professional Development Outline/Forum for Nuclear Safety Management	127633562
info about the reactor closest to my home	127663828

detailed map of risks	127664588
Will there be any modifications in emergency safety systems of GE reactors which are being operated after studying the recent events in Japan	127638728
I would like links to Google Maps easily identifying the location of nuclear plants	127652066
definitions and thresholds of nuclear reactor parameters	127545161
Potential fallout from Japan here in US.	127550038
map of nuclear drift from Japan meltdown	127538726
the 4 sets of Q&As prior to 1/1/94 regarding 'new' part20.	127543042
not enough info as to which utilities are currently BUILDING plants and when the NSSS systems will be in country. Very VAGUE info.	127556462
I was attempting to find good information about the Japanese crisis!	127558577
The actual rule related to B5B Security requirements	127551714
looking for the safety of the reactors and what they are doing to test and insure safety.	127555265
Information on Japan's reactors that are exploding and potentially melting down.	127562316
Maps of nuclear plants, recommended escape routes, and real time radiation levels.	127562514
REQUIREMENTS OF WALL SLEEVE PEATRATION CONSTRUCTION AND SEISMEC MOUNTING OF REMOTE VALVE OPERATING EQUIPMENT IE CURRENT REQUIREMENTS	127560011
Question: Are reactors always built by a moving water source? If not, how do they cool the towers?	127560286

Information regarding radiation crossing the pacific ocean. As in the specific station readings and locations from Japan to the west coast of America.	127577433
the report about containment and KIS system.	127577385
I did a search looking for nuclear reactors, and found 9 pdf files that conveyed basic information. I can't find those files from the NRC home page.	127565885
no information on real area that could be affected if there was a major problem	127457204
how long nuclear reactors can operate before being decommissioned--why they need to be decommissioned at some point	127466672
Information about level of radiation which will reach California shores.	127466508
Safety/inspection reports on nuclear plants near me. The only ones I could find had grey boxes with unclear info.	127465126
Wanted to find response plans for US nuclear power plants.	127457796
the ability to report a health concern about Potassium Iodide pills, and I could not use the site to send a message to the NRC at http://nrc.gov/about-nrc/emerg-preparedness-contactus.html it refused my message with an error message	127481483
pdf link on http://www.nrc.gov/about-nrc/emerg-preparedness/about-emerg-preparedness/potassium-iodide-use.html	127481318
safety violations at san onofre	127475742
I have to go back and forth to find locations from the name of plant. It should be by state not names.	127375382
Details of Japanese reactors damaged by earthquake/tsunami	127402001

the amount of water nuclear power plants use?	127401765
generic letter 88-14	127398740
Seismic guidelines	127305271
Quality information about the situation in Japan regarding the power plant	127322676
Link for current employees and experienced did NOT work.	127327036
Japan nuclear power plant disaster	127330861
My son and I have been looking for a diagram on how a nuclear power plant works. We were given this sit by a hyper link on another site, but we aren't able to find what that site was talking about.	127264128
i was specifically looking for fire hazard analysis report of old as well as new reactors	127152846
AP1000 Standard Plant FSAR	127168830
I am looking for the differences in reactor vessel heads at various PWR reactor designs.	127179772
I have been trying to locate the docket number for the Titan Sheep Mountain Project in Wyoming.	127002826
have not finnished	126932481
CFR link is broken again.	126816074
Definition of "NRC Regulated Radioactive". I cannot find any definitions of what exactly is a regualted waste.	126816520
Regulations on nuclear reactors.	126755481
the head of group and who apoints this person	126607543
GFE's BWR Exam Bank questions	126561746
The total length of time that TMI-1 was shutdown after the TMI-2 incident.	126281383
Licensing basis document on leak before break	126289125

Environmental Impact Statement that could not be downloaded when clicking the link	126231030
as above	126193551
To find a way to get out of working on radioactive machine I'm being forced into.	126203897
I clicked on a link on the Yucca mountain page to get the status, and the link was broken.	126195044
name of resident NRC	126134300
Conduct of at the controls operators	126124884
Nuclear Operator Disqualifying Medical Conditions	125918155
Enhancing Public Participation in NRC Meetings	125909880
The NRC Glossary is pretty scant. I am looking for basic definitions of typical systems in a nuclear plant.	125819171
More detailed information on Millstone recent unexpected power rise.	125802214
Massachusetts and Federal regulations for use of I-131 in veterinary patients	125706213
What editions of CP 189 after the 1995 edition are recognized by the NRC for NDE Qualifications.	125634615
NUREG-0016, 1979	125632261
Clinch River mPower reactor submittals. The web page stated to go to ADAMS in the advanced search and use PROJ0785 as the docet number. NO DOCUMENTS FOUND.	75528840
The phone number of Mr. Skokowski, though I didn't really know the spelling of the name. That made the search extremely difficult because I could not select one letter for the beginning of the name, I needed 2 letters. I had to use another avenue to determine enough information to be able to access his number on your site.	75294087
Dose rates for shielding for High Dose Rate Afterloaders	75185315

Specific schedule information for the AP1000	75202097
Issuances volume and number	75186123
ML110200180	75192155
email addresses for contacts	75106619
Reg guide on the SAR for a research reactor	75073726
Reactor training course	74885001
ISG-02	74743357
Guidance on in-service inspection applicability	74680466
The AP1000 document was not at regulations.gov as advertised.	74690569
LaSalle Technical Specifications	74594210
event and status reports	74591106
regulations regarding employees around radiation emitting equipment	74441256
I got a document number but there seems no place to input to get it.	74439737
email address of Region IV branch chief Greg Werner	74349121
See above comment	74353193
Information Notice 2011-02. There is not even a "2011" option at http://www.nrc.gov/reading-rm/doc-collections/gen-comm/info-notices/ I found this unsatisfactory for a professional organization. It is already a week into February and at least two Information Notices have been issues - there should be a "2011" menu on the Information Notices page by now.	74343952
Reg Guide 1.114	74193870
10CFR50 Appendix B	74104979
Attempted to download a regulatory guide from the Electronic Reading Room	73964677
too much other stuff...comments, etc. I just want the 10CFR sections themselves.	73952654

Trying to find any NEI document is an exercise in futility. I am currently looking for NEI 09-10. I am aware this isn't a NRC document, but you do have some NEI documents available on your site, and NEI has none.	73850431
2011 vendor inspection reports	73621881
A simple coherent description of the licensing process for new reactors	73524622
Specialty boards whose certif process has been recognized by NRC	73477517
i am looking for the actual laws about owning uranium	73478368
10CFR30.35 The survey started before I completed my search.	73386113
IP for house keeping	73378456
Regulatory Guide about Ni-Cd Batteries if any	73298626
Access to ADAMS not available, thus not able to search, but tried.	73060465
not looking for a particular report.	73010569
A copy of EPRI NP-5652	72916996
See above.	72903159
the Advanced search feature is not that good.	72938380
RIC information	72817840
The ADAMS site is a disaster.	72819427
Reg Guides	72734820
status of a document	72735826
Information pertaining to safe and secure transfer of radioactive materials from one crane to another. More specifically pertaining to a crane lockup while moving a radioactive load.	72648779
MHC Quality Assurance Information	72681557
Quantified (Rem or sievert)worker and close proximity public exposure to radiation from high level nuclear waste transport tasks during temporary storage, loading and actual transport by rail or truck	72511770
emergency preparedness - disaster recovery planning	72424812

I was looking on expanding my understanding of a nuclear monitoring, and expanded upon career options but didn't find requirements/education prep.	72413613
Information on the Midland Units 1&2 CP	72350200
Restrictions on using aluminum inside containment and restrictions on the use of light fixtures containing mercury in contaminated areas.	72334266
Version 17 of the AP1000 SER	72238420
Not yet, NSAL document.	72235109
GE SIL and NEDC reports	72168206
During daily plant status meeting it was mentioned that a merger between Duke and Progress was imminent. Wanted to verify the information was accurate but did not find any mention of it.	72154133
some articles such as nureg/cr-6004	72081015
SEE ABOVE	71869201
Generic Letter 88-05	71759817
searching for a publically available document by ML number	71668313
USNRC document 316A on fish kill due to discharge	71570151
I was looking to confirm that the AP1000 reactor had been approved - a fact I uncovered through other sources	71588133
Draft report about DESIREE-Fire Test results.	71448051
who to report concerns to and the total disregard to the safety of our community and country	70999478
form 9070	71009936
2009 and 2010 power reactor inspection reports. They aren't included in the listing today in the ROP section. Common occurrence on the website.	70988071
employment opportunities	70648580
Two issues, small reactors<150mw, and current installed base and utilization. I didn't find either	70521310

safety of readioactive contrast media in breastmilk of mothers taking it for testing purposes	70369158
no appear page	70230506

From: OST01 HOC
Sent: Thursday, April 28, 2011 6:33 AM
To: FOIA Response.hoc Resource
Subject: FW: draft Japan One Pager 0700 EDT 4-28-11.docx
Attachments: draft Japan One Pager 0700 EDT 4-28-11.docx

From: Tracy, Glenn
Sent: Thursday, April 28, 2011 6:26 AM
To: OST01 HOC
Subject: draft Japan One Pager 0700 EDT 4-28-11.docx

VVV/231

From: OST01 HOC
Sent: Monday, March 28, 2011 3:08 PM
To: Bensi, Michelle
Cc: OST01 HOC; OST02 HOC; Harrington, Holly; Burnell, Scott; RST01 Hoc
Subject: RE: RST Support Seismology Q&A position

Michelle,

The RST Support (Seismology Q&A) is ON CALL all week. Please let the RST and OPA know when you can support any calls.

Tony McMurtray
EST Coordinator

From: Bensi, Michelle
Sent: Monday, March 28, 2011 3:02 PM
To: OST02 HOC; OST01 HOC
Subject: RE: RST Support Seismology Q&A position

Hello,

I was brought in primarily to assist with compilation of a seismic Q&A document and I continue to work on that this week. Thus, I wasn't planning to work any shifts in the Ops Center this week. Please let me know if this is a problem.

Thanks,
Michelle Bensi

From: OST02 HOC
Sent: Friday, March 25, 2011 4:34 PM
To: Weaver, Thomas; Munson, Clifford; Seber, Dogan; Devlin, Stephanie; Bensi, Michelle
Subject: RST Support Seismology Q&A position

Please designate which shifts this weekend and next week, starting 7:00am, tomorrow morning, March 26th, for Seismology Q&A questions . Send responses back to OST01. HOC@nrc.gov, OST02.HOC@nrc.gov.

EST Admin Support
NRC Operations Center
eMail: OST02.HOC@nrc.gov

✓
11/11/232

From: OST01 HOC
Sent: Monday, March 28, 2011 4:20 PM
To: Opara, Stella
Subject: RE: Updated Watchlist for Mar27-Apr2

Stella,

Thank you for your prompt response. Unfortunately, we cannot put you in for EBT Coordinator or EST Actions Officer. Only specific people can be used. However, if you are available for EST Coordinator we have openings in April. Please come by the Ops Center to view the schedule and sign up for any possible shifts.

Thanks,
Rebecca Stone
EST Coordinator

From: Opara, Stella
Sent: Monday, March 28, 2011 3:43 PM
To: OST02 HOC
Subject: RE: Updated Watchlist for Mar27-Apr2

Hello,

I am available to work the EBT coordinator Fri 4/1-4/2 11pm -7am; EST Status Officer Sat 2-Apr 7am - 3pm

Also, I would like to be put on the schedule for Fri April 8 7am-3pm; Fri April 22 7am-3pm.

Thanks.

Stella Opara
USNRC/NSIR
Office: 301-415-5969

22/233

From: OST02 HOC
Sent: Monday, March 28, 2011 3:04 PM
To: Abrams, Charlotte; Abu-Eid, Bobby; Adams, John; Afshar-Tous, Mugeh; Ahn, Hosung; Alemu, Bezakulu; Algama, Don; Alter, Peter; Anderson, Brian; Anderson, James; Arndt, Steven; Arribas-Colon, Maria; Ashkeboussi, Nima; Athey, George; Baker, Stephen; Ballam, Nick; Barnhurst, Daniel; Barr, Cynthia; Barss, Dan; Bazian, Samuel; Bensi, Michelle; Bergman, Thomas; Berry, Rollie; Bhachu, Ujagar; Bloom, Steven; Blount, Tom; Boger, Bruce; Bonnette, Cassandra; Borchardt, Bill; Bowers, Anthony; Bowman, Gregory; Boyce, Tom (RES); Brandon, Lou; Brandt, Philip; Brenner, Eliot; Brock, Kathryn; Brown, Cris; Brown, David; Brown, Eva; Brown, Frederick; Brown, Michael; Bukharin, Oleg; Burnell, Scott; Bush-Goddard, Stephanie; Campbell, Stephen; Camper, Larry; Carpenter, Cynthia; Carter, Mary; Case, Michael; Casto, Greg; Cecere, Bethany; Cervera, Margaret; Chazell, Russell; Chen, Yen-Ju; Cheok, Michael; Chokshi, Nilesh; Chowdhury, Prosanta; Chung, Donald; Circle, Jeff; Clement, Richard; Clinton, Rebecca; Coggins, Angela; Collins, Frank; Cool, Donald; Correia, Richard; Corson, James; Costa, Arlon; Couret, Ivonne; Craffey, Ryan; Crutchley, Mary Glenn; Cruz, Zahira; Cuadrado, Leira; Dacus, Eugene; DeCicco, Joseph; Decker, David; Dembek, Stephen; Devlin, Stephanie; Dimmick, Lisa; Doane,

Margaret; Dorman, Dan; Dorsey, Cynthia; Dozier, Jerry; Drake, Margaret; Droggitis, Spiros; Dube, Donald; Dudes, Laura; Eads, Johnny; Easson, Stuart; Emche, Danielle; English, Lance; Erlanger, Craig; Esmaili, Hossein; Figueroa, Roberto; Fiske, Jonathan; Flanders, Scott; Flannery, Cindy; Floyd, Daphene; Foggie, Kirk; Foster, Jack; Fragoyannis, Nancy; Franovich, Rani; Frazier, Alan; Freshman, Steve; Fuller, Edward; Galletta, Thomas; Gambone, Kimberly; Gardocki, Stanley; Gartman, Michael; Gibson, Kathy; Giitter, Joseph; Gilmer, James; Glenn, Nichole; Gordon, Dennis; Gott, William; Grant, Jeffery; Greenwood, Carol; Greenwood, Carol; Grimes, Kelly; Grobe, Jack; Gross, Allen; Gulla, Gerald; Hale, Jerry; Hardesty, Duane; Hardin, Kimberly; Hardin, Leroy; Harrington, Holly; Harris, Tim; Harrison, Donnie; Hart, Ken; Hart, Michelle; Harvey, Brad; Hasselberg, Rick; Hayden, Elizabeth; Helton, Donald; Henderson, Karen; Hiland, Patrick; Holahan, Patricia; Holahan, Vincent; Holian, Brian; HOO Hoc; Horn, Brian; Howard, Tabitha; Huffert, Anthony; Hurd, Sapna; Huyck, Doug; Imboden, Andy; Isom, James; Jackson, Karen; Jacobson, Jeffrey; Jervy, Richard; Jessie, Janelle; Johnson, Michael; Jolicoeur, John; Jones, Andrea; Jones, Cynthia; Jones, Henry; Kahler, Carolyn; Kammerer, Annie; Karas, Rebecca; Kauffman, John; Khan, Omar; Kolb, Timothy; Kotzalas, Margie; Kowalczyk, Jeffrey; Kratchman, Jessica; Kugler, Andrew; Lamb, Christopher; Lane, John; Larson, Emily; Laur, Steven; LaVie, Steve; Lewis, Robert; Li, Yong; Lichatz, Taylor; Lising, Jason; Lombard, Mark; Lovell, Louise; Lubinski, John; Lui, Christiana; Lukes, Kim; Lynch, Jeffery; Ma, John; Mamish, Nader; Manahan, Michelle; Marksberry, Don; Marshall, Jane; Masao, Nagai; Maupin, Cardelia; Mayros, Lauren; Mazaika, Michael; McConnell, Keith; McCoppin, Michael; McDermott, Brian; McGinty, Tim; McGovern, Denise; McIntyre, David; McMurtray, Anthony; Merritt, Christina; Meyer, Karen; Miller, Charles; Miller, Chris; Milligan, Patricia; Miranda, Samuel; Mohseni, Aby; Moore, Scott; Morlang, Gary; Morris, Scott; Mroz (Sahm), Sara; Munson, Clifford; Murray, Charles; Nerret, Amanda; Nguyen, Caroline; Norris, Michael; Norton, Charles; Opara, Stella; Ordaz, Vonna; Owens, Janice; Padovan, Mark; Parillo, John; Patel, Jay; Patel, Pravin; Patrick, Mark; Perin, Vanice; Pope, Tia; Powell, Amy; Purdy, Gary; Quinlan, Kevin; Raddatz, Michael; Ragland, Robert; Ralph, Melissa; Ramsey, Jack; Reed, Elizabeth; Reed, Sara; Reed, Wendy; Reeves, Rosemary; Reis, Terrence; Resner, Mark; Riley (OCA), Timothy; Riner, Kelly; Rini, Brett; Roach, Edward; Robinson, Edward; Rodriguez-Luccioni, Hector; Roggenbrodt, William; Ropon, Kimberly; Rosales-Cooper, Cindy; Rosenberg, Stacey; Ross-Lee, MaryJane; Roundtree, Amy; Ruland, William; Russell, Tonya; Ryan, Michelle; Salay, Michael; Salter, Susan; Salus, Amy; Sanfilippo, Nathan; Santos, Daniel; Scarbrough, Thomas; Schaperow, Jason; Schmidt, Duane; Schmidt, Rebecca; Schoenebeck, Greg; Schrader, Eric; Schwartzman, Jennifer; Seber, Dogan; See, Kenneth; Shane, Raeann; Shea, James; Shepherd, Jill; Sheron, Brian; Skarda, Raymond; Skeen, David; Sloan, Scott; Smiroldo, Elizabeth; Smith, Brooke; Smith, Stacy; Smith, Theodore; Stahl, Eric; Stang, Annette; Stark, Johnathan; Steger (Tucci), Christine; Stieve, Alice; Stone, Rebecca; Stransky, Robert; Sturz, Fritz; Sullivan, Randy; Summers, Robert; Sun, Casper; Takacs, Michael; Tappert, John; Tegeler, Bret; Temple, Jeffrey; Thaggard, Mark; Thomas, Eric; Thorp, John; Tiruneh, Nebiyu; Tobin, Jennifer; Trefethen, Jean; Tschiltz, Michael; Turtill, Richard; Uhle, Jennifer; Valencia, Sandra; Vaughn, James; Vick, Lawrence; Virgilio, Martin; Virgilio, Rosetta; Ward, Leonard; Ward, William; Wastler, Sandra; Watson, Bruce; Webber, Robert; Weber, Michael; White, Bernard; Wiggins, Jim; Williams, Donna; Williams, Joseph; Williamson, Linda; Willis, Dori; Wimbush, Andrea; Wittick, Brian; Wray, John; Wright, Lisa (Gibney); Wright, Ned; Wunder, George; Young, Francis; Zimmerman, Jacob; Zimmerman, Roy

Subject: Updated Watchlist for Mar27-Apr2

Attached is the updated schedule for this week.

There are still available shifts that need to be filled, please coordinate this through your team coordinators and the following individuals;

Liaison Team(Jeff Temple)

Reactor Safety Team (Rick Hasselberg or Peter Alter)

Protective Measures Team (Lou Brandon)

All changes to ET Director and ET Response advisor should be coordinated through Michelle Evans.

EST Admin Support

NRC Operations Center

eMail: OST02.HOC@nrc.gov

301-816-5100

From: Hirsch, Patricia
To: Leeds, Eric; Nichols, Russell
Cc: Brenner, Eliot; Hayden, Elizabeth; Virgilio, Martin; Ash, Darren; Boyce, Thomas (OIS); Holonich, Joseph; Rothschild, Trip
Subject: RE: Query: MSNBC article.
Date: Monday, March 28, 2011 11:09:14 AM

And one more thought for you all—for requests for expedited treatment, I think the program office with the documents should be consulted on the request—even more than OGC!

Pat Hirsch
Assistant General Counsel for Legal Counsel,
Legislation and Special Projects
Mail Stop O-15 D21
301-415-0563

From: Leeds, Eric
Sent: Monday, March 28, 2011 10:56 AM
To: Nichols, Russell
Cc: Brenner, Eliot; Hayden, Elizabeth; Virgilio, Martin; Ash, Darren; Boyce, Thomas (OIS); Holonich, Joseph; Rothschild, Trip; Hirsch, Patricia
Subject: RE: Query: MSNBC article.

Very helpful – thank you. I will share with the NRR staff.

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

From: Nichols, Russell
Sent: Monday, March 28, 2011 10:51 AM
To: Leeds, Eric
Cc: Brenner, Eliot; Hayden, Elizabeth; Virgilio, Martin; Ash, Darren; Boyce, Thomas (OIS); Holonich, Joseph; Rothschild, Trip; Hirsch, Patricia
Subject: FW: Query: MSNBC article.

Eric,

Trip asked me to respond to your question.

Unfortunately, we have no recourse. The FOIA law is clear that media get fee waivers and it does not require their requests to be their original thoughts. We often get requests from media that were fed to them from non-media individuals. Here are the comments Trip sent to me this morning on your question: "I don't think we will ever know whether a particular request comes from an MSNBC employee or one resulting from their public solicitation of requests. Therefore, I don't know how we could argue that they need to pay. The more FOIA requests they submit, the longer the wait for a response. So I am not sure what the solicitation will get them."

VVV/234

The OIS FOIA staff is thoroughly reviewing each and every request for expedited processing and fee waivers, and will only grant those that meet the criteria. We will coordinate with OGC if we have a doubt whether or not to grant a request, so as to have their legal advice and support in the event we deny one that looks close. However, it is much easier for the media to obtain expedited processing than the average citizen, which is why all of the ones that have been granted so far are from the media. It looks like this is going to become a part of our life for awhile. Our plan is to make the responses to all of these publicly available in hopes that it will reduce the duplicate requests. The sooner we can get these responses out on the web, the quicker we should see a decrease in requests.

Expedited processing does not mean you need to pull assets off of other critical missions in order to process these requests. The intent of the expedited processing category is to move these requests to the front of the existing FOIA queue. Therefore, using the first-in, first-out theory, they get priority for processing more quickly than would have otherwise occurred. However, the FOIA does not intend that agencies drop everything they are doing to process an expedited request. The FOIA says that expedited requests should be processed "as soon as practicable." In other words, as soon as feasible with the resources you have available, but they cannot be set aside with no action being taken on them.

Russ Nichols, Branch Chief
Information Services Branch
Information and Records Services Division
Office of Information Services
(301) 415-6874

From: Rothschild, Trip
Sent: Friday, March 25, 2011 6:44 PM
To: Nichols, Russell; Sealing, Donna; Hirsch, Patricia
Subject: Fw: Query: MSNBC article.

From: Leeds, Eric
To: Burns, Stephen; Rothschild, Trip
Cc: Brenner, Eliot; Hayden, Elizabeth; Virgilio, Martin
Sent: Fri Mar 25 18:32:54 2011
Subject: Query: MSNBC article.

Steve/Trip –

Please see the email below. If you go to the website, you find how MSNBC is using their process to allow folks to bypass the fee rules for FOIAs. Is there any recourse the agency can take?

Thanks!

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission

301-415-1270

From: Meighan, Sean
Sent: Friday, March 25, 2011 4:27 PM
To: Leeds, Eric
Cc: Nguyen, Quynh
Subject: MSNBC article.

Eric:

As per our discussion the below site allows anyone to submit a FOIA request that MSNBC will submit. We have one example as to where a member of the public sent in a FOIA to the NRC, then 2 or 3 days later that exact FOIA was requested by MSNBC (thereby bypassing fee rules). The example is

- Any letters or memos documenting exemptions to NRC regulations at a nuclear facility. [PDF file.](#)

Very Respectfully
Sean

http://openchannel.msnbc.msn.com/_news/2011/03/24/6335625-what-nrc-nuclear-documents-do-you-want-to-see-heres-our-list

From: Meighan, Sean
Sent: Friday, March 25, 2011 11:29 AM
To: Nichols, Russell; Sealing, Donna
Cc: Craver, Patti; Raphael, Mary Jean
Subject: FYI, MSNBC article.

Now, every member of the public effectively has a fee waiver because the reporter will submit any FOIA request.

http://openchannel.msnbc.msn.com/_news/2011/03/24/6335625-what-nrc-nuclear-documents-do-you-want-to-see-heres-our-list

From: [Reiter, Stuart](#)
To: [Landau, Mindy](#); [Goldberg, Francine](#); [Hayden, Elizabeth](#)
Cc: [Main, Jeffrey](#)
Subject: RE: Report of Stats from Public Site
Date: Monday, March 28, 2011 12:55:27 PM

Jeff, will the following work for the highlight section of the Open Gov Dashboard?

“During the Japan event NRC Web site usage has experienced volumes of up to four times normal. Through previously planned support arrangements, performance has not been impacted.”

From: Landau, Mindy
Sent: Monday, March 28, 2011 12:42 PM
To: Reiter, Stuart; Goldberg, Francine; Hayden, Elizabeth
Cc: Main, Jeffrey
Subject: RE: Report of Stats from Public Site

Absolutely

From: Reiter, Stuart
Sent: Monday, March 28, 2011 12:29 PM
To: Goldberg, Francine; Hayden, Elizabeth; Landau, Mindy
Cc: Main, Jeffrey
Subject: RE: Report of Stats from Public Site

Should we highlight the jump in web usage?

From: Goldberg, Francine
Sent: Monday, March 28, 2011 12:07 PM
To: Hayden, Elizabeth; Landau, Mindy
Cc: Reiter, Stuart; Main, Jeffrey
Subject: Report of Stats from Public Site

Beth, Mindy –

I spoke to Jeff and from now on we will be receiving a monthly report of the top pages viewed on the public site. Also FYI, according to Jeff, the volume of site usage during the Japan events has been 4 times our normal volume, but thanks to our arrangements with Akamai, there has been no impact on performance or downtime.

Fran

4/27/235

From: [Reiter, Stuart](#)
To: [Landau, Mindy](#); [Goldberg, Francine](#); [Hayden, Elizabeth](#)
Cc: [Main, Jeffrey](#)
Subject: RE: Report of Stats from Public Site
Date: Monday, March 28, 2011 12:42:25 PM

ok

From: Landau, Mindy
Sent: Monday, March 28, 2011 12:42 PM
To: Reiter, Stuart; Goldberg, Francine; Hayden, Elizabeth
Cc: Main, Jeffrey
Subject: RE: Report of Stats from Public Site

Absolutely

From: Reiter, Stuart
Sent: Monday, March 28, 2011 12:29 PM
To: Goldberg, Francine; Hayden, Elizabeth; Landau, Mindy
Cc: Main, Jeffrey
Subject: RE: Report of Stats from Public Site

Should we highlight the jump in web usage?

From: Goldberg, Francine
Sent: Monday, March 28, 2011 12:07 PM
To: Hayden, Elizabeth; Landau, Mindy
Cc: Reiter, Stuart; Main, Jeffrey
Subject: Report of Stats from Public Site

Beth, Mindy –

I spoke to Jeff and from now on we will be receiving a monthly report of the top pages viewed on the public site. Also FYI, according to Jeff, the volume of site usage during the Japan events has been 4 times our normal volume, but thanks to our arrangements with Akamai, there has be no impact on performance or downtime.

Fran

5/22/11

From: [Harrington, Holly](#)
To: [Dricks, Victor](#); [Uselding, Lara](#)
Cc: [Brenner, Eliot](#); [Hayden, Elizabeth](#)
Subject: Unfortunately
Date: Monday, March 28, 2011 1:07:49 PM

The ex-FEMA person I had lined up to support Reg. IV won't be accepting the offer due to a conflict with FEMA scheduling. She's on the roster for their disaster assistance employees and couldn't be "excused" to work for us, apparently.

So we're open to anyone you know in your area that could support you two in whatever way you think would help. All I need is a resume and I can get it started.

Holly

VVV/237

From: Akstulewicz, Brenda
To: Jones, Jackie
Cc: Brenner, Eliot; Hayden, Elizabeth; Shannon, Valerie
Subject: Overtime for OPA
Date: Monday, March 28, 2011 1:20:03 PM
Attachments: DATES WORKED OVERTIME.docx

Hello Jackie,

Please add Vika Mitlyng, RIII to the list of OPA staff that have/will work overtime relating to the Japan events.

Thank you,
Brenda

Hello Jackie,

Attached you will find the names and dates of OPA staff that have worked or will be working overtime related to the events in Japan. It is my understanding that you only need the dates, not the number of hours overtime hours were worked or will be worked. If this has changed I can get the hours to you.

If you have any questions or require additional information, please contact Beth Hayden at 415-8202 (elizabeth.hayden@nrc.gov) or Val Shannon 415-8208 (valerie.shannon@nrc.gov) as I will be out of the office Friday, March 25.

Thank you,
Brenda

Brenda Akstulewicz
Administrative Assistant
Office of Public Affairs
301-415-8209
brenda.akstulewicz@nrc.gov



837/ANN

DATES WORKED OVERTIME
BY STAFF OF THE OFFICE OF PUBLIC AFFAIRS

HEADQUARTERS	
Brenda Akstulewicz 3/14 → 3/18 3/20 → 3/24	Scott Burnell 3/13 → 3/19 3/21 → 3/25
Ivonne Couret 3/11 → 3/12 3/13 → 3/19 3/21 → 3/23	Beth Hayden (comp time only) 3/18 → 3/19 3/21 → 3/24
Holly Harrington [some comp time] 3/11 → 3/12 3/13 → 3/18 3/20	Holly Janbergs 3/13 → 3/18 3/20
Dave McIntyre [probably comp time] 3/12 → 3/18 3/21 → 3/25	Valerie Shannon 3/13 → 3/18 3/20 → 3/23

REGION I	
Neil Sheehan 3/13 → 3/18	Diane Screnci 3/14 → 3/22
REGION II	
Roger Hannah 3/20 → 3/23	Joey Ledford N/A
REGION III	
Vika Mitlyng 3/12 3/13-3/19 3/20-3/25	Prema Chandrathil (Yeaman) [comp time only] 3-12 → 3/23
REGION IV	
Laura Uselding 3/11 → 3/12 3/13 → 3/18	Victor Dricks 3/20 → 3/23

From: [Harrington, Holly](#)
To: [Hayden, Elizabeth](#)
Subject: I'm not clear from my notes if you've seen this posts or not.
Date: Monday, March 28, 2011 1:20:07 PM
Attachments: [Blog Item - Updating Web info.docx](#)

WVV/239

Working to Keep Our Web Info Up to Date

With so much information on the NRC website, it is difficult to keep everything up to date. The agency staff works hard every day on licensing actions, certifications, technical reviews and such, which means information can go out of date almost as soon as we post it.

But we've recently done several updates on important materials and wanted to point them out.

We recently overhauled the NRC's Uranium Recovery page to include current information on the staff's reviews of several applications for new uranium recovery licenses out West.

We also recently made a change to our Fact Sheet on Biological Effects of Radiation. The pie chart showed where Americans get their average annual radiation exposure from, and was taken from a 1980s-era report by the National Council on Radiation Protection and Measurements (NCRP). The NCRP had updated the graphic in 2009, almost doubling the amount of average annual radiation exposure because of the rise in medical procedures.

We had used the 2009 graphic in our brochure on Radiation Protection and the NRC and in our Radiation Protection section of the NRC website. But we had missed it in the fact sheet. It was an easy update, and today, for now at least, the fact sheet is current.

Another fact sheet we recently updated is Decommissioning Nuclear Power Plants. This is a lengthy one that contained information specific to each plant currently being decommissioned. The problem was that work continued after the last update was posted in January 2008, so we worked with the technical staff to make sure the information there is current. The decommissioning folks have been busy the last three years!

We work hard to keep these materials up to date. But if you see something on the NRC's website that seems inaccurate, out-of-date, or contradictory to another item or statement we make elsewhere, please let us know so we can correct it! (An e-mail to OPA.Resource@nrc.gov will do the trick.) And be patient – we're trying to keep up!

Dave McIntyre
Office of Public Affairs

From: McIntyre, David
To: ET05 Hoc; CS_IRT
Cc: Brenner, Eliot; Burnell, Scott; Couret, Ivonne; Harrington, Holly; Hayden, Elizabeth; Landau, Mindy; Medina, Veronika; Blount, Tom
Subject: RE: NRC logo in plume map
Date: Monday, March 28, 2011 1:27:28 PM

I've written to their web folks through the website, asking them to take it off.

From: ET05 Hoc
Sent: Monday, March 28, 2011 1:18 PM
To: CS_IRT
Cc: Brenner, Eliot; Burnell, Scott; Couret, Ivonne; Harrington, Holly; Hayden, Elizabeth; Landau, Mindy; McIntyre, David; Medina, Veronika; Blount, Tom
Subject: NRC logo in plume map

Remove attributions to the NRC from the plume map. This map was not provided through any official or known unofficial channels of the NRC.

<http://www.sovereignindependent.com/?s=nrc>

Thanks,

Ops Center

042/ANN

From: [Royer, Deanna](#)
To: [Hayden, Elizabeth](#)
Subject: FS_SeismicIssuesExistingPlnts_March2011.doc
Date: Monday, March 28, 2011 1:27:41 PM
Attachments: [FS_SeismicIssuesExistingPlnts_March2011.doc](#)

VVV/241

Seismic Issues for Nuclear Power Plants

Nuclear power plants are built to withstand environmental hazards, including earthquakes. Even those plants that are located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster. The Nuclear Regulatory Commission (NRC) requires all of its licensees to take seismic activity into account when planning and maintaining its nuclear power plants. The NRC regularly evaluates new earthquake related data and models and determines if any changes are needed at plants. The newest seismic data suggests that although the likelihood of earthquakes occurring at some nuclear power plants in central and eastern states is slightly higher than previous estimates, all plants remain safe with no need for immediate action.

Background

The NRC has examined 2008 earthquake-related information to assess potential safety implications for nuclear power plants in the Central and Eastern United States (CEUS). The agency requires plant designs to withstand the effects of natural phenomena including earthquakes (i.e., seismic events). The agency's requirements, including General Design Criteria for licensing a plant, are described in Title 10 of the *Code of Federal Regulations* (10 CFR). These license requirements include traditional engineering practices such as "safety margins." Practices such as these add an extra element of safety into design, construction, and operations.

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

Earthquake (or Seismic) Hazard

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

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

The U.S. Geological Survey (USGS) Web site provides general information about earthquakes (<http://earthquake.usgs.gov/learning/index.php>). An earthquake releases energy that radiates from the fault and causes ground movement. As the ground moves, objects such as nuclear power plant structures on or in the ground also move. The nature of the movement depends on how the earthquake releases energy and

on how the soil conditions absorb (or dissipate) the energy as it moves away from the fault to a plant location. The intensity of an earthquake can be characterized by both the frequency of the shaking and by the acceleration of the ground at the plant. These characteristics describe how the energy released from the earthquake impacts the plant's buildings as well as the systems and components that are contained inside those buildings.

Earthquake characteristics provide information used in designing existing nuclear plants. The frequency of the shaking is measured in cycles per second (or Hz), and the acceleration is typically expressed as some fraction of the acceleration of gravity, which is about 32.2 feet per second per second (ft/s²). For example, an acceleration of 0.15 g (15 percent of the acceleration of gravity) is about equal to an acceleration of 5 ft/s².

Seismic Safety Assessment

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

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

Evolving Knowledge about Earthquakes

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

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

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

NRC Response to Increased Estimated CEUS Earthquake Hazards

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

The GIP confirmed that operating nuclear power plants remain safe with no need for immediate action. The assessment also found that, although overall seismic risk remains low, some seismic hazard estimates have increased and warrant further attention. In September 2010, NRC issued a Safety/Risk Assessment report (ADAMS Accession No. ML100270582) and an Information Notice (ADAMS Accession No. ML101970221) to inform stakeholders of the Safety/Risk Assessment results.

The NRC is developing a Generic Letter (GL) to request information from all nuclear plants in the CEUS. The GL will be issued for public comment in the late spring 2011 and will present the GL to the Advisory Committee on Reactor Safeguards (ACRS) both before and after the public comment period. NRC expects to issue the GL by the end of 2011, near the time when new seismic models will become available. These new seismic models are being developed by NRC, the U.S. Department of Energy, and the Electric Power Research Institute and will be reviewed by the USGS. Based on NRC's review of that information, a determination will be made regarding any required changes at nuclear plants.

Information regarding this generic issue and the GIP in general is available at <http://www.nrc.gov/about-nrc/regulatory/gen-issues.html>.

Inspections Following Japan Event

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 will perform inspections to 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. Inspections are expected to be completed by the end of April 2011. The results will be issued in an inspection report by May 13 that will be made publicly available.

To read more about risk-related NRC policy, see the Probabilistic Risk Assessment Fact Sheet (<http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/probabilistic-risk-asses.html>) and Nuclear Reactor Risk (<http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/reactor-risk.html>). Each provides more information on the use of probability in evaluating hazards (including earthquakes) and their potential impact on plant safety margins. Questions and answers on the March 2011 earthquake and tsunami are available at <http://www.nrc.gov/japan/faqs-related-to-japan.pdf>.

March 2011

From: Brenner, Eliot
To: Chandrathil, Prema; Hayden, Elizabeth
Cc: Mitlyng, Viktoria
Subject: RE: DRAFT EOC PR for Review
Date: Monday, March 28, 2011 1:28:06 PM

OK, keep it in for now and see what kind of turnout you get. I'd be interested in hearing about the turnout and questions.

From: Chandrathil, Prema
Sent: Monday, March 28, 2011 1:25 PM
To: Brenner, Eliot; Hayden, Elizabeth
Cc: Mitlyng, Viktoria
Subject: RE: DRAFT EOC PR for Review

Yes the region decided to stick with their original plan and hold two meetings on the same night. Our suggestion was to not do that. We have couple other EOC meetings happening later on that are on the same day.

The line is a template line we've used in the past to say we'll address other non-region or plant specific issues such as the NAS study, rulemaking, or decommissioning. Basically issues that have regularly come up in the past but I'd be happy to toss them out in light of Japan.

From: Brenner, Eliot
Sent: Monday, March 28, 2011 12:14 PM
To: Chandrathil, Prema; Hayden, Elizabeth
Cc: Mitlyng, Viktoria
Subject: RE: DRAFT EOC PR for Review

These releases are fine, but I need to know two things. Am I reading this correctly that the region will knock off two meetings in one night? And 2, what is the purpose of this line: , as well as areas of NRC's regulatory activities not specifically associated with the plant.

I suspect we will have plenty of turnout without a gilded invitation, right?

From: Chandrathil, Prema
Sent: Monday, March 28, 2011 1:10 PM
To: Brenner, Eliot; Hayden, Elizabeth
Cc: Mitlyng, Viktoria
Subject: DRAFT EOC PR for Review

Hello Boss, attached are two EOC pr we drafted for your reading enjoyment but it's not really all that juicy.

Thanks
Prema

2/24/11

Prema Chandrathil-Yeaman
Public Affairs Officer
U.S. Nuclear Regulatory Commission
Region III
Lisle, IL
(630) 829-9663
prema.chandrathil@nrc.gov

From: [Harrington, Holly](#)
To: [Hayden, Elizabeth](#)
Cc: [Medina, Veronika](#)
Subject: FW: Veronika's FW: Schedule
Date: Monday, March 28, 2011 10:12:50 AM

Do you mind doing this today?

From: Medina, Veronika
Sent: Wednesday, March 23, 2011 11:30 AM
To: Harrington, Holly; Couret, Ivonne
Subject: RE: Veronika's FW: Schedule

Beth would have to talk to my Branch Chief, Dennis Egan. His phone number is 492-3483.

Veronika

From: Harrington, Holly
Sent: Wednesday, March 23, 2011 11:27 AM
To: Couret, Ivonne
Cc: Medina, Veronika
Subject: RE: Veronika's FW: Schedule

Thank you for this. We really appreciate your help.

While we would ideally like you to covering for Ivonne on the 13th, it's not absolutely necessary. We can have Bethany step in (assuming call volume has continued to go down.) So if the training is important, I think you can continue to keep it on your schedule.

I think we'd like to have you committed through April 12th and then re-evaluate. We'll have a better idea of our workload at that point.

Please let me know who Beth needs to formally request your services through!

Holly

From: Couret, Ivonne
Sent: Wednesday, March 23, 2011 11:05 AM
To: Harrington, Holly
Subject: Veronika's FW: Schedule

I suggested she reschedule training on 4/13,14 and 15 for another time so she can cover Wednesday and I can regroup after vacation. Ivonne

From: Medina, Veronika
Sent: Wednesday, March 23, 2011 10:39 AM
To: Couret, Ivonne
Subject: Schedule

Ivonne,

WVV/243

Schedule for the next few weeks:

Thursday 3/24: 9:30am- 5pm

Friday 3/25: All day

Monday: 3/28: All day

Tuesday 3/29: All day

Wednesday 3/30: 7:15- 1:30pm. Have a meeting from 2-4pm in TWB

Thursday 3/31: 9:30am-5pm

Friday 4/1: Might be here until 11am * Will confirm on Friday

Monday 4/4: Might not be here * Will confirm on Friday

Tuesday 4/5: All day

Wednesday 4/6: All day

Thursday 4/7: 9:30am-5pm

Friday 4/8: All day

Monday 4/11: All day

Tuesday 4/12: All day

Wednesday 4/13 All day * Have training at the PDC, but can re-schedule it.

Thursday 4/14: 9:30am-5pm * Have training at the PDC, but can re-schedule it.

Friday 4/15: All day * Have training at the PDC, but can re-schedule it.

Veronika

From: OST01 HOC
Sent: Monday, March 28, 2011 10:31 AM
To: Hasselberg, Rick
Cc: OST02 HOC
Subject: RE: Question Regarding RST Watch Bill

Rick,

Tom Boyce is coming in as Coordinator from 3:00 pm to 11:00 pm tonight. You were removed from the schedule late last week but this was not reflected on the schedule sent out this weekend. Sorry!!! Rollie Berry was never on the official RST watch bill or the official ERO Staffing Roster. We will get this cleaned up today and straightened out with the EST this week.

Tony McMurtray
EST Coordinator

From: Hasselberg, Rick
Sent: Monday, March 28, 2011 9:46 AM
To: OST01 HOC
Subject: RE: Question Regarding RST Watch Bill

Tony,

I'm at home right now. I'm trying to find out if I'm supposed to come in for a watch at 3 pm today. The "current" watch bill in the RST last night had Tom Boyce in that slot and then Rollie Berry said he thought he had been asked to stand that watch, This is a nightmare! We are either triple booking, or no one is going to report. Thanks.

Rick

From: OST01 HOC
Sent: Monday, March 28, 2011 9:39 AM
To: Hasselberg, Rick; OST02 HOC; OST03 HOC; OST04 Hoc; OST05 Hoc
Subject: RE: Question Regarding RST Watch Bill

Rick,

We are trying to work through multiple watch bills for next week. I've got staff working on this issue (top priority). We will send you the version that we believe to be correct later this morning. Once we send the schedule to you, please verify that this matches the latest version of the RST that you have and e-mail back to OST01 and OST02.

Thanks,

Tony McMurtray
EST Coordinator

From: Hasselberg, Rick
Sent: Monday, March 28, 2011 9:30 AM

11/12/11

To: OST01 HOC; OST02 HOC; OST03 HOC; OST04 Hoc; OST05 Hoc
Subject: FW: Question Regarding RST Watch Bill

From: Hasselberg, Rick
Sent: Monday, March 28, 2011 9:17 AM
To: OST02 HOC
Subject: RST Watch Bill

Good morning. Could you please send me the latest copy of the Ops Center watch bill. I'm particularly interested in any changes that may have occurred over the weekend. Thanks!

From: PR News
To: Hayden, Elizabeth
Subject: 2011 ANA Brand Conference on 4/5 in NYC
Date: Monday, March 28, 2011 10:08:12 AM



Get social at the [2011 ANA Brand Conference presented by The New York Times!](#)

Learn about using social media to create an honest dialogue with your customers. Plus, connect with your colleagues whether you're at the conference or watching remotely:

- Attend **in-person** and connect with senior client-side marketers as well as presenters to share ideas...and business cards!
- Share the conference remotely with your team via **live streaming**. Discuss takeaways ASAP!

Get insights from:

- **Lisa Gavales**, chief marketing officer at **Express**, on communicating with her customers on Twitter.
- **Danielle Vona**, chief marketing officer at **Sonic**, on connecting with real, everyday people.
- **Bob Garfield**, editor-at-large at **Advertising Age**, on relevancy in the digital landscape.
- **Adam Brown**, Executive Director of Social Media at **Dell**, on implementing customers' ideas.

Learn from marketing masters how to build a bond with your consumers based on honesty, transparency, and relevancy. Hosted by **Michael DeBiasi**, Director of Marketing, **Core Brands** at Welch Foods Inc., this is one event you won't want to miss.

Details:

Date: April 5, 2011

Location: Grand Hyatt New York, 109 East 42nd Street at Grand Central Terminal, New York, NY

Member corporate package: \$250 each for four people from the same member company. In-person only.

542/ANN

Member rate: \$495 in-person or live streaming option

Nonmember rate: \$595 in-person or live streaming option

Register: [RSVP now](#) on our website, or email registration@ana.net.



Have a question for one of our conference speakers or attendees? Ask us via Twitter [@ANAmarketers](#) and we will interview them for you on our [YouTube](#) channel!



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From: [Reiter, Stuart](#)
To: [Harrington, Holly](#); [Goldberg, Francine](#)
Cc: [Hayden, Elizabeth](#); [Landau, Mindy](#)
Subject: RE: Open Government and the Japanese Events
Date: Monday, March 28, 2011 9:54:07 AM

The intent was not to stop the FOIA requests, just to let folk know the types of requests the agency has been receiving, and—in time, advise on what can/cannot be done. We have asked folk to tell us what datasets they would like to see, well, I guess they have---to some extent.

Just a thought.

Stu

From: [Harrington, Holly](#)
Sent: Monday, March 28, 2011 9:39 AM
To: [Reiter, Stuart](#); [Goldberg, Francine](#)
Cc: [Hayden, Elizabeth](#); [Landau, Mindy](#)
Subject: RE: Open Government and the Japanese Events

I don't think information the blog is going to stop the FOIA requests

From: [Reiter, Stuart](#)
Sent: Monday, March 28, 2011 9:04 AM
To: [Goldberg, Francine](#)
Cc: [Hayden, Elizabeth](#); [Harrington, Holly](#); [Landau, Mindy](#)
Subject: RE: Open Government and the Japanese Events

Fran, can this interaction with stakeholders be used for the blog?

From: [Nichols, Russell](#)
Sent: Monday, March 28, 2011 7:35 AM
To: [Goldberg, Francine](#); [Reiter, Stuart](#)
Cc: [Janney, Margie](#); [Leong, Edwin](#); [Ousley, Elizabeth](#); [Sealing, Donna](#); [McGowan, Anna](#)
Subject: RE: Open Government and the Japanese Events

Fran,

Here are some that you could ask about. I don't know if they are all feasible.

Evacuation plans for all US nuclear power plants.
Inspection/Safety Reports for all US nuclear power plants.
Exemptions and amendments to exemptions to 10 CFR Part 50.12 for power reactors .
Chairman's and Commissioners' calendars for FY11
List of NRC assumptions used to determine the 50-mile safety radius around the Fukushima power plant.

Russ

From: [Goldberg, Francine](#)

942/NNN

Sent: Thursday, March 24, 2011 5:29 PM
To: Nichols, Russell; Reiter, Stuart
Cc: Janney, Margie; Leong, Edwin; Ousley, Elizabeth; Sealing, Donna; McGowan, Anna
Subject: RE: Open Government and the Japanese Events

Russ –

What types of data would be most useful? Edwin is working with RES and they told him they are thinking of publishing seismic data.

Fran

Francine.Goldberg@nrc.gov
(301) 415-6921 (O)
NRC Operator - Best way to reach me on Mondays and Wednesdays

From: Nichols, Russell
Sent: Thursday, March 24, 2011 1:58 PM
To: Goldberg, Francine; Reiter, Stuart
Cc: Janney, Margie; Leong, Edwin; Ousley, Elizabeth; Sealing, Donna; McGowan, Anna
Subject: Open Government and the Japanese Events

Fran and Stu,

I am writing this to you at Margie's request to see if you can help (wearing your Open Government hat) to get information or datasets from the offices/regions regarding the events in Japan and NRC's involvement in those events, and get that information posted to the NRC's Open Government site.

NRC normally receives about six or seven FOIA requests a week. As a result of the events in Japan, last week we received 18 FOIA requests and so far this week we've received 23. We're being flooded and the offices are being overwhelmed trying to do searches and review records responsive to these additional requests. The Public Document Room is also being flooded with requests for help and information. If information was publicly available we might be able to reduce future FOIA requests and the high level of requests to the PDR. Can you see what information could be made publicly available immediately regarding the events and NRC's involvement in them? That would be a great help. Thank you.

Regards,

Russ

From: Goldberg, Francine
To: Hayden, Elizabeth; Main, Jeffrey; Reiter, Stuart; Landau, Mindy
Subject: RE: Report of Stats from Public Site
Date: Monday, March 28, 2011 6:07:37 PM

I think Stu had included some figures on the blog but they may not be up to date.

From: Hayden, Elizabeth
Sent: Monday, March 28, 2011 6:00 PM
To: Main, Jeffrey; Reiter, Stuart; Landau, Mindy; Goldberg, Francine
Subject: RE: Report of Stats from Public Site

Do we also want to include Blog hits?

Beth Hayden
Senior Advisor
Office of Public Affairs
U.S. Nuclear Regulatory Commission
--- Protecting People and the Environment
301-415-8202
elizabeth.hayden@nrc.gov

From: Main, Jeffrey
Sent: Monday, March 28, 2011 3:00 PM
To: Reiter, Stuart; Landau, Mindy; Goldberg, Francine; Hayden, Elizabeth
Cc: Main, Jeffrey
Subject: RE: Report of Stats from Public Site

I'd word is a little differently . . .

Since the Japan event began on March 10, the average volume of requests to the NRC Web Site has increased up to four times normal. However, as a result of previously planned support arrangements, the performance of our site has not been affected.

If you agree, I'll pass this to Sally Hardy for review and posting.

--Jeffrey

From: Reiter, Stuart
Sent: Monday, March 28, 2011 12:55 PM
To: Landau, Mindy; Goldberg, Francine; Hayden, Elizabeth
Cc: Main, Jeffrey
Subject: RE: Report of Stats from Public Site

Jeff, will the following work for the highlight section of the Open Gov Dashboard?

“During the Japan event NRC Web site usage has experienced volumes of up to four times normal. Through previously planned support arrangements, performance has not been impacted. “

FRJ/NN

From: Landau, Mindy
Sent: Monday, March 28, 2011 12:42 PM
To: Reiter, Stuart; Goldberg, Francine; Hayden, Elizabeth
Cc: Main, Jeffrey
Subject: RE: Report of Stats from Public Site

Absolutely

From: Reiter, Stuart
Sent: Monday, March 28, 2011 12:29 PM
To: Goldberg, Francine; Hayden, Elizabeth; Landau, Mindy
Cc: Main, Jeffrey
Subject: RE: Report of Stats from Public Site

Should we highlight the jump in web usage?

From: Goldberg, Francine
Sent: Monday, March 28, 2011 12:07 PM
To: Hayden, Elizabeth; Landau, Mindy
Cc: Reiter, Stuart; Main, Jeffrey
Subject: Report of Stats from Public Site

Beth, Mindy –

I spoke to Jeff and from now on we will be receiving a monthly report of the top pages viewed on the public site. Also FYI, according to Jeff, the volume of site usage during the Japan events has been 4 times our normal volume, but thanks to our arrangements with Akamai, there has been no impact on performance or downtime.

Fran

From: Reiter, Stuart
To: Hayden, Elizabeth; Main, Jeffrey; Landau, Mindy; Goldberg, Francine
Subject: RE: Report of Stats from Public Site
Date: Monday, March 28, 2011 8:55:00 PM

Blog hits are already in, but I'll update with the info Holly shared today. I'll pass the current version of the Dashboard to all tomorrow.

From: Hayden, Elizabeth
Sent: Monday, March 28, 2011 5:59 PM
To: Main, Jeffrey; Reiter, Stuart; Landau, Mindy; Goldberg, Francine
Subject: RE: Report of Stats from Public Site

Do we also want to include Blog hits?

Beth Hayden
Senior Advisor
Office of Public Affairs
U.S. Nuclear Regulatory Commission
--- Protecting People and the Environment
301-415-8202
elizabeth.hayden@nrc.gov

From: Main, Jeffrey
Sent: Monday, March 28, 2011 3:00 PM
To: Reiter, Stuart; Landau, Mindy; Goldberg, Francine; Hayden, Elizabeth
Cc: Main, Jeffrey
Subject: RE: Report of Stats from Public Site

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Cc: Main, Jeffrey
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"During the Japan event NRC Web site usage has experienced volumes of up to four times normal. Through previously planned support arrangements, performance has not been impacted. "

From: Landau, Mindy
Sent: Monday, March 28, 2011 12:42 PM
To: Reiter, Stuart; Goldberg, Francine; Hayden, Elizabeth
Cc: Main, Jeffrey
Subject: RE: Report of Stats from Public Site

Absolutely

JVV / 2/28

From: Reiter, Stuart
Sent: Monday, March 28, 2011 12:29 PM
To: Goldberg, Francine; Hayden, Elizabeth; Landau, Mindy
Cc: Main, Jeffrey
Subject: RE: Report of Stats from Public Site

Should we highlight the jump in web usage?

From: Goldberg, Francine
Sent: Monday, March 28, 2011 12:07 PM
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Cc: Reiter, Stuart; Main, Jeffrey
Subject: Report of Stats from Public Site

Beth, Mindy –

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Fran

From: OST01 HOC
Sent: Monday, March 28, 2011 5:09 PM
To: Cool, Donald
Subject: RE: PMT Director Shifts

OK. Great. Thanks!

From: Cool, Donald
Sent: Monday, March 28, 2011 5:02 PM
To: OST01 HOC
Subject: Re: PMT Director Shifts

I understood I had Fri and Sat evenings this week, and Thurs Fri Sat evenings next week. I am days through Wed, and need one day out of 7 off.

So answer is yes, I am scheduled to work April 7, 8, 9.

Donald A. Cool
Senior Advisor Radiation Safety and International Liaison
U.S. Nuclear Regulatory Commission
(Sent from Blackberry)

From: OST01 HOC
To: Cool, Donald
Cc: Holahan, Patricia; Brandon, Lou
Sent: Mon Mar 28 16:36:12 2011
Subject: PMT Director Shifts

Don,

I was hoping you could clarify some staffing questions we are having. On the EBT Admin's Master list, you are listed to work the 3pm-11pm shift on April 7 (Thursday), 8 (Friday) and 9 (Saturday). However, on the PMT version, you are not listed. Are you able to work these? If not, I have asked Trish Holahan if she could possibly cover them. Please let Lou Brandon and the EST Coordinator (via OST01.hoc@nrc.gov) know so that we can update the Master List.

Thanks,
Rebecca Stone
EST Coordinator

2/24/11

From: OST01 HOC
Sent: Monday, March 28, 2011 2:50 PM
To: Campbell, Steve
Cc: OST01 HOC; OST02 HOC
Subject: EST Coordinator for Wednesday, March 30, 7am - 3pm

Steve,

Did you plan to work as the EST Coordinator on Wednesday, March 30, 7am to 3pm? Please let the EST know?

Tony McMurtray
EST Coordinator

OST01/MNR

From: Weber, Michael
Sent: Tuesday, March 29, 2011 1:47 PM
To: Borchardt, Bill; Virgilio, Martin
Cc: Evans, Michele; Wiggins, Jim; Boger, Bruce; Batkin, Joshua; LIA06 Hoc; LIA08 Hoc; ET07 Hoc; ET05 Hoc; OST02 HOC; FOIA Response.hoc Resource; Zimmerman, Roy; Leeds, Eric; Sheron, Brian; Johnson, Michael; Haney, Catherine; Casto, Chuck; Dorman, Dan; Brenner, Eliot; Hayden, Elizabeth
Subject: FYI - BACKGROUND MATERIALS for 3 pm IPC SVTC
Attachments: 3-29 Dose Trending for Earthquake and Tsunami Event rev4.pptx

Roy plans to use these materials as background for his participation in today's Interagency Policy Committee (IPC). They were compiled by the RST and PMT here in the Ops Center. They provide a convenient summary of current status of the Fukushima-Daiichi nuclear power station and the extent of radiological contamination.

From: PMT07 Hoc
Sent: Tuesday, March 29, 2011 12:58 PM
To: Zimmerman, Roy
Cc: Hoc, PMT12; PMT07 Hoc; FOIA Response.hoc Resource; RST01 Hoc; OST01 HOC; OST02 HOC; Weber, Michael; Blount, Tom; Cool, Donald
Subject: BACKGROUND MATERIALS for 3 pm IPC SVTC

Mr. Zimmerman:

Attached please find the PowerPoint presentation requested for the 3 pm IPC SVTC. This information reflects status from the reactor safety team, and the protective measures team, and shows data from several sources on trending of dose measurements near the facility, and at points further away.

Donald A. Cool
PMT Director

152/NN

Conditions at the Fukushima Daiichi Nuclear Power Station

March 29, 2011

12:40

4 Spent Fuel Pool/Hydrogen Explosion

continues to be performed for mapping radiological ground material deposition, conducting ground monitoring and air sampling. Material measurements gathered on March 24 and 26 to previous measurements show exposure rates are lower in comparable areas. MEXT monitors in areas near the site have been trending down. An exposure rate is expected as a result of radioactive decay. In exposure rates, including localized elevated areas, are expected due to meteorology conditions such as precipitation. Deposition are apparent although winds since March 19th have crossed the site. Pu contamination in soil thought to be coming from the reactors.

has not been deposited in significant quantities since March 19th

assemblies - damaged; freshwater injection (31 gpm) (IAEA 3/28); Injection via temp. /U (IAEA 3/28) receiving external power (NISA) & power dist. panels connected. (IAEA 3/28) day, now injecting 7 tons of water per hour, reduced from 16 tons per hour –(NHK)

r: damage suspected. Pumping water from turbine bldg to main condenser (NEI 3/28) panels removed from side of reactor building to reduce H₂ build-up.

idles (GEH); **Level:** pool may be overflowing, based on observations of water in adjacent White smoke emitting as of 0800 3/26 (NISA) – confirmed (IAEA 3/28).

assemblies - fuel damaged; Rad levels indicate fuel covered (site team); freshwater inj 1802 3/25 (NISA) Receiving external power (NISA).

r: Japanese report functional. Damage suspected (NRC RST).

ary – severe damage from H₂ explosion.

idles (GEH) – damage suspected (JAIF 3/28); **Level:** low - seawater spray continues (JAIF 3/28) emitting as of 0800 3/26 (NISA).

indles in SFP (GEH & NISA) **Temp & Level:** low level - seawater spray continues (JAIF 3/28) power. (IAEA 3/27). Secondary contain: severe damage from H₂ explosion generated from SFP to pump fresh water into SFP (IAEA 3/28).

assemblies – no damage;); Cold shutdown at 1430 JDT 3/20 (NISA); offsite electrical power to SFP (IAEA 3/28)

idles (JAIF); Injection via normal makeup (IAEA 3/27)

assemblies – no damage; Cooling using RHR; Cold shutdown at 1927 JDT 3/20 (NISA);

igned Priority to Units:

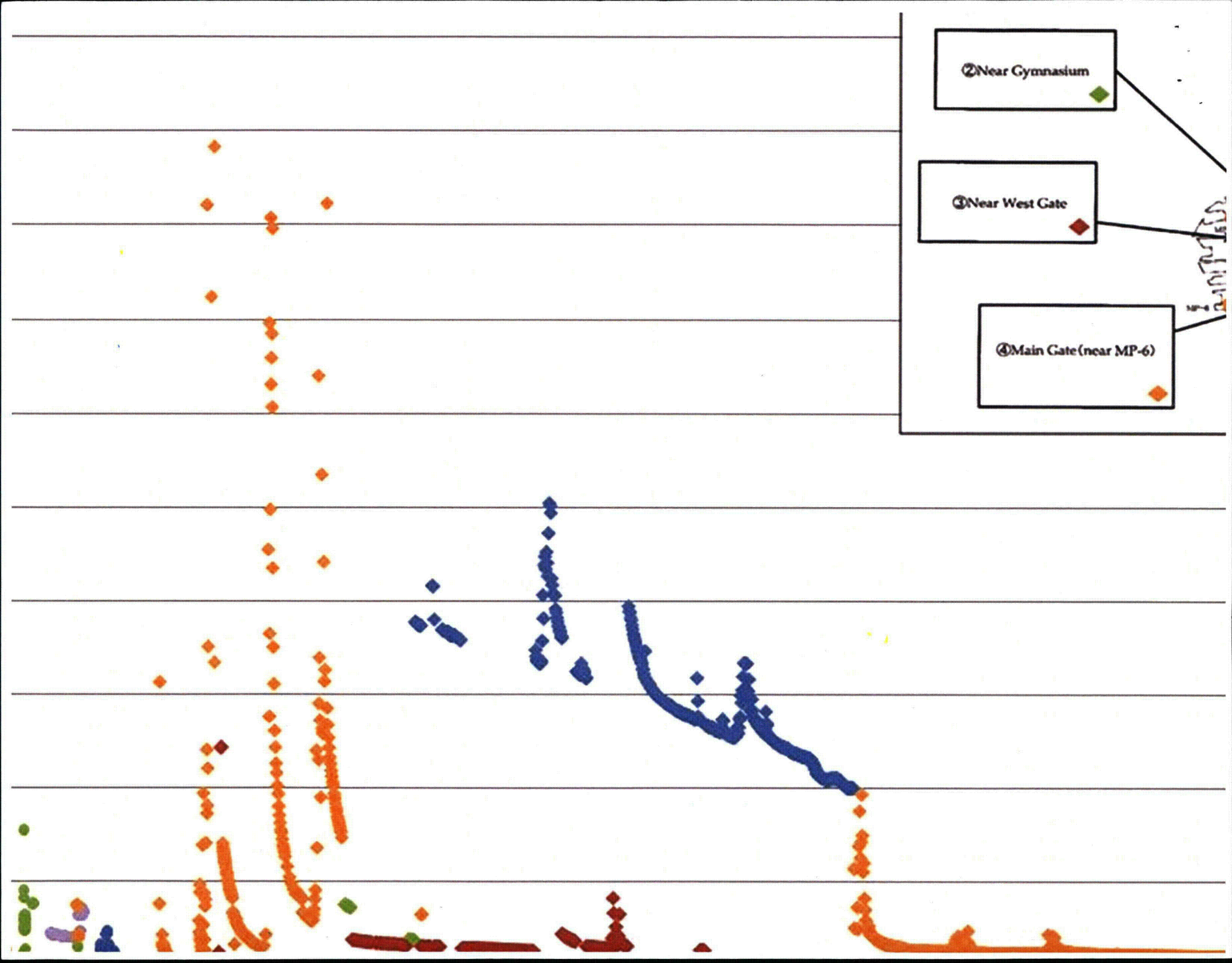
Unit 1, Maintaining containment is high priority.

Unit 2, Containment damaged.

Unit 3, Primary containment may be intact; however building contains I-131.

Unit 4, Due to the condition of its spent fuel pool.

Unit 5, Higher priority than Unit 6, spent fuel pool 30 C in Unit 6. Difference not significant. Cooling



From: LIA05 Hoc
Sent: Tuesday, March 29, 2011 2:46 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: March 29 0600 EDT one pager.pdf

Please find the attached.

Bonnie Sheffield Dayshift 0700-1500
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~~

From: Hoc, PMT12
Sent: Tuesday, March 29, 2011 4:33 PM
To: PMT03 Hoc
Subject: FW: ACTION: Assistance for April 14th pmtCommission Meeting

From: Lewis, Robert
Sent: Tuesday, March 29, 2011 3:40 PM
To: Hoc, PMT12
Subject: Fw: ACTION: Assistance for April 14th pmtCommission Meeting

From: Bush-Goddard, Stephanie
To: Cool, Donald
Cc: Lewis, Robert; Gibson, Kathy; Shaffer, Vered; Deegan, George; MorganButler, Kimyata; Schaffer, Steven; Brock, Terry; Lewis, Doris
Sent: Tue Mar 29 14:37:52 2011
Subject: ACTION: Assistance for April 14th Commission Meeting

Don,

As you know FSME and RES are requested to gather information for the Commission briefing on April 14th regarding the Status of the Japanese Event and Radiological Impact.

As such FSME put a straw man briefing bullet list together as to what we will discuss.

The next step is to provide background material to the EDO by March 31st.

Rob Lewis said you would be willing to help because there is information that can only come from the OP Center, particularly the PMT team.

Can you please provide the following information to me by tomorrow eob to be put as background material for the briefing book.

Rob informed me that these are easily accessible and something that you could get your hands on quickly.

1. Booklet on the decision-making making process for relaxation of protective actions (and if possible "canned slides" on this issue).
2. Roles of EPA, NRC, FEMA, DOE (RAPP FRMAC, NARAC/IMAAC).

3. Information on NRC's Response to a Radiological Event the Operations Center and the PMT.

By next Wednesday we will need to prepare slides for #1-#3 above. If there are "canned presentations" that you know of please let us know. Otherwise, we will need your input and guidance in the presentation.

Just as an FYI, RES is provided background material and slides on:

Use of models and source term determination
RASCAL (Source term determination, etc)
Protection Actions: Early, Intermediate and Late Phases.

However if you have background material and slides to these topic, please share them.

Thanks for all your help.

-Stephanie

From: OST01 HOC
Sent: Tuesday, March 29, 2011 8:55 AM
To: Keegan, Elaine
Cc: Brandon, Lou; OST02 HOC; OST01 HOC
Subject: PMTR RAAD Position

Elaine,

Lou Brandon noted that you may be able to fill the PMTR RAAD position later this week. We have a slot we need to fill on Thursday afternoon, March 31 from 3pm to 11pm and slots available on Saturday, April 2 from 7am to 3pm and 3pm to 11pm. Can you fill any of these slots, especially the one on Thursday? Please let us know in the Ops Center either via e-mail or at (301) 816-5100 X5500.

Thanks,

Tony McMurtray
EST Coordinator

From: OST01 HOC
Sent: Thursday, April 28, 2011 4:06 AM
To: FOIA Response.hoc Resource
Subject: FW: One-Pager 0700 EDT 4/27/11

From: Tracy, Glenn
Sent: Thursday, April 28, 2011 1:49 AM
To: OST01 HOC
Subject: RE: One-Pager 0700 EDT 4/27/11

From: OST01 HOC
Sent: Wednesday, April 27, 2011 6:21 AM
To: Johnson, Michael; Kokajko, Lawrence; Batkin, Joshua; Boger, Bruce; Carpenter, Cynthia; Castleman, Patrick; Franovich, Mike; Gibbs, Catina; Hipschman, Thomas; Hoc, PMT12; Jaczko, Gregory; LIA08 Hoc; Marshall, Michael; Moore, Scott; Orders, William; Pace, Patti; RST01 Hoc; Snodderly, Michael; Speiser, Herald; Tracy, Glenn; Uhle, Jennifer; Virgilio, Martin; Weber, Michael; Wiggins, Jim; Zimmerman, Roy
Subject: One-Pager 0700 EDT 4/27/11

~~*** Attachments are OUO ***~~

Per the attached email, this will be the final One-Pager sent via email. Future updates will be loaded to the Japan SharePoint page at <http://nsir-ops.nrc.gov/>. Please let us know if you have any problems or questions. Thank you.

~~*** Attachments are OUO ***~~

vvv/252

From: PMT03 Hoc
Sent: Tuesday, March 29, 2011 9:58 PM
To: Hoc, PMT12
Subject: Emailing: Q&A on relaxing Prot Actions.docx
Attachments: Q&A on relaxing Prot Actions.docx

The message is ready to be sent with the following file or link attachments:

Q&A on relaxing Prot Actions.docx

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

VVV/253

Q: What are the criteria that the NRC would use to relax its previous protective action recommendation.

A: Brief response: Within the United States the decision to relax a protective action decision is based on confidence that any significant additional release is unlikely and on actual environmental measurements obtained and analyzed by the Federal Radiological Monitoring and Assessment Center (FRMAC) and that the plant is in a stable condition. These decisions are generally not made until the radioactivity release has been terminated and the source of the release is under control. The primary criteria for the decision to relocate a population from the affected area or allow re-entry to the affected area would be protective action guidance provided by the Environmental Protection Agency in its "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," EPA 400-R-92-001, May 1992. Generally, re-entry would not be allowed until the projected dose (based on actual measurements) due to ground deposition was less than 2 rem in the first year, or limiting doses as defined for the second through 50 years.

Explanation

For events which occur at nuclear facilities licensed by the Nuclear Regulatory Commission (NRC), the radiological annex to the National Response Framework, (NRF) defines the relationships between the Federal, state, and local emergency response organizations. In the early phase of the emergency, the operator of the facility (licensee) is expected, amongst other actions, to assess the conditions and recommend evacuation or sheltering protective actions to the affected state and local emergency response organizations. These protective actions recommendations may be based on plant status and prognosis, the results of radiological assessments and projections, or a combination of both. The NRC performs independent assessments of the conditions as a matter of regulatory oversight, and works with the licensee to resolve differences. The state and local

emergency response organizations consider the licensee's recommendation and decide upon the protective actions that will be implemented.

The early phase of the response ends when the radioactivity releases have been terminated, the plant is in a stable condition and the source of the radioactivity release is under control. The intermediate phase commences at this point.

Once the protective action decision (and any subsequent revisions) has been implemented, the decision to relax the protective actions and allow public re-entry to the affected areas is based on reassurance of no further release and on actual measurements and samples obtained in the affected area. The FRMAC, along with the affected states and local organizations, perform this assessment as the basis for decisions regarding relaxation of the protective actions to allow re-entry. The agencies that comprise the Interagency FRMAC, by statute, have the monitoring and assessment assets necessary to accomplish these tasks. Although the NRC will have representatives at the FRMAC, the NRC is not the lead federal agency for environmental monitoring under the radiological annex to the NRF, the lead is EPA.

In the United States, the EPA has established protective action guides for the intermediate phase that requires that the general population be relocated outside of the affected area if the projected effective dose equivalent from external gamma radiation from ground deposition and the committed effective dose equivalent from inhalation from re-suspended materials exceeds 2 rem in the first year. Re-entry would generally not occur as long as the projected dose in the first year exceeds 2 rem. It is important to note that are post plume assessments are based on the results of actual field measurements and sampling results. In the context of the Japanese event, these principals would still be generally applicable, although US field assessment capability should be augmented with available Japanese data.

CRITERIA

1. Radioactivity releases have been terminated and the source of the radioactivity release is under control.
2. Decision to allow public re-entry is based on field measurements and samples obtained from the affected area once the above criteria are satisfied.
3. Re-entry would not generally occur as long as the projected dose in the first years exceeds 2 rem, or exceeds 0.5 rem in the second year, or exceeds 5 rem in 50 years, depending on which case is most limiting.

M:\PMT\Relaxing protective action criteria.doc

From: LIA07 Hoc
Sent: Wednesday, March 30, 2011 6:45 AM
To: Blount, Tom; OST04 Hoc
Subject: FW: Go Book Update
Attachments: March 30 0600 EDT one pager.docx

From: LIA07 Hoc
Sent: Wednesday, March 30, 2011 6:39 AM
To: Borchardt, Bill; Bradford, Anna; 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

Please find attached the 0600 3/30/11 One-Pager

Thank you,

Jim Anderson
LIA07.hoc@nrc.gov

452/ann
RE

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 4:24 PM
To: FOIA Response.hoc Resource
Subject: FW: FEMA EPZ Fact Sheet
Attachments: Emergency Planning Zones.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 12:41 PM
To: LIA05 Hoc
Subject: FW: FEMA EPZ Fact Sheet

From: OST05 Hoc
Sent: Friday, March 18, 2011 10:20 AM
To: McIntyre, David; Barker, Allan; Browder, Rachel; Erickson, Randy; Logaras, Harral; 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

SS2/ANN

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: Hoc, PMT12
Sent: Thursday, April 28, 2011 11:07 AM
To: Rakovan, Lance
Cc: OST01 HOC; LIA08 Hoc; LIA07 Hoc; FOIA Response.hoc Resource
Subject: RE: Request
Attachments: image002.jpg; image003.gif

Lance,

We are looking into this, to see who a good person might be to talk to Tom O'Brien at NIST.

PMT PAAD

From: OST01 HOC
Sent: Thursday, April 28, 2011 10:40 AM
To: Hoc, PMT12
Subject: FW: Request

Please see e-mail traffic below:

From: HOO Hoc
Sent: Thursday, April 28, 2011 9:44 AM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC
Subject: FW: Request

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: Rakovan, Lance
Sent: Thursday, April 28, 2011 9:27 AM
To: HOO Hoc
Subject: FW: Request

I received the request below from a former NRC staffer who currently works at NIST and was hoping that someone knowledgeable could get back to him with some assistance.

Would it be possible for someone to get in touch with him?

Thanks,

WV/257

Lance J Rakovan

Senior Communications Specialist
Office of the Executive Director for Operations
US Nuclear Regulatory Commission
Washington, DC 20555
(301) 415-2589
(301) 415-2700 fax
lance.rakovan@nrc.gov



please consider the environment before printing this email

From: O'Brien, Thomas [mailto:thomas.obrien@nist.gov]
Sent: Wednesday, April 20, 2011 7:35 AM
To: Rakovan, Lance
Subject: RE: Request

Hi Lance-

Can you connect me with anyone that could provide guidance (radiation safety wise) for deployment a NIST team of structural experts to look at earthquake damage in Japan.

What has NRC done briefing and otherwise for the NRC personnel sent there?

Thanks

Tom O'Brien M.S., CHP
Radiation Safety Officer
Chief, Radiation Safety Division
Office of Safety, Health and Environment
National Institute of Standards & Technology
100 Bureau Drive, Mail Stop 1731
Gaithersburg, MD 20899-8462

301-975-5800 Voice
301-975-4893 FAX

Radiation Safety Website: http://safety.nist.gov/radiation_safety/

From: Orders, William
Sent: Wednesday, March 30, 2011 4:17 PM
To: Franovich, Mike; ET07 Hoc
Cc: McDermott, Brian; HOO Hoc; Castleman, Patrick; Snodderly, Michael; Marshall, Michael; Hipschman, Thomas; Hart, Ken; Laufer, Richard; Andersen, James; Bates, Andrew
Subject: RE: CA Calls
Attachments: image001.jpg

OK with me

Bill

From: Franovich, Mike
Sent: Wednesday, March 30, 2011 4:10 PM
To: ET07 Hoc
Cc: McDermott, Brian; HOO Hoc; Orders, William; Castleman, Patrick; Snodderly, Michael; Marshall, Michael; Hipschman, Thomas; Hart, Ken; Laufer, Richard; Andersen, James; Bates, Andrew
Subject: RE: CA Calls

Thanks Sally. It appears that arrangement would give us the most current information from within the USG including our team in Japan. I concur with the proposed time.

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

From: ET07 Hoc
Sent: Wednesday, March 30, 2011 4:05 PM
To: Orders, William; Castleman, Patrick; Franovich, Mike; Snodderly, Michael; Marshall, Michael; Hipschman, Thomas; Hart, Ken; Laufer, Richard; Andersen, James; Bates, Andrew
Cc: McDermott, Brian; HOO Hoc
Subject: RE: CA Calls

All,

Due to conflicts with the Deputies Call at 0900 and with the briefing call from Chuck Casto/Site Team at ~0930, the ET set the morning CA briefing calls for 1000.

Sally Billings
ET Status Officer

From: HOO Hoc
Sent: Wednesday, March 30, 2011 2:28 PM
To: ET07 Hoc; LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Subject: FW: CA Calls

Jayne—Com. Asst Brief e-mail string below.

WVV/257

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

Rep



From: Andersen, James
Sent: Wednesday, March 30, 2011 2:26 PM
To: HOO Hoc
Cc: Laufer, Richard; Evans, Michele; Weber, Michael; Borchardt, Bill; Virgilio, Martin; Muessle, Mary
Subject: FW: CA Calls

As discussed. See discussion below concerning the number of CA call per day.

Jim Andersen
Deputy AO. TBPM, OEDO
415-1725

From: Laufer, Richard
Sent: Wednesday, March 30, 2011 1:49 PM
To: Andersen, James
Cc: Hart, Ken; Bates, Andrew
Subject: FW: CA Calls

Jim –

Can you pass this to the ET and see what proposed time below works best for them?

Thanks,
Rich

From: Orders, William
Sent: Wednesday, March 30, 2011 1:47 PM
To: Hart, Ken; Laufer, Richard
Cc: Castleman, Patrick; Franovich, Mike; Snodderly, Michael; Marshall, Michael; Hipschman, Thomas
Subject: CA Calls

Ken

I have spoken with Commissioner Magwood and Pat has spoken with Commissioner Svinicki re the number of CA calls required from the ET re Japan.

Both Commissioner Magwood and Commissioner Svinicki approve reducing the number to 1/day. I have also discussed the issue with Mike Marshall, Michael Snodderly and Mike Franovich who all support 1/day.

Path forward: 1) We do not need a call tonight. 2) We propose a daily call each morning at either 9:00 or 9:30. Of course if something significant occurs, we would expect a call.

Please communicate with ET and let us know the time.

Thanks

Bill

William T. Orders
Reactors Technical Assistant
Staff of Commissioner William D. Magwood IV
310-415-8430
William.Orders@nrc.gov

From: Astwood, Heather
Sent: Wednesday, March 30, 2011 6:31 PM
To: Astwood, Heather; Regan, Christopher; LIA07 Hoc; LIA08 Hoc; Brown, Michael; McDermott, Brian; 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

852/1111

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 5:10 PM
To: FOIA Response.hoc Resource
Subject: FW: USNRC Earthquake-Tsunami Update.032411.1800EDT
Attachments: USNRC Earthquake-Tsunami Update.032411.1800EDT.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: LIA07 Hoc
Sent: Thursday, March 24, 2011 7:20 PM
To: LIA05 Hoc
Subject: FW: USNRC Earthquake-Tsunami Update.032411.1800EDT

From: LIA07 Hoc
Sent: Thursday, March 24, 2011 5:55 PM
To: LIA07 Hoc; OST04 Hoc
Subject: USNRC Earthquake-Tsunami Update.032411.1800EDT

hsv/259

From: LIA05 Hoc
Sent: Wednesday, March 30, 2011 7:26 AM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Attachments: NRC Status Update 3.30.11--0430.pdf

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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VVV/260

Town, Okuma Town, Namie Town, Kawauchi Village, Naraha Town, Minamisouma City, Tamura City, Kazurao Village, Hirono Town, Iwaki City and Iidate Village) was issued, which directs those governor and heads to publicly announce the guidance to the residents within the in-house evacuation zone, concerning the indoor use of heating equipments that require ventilation, in order to avoid poisoning from carbon monoxide and to reduce exposure.

< Fire Bureaus' Activities >

- ⑤ From 11:00 till around 14:00 on March 22nd, Niigata City Fire Bureau and Hamamatsu City Fire Bureau gave guidance to TEPCO as to the set up of large decontamination system.
- ⑤ From 8:30 till 9:30, from 13:30 till 14:30 on March 23rd, Niigata City Fire Bureau and Hamamatsu City Fire Bureau gave guidance to TEPCO as to the operation of large decontamination system.

(Contact Person)

Mr. Toshihiro Bannai

Director, International Affairs Office,
NISA/METI

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

VVV/261

	<i>Chijirena, Santouna*</i> , <i>Kousaitai*, Kakina*, etc.</i>), Turnip, Raw milk	<i>Chijirena, Santouna*</i> , <i>Kousaitai*, Kakina*, etc.</i>)
Ibaraki Pref.	Spinach, <i>Kakina*</i> , Parsley, Raw milk	
Tochigi Pref.	Spinach, <i>Kakina*</i>	
Gunma Pref.	Spinach, <i>Kakina*</i>	

*a green vegetable

(2) Request for restriction of drinking for tap-water (As of 15:00 March 29th)

Scope under restriction	Water service (Local governments requested for restriction)
All residents	Iitate small water service (Iitate Village, Fukushima Prefecture)
Babies ⒸWater services that continue to respond to the directive	<Fukushima Prefecture> Minami-soma City water service (Minami-soma City) Iwaki City water supply service (Iwaki City) Date City Tuskidate small water supply service (Date City)
ⒸTap-water supply service that continues to respond to the directive	Non

<Directive regarding the ventilation when using heating equipments in the area of indoor evacuation >

On March 21st, Directive titled as “Ventilation for using heating equipments within the in-house evacuation zone” from the Director-General of Local Nuclear Emergency Response Headquarters to the Prefectural Governor and the heads of cities, towns and villages (Tomioka Town, Hutaba

<Situation of resident evacuation (As of 08:00 March 30th)>

At 11:00 March 15th, the Prime Minister directed in-house stay to the residents in the area from 20 km to 30 km radius from Fukushima Dai-ichi NPS. The directive was conveyed to Fukushima Prefecture and related municipalities.

Regarding the evacuation as far as 20-km from Fukushima Dai-ichi NPS and 10-km from Fukushima Dai-ni NPS, necessary measures have already been taken.

- ① The in-house stay in the area from 20 km to 30 km from Fukushima Dai-ichi NPS is made fully known to the residents concerned.
- ② Cooperating with Fukushima Prefecture, livelihood support to the residents in the in-house stay area are implemented.
- ③ On March 28th, Chief Cabinet Secretary mentioned the continuation of the limited-access within the area of 20 km from Fukushima Dai-ichi NPS. On the same day, the Local Nuclear Emergency Response Headquarters notified the related municipalities of forbidding entry to the evacuation area within the 20 km zone.

<Directives regarding foods and drinks>

Directive from the Head of Government Nuclear Emergency Response Headquarters to the Prefectural Governors of Fukushima, Ibaraki, Tochigi and Gunma was issued, which directed above-mentioned governors to suspend shipment and so on of the following products for the time being.

(1) Items under the suspension of shipment and restriction of intake (As of March 29th)

Prefectures	Suspension of shipment	Restriction of intake
Fukushima Prefecture	Non-head type leafy vegetables, head type leafy vegetables, flowerhead brassicas (Spinach, Cabbage, Broccoli, Cauliflower, <i>Komatsuna</i> *, <i>Kukitachina</i> *, <i>Shinobufuyuna</i> *, Rape,	Non-head type leafy vegetables, head type leafy vegetables, flowerhead brassicas (Spinach, Cabbage, Broccoli, Cauliflower, <i>Komatsuna</i> *, <i>Kukitachina</i> *, <i>Shinobufuyuna</i> , Rape,

2. Injury due to the explosion of Unit 1 of Fukushima Dai-ichi NPS on 12 March
 - Four employees (two TEPCO's employees and two subcontractor's employees) were injured at the explosion and smoke of Unit 1 around turbine building (non-controlled area of radiation) and were examined by Kawauchi Clinic. Two TEPCO's employees return to work again and two subcontractors' employees are under home treatment.

3. Injury due to the explosion of Unit 3 of Fukushima Dai-ichi NPS on 14 March.
 - Four TEPCO's employees (They have already return to work.)
 - Three subcontractor employees (They have already return to work.)
 - Four members of Self-Defence Force (one of them was transported to National Institute of Radiological Sciences considering internal possible exposure. The examination resulted in no internal exposure. The member was discharged from the institute on March 17th.)

4. Other injuries
 - Two subcontractor's employees were injured during working at temporary control panel of power source in the Common Spent Fuel Pool, transported to where were industrial medical doctors the Fukushima Dai-ichi NPS on 22 and 23 March. (One employee has already returned to work and the other is under home treatment.)
 - One emergency patient on 12 March. (cerebral infarction, transported by the ambulance, be in hospital)
 - Ambulance was requested for one employee complaining the pain at left chest outside of control area on March 12. (conscious, under home treatment)
 - Two employees complaining discomfort wearing full-face mask in the main control room were transported to Fukushima Dai-ichi NPS for a consultation with an industrial doctor on 13 March. (One employee has already returned to work and the other is under home treatment.)

<Directive of screening levels for decontamination of radioactivity>

- (1) On March 20th, the Local Emergency Response Headquarters issued the directive to change the reference value for the screening level for decontamination of radioactivity as the following to the Prefectural Governor and the heads of cities, towns and villages (Tomioka Town, Hutaba Town, Okuma Town, Namie Town, Kawauchi Village, Naraha Town, Minamisouma City, Tamura City, Kazurao Village, Hirono Town, Iwaki City and Iidate Village).

Old : 40 Bq/cm² measured by a gamma-ray survey meter or 6,000 cpm

New : 1 〇 Sv/hour (dose rate at 10cm distance) or 100,000cpm equivalent

<Directives of administrating stable Iodine during evacuation>

- (1) On March 16th, the Local Nuclear Emergency Response Headquarters issued “Directive to administer the stable Iodine during evacuation from the evacuation area (20 km radius)” to the Prefectural Governor and the heads of cities, towns and villages (Tomioka Town, Hutaba Town, Okuma Town, Namie Town, Kawauchi Village, Naraha Town, Minamisouma City, Tamura City, Kazurao Village, Hirono Town, Iwaki City and Iidate Village).
- (2) On March 21st, the Local Nuclear Emergency Response Headquarters issued Directive titled as “Administration of the stable Iodine” to the Prefectural Governor and the heads of cities, towns and villages (Tomioka Town, Hutaba Town, Okuma Town, Namie Town, Kawauchi Village, Naraha Town, Minamisouma City, Tamura City, Kazurao Village, Hirono Town, Iwaki City and Iidate Village), which directs the above-mentioned governor and heads to administer stable Iodine under the direction of the headquarters and in the presence of medical experts, and not to administer it on personal judgements.

<Situation of the injured (As of 08:00 March 30th)>

1. Injury due to earthquake on 11 March
 - Two employees (slightly, have already gone back working)
 - Two subcontract employees (one fracture in both legs, be in hospital)
 - Two missing (TEPCO's employee, missing in the turbine building of Unit 4)

2. Exposure of workers

As for the workers conducting operations in Fukushima Dai-ichi NPS, the total number of people who were at the level of exposure more than 100mSv becomes 19, as the three workers (All the people were the subcontractor's employees.) who were laying cables in the turbine building of Unit 3 of the NPS were confirmed to be at the level of exposure more than 170mSv on March 24.

For two out of the three workers, the attachment of radioactive material on the skin of both legs was confirmed. As the two workers were judged to have a possibility of beta ray burn, they were transferred to the Fukushima Medical University Hospital, and after that, on March 25th, all of the three workers arrived at the National Institute of Radiological Sciences in the Chiba Prefecture. As the result of examination, the level of exposure of their legs was estimated to be from 2 to 3 Sv. The level of exposure of both legs and internal did not require medical treatment, but they decided to monitor the progress of all three workers in the hospital. All the three workers have been discharged from the hospital around the noon on 28 March.

3. Others

- (1) 4 members of Self-Defence Force who worked in Fukushima Dai-ichi NPS were injured by explosion. One member was transferred to National Institute of Radiological Sciences. After the examination, judged that there were wounds but no risk for health from the exposure, the one was released from the hospital on March 17th. No other exposure of the Self-Defence Force member was confirmed at the Ministry of Defence.
- (2) As for policeman, the decontaminations of two policemen were confirmed by the National Police Agency. Nothing unusual was reported.
- (3) On March 24th, examinations of thyroid gland for 66 children aged from 1 to 15 years old were carried out at the Kawamata Town public health Center. The result was at not at the level of having harmful influence.
- (4) From March 26th to 27th, examinations of thyroid gland for 137 children aged from 1 to 15 years old were carried out at the Iwaki City Public Health Center. The result was not at the level of having harmful influence.

No. of Counts	No. of Persons
18,000cpm	1
30,000-36,000cpm	1
40,000cpm	1
little less than 40,000cpm*	1
very small counts	5

*(These results were measured without shoes, though the first measurement exceeded 100,000cpm)

- (4) The screening was started at the Off site Centre in Okuma Town from March 12th to 15th. 162 people received examination until now. At the beginning, the reference value was set at 6,000cpm. 110 people were at the level below 6,000 cpm and 41 people were at the level of 6,000 cpm or more. When the reference value was increased to 13,000 cpm afterward, 8 people were at the level below 13,000 cpm and 3 people are at the level of 13,000 cpm or more.

The 5 out of 162 people examined were transported to hospital after being decontaminated.

- (5) The Fukushima Prefecture carried out the evacuation of patients and personnel of the hospitals located within 10km area. The screening of all the members showed that 3 persons have the high counting rate. These members were transported to the secondary medical institute of exposure. As a result of the screening on 60 fire fighting personnel involved in the transportation activities, the radioactivity higher than twice of the back ground was detected on 3 members. Therefore, all the 60 members were decontaminated.
- (6) Fukushima Prefecture has started the screening from 13 March. It is carried out by rotating the evacuation sites and at the 13 places (set up permanently) such as health offices. Up until March 28th, the screening was done to 102,342 people. Among them, 101 people were above the 100,000cpm, but when measured these people again without clothes, etc., the counts decreased to 100,000cpm and below, and there was no case which affects health.

(March 29th)

11:16 The report was received, regarding the accident and trouble etc. in Onagawa NPS of Tohoku Electric Power Co. Inc. (the trouble of pump of component cooling water system etc. in Unit 2 and the fall of heavy oil tank for auxiliary boiler of Unit 1 by tsunami), pursuant to the Article 62-3 of the Nuclear Regulation Act and the Article 3 of the Ministerial Ordinance for the Reports related to Electricity.

(March 30th)

Directions as to implement the emergency safety measures for the other power stations considering the accident of Fukushima Dai-ichi and Dai-ni NPSs in 2011 was issued and handed to each electric power company and the relevant organization.

In order to strengthen the system to assist the nuclear accident sufferers, the "Team to Assist the Lives of the Nuclear Accident Sufferer" headed by the Minister of Economy, Trade and Industry was established

< Possibility on radiation exposure[↖] As of 15:30 March 30th[↗] >

1. Exposure of residents

- (1) Including the about 60 evacuees from Futaba Public Welfare Hospital to Nihonmatsu City Fukushima Gender Equality Centre, as the result of measurement of 133 persons at the Centre, 23 persons counted more than 13,000 cpm were decontaminated.
- (2) The 35 residents transferred from Futaba Public Welfare Hospital to Kawamata Town Saiseikai Kawamata Hospital by private bus arranged by Fukushima Prefecture were judged to be not contaminated by the Prefectural Response Centre.
- (3) As for the about 100 residents in Futaba Town evacuated by bus, the results of measurement for 9 of the 100 residents were as follows. The evacuees, moving outside the Prefecture (Miyagi Prefecture), were divided into two groups, which joined later to Nihonmatsu City Fukushima Gender Equality Centre.

17:50 Directive from the Director-general of Government Nuclear Emergency Response Headquarters to the Prefectural Governors of Fukushima, Ibaraki, Tochigi and Gunma was issued, which direct the above-mentioned governors to issue a request to relevant businesses and people to suspend shipment of spinach, *Kakina* (a green vegetable) and raw milk for the time being.

(March 22nd)

16:00 NISA received the response (Advice) from Nuclear Safety Commission Emergency Technical Advisory Body to the request for advice made by NISA, regarding the report from TEPCO titled as “The Results of Analysis of Seawater” dated March 22nd.

(March 25th)

NISA directed orally to the TEPCO regarding the exposure of workers at the turbine building of Unit 3 of Fukushima Dai-ichi Nuclear Power Station occurred on March 24th, to review immediately and to improve its radiation control measures from the viewpoint of preventing a recurrence.

(March 28th)

Regarding the mistake in the evaluation of the concentration measurement in the stagnant water on the basement floor of the turbine building of Unit 2 of Fukushima Dai-ichi NPS announced by TEPCO on 27 March, NISA directed TEPCO orally to prevent the recurrence of such a mistake.

13:50 Receiving the suggestion by the special meeting of Nuclear Safety Commission (Stagnant water on the underground floor of the turbine building at Fukushima Dai-ichi Plant Unit 2), NISA directed TEPCO orally to add the sea water monitoring points and carry out the groundwater monitoring.

! Regarding the delay in the reporting of the water confirmed outside of the turbine buildings, NISA directed TEPCO to accomplish the communication in the company on significant information in a timely manner and to report it in a timely and appropriate manner.

supply: Emergency Diesel Generator for Unit 6)

08:58 TEPCO reported to NISA the event (Unusual increase of radiation dose at the site boundary) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi NPS.

(March 20th)

23:30 Directive from Local Nuclear Emergency Response Headquarters to the Prefectural Governor and the heads of cities, towns and villages (Tomioka Town, Hutaba Town, Okuma Town, Namie Town, Kawauchi Village, Naraha Town, Minamisouma City, Tamura City, Kazurao Village, Hirono Town, Iwaki City and Iidate Village) was issued regarding the change of the reference value for the screening level for decontamination of radioactivity.

(March 21st)

07:45 Directive titled as “Administration of the stable Iodine” was issued from Local Nuclear Emergency Response Headquarters to the Prefectural Governor and the heads of cities, towns and villages (Tomioka Town, Hutaba Town, Okuma Town, Namie Town, Kawauchi Village, Naraha Town, Minamisouma City, Tamura City, Kazurao Village, Hirono Town, Iwaki City and Iidate Village), which directs the above-mentioned governor and the heads to administer stable Iodine under the direction of the headquarters and in the presence of medical experts, and not to administer it on personal judgements.

16:45 Directive titled as “Ventilation for using heating equipments within the in-house evacuation zone” was issued from the Director-General of Local Nuclear Emergency Response Headquarters to the Prefectural Governor and the heads of cities, towns and villages (Tomioka Town, Hutaba Town, Okuma Town, Namie Town, Kawauchi Village, Naraha Town, Minamisouma City, Tamura City, Kazurao Village, Hirono Town, Iwaki City and Iidate Village), which directs the above-mentioned governor and heads to publicly announce the guidance to the residents within the in-house evacuation zone, concerning the indoor use of heating equipments that require ventilation, in order to avoid poisoning from carbon monoxide and to reduce exposure.

was moved to the Fukushima Prefectural Office.

11:00 The Prime Minister directed the in-house stay area.

In-house stay was additionally directed to the residents in the area from 20 km to 30 km radius from Fukushima Dai-ichi NPS considering in-reactor situation.

16:30 TEPCO reported to NISA the event (Unusual increase of radiation dose at the site boundary) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi NPS.

22:00 According to the Nuclear Regulation Act, the Minister of Economy, Trade and Industry issued the following direction.

For Unit 4: To implement the injection of water to the Spent Fuel Pool.

23:46 TEPCO reported to NISA the event (Unusual increase of radiation dose at the site boundary) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi NPS.

(March 18th)

13:00 Ministry of Education, Culture, Sports, Science and Technology decided to reinforce the nation-wide monitoring survey in the emergency of Fukushima Dai-ichi and Dai-ni NPS.

15:55 TEPCO reported to NISA on the accidents and failure at Units 1, 2, 3 and 4 of Fukushima Dai-ichi NPS (Leakage of the radioactive materials inside of the reactor buildings to non-controlled area of radiation) pursuant to the Article 62-3 of the Nuclear Regulation Act.

16:48 Japan Atomic Power Co. reported to NISA accidents and failures in Tokai NPS (Failure of the seawater pump motor of the emergency diesel generator 2C) pursuant to the Article 62-3 of the Nuclear Regulation Act.

(March 19th)

07:44 The second unit of Emergency Diesel Generator (A) for Unit 6 started up.

TEPCO reported to NISA that the pump for RHR (C) for Unit 5 started up and started to cooling Spent Fuel Storage Pool. (Power

22:35 TEPCO reported to NISA the event (Unusual increase of radiation dose at the site boundary) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi NPS.

(March 15th)

00:00: The acceptance of experts from IAEA was decided. NISA agreed to accept the offer of dispatching of the expert on NPS damage from IAEA considering the intention by Mr. Amano, Director General of IAEA. Therefore, the schedule of expert acceptance will be planned from now on according to the situation.

00:00: NISA also decided the acceptance of experts dispatched from NRC.

07:21 TEPCO reported to NISA the event (Unusual increase of radiation dose at the site boundary) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi NPS.

07:24 Incorporated Administration Agency, Japan Atomic Energy Agency (JAEA) reported to NISA in accordance with the Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Nuclear Fuel Cycle Engineering Laboratories, Tokai Research and Development Centre.

07:44 JAEA reported to NISA in accordance with the Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Nuclear Science Research Institute.

08:54 TEPCO reported to NISA the event (Unusual increase of radiation dose at the site boundary) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi NPS.

10:30 According to the Nuclear Regulation Act, the Minister of Economy, Trade and Industry issued the directions as follows.

For Unit 4: To extinguish fire and to prevent the occurrence of re-criticality

For Unit 2: To inject water to reactor vessel promptly and to vent Drywell.

10:59 Considering the possibility of lingering situation, it was decided that the function of the Local Nuclear Emergency Response Headquarters

Nuclear Emergency Preparedness on the contents of radioactivity decontamination screening.

13:09 Tohoku Electric Power Co. reported to NISA that Onagawa NPS reached a situation specified in the Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

13:12 Fresh water injection was switched to seawater injection for Unit 3 of Fukushima Dai-ichi NPS.

14:36 TEPCO reported to NISA the event (Unusual increase of radiation dose at the site boundary) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi NPS.

(March 14th)

01:10 Seawater injection for Units 1 and 3 of Fukushima Dai-ichi NPS were temporarily interrupted due to the lack of seawater in pit.

03:20 Seawater injection for Unit 3 of Fukushima Dai-ichi NPS was restarted.

04:40 TEPCO reported to NISA the event (Unusual increase of radiation dose at the site boundary) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi NPS.

05:38 TEPCO reported to NISA the event (Unusual increase of radiation dose at the site boundary) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi NPS.

07:52 TEPCO reported to NISA the event (Unusual rise of the pressure in PCV) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Unit 3 of Fukushima Dai-ichi NPS.

13:25 Regarding Unit 2 of Fukushima Dai-ichi NPS, TEPCO recognised the event (Loss of reactor cooling function) to fall under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

22:13 TEPCO reported to NISA in accordance with the Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi NPS.

- Direction for the residents within 10km radius from Fukushima Dai-ichi NPS to stay in-house
- 17:00 TEPCO reported to NISA the event (Unusual increase of radiation dose at the site boundary) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi NPS.
- 17:39 The Prime Minister directed evacuation of the residents within the 10 km radius from Fukushima Dai-ichi NPS.
- 18:25 The Prime Minister directed evacuation of the residents within the 20km radius from Fukushima Dai-ichi NPS.
- 19:55 Directives from the Prime Minister was issued regarding seawater injection to Unit 1 of Fukushima Dai-ichi NPS.
- 20:05 Considering the Directives from the Prime Minister and pursuant to the Paragraph 3, the Article 64 of the Nuclear Regulation Act, the order was issued to inject seawater to Unit 1 of Fukushima Dai-ichi NPS and so on.
- 20:20 At Unit 1 of Fukushima Dai-ichi NPS, seawater injection started.

(March 13th)

- 05:38 TEPCO reported to NISA the event (Total loss of coolant injection function) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Unit 3 of Fukushima Dai-ichi NPS. Recovering efforts by TEPCO of the power source and coolant injection function and the work on venting were under way.
- 09:01 TEPCO reported to NISA the event (Unusual increase of radiation dose at the site boundary) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi NPS.
- 09:08 Pressure suppression and fresh water injection started for Unit 3 of Fukushima Dai-ichi NPS.
- 09:20 The Pressure Vent Valve of Unit 3 of Fukushima Dai-ichi NPS was opened.
- 09:30 Directive was issued for the Governor of Fukushima Prefecture, the Mayors of Okuma Town, Futaba Town, Tomioka Town and Namie Town in accordance with the Act on Special Measures Concerning

Dai-ichi NPS, TEPCO, in accordance with the Paragraph 3, the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness as follows:

- Direction for the residents within 3km radius from Unit 1 of Fukushima Dai-ichi NPS to evacuate
- Direction for the residents within 10km radius from Unit 1 of Fukushima Dai-ichi NPS to stay in-house

24:00 The Vice Minister of Economy, Trade and Industry, Ikeda arrived at the Local Nuclear Emergency Response Headquarters

(March 12th)

05:22 Regarding Unit 1 of Fukushima Dai-ichi NPS, TEPCO recognized the event (Loss of pressure suppression function) to fall under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (Reported to NISA at 06:27)

05:32 Regarding Unit 2 of Fukushima Dai-ichi NPS, TEPCO recognized the event (Loss of pressure suppression function) to fall under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

05:44 Residents within 10km radius from Unit 1 of Fukushima Dai-ichi NPS shall evacuate by the Prime Minister Directive.

06:07 Regarding of Unit 4 of Fukushima Dai-ichi NPS, TEPCO recognized the event (Loss of pressure suppression function) to fall under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

06:50 In accordance with the Paragraph 3, the Article 64 of the Nuclear Regulation Act, the order was issued to control the internal pressure of PCV of Units 1 and 2 of Fukushima Dai-ichi NPS.

07:45 Directives from the Prime Minister to the Governor of Fukushima Prefecture, the Mayors of Hirono Town, Naraha Town, Tomioka Town and Okuma Town were issued regarding the event occurred at Fukushima Dai-ichi NPS, TEPCO, pursuant to the Paragraph 3, the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness as follows:

- Direction for the residents within 3km radius from Fukushima Dai-ichi NPS to evacuate

- (3) Report concerning other incidents
- ㊦ Fire Smoke on the first basement of the Turbine Building was confirmed to be extinguished. (22:55 on March 11th)
 - ㊦ Tohoku Electric Power Co. reported to NISA in accordance with the Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (13:09 March 13th)

2. Action taken by NISA

(March 11th)

- 14:46 Set up of the NISA Emergency Preparedness Headquarters (Tokyo) immediately after the earthquake
- 15:42 TEPCO reported to NISA in accordance with the Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi NPS.
- 16:36 TEPCO recognized the event (Inability of water injection of the Emergency Core Cooling System) in accordance with the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Units 1 and 2 of Fukushima Dai-ichi NPS. (Reported to NISA at 16:45)
- 18:08 Regarding Unit 1 of Fukushima Dai-ichi NPS, TEPCO reported to NISA in accordance with the Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.
- 18:33 Regarding Units 1, 2 and 4 of Fukushima Dai-ichi NPS, TEPCO reported to NISA in accordance with the Article 10 of Act on Special Measures Concerning Nuclear Emergency Preparedness.
- 19:03 The Government declared the state of nuclear emergency. (Establishment of the Government Nuclear Emergency Response Headquarters and the Local Nuclear Emergency Response Headquarters)
- 20:50 Fukushima Prefecture's Emergency Response Headquarters issued a direction for the residents within 2 km radius from Unit 1 of Fukushima Dai-ichi NPS to evacuate. (The population of this area is 1,864.)
- 21:23 Directives from the Prime Minister to the Governor of Fukushima Prefecture, the Mayor of Okuma Town and the Mayor of Futaba Town were issued regarding the event occurred at Fukushima

*1: Converted from reading value to absolute pressure

*2: Distance from the top of fuel

(3) Report concerning other incidents

㊦ TEPCO reported to NISA the event in accordance with the Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Unit 1. (18:08 March 11th)

㊦ TEPCO reported to NISA the events in accordance with the Article 10 regarding Units 1, 2 and 4. (18:33 March 11th)

㊦ TEPCO reported to NISA the event (Loss of pressure suppression functions) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Unit 1. (5:22 March 12th)

㊦ TEPCO reported to NISA the event (Loss of pressure suppression functions) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Unit 2. (5:32 March 12th)

㊦ TEPCO reported to NISA the event (Loss of pressure suppression function) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Unit 4 of Fukushima Dai-ni NPS. (6:07 March 12th)

● Onagawa NPS (Tohoku Electric Power Co. Inc.)

(Onagawa Town, Oga County and Ishinomaki City, Miyagi Prefecture)

(1) The state of operation

Unit 1 (524MWe): automatic shutdown, cold shut down at 0:58, March 12th

Unit 2 (825MWe): automatic shutdown, cold shut down at earthquake

Unit 3 (825MWe): automatic shutdown, cold shut down at 1:17, March 12th

(2) Readings of monitoring post, etc.

MP2 (Monitoring at the North End of Site Boundary)

approx. 0.62 \circ SV/h (16:00 March 29th) \nearrow approx. 0.58 \circ SV/h (16:00 March 30th)

(radioactive fallout) that was observed in Japan concerning the past atmospheric nuclear testing, i.e. at the equivalent level of the normal condition of environment, and was not at the level of having harmful influence on human body.

㊦ When removing the flange of pipes of Residual Heat Removal Seawater System outside the building of Unit 3, three subcontractor's employees were wetted by the water remaining in the pipe. However, as the result of wiping the water off, no radioactive materials were attached to their bodies. (12:03 March 29th)

- Fukushima Dai-ni NPS (TEPCO)

(Naraha Town / Tomioka Town, Futaba County, Fukushima Prefecture.)

(1) The state of operation

Unit1 (1,100MWe): automatic shutdown, cold shut down at 17:00, March 14th
 Unit2 (1,100MWe): automatic shutdown, cold shut down at 18:00, March 14th
 Unit3 (1,100MWe): automatic shutdown, cold shut down at 12:15, March 12th
 Unit4 (1,100MWe): automatic shutdown, cold shut down at 07:15, March 15th

(2) Major plant parameters (As of 14:00 March 30th)

	Unit	Unit 1	Unit 2	Unit 3	Unit 4
Reactor Pressure*1	MPa	0.12	0.06	0.10	0.14
Reactor water temperature	III	51.4	62.3	34.5	27.0
Reactor water level*2	mm	7,196	7,446	7,826	7,904
Suppression pool water temperature	III	24	25	27	27
Suppression pool pressure	kPa (abs)	106	107	103	102
Remarks		cold shutdown	cold shutdown	cold shutdown	cold shutdown

temporary to the permanent. (17:24 March 23rd)

㊦ Repair of the temporary pump for RHRS of Unit 5 was completed (16:14 March 24th) and cooling was started again. (16:35 March 24th)

㊦ Power supply for the temporary pump for RHRS of Unit 6 was switched from the temporary to the permanent. (15:38 and 15:42 March 25th)

<Common Spent Fuel Pool>

㊦ It was confirmed that the water level of Spent Fuel Pool was maintained almost full at after 06:00 March 18th.

㊦ Water spray over the Common Spent Fuel Pool was started (From 10:37 till 15:30 March 21st)

㊦ The power was started to be supplied (15:37 March 24th) and cooling was also started.(18:05 March 24th)

㊦ As of 08:30 March 29th, water temperature of the pool was around 32Ⅲ.

<Other>

㊦ As the result of nuclide analysis at around the southern Water Discharge Canal, $7.40 \times 10^1 \text{Bq/cm}^3$ of ^{131}I (Iodine) (1,850.5 times higher than the concentration limit in water outside the Environmental Monitoring Area) was detected. (14:30 March 26th)

(As the result of measurement on 27 March, it was detected as 250 times higher than the limit in water. On the other hand, as the result of the analysis at the north side of the Water Discharge Canal of the NPS, $4.60 \times 10^1 \text{Bq/cm}^3$ of ^{131}I (Iodine) (1,150 times higher than the limit) was detected. (14:05 March 27th)

㊦ The water was confirmed to be collected in the vertical parts of the trenches (an underground structure for laying pipes, shaped like a tunnel) outside of the turbine building of Units 1 to 3. The dose rates on the water surface were 0.4 mSv/h of the Unit 1's trench and 1,000 mSv/h of the Unit 2's trench. The rate of the Unit 3's trench could not measure because of the rubble. (Around 15:30 March 27th)

㊦ In the samples of soil collected on 21 and 22 March 2011 on the site (at 5 points) of Fukushima Dai-ichi NPS, plutonium 238, 239 and 240 were detected (23:45 March 28th announced by TEPCO). The concentration of the detected plutonium was at the equivalent level of the fallout

- ∂ Spray of around 150t of water using Concrete Pump Truck (50t/h) was carried out. (From 14:36 till 17:30 March 24th)
- ∂ Spray of around 150t of water using Concrete Pump Truck (50t/h) was carried out. (From 19:05 till 22:07 March 25th)
- ∂ Injection of seawater to the Spent Fuel Pool via the Fuel Pool Cooling Line was carried out. (From 06:05 till 10:20 March 25th)
- ∂ Water spray of approximately 125t using Concrete Pump Truck (50t/h) was carried out. (From 16:55 till 19:25 March 28th)
- ∂ Lighting of Central Operation Room was recovered. (11:50 March 29th)
- ∂ White smoke was confirmed to generate continuously. (As of 06:30 March 30th)
- ∂ Freshwater injection to the Spent Fuel Pool using Concrete Pump Truck (50t/h) was started. (14:04 March 30th)

<Units 5 and 6>

- ∂ The first unit of Emergency Diesel Generator (B) for Unit 6 is operating and supplying electricity. Water injection to RPV and the Spent Fuel Pool through the system of Make up Water Condensate (MUWC) is being carried out.
- ∂ The second unit of Emergency Diesel Generator (A) for Unit 6 started up. (04:22 March 19th)
- ∂ The pumps for Residual Heat Removal (RHR) (C) for Unit 5 (05:00 March 19th) and RHR (B) for Unit 6 (22:14 March 19th) started up and recovered heat removal function. It cools Spent Fuel Pool with priority. (Power supply : Emergency Diesel Generator for Unit 6) (05:00 March 19th)
- ∂ Unit 5 under cold shut down (14:30 March 20th)
- ∂ Unit 6 under cold shut down (19:27 March 20th)
- ∂ Receiving electricity reached to the transformer of starter. (19:52 March 20th)
- ∂ Power supply to Unit 5 was switched from the Emergency Diesel Generator to external power supply. (11:36 March 21st)
- ∂ Power supply to Unit 6 was switched from the Emergency Diesel Generator to external power supply. (19:17 March 22nd)
- ∂ The temporary pump for RHR Seawater System (RHRS) of Unit 5 was automatically stopped when the power supply was switched from the

- ∂ The pump for the fresh water injection to RPV was switched from the Fire Pump Truck to the temporary motor-driven pump. (20:30 March 28th)
- ∂ Water spray (fresh water) of approximately 100t using Concrete Pump Truck (50t/h) was carried out. (From 14:17 till 18:18 March 29th)
- ∂ White smoke was confirmed to generate continuously (As of 06:30 March 30th)
- ∂ Injection of fresh water to RPV is being carried out. (As of 15:00 March 30th)

<Unit 4>

- ∂ Because of the replacement work of the Shroud of RPV, no fuel was inside the RPV.
- ∂ The temperature of water in the Spent Fuel Pool had increased. (84 III at 04:08 March 14th)
- ∂ It was confirmed that a part of wall in the operation area of Unit 4 was damaged. (06:14 March 15th)
- ∂ The fire at Unit 4 occurred. (09:38 March 15th) TEPCO reported that the fire was extinguished spontaneously. (11:00 March 15th)
- ∂ The fire occurred at Unit 4. (5:45 March 16th) TEPCO reported that no fire could be confirmed on the ground. (At around 06:15 March 16th)
- ∂ The Self-Defence Force started water spray over the Spent Fuel Pool of Unit 4 (09:43 March 20th).
- ∂ On-site survey for leading electric cable (From 11:00 till 16:00 March 20th)
- ∂ Water spray over the Spent Fuel Pool of Unit 4 by Self-Defense Force was started. (From around 18:30 till 19:46 March 20th).
- ∂ Water spray over the Spent Fuel Pool by Self-Defence Force using 13 fire engines was started (From 06:37 till 08:41 March 21st).
- ∂ Works for laying electricity cable to the Power Center was completed. (At around 15:00 March 21st)
- ∂ Power Center received electricity. (10:35 March 22nd)
- ∂ Spray of around 150t of water using Concrete Pump Truck (50t/h) was carried out. (from 17:17 till 20:32 March 22nd)
- ∂ Spray of around 130t of water using Concrete Pump Truck (50t/h) was carried out. (From 10:00 till 13:02 March 23rd)

- situation, immediate pressure relief was not required. Monitoring the pressure continues (120 kPa at 12:15 March 21st).
- ∂ On-site survey for leading electric cable (From 11:00 till 16:00 March 20th)
 - ∂ Water spray over the Spent Fuel Pool of Unit 3 by Hyper Rescue Unit of Tokyo Fire Department was carried out (From 21:30 March 20th till 03:58 March 21st).
 - ∂ Works for the recovery of external power supply is being carried out.
 - ∂ Grayish smoke generated from Unit 3. (At around 15:55 March 21st)
 - ∂ The smoke was confirmed to be died down. (17:55 March 21st)
 - ∂ Grayish smoke changed to be whitish and seems to be ceasing. (As of 07:11 March 22nd)
 - ∂ Water spray (Around 180t) by Hyper Rescue Unit of Tokyo Fire Department was carried out. (from 15:10 till 15:59 March 22nd)
 - ∂ Lighting was recovered in the Central Operation Room. (22:43 March 22nd)
 - ∂ Injection of 35t of seawater to the Spent Fuel Pool via the Fuel Pool Cooling Line was carried out. (From 11:03 till 13:20 March 23rd)
 - ∂ Slightly blackish smoke generated from the reactor building. (Around 16:20 March 23rd) At around 23:30 March 23rd and around 4:50 March 24th, it was reported that the smoke seemed to cease.
 - ∂ Around 120t of seawater was injected to the Spent Fuel Pool via the Fuel Pool Cooling Line. (From around 5:35 till around 16:05 March 24th)
 - ∂ As the results of the survey of the stagnant water, into which workers who were laying electric cable on the ground floor and the basement floor of the turbine building of the Unit 3 walked, the dose rate on the water surface was around 400mSv/h, and as the result of gamma-ray analysis of the sampling water, the totaled concentration of each nuclide of the sampling water was around 3.9×10^6 Bq/cm³.
 - ∂ Water spray by Kawasaki Citz Fire Bureau supported by Tokyo Fire Department was carried out. (From 13:28 till 16:00 March 25th)
 - ∂ Water spray of approximately 100t using Concrete Pump Truck (50t/h) was carried out. (From 12:34 till 14:36 March 27th)

- (13:12 March 13th)
- ㊦ Seawater injection for Units 1 and 3 was interrupted due to the lack of seawater in pit. (01:10 March 14th)
 - ㊦ Seawater injection to RPV for Unit 3 was restarted. (03:20 March 14th)
 - ㊦ Operation of Vent (05:20 March 14th)
 - ㊦ The pressure in Primary Containment Vessel (PCV) of Unit 3 rose unusually. (07:44 March 14th) TEPCO reported to NISA on the event falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (7:52 March 14th)
 - ㊦ In Unit 3, the explosion like Unit 1 occurred around the reactor building (11:01 March 14th)
 - ㊦ The white smoke like steam generated from Unit 3. (08:30 March 16th)
 - ㊦ Because of the possibility that PCV of Unit 3 was damaged, the workers evacuated from the main control room of Units 3 and 4 (common control room). (10:45 March 16th) Thereafter the operators returned to the room and restarted the operation of water injection. (11:30 March 16th)
 - ㊦ Seawater was discharged 4 times to Unit 3 by the helicopters of the Self-Defence Force. (9:48, 9:52, 9:58 and 10:01 March 17th)
 - ㊦ The riot police arrived at the site for the water spray from the ground. (16:10 March 17th)
 - ㊦ The Self-Defence Force started the water spray using a fire engine. (19:35 March 17th)
 - ㊦ The water spray from the ground was carried out by the riot police. (From 19:05 till 19:13 March 17th)
 - ㊦ The water spray from the ground was carried out by the Self-Defense Force using 5 fire engines. (19:35, 19:45, 19:53, 20:00 and 20:07 March 17th)
 - ㊦ The water spray from the ground using 6 fire engines (6 tons of water spray per engine) was carried out by the Self-Defence Force. (From before 14:00 till 14:38 March 18th)
 - ㊦ The water spray from the ground using a fire engine provided by the US Military was carried out. (Finished at 14:45 March 18th)
 - ㊦ Hyper Rescue Unit of Tokyo Fire Department carried out the water spray. (Finished at 03:40 March 20th)
 - ㊦ The pressure in PCV of Unit 3 rose (320 kPa as of 11:00 March 20th). Preparation to lower the pressure was carried. Judging from the

- ∂ White smoke was confirmed to generate continuously (As of 08:00 March 26th)
- ∂ Lighting of Central Operation Room was recovered (16:46 March 26th)
- ∂ The pump for the fresh water injection to RPV of Unit 2 was switched from the Fire Pump Truck to the temporary motor-driven pump. (18:31 March 27th)
- ∂ Regarding the result of the concentration measurement in the stagnant water on the basement floor of the turbine building of Unit 2 of Fukushima Dai-ichi NPS announced by TEPCO on 27 March, TEPCO reported to NISA that as the result of analysis and evaluation through re-sampling, judging the measured value of Iodine-134 was wrong, the concentrations of gamma nuclides including Iodine-134 were less than the detection limit. (00:07 March 28)
- ∂ The Seawater injection to the Spent Fuel Pool using the Fire Pump Truck was switched to the fresh water using the temporary motor-driven pump. (From 16:30 till 18:25 March 29th)
- ∂ As the temporary motor-driven pump injecting to the Spent Fuel Pool of Unit 2 was confirmed to be in a bad condition, the injection pump was switched to Fire Pump Truck. However, because cracks were confirmed in the hose (12:47 and 13:10 March 30th), the injection was currently being suspended.
- ∂ White smoke was confirmed to generate continuously. (As of 06:30 March 30th)
- ∂ Fresh water injection to RPV is being carried out. (As of 15:30 March 30th)

<Unit 3>

- ∂ TEPCO reported to NISA the event (Inability of water injection of the Emergency Core Cooling System) falling under the Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (05:10 March 13th)
- ∂ Operation of Vent (20:41 March 12th)
- ∂ Operation of Vent (08:41 March 13th)
- ∂ Fresh water started to be injected to RPV via the Fire Extinguish Line. (11:55 March 13th)
- ∂ Seawater started to be injected to RPV via the Fire Extinguish Line.

MARCH 30, 2011

Results of environmental monitoring at each NPSs etc.

unit: μ Sv/h

Range of normal average value	Company	NPS	March 29th, 2011												
			0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	
0.023~0.027	Hokkaido Electric Power Co.	Tomari NPS	0.024	0.023	0.024	0.024	0.024	0.024	0.024	0.024	0.023	0.024	0.023	0.024	0.024
0.024~0.060	Tohoku Electric Power Co.	Onagawa NPS	0.67	0.67	0.67	0.66	0.66	0.66	0.65	0.65	0.65	0.64	0.64	0.64	
0.012~0.060		Higashidori NPS	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	
0.033~0.050	Tokyo Electric Power Co.	Fukushima Dai-ichi*	117.8	117.5	117.2	116.6	116.2	182.0	127.6	117.6	132.7	137.8	126.6	125.4	
0.036~0.052		Fukushima Dai-ri	8.220	8.177	8.977	8.403	8.377	8.483	8.330	8.293	8.193	8.210	8.280	8.223	
0.011~0.159		Kashiwazaki kariwa NPS	0.064	0.065	0.065	0.066	0.065	0.065	0.065	0.065	0.066	0.066	0.066	0.065	
0.036~0.053	Japan Atomic Power Co.	Tokai Dai-ri NPS	0.691	0.691	0.689	0.685	0.681	0.685	0.681	0.677	0.686	0.679	0.681	0.683	
0.039~0.110		Tsuruga NPS	0.074	0.073	0.074	0.073	0.073	0.073	0.072	0.073	0.074	0.074	0.074	0.073	
0.064~0.108	Chubu Electric Power Co.	Hamaoka NPS	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.077	0.076	0.076		
0.0207~0.132	Hokuriku Electric Power Co.	Shika NPS	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.034	0.034	0.033	
0.028~0.130	Chugoku Electric Power Co.	Shimane NPS	0.030	0.030	0.032	0.032	0.031	0.035	0.030	0.030	0.030	0.029	0.030	0.030	
0.070~0.077		Mihama NPS	0.072	0.073	0.072	0.072	0.072	0.074	0.073	0.072	0.073	0.073	0.074	0.072	
0.045~0.047	Kansai Electric Power Co.	Takahama NPS	0.042	0.042	0.043	0.044	0.042	0.043	0.043	0.043	0.044	0.044	0.044	0.043	
0.036~0.040		Ooi NPS	0.036	0.036	0.037	0.037	0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.035	
0.011~0.080	Shikoku Electric Power Co.	Ikata NPS	0.014	0.013	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	
0.023~0.087	Kyushu Electric Power Co.	Genkai NPS	0.026	0.026	0.026	0.026	0.026	0.027	0.026	0.027	0.027	0.027	0.026	0.027	
0.034~0.120		Sendai NPS	0.035	0.039	0.037	0.037	0.040	0.037	0.039	0.041	0.038	0.037	0.037	0.036	
0.009~0.069	Japan Nuclear Fuel Limited	Japan Nuclear Fuel Reprocessing Plant	0.016	0.017	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	
0.009~0.071		Japan Nuclear Fuel Plant Disposal	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	

*There could be small deviation on the monitoring time and area because of operational situation concerning with data of Fukushima Dai-ichi NPS

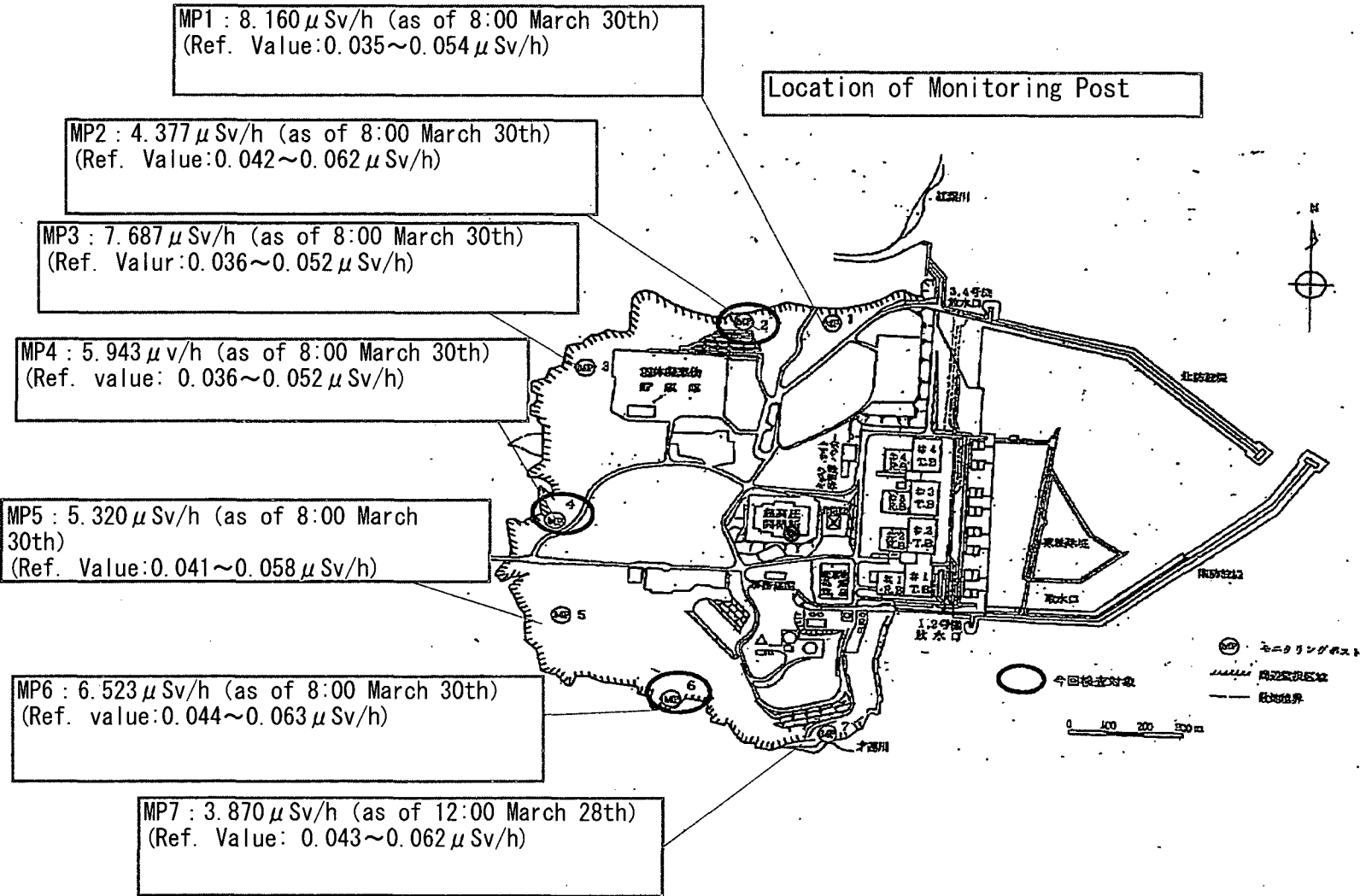
Range of normal average value	Company	NPS	March 29th, 2011											
			12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
0.023~0.027	Hokkaido Electric Power Co.	Tomari NPS	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.025		
0.024~0.060	Tohoku Electric Power Co.	Onagawa NPS	0.63	0.63	0.63	0.63	0.62	0.62	0.62	0.62	0.63	0.63		
0.012~0.060		Higashidori NPS	0.016	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017		
0.033~0.050	Tokyo Electric Power Co.	Fukushima Dai-ichi*	122.5	120.2	117.2	116.0	117.5	121.5	117.1	116.0	115.0	114.0		
0.036~0.052		Fukushima Dai-ri	8.110	8.067	8.067	7.970	7.937	7.930	7.940	7.900	7.853	7.847		
0.011~0.159		Kashiwazaki kariwa NPS	0.066	0.066	0.065	0.065	0.065	0.066	0.066	0.065	0.065	0.067		
0.036~0.053	Japan Atomic Power Co.	Tokai Dai-ri NPS	0.679	0.674	0.671	0.666	0.667	0.664	0.665	0.660	0.657	0.655		
0.039~0.110		Tsuruga NPS	0.072	0.074	0.073	0.072	0.074	0.073	0.073	0.074	0.074	0.073		
0.064~0.108	Chubu Electric Power Co.	Hamaoka NPS	0.076	0.075	0.076	0.076	0.075	0.075	0.076	0.075	0.075	0.076		
0.0207~0.132	Hokuriku Electric Power Co.	Shika NPS	0.033	0.033	0.033	0.032	0.032	0.033	0.033	0.033	0.033	0.033		
0.028~0.130	Chugoku Electric Power Co.	Shimane NPS	0.030	0.029	0.030	0.030	0.030	0.031	0.029	0.030	0.029	0.029		
0.070~0.077		Mihama NPS	0.073	0.070	0.074	0.073	0.072	0.072	0.072	0.073	0.073	0.073		
0.045~0.047	Kansai Electric Power Co.	Takahama NPS	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043		
0.036~0.040		Ooi NPS	0.035	0.035	0.034	0.035	0.034	0.035	0.035	0.035	0.034	0.036		
0.011~0.080	Shikoku Electric Power Co.	Ikata NPS	0.014	0.013	0.014	0.014	0.014	0.014	0.014	0.019	0.018	0.015		
0.023~0.087	Kyushu Electric Power Co.	Genkai NPS	0.027	0.026	0.036	0.035	0.032	0.027	0.027	0.034	0.032	0.028		
0.034~0.120		Sendai NPS	0.040	0.038	0.037	0.040	0.038	0.040	0.035	0.037	0.035	0.038		
0.009~0.069	Japan Nuclear Fuel Limited	Japan Nuclear Fuel Reprocessing Plant	0.015	0.016	0.016	0.016	0.016	0.017	0.017	0.016	0.015	0.016		
0.009~0.071		Japan Nuclear Fuel Plant Disposal	0.021	0.021	0.022	0.021	0.021	0.023	0.023	0.022	0.022	0.022		

*There could be small deviation on the monitoring time and area because of operational situation concerning with data of Fukushima Dai-ichi NPS

VVV/262

Fukushima Dai-*ni* NPS

as of 10:00, March 30th, 2011



Fukushima Dai-ri (TEPCO's Monitoring Post)

March 29th, 2011																									
monitoring point	12:00	12:10	12:20	12:30	12:40	12:50	13:00	13:10	13:20	13:30	13:40	13:50	14:00	14:10	14:20	14:30	14:40	14:50	15:00	15:10	15:20	15:30	15:40	15:50	
MP1 (μ Sv/h)	8.590	8.560	8.537	8.590	8.563	8.563	8.517	8.543	8.537	8.497	8.500	8.517	8.517	8.510	8.497	8.463	8.467	8.453	8.470	8.460	8.427	8.467	8.447	8.443	
MP2 (μ Sv/h)	4.593	4.587	4.597	4.607	4.570	4.580	4.570	4.567	4.570	4.553	4.573	4.577	4.580	4.560	4.547	4.550	4.550	4.543	4.553	4.537	4.543	4.523	4.523	4.517	
MP3 (μ Sv/h)	8.110	8.110	8.090	8.087	8.067	8.090	8.067	8.070	8.067	8.020	8.050	8.033	8.067	8.050	8.020	8.007	7.967	8.023	7.970	7.987	7.987	7.993	7.973	7.970	
MP4 (μ Sv/h)	6.203	6.220	6.193	6.223	6.213	6.213	6.200	6.190	6.190	6.177	6.160	6.140	6.123	6.173	6.160	6.173	6.150	6.157	6.153	6.163	6.130	6.117	6.117	6.117	
MP5 (μ Sv/h)	5.593	5.593	5.593	5.593	5.593	5.593	5.593	5.593	5.593	5.540	5.593	5.593	5.567	5.493	5.573	5.493	5.547	5.547	5.547	5.500	5.520	5.500	5.500	5.500	
MP6 (μ Sv/h)	6.843	6.797	6.807	6.833	6.830	6.820	6.780	6.777	6.817	6.777	6.773	6.787	6.780	6.783	6.753	6.767	6.763	6.753	6.760	6.767	6.767	6.723	6.727	6.730	
MP7 (μ Sv/h)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
wind direction	SSE	SSE	SE	SSE	SE	S	SSE	SSE	ESE	SE	SSE	SSE	S	S	SSE	SSW	S	SSE	SSE	SSE	SSE	SSE	S	S	
wind speed (m/s)	7.8	6.5	4.1	5.0	3.1	5.6	4.2	2.6	0.7	2.5	3.2	4.6	4.1	2.6	1.1	2.0	3.9	1.4	2.6	2.1	2.1	1.4	4.0	5.4	

March 29th, 2011																									
monitoring point	16:00	16:10	16:20	16:30	16:40	16:50	17:00	17:10	17:20	17:30	17:40	17:50	18:00	18:10	18:20	18:30	18:40	18:50	19:00	19:10	19:20	19:30	19:40	19:50	
MP1 (μ Sv/h)	8.440	8.463	8.420	8.463	8.387	8.413	8.377	8.383	8.370	8.387	8.380	8.363	8.363	8.373	8.367	8.380	8.370	8.370	8.353	8.333	8.333	8.320	8.330	8.343	
MP2 (μ Sv/h)	4.527	4.540	4.503	4.533	4.490	4.493	4.500	4.507	4.503	4.480	4.487	4.487	4.470	4.487	4.483	4.503	4.460	4.467	4.477	4.467	4.467	4.463	4.467	4.450	
MP3 (μ Sv/h)	7.937	7.960	7.973	7.937	7.943	7.960	7.930	7.920	7.940	7.900	7.927	7.923	7.940	7.917	7.950	7.900	7.903	7.867	7.900	7.847	7.890	7.853	7.863	7.870	
MP4 (μ Sv/h)	6.117	6.123	6.097	6.120	6.090	6.113	6.100	6.090	6.093	6.073	6.090	6.080	6.093	6.073	6.100	6.083	6.077	6.053	6.070	6.047	6.047	6.057	6.043	6.047	
MP5 (μ Sv/h)	5.500	5.493	5.493	5.493	5.493	5.493	5.500	5.500	5.493	5.500	5.500	5.493	5.500	5.493	5.493	5.493	5.500	5.453	5.453	5.493	5.493	5.447	5.500	5.447	
MP6 (μ Sv/h)	6.733	6.720	6.717	6.733	6.737	6.703	6.720	6.740	6.693	6.720	6.687	6.697	6.683	6.690	6.677	6.687	6.683	6.660	6.660	6.670	6.677	6.657	6.660	6.650	
MP7 (μ Sv/h)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
wind direction	S	S	S	S	S	SSW	S	S	S	SSW	SSW	SW	W	WSW	SSW	SSW	SSW	SW	SW	WSW	WSW	W	W	W	
wind speed (m/s)	5.0	2.1	4.2	5.9	5.7	0.5	3.4	5.9	6.4	6.3	4.8	2.8	1.5	0.8	4.4	5.4	4.7	1.8	3.2	4.4	3.2	5.1	7.1	5.6	

March 29th, 2011																									
monitoring point	20:00	20:10	20:20	20:30	20:40	20:50	21:00	21:10	21:20	21:30	21:40	21:50	22:00	22:10	22:20	22:30	22:40	22:50	23:00	23:10	23:20	23:30	23:40	23:50	
MP1 (μ Sv/h)	8.323	8.337	8.290	8.277	8.280	8.290	8.293	8.297	8.290	8.280	8.270	8.270	8.257	8.257	8.280	8.263	8.260	8.243	8.247	8.243	8.247	8.190	8.217	8.233	
MP2 (μ Sv/h)	4.467	4.460	4.467	4.430	4.447	4.437	4.437	4.447	4.430	4.440	4.437	4.427	4.423	4.427	4.427	4.420	4.417	4.413	4.407	4.397	4.407	4.413	4.383	4.397	
MP3 (μ Sv/h)	7.853	7.860	7.863	7.843	7.857	7.843	7.847	7.830	7.810	7.830	7.830	7.790	7.823	7.823	7.757	7.790	7.813	7.787	7.783	7.823	7.793	7.760	7.773	7.763	
MP4 (μ Sv/h)	6.027	6.047	6.020	6.013	6.033	6.037	6.063	6.000	6.047	5.997	6.007	6.023	6.000	6.010	5.997	5.997	5.953	5.953	5.987	5.973	6.010	5.957	5.983	5.970	
MP5 (μ Sv/h)	5.400	5.400	5.453	5.400	5.500	5.400	5.433	5.400	5.400	5.400	5.400	5.400	5.400	5.400	5.400	5.400	5.407	5.400	5.400	5.400	5.400	5.400	5.400	5.400	
MP6 (μ Sv/h)	6.633	6.630	6.637	6.650	6.637	6.637	6.630	6.640	6.593	6.617	6.617	6.630	6.600	6.587	6.597	6.620	6.567	6.610	6.600	6.593	6.613	6.563	6.580	6.587	
MP7 (μ Sv/h)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
wind direction	W	WSW	SW	WSW	SW	SSE	SW	SE	NNW	NNW	NNW	NNW	NNW	NW	W	WNW	NW	WNW	WNW	NW	NW	NNW	WNW	WNW	
wind speed (m/s)	5.7	2.8	0.8	0.8	2.3	0.0	0.0	0.1	1.9	2.2	1.9	3.7	3.1	4.0	3.9	2.2	1.7	2.2	3.3	3.6	2.7	3.1	3.0	5.5	

Fukushima Dai-ri (TEPCO's Monitoring Post)

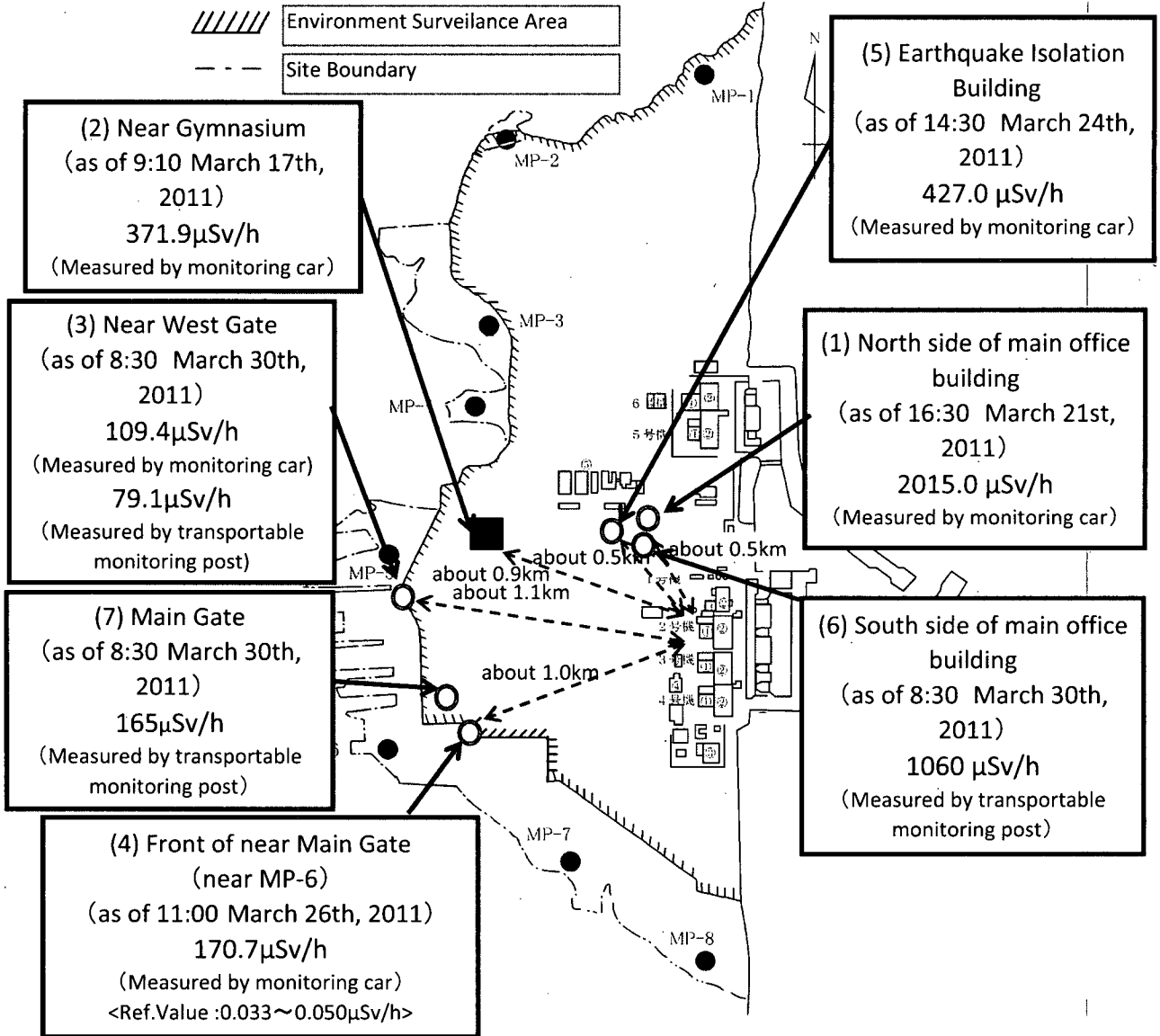
March 29th, 2011																								
monitoring point	0:00	0:10	0:20	0:30	0:40	0:50	1:00	1:10	1:20	1:30	1:40	1:50	2:00	2:10	2:20	2:30	2:40	2:50	3:00	3:10	3:20	3:30	3:40	3:50
MP1 (μ Sv/h)	8.707	8.693	8.710	8.697	8.697	8.673	8.683	8.693	8.633	8.693	8.967	10.027	9.610	9.483	9.467	9.933	9.433	9.150	8.970	8.873	8.873	8.780	8.800	8.830
MP2 (μ Sv/h)	4.667	4.647	4.670	4.657	4.633	4.657	4.637	4.640	4.613	4.657	4.730	5.677	5.633	5.390	5.420	5.833	5.437	5.047	4.920	4.867	4.817	4.823	4.797	4.813
MP3 (μ Sv/h)	8.220	8.227	8.217	8.180	8.253	8.210	8.177	8.180	8.237	8.217	8.207	8.560	8.977	8.620	8.763	8.777	8.717	8.463	8.403	8.353	8.353	8.303	8.317	8.333
MP4 (μ Sv/h)	6.227	6.237	6.197	6.227	6.210	6.233	6.203	6.173	6.200	6.190	6.220	6.497	7.193	6.643	6.893	6.713	6.817	6.710	6.650	6.543	6.443	6.353	6.393	6.397
MP5 (μ Sv/h)	5.693	5.693	5.693	5.693	5.693	5.693	5.667	5.693	5.673	5.593	5.667	5.693	6.547	6.180	6.167	6.187	6.373	6.327	6.367	6.180	6.087	5.987	5.993	6.087
MP6 (μ Sv/h)	6.817	6.850	6.843	6.843	6.810	6.837	6.823	6.837	6.833	6.807	6.827	6.997	7.197	7.057	6.947	6.910	7.080	7.177	7.177	7.093	7.043	7.010	7.050	7.050
MP7 (μ Sv/h)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
wind direction	WNW	W	W	W	WSW	SW	ESE	ESE	SW	SW	SSE	E	ESE	ESE	ESE	S	S	NNW	NE	ENE	NNE	E	NE	ENE
wind speed (m/s)	5.8	6.8	5.9	5.1	0.8	0.5	0.8	1.9	2.3	1.1	0.7	0.7	1.7	1.7	0.3	0.1	0.6	0.6	0.9	0.8	0.9	0.7	1.6	1.7

March 29th, 2011																								
monitoring point	4:00	4:10	4:20	4:30	4:40	4:50	5:00	5:10	5:20	5:30	5:40	5:50	6:00	6:10	6:20	6:30	6:40	6:50	7:00	7:10	7:20	7:30	7:40	7:50
MP1 (μ Sv/h)	8.837	9.013	9.220	9.023	8.973	9.090	9.060	9.203	9.017	8.923	8.743	8.823	8.827	8.813	8.837	8.783	8.803	8.763	8.717	8.717	8.693	8.683	8.677	8.630
MP2 (μ Sv/h)	4.813	4.987	5.323	5.030	4.970	5.053	5.113	5.110	5.000	4.893	4.810	4.780	4.837	4.843	4.873	4.820	4.833	4.813	4.740	4.710	4.690	4.687	4.690	4.677
MP3 (μ Sv/h)	8.377	8.503	8.763	8.623	8.460	8.517	8.483	8.557	8.467	8.450	8.320	8.287	8.330	8.377	8.363	8.360	8.343	8.350	8.293	8.210	8.203	8.163	8.210	8.203
MP4 (μ Sv/h)	6.470	6.623	6.927	6.793	6.623	6.627	6.643	6.770	6.623	6.503	6.480	6.410	6.403	6.493	6.437	6.403	6.450	6.410	6.297	6.293	6.257	6.233	6.267	6.230
MP5 (μ Sv/h)	6.060	6.187	6.567	6.373	6.273	6.373	6.273	6.413	6.247	6.133	6.060	6.087	6.087	6.087	6.087	5.993	5.993	5.893	5.787	5.787	5.767	5.747	5.787	5.793
MP6 (μ Sv/h)	6.993	7.160	7.413	7.253	7.207	7.293	7.320	7.160	7.143	7.107	7.053	7.057	7.043	7.073	7.060	7.023	6.980	6.930	6.847	6.877	6.833	6.797	6.823	6.823
MP7 (μ Sv/h)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
wind direction	ENE	E	ESE	E	WSW	SSW	ESE	ESE	ESE	ESE	SSE	SW	SW	SW	WSW	SW	SW	SSW	SW	SSE	ESE	SSE	SSE	SE
wind speed (m/s)	1.4	1.6	1.9	0.6	0.5	0.9	1.1	1.5	1.5	1.1	1.0	0.9	0.9	0.8	2.2	3.4	3.8	2.8	1.2	1.8	1.5	2.3	3.1	2.6

March 29th, 2011																								
monitoring point	8:00	8:10	8:20	8:30	8:40	8:50	9:00	9:10	9:20	9:30	9:40	9:50	10:00	10:10	10:20	10:30	10:40	10:50	11:00	11:10	11:20	11:30	11:40	11:50
MP1 (μ Sv/h)	8.650	8.663	8.697	8.797	8.763	8.727	8.720	8.753	8.800	8.723	8.757	8.717	8.680	8.710	8.693	8.680	8.710	8.710	8.723	8.617	8.660	8.610	8.630	8.553
MP2 (μ Sv/h)	4.653	4.673	4.720	4.800	4.780	4.733	4.743	4.757	4.833	4.787	4.757	4.763	4.753	4.730	4.747	4.730	4.727	4.710	4.720	4.640	4.653	4.627	4.607	4.597
MP3 (μ Sv/h)	8.193	8.163	8.227	8.270	8.233	8.210	8.210	8.240	8.273	8.310	8.243	8.273	8.280	8.217	8.243	8.247	8.223	8.203	8.223	8.160	8.170	8.153	8.130	8.127
MP4 (μ Sv/h)	6.230	6.230	6.297	6.327	6.307	6.297	6.307	6.313	6.320	6.357	6.363	6.367	6.360	6.357	6.327	6.357	6.340	6.327	6.307	6.273	6.273	6.233	6.210	6.190
MP5 (μ Sv/h)	5.793	5.793	5.787	5.787	5.793	5.793	5.793	5.793	5.793	5.793	5.893	5.793	5.793	5.793	5.787	5.793	5.787	5.740	5.693	5.693	5.640	5.647	5.647	5.600
MP6 (μ Sv/h)	6.823	6.840	6.860	6.843	6.890	6.903	6.897	6.897	6.890	6.930	6.950	6.943	6.933	6.947	6.943	6.960	6.953	6.940	6.910	6.870	6.853	6.870	6.863	6.857
MP7 (μ Sv/h)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
wind direction	E	SSE	SSE	ESE	SE	SSE	SE	SE	E	E	E	ESE	ESE	ESE	SE	SE	SE	SE	SE	SSE	SE	SSE	SSE	SSE
wind speed (m/s)	2.2	3.2	3.0	2.5	3.4	3.8	2.7	2.1	2.4	3.0	2.6	3.0	3.8	3.6	3.4	3.3	3.2	3.4	3.9	3.3	4.8	5.7	6.4	6.7

Fukushima Dai-ichi NPS

as of 10:00, March 30th, 2011

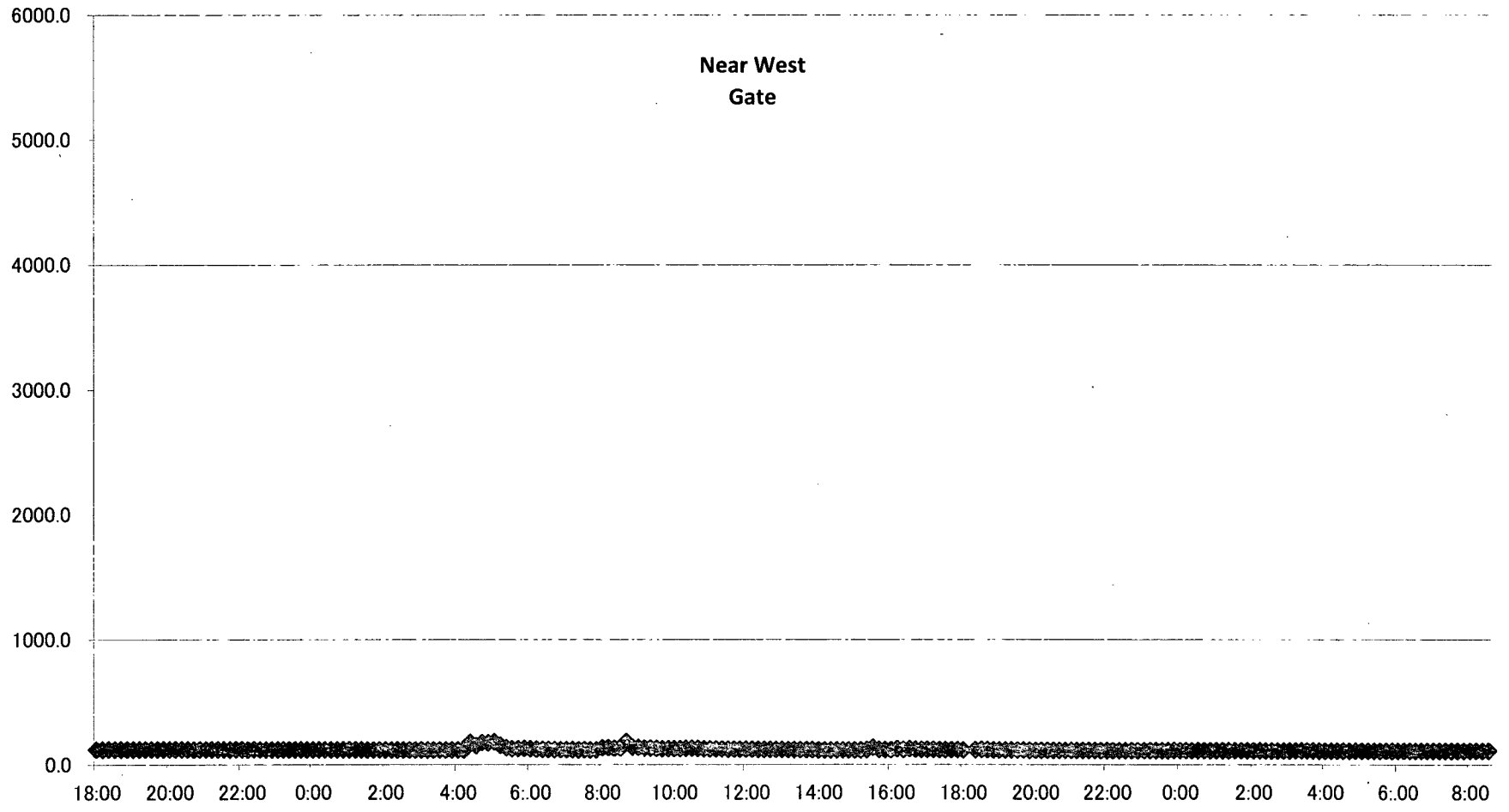


Dose Rate in the Fukushima Dai-ichi NPS

(Measured by monitoring car)

$\mu\text{Sv/h}$

Near West Gate



March 29th

March 30th

March 29th, 2011

Fukushima Dai-ichi
Monitoring points

- ① North side of main office building (approx. 0.5km from Unit 2 in northwest direction)
- ② Near Gymnasium (East side of MP-5) (approx. 0.9km from Unit 2 in westnorthwest direction)
- ③ Near West Gate (near MP-5) (approx. 1.1km from Unit 2 in west direction)
- ④ Front of near Main Gate (near MP-6) (approx. 1.0km from Unit 2 in westnorthwest direction)
- ⑤ Front of Earthquake Isolation Building (approx. 0.5km from Unit2 in northwest dirction)

Monitoring points		③																							
Reading time		0:00	0:10	0:20	0:30	0:40	0:50	1:00	1:10	1:20	1:30	1:40	1:50	2:00	2:10	2:20	2:30	2:40	2:50	3:00	3:10	3:20	3:30	3:40	3:50
MC	Reading(μ Sv/h)	117.8	117.7	117.7	117.5	117.5	117.5	117.5	117.4	117.4	117.3	117.2	117.1	117.2	117.1	116.9	116.7	116.7	116.8	116.6	116.5	116.4	116.4	116.3	116.3
	neutron	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
Car	SMOB(mSv/h)*1	1,150	—	—	1,140	—	—	1,150	—	—	1,150	—	—	1,150	—	—	1,140	—	—	1,130	—	—	1,130	—	—
	MG(μ Sv/h)*2	181	—	—	182	—	—	180	—	—	182	—	—	180	—	—	182	—	—	182	—	—	180	—	—
	WG(μ Sv/h)*3	85.4	—	—	85.5	—	—	85.4	—	—	85.0	—	—	83.7	—	—	85.4	—	—	85.0	—	—	85.3	—	—
wind direction		NW	NW	WNW	WNW	NW	NNW	NW	SW	SSE	SE	NW	NNW	NW	W	WNW	WNW	W	W	W	W	WSW	NW	W	
wind speed (m/s)		0.6	0.7	0.6	0.5	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.6	0.5	1.0	1.2	1.2	1.1	1.0	0.9	1.0	1.2	1.0	0.8	0.5

*1: SMOB : South Side of Main Office Building
*2: MG: Main Gate
*3: WG:West Gate

Monitoring points		③																							
Reading time		4:00	4:10	4:20	4:30	4:40	4:50	5:00	5:10	5:20	5:30	5:40	5:50	6:00	6:10	6:20	6:30	6:40	6:50	7:00	7:10	7:20	7:30	7:40	7:50
MC	Reading(μ Sv/h)	116.2	116.2	117.1	150.0	175.5	173.0	182.0	155.0	134.3	127.0	126.6	128.5	127.6	122.3	120.1	120.0	118.2	117.8	117.6	117.4	117.3	117.4	116.7	116.6
	neutron	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
Car	SMOB(mSv/h)*1	1,140	—	—	1,200	—	—	1,200	—	—	1,190	—	—	1,160	—	—	1,130	—	—	1,190	—	—	1,300	—	—
	MG(μ Sv/h)*2	181	—	—	201	—	—	236	—	—	191	—	—	186	—	—	183	—	—	183	—	—	181	—	—
	WG(μ Sv/h)*3	85.2	—	—	119	—	—	152	—	—	96.8	—	—	96.1	—	—	88.1	—	—	85.5	—	—	86.7	—	—
wind direction		W	NE	N	W	W	W	WSW	W	W	W	WSW	W	W	WSW	W	W	W	WSW	WSW	WSW	WNW	NNE	SE	S
wind speed (m/s)		0.6	0.4	0.3	0.3	0.4	0.6	0.8	0.8	0.8	0.7	0.8	0.9	0.8	1.0	0.7	0.8	0.8	0.5	0.5	0.4	0.2	0.4	0.6	1.0

Monitoring points		③																							
Reading time		8:00	8:10	8:20	8:30	8:40	8:50	9:00	9:10	9:20	9:30	9:40	9:50	10:00	10:10	10:20	10:30	10:40	10:50	11:00	11:10	11:20	11:30	11:40	11:50
MC	Reading(μ Sv/h)	132.7	134.7	128.2	130.3	183.8	140.2	137.8	131.9	130.3	129.6	127.8	127.0	126.6	126.1	128.7	130.6	128.1	127.9	125.4	124.9	124.0	123.3	123.2	122.7
	neutron	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
Car	SMOB(mSv/h)*1	1,250	—	—	1,160	—	—	1,190	—	—	1,230	—	—	1,260	—	—	1,200	—	—	1,190	—	—	1,270	—	—
	MG(μ Sv/h)*2	181	—	—	180	—	—	180	—	—	180	—	—	182	—	—	180	—	—	179	—	—	180	—	—
	WG(μ Sv/h)*3	101	—	—	99.5	—	—	101	—	—	96	—	—	92.9	—	—	95	—	—	90.6	—	—	89.3	—	—
wind direction		ESE	E	E	ESE	E	SE	E	E	E	SE	ESE	SE	SE	E	E	E	E	SE	E	E	E	SE	WSW	SW
wind speed (m/s)		0.8	1.3	1.9	1.8	2.3	2.1	1.8	2.0	3.1	2.5	2.7	2.4	2.1	1.7	3.2	3.8	3.0	3.1	3.0	1.9	2.5	2.0	1.5	2.5

March 29th, 2011

Fukushima Dai-ichi
Monitoring points

- ① North side of main office building (approx. 0.5km from Unit 2 in northwest direction)
- ② Near Gymnasium (East side of MP-5) (approx. 0.9km from Unit 2 in westnorthwest direction)
- ③ Near West Gate (near MP-5) (approx. 1.1km from Unit 2 in west direction)
- ④ Front of near Main Gate (near MP-6) (approx. 1.0km from Unit 2 in westnorthwest direction)
- ⑤ Front of Earthquake Isolation Building (approx. 0.5km from Unit2 in northwest dirction)

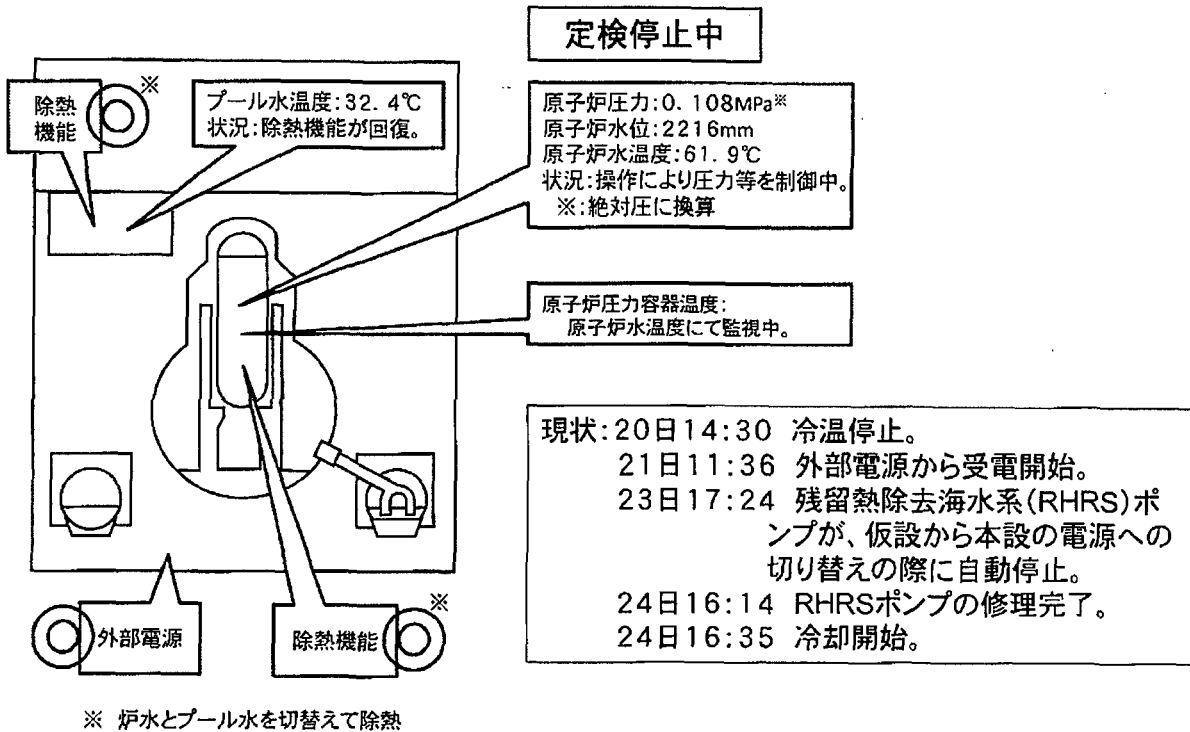
Monitoring points		③																							
Reading time		12:00	12:10	12:20	12:30	12:40	12:50	13:00	13:10	13:20	13:30	13:40	13:50	14:00	14:10	14:20	14:30	14:40	14:50	15:00	15:10	15:20	15:30	15:40	15:50
MC	Reading (μSv/h)	122.5	121.8	121.4	120.8	120.5	120.4	120.2	118.5	119.4	118.0	117.7	117.5	117.2	116.7	116.9	116.5	116.4	116.1	116.0	115.8	117.6	137.8	119.5	117.5
	neutron	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
Car	SMOB(mSv/h)*1	1,170	—	—	1,150	—	—	1,130	—	—	1,120	—	—	1,130	—	—	1,130	—	—	1,220	—	—	1,210	—	—
	MG(μSv/h)*2	177	—	—	178	—	—	177	—	—	178	—	—	177	—	—	176	—	—	175	—	—	175	—	—
	WG(μSv/h)*3	86	—	—	85.6	—	—	84	—	—	84.8	—	—	82.6	—	—	81	—	—	82.8	—	—	98.8	—	—
	wind direction	WSW	SW	W	W	W	W	NW	W	W	W	SSW	NNW	E	E	ESE	ESE	E	ESE	SSE	E	E	E	ESE	SE
wind speed (m/s)		2.8	2.6	2.8	2.7	2.5	3.3	3.4	2.8	2.4	2.2	2.0	1.6	2.6	2.0	2.3	1.5	1.5	1.7	1.5	1.9	2.5	2.7	2.8	2.5

*1: SMOB : South Side of Main Office Building
 *2: MG: Main Gate
 *3: WG:West Gate

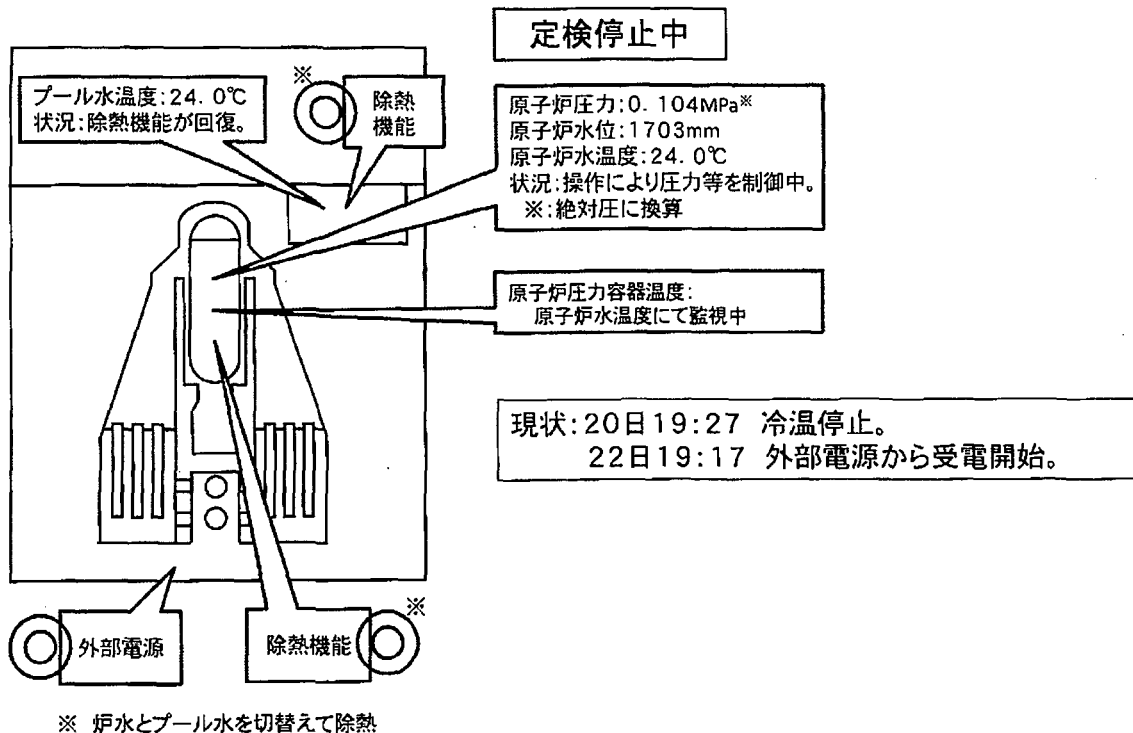
Monitoring points		③																							
Reading time		16:00	16:10	16:20	16:30	16:40	16:50	17:00	17:10	17:20	17:30	17:40	17:50	18:00	18:10	18:20	18:30	18:40	18:50	19:00	19:10	19:20	19:30	19:40	19:50
MC	Reading (μSv/h)	117.5	126.2	121.4	127.9	123.1	119.9	121.5	119.9	118.1	117.7	117.7	117.5	117.1	120.1	118.1	120.2	117.4	116.4	116.0	115.9	115.7	115.4	115.3	115.1
	neutron	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
Car	SMOB(mSv/h)*1	1,180	—	—	1,130	—	—	1,160	—	—	1,170	—	—	1,160	—	—	1,110	—	—	1,110	—	—	1,110	—	—
	MG(μSv/h)*2	174	—	—	194	—	—	175	—	—	176	—	—	173	—	—	177	—	—	172	—	—	171	—	—
	WG(μSv/h)*3	82.4	—	—	90.3	—	—	83.9	—	—	83	—	—	84	—	—	85	—	—	82.2	—	—	81	—	—
	wind direction	SE	ENE	E	E	ESE	E	E	ESE	E	ESE	E	E	E	N	NW	NW	WNW	W	W	NW	NW	W	W	NW
wind speed (m/s)		2.7	2.1	2.0	1.7	1.5	1.8	1.4	1.3	0.9	1.7	1.5	1.4	1.0	0.7	0.4	0.7	0.6	0.8	1.0	0.8	0.9	0.9	1.0	1.1

Monitoring points		③																							
Reading time		20:00	20:10	20:20	20:30	20:40	20:50	21:00	21:10	21:20	21:30	21:40	21:50	22:00	22:10	22:20	22:30	22:40	22:50	23:00	23:10	23:20	23:30	23:40	23:50
MC	Reading (μSv/h)	115.0	115.0	114.5	114.4	114.3	114.2	114.0	113.9	113.7	113.2	113.2	113.1	113.1	113.0	112.9	112.7	112.6	112.5	112.4	112.6	112.4	112.2	112.5	113.2
	neutron	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
Car	SMOB(mSv/h)*1	1,100	—	—	1,110	—	—	1,100	—	—	1,100	—	—	1,100	—	—	1,100	—	—	1,100	—	—	1,110	—	—
	MG(μSv/h)*2	171	—	—	169	—	—	169	—	—	169	—	—	170	—	—	168	—	—	169	—	—	168	—	—
	WG(μSv/h)*3	81.5	—	—	82	—	—	82.6	—	—	81.3	—	—	81	—	—	82	—	—	82	—	—	82	—	—
	wind direction	NW	W	W	WSW	NW	W	NW	NW	NW	SW	SSW	WSW	W	W	NE	N	W	WNW	SW	SW	SE	SE	E	E
wind speed (m/s)		0.9	0.8	0.9	0.7	0.5	0.7	0.9	0.6	0.6	0.2	0.3	0.4	0.4	0.5	0.4	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.4	0.5

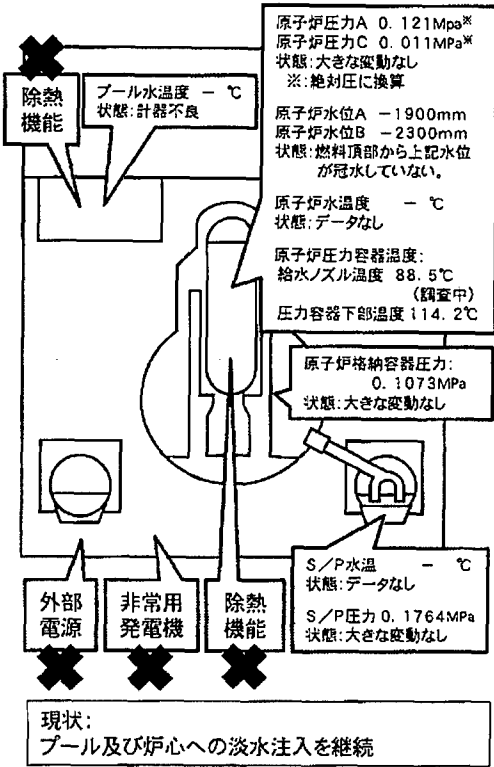
福島第一原子力発電所5号機の状況 (3月31日 06:00現在)



福島第一原子力発電所6号機の状況 (3月31日 06:00現在)



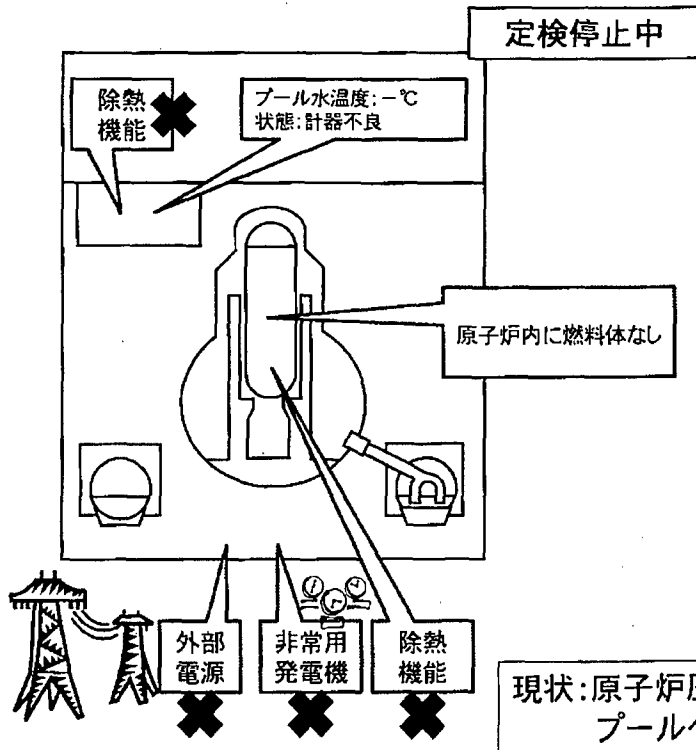
福島第一原子力発電所3号機の状況 (3月31日 06:00現在)



- 発生後の主要なできごと**
- 11日14:46 運転中、地震により自動停止
 - 11日15:42 10条通報(全交流電源喪失)
 - 13日05:10 15条事象の発生(非常用炉心冷却装置注水不能)
 - 13日08:41 ベント開始
 - 13日13:12 海水及びホウ酸の炉心注入開始
 - 14日05:20 ベント開始
 - 14日07:44 15条事象の発生(格納容器圧力異常上昇)
 - 14日11:01 爆発音
 - 16日08:30頃 白煙が発生
 - 17日09:48~10:01 自衛隊ヘリによる放水
 - 17日19:05~19:15 警察の高圧放水車による放水
 - 17日19:35~20:09 自衛隊の消防車により放水
 - 18日14時前~14:38 自衛隊消防車6台による地上放水~14:45 米軍消防車1台による地上放水
 - 19日0:30~01:10 東京消防庁ハイパーレスキュー隊放水
 - 19日14:10~20日3:40 東京消防庁ハイパーレスキュー隊放水
 - 20日11:00 格納容器内圧力が上昇(320kPa)。その後、低下。
 - 20日21:36~21日3:58 東京消防庁ハイパーレスキュー隊放水
 - 21日15:55頃 灰色がかった煙が発生。17:55に煙が収まっていることを確認
 - 22日15:10~16:00 東京消防庁ハイパーレスキュー隊及び大阪市消防局放水
 - 22日22:46 中央制御室の照明復帰
 - 23日11:03-13:20 使用済燃料プール冷却系(FPC)から使用済燃料プール(SFP)に約35tの海水を注水
 - 23日16:20頃 黒煙が発生。23:30頃及び24日4:50に煙の発生が止んでいることを確認。
 - 24日05:35~16:05 FPCからSFPに約120tの海水を注水
 - 25日13:28~16:00 東京消防庁の支援を受けた川崎市消防局による放水
 - 25日18:02 淡水の炉心注入開始
 - 27日12:34~14:36 コンクリートポンプ車による放水
 - 28日20:30 仮設電動ポンプでの炉心注水に切替
 - 29日14:17~18:18 コンクリートポンプ車による放水(淡水)

現状:
プール及び炉心への淡水注入を継続

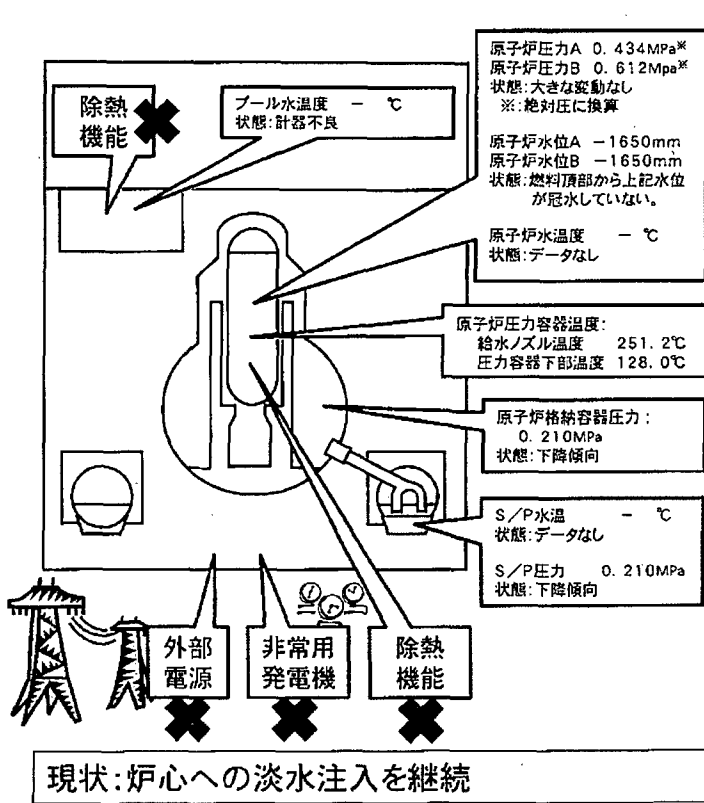
福島第一原子力発電所4号機の状況 (3月31日 06:00現在)



- 定検停止中**
- 発生後の主要なできごと**
- 地震発生時、定期検査により停止中
 - 14日04:08 使用済燃料プール温度84℃
 - 15日06:14 4Fの壁が一部破損の確認
 - 15日09:38 3階部分で火災(12:25鎮火)
 - 16日05:45 4号機で火災。事業者によると現場での火は確認できず(06:15)
 - 20日08:21~9:40 自衛隊による使用済燃料プール(SFP)への放水
 - 20日18:30頃 ~ 19:46 自衛隊によるSFPへの放水
 - 21日06:37~08:41 自衛隊によるSFPへの放水
 - 21日15:00頃 パワーセンターまでのケーブル敷設完了
 - 22日10:35 パワーセンター受電
 - 22日17:17~20:32 コンクリートポンプ車による放水
 - 23日10:00~13:02 コンクリートポンプ車による放水
 - 24日14:36~17:30 コンクリートポンプ車による放水
 - 25日06:05~10:20 使用済燃料プール冷却系(FPC)からSFPに海水を注入
 - 25日19:05~22:07 コンクリートポンプ車による放水
 - 27日16:55~19:25 コンクリートポンプ車による放水
 - 29日11:50 中央制御室の照明復帰
 - 30日14:04~18:33 コンクリートポンプ車による放水(淡水)

現状:原子炉圧力容器に燃料体が存在しない
プールへの淡水注入を継続

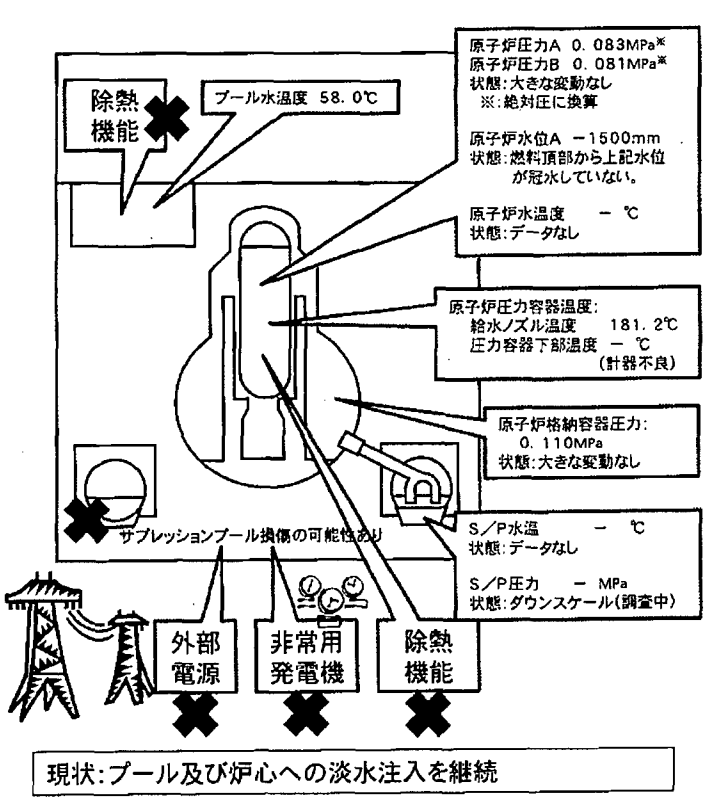
福島第一原子力発電所1号機の状況 (3月31日 06:00現在)



発生後の主要なできごと

- 11日14:46 運転中、地震により自動停止
- 11日15:42 10条通報(全交流電源喪失)
- 11日16:36 15条事象の発生(非常用炉心冷却装置注水不能)
- 12日01:20 15条事象の発生(格納容器圧力異常上昇)
- 12日10:17 ベント開始
- 12日15:36 爆発音
- 12日20:20 海水及びホウ酸の炉心注入開始
- 23日02:33 消火系に加え、給水系を使うことにより炉心への注水量を増量(2m³/h→18m³/h)。9:00に給水系のみに切替(18m³/h→11m³/h)
- 24日11:30 中央制御室の照明復帰
- 25日15:37 淡水の炉心注入開始
- 29日08:32 仮設電動ポンプでの炉心注水に切替

福島第一原子力発電所2号機の状況 (3月31日 06:00現在)



発生後の主要なできごと

- 11日14:46 運転中、地震により自動停止
- 11日15:42 10条通報(全交流電源喪失)
- 11日16:36 15条事象の発生(非常用炉心冷却装置注水不能)
- 13日11:00 ベント開始
- 14日13:25 15条事象の発生(原子炉冷却機能喪失)
- 14日16:34 海水の炉心注入開始
- 14日22:50 15条事象の発生(格納容器圧力異常上昇)
- 15日0:02 ベント開始
- 15日06:10 爆発音発生
- 15日06:20頃 サプレッションプール(圧力抑制室)損傷の可能性あり
- 20日15:05~17:20 使用済燃料プール冷却系(FPC)から使用済燃料プール(SFP)に約40tの海水を注水
- 20日15:46 パワーセンター受電
- 21日18:22 白煙が発生
- 22日7:11にほとんど見えない程度に減少
- 22日16:07 SFPに約18tの海水を注水
- 25日10:30~12:19 FPCからSFPに海水を注水
- 26日10:10 淡水の炉心注入開始
- 26日16:46 中央制御室の照明復帰
- 27日18:31 仮設電動ポンプでの炉心注水に切替
- 29日16:30~18:25 仮設電動ポンプに切替、SFPに淡水注入
- 30日9:25~23:50 SFPへ注水していたところ、仮設電動ポンプの不調を確認(9:45)。消防ポンプに替えて注入するが、ホース破損が確認(12:47,13:10)されたため、注入中断。19:05に注水を再開し、淡水を注入。

現状: プール及び炉心への淡水注入を継続

福島第一原子力発電所 プラント関連パラメータ

3月31日 6:00 現在

※1：計器不良
※2：データ採取対象外

号機	1u	2u	3u	4u	5u	6u
注水状況	給水ノズルを用いた淡水注入中。 流量 133l/min (3/29 8:32) 仮設計器	消火系ノズルを用いた淡水注入中。 流量 150l/min (3/30 14:00) 仮設計器	消火系ノズルを用いた淡水注入中。 流量 116l/min (3/29 14:39) 仮設計器	停止中	停止中	停止中
原子炉水位	燃料域A：-1650mm 燃料域B：-1650mm (3/31 4:00 現在)	燃料域A：-1500mm (3/31 4:00 現在)	燃料域A：-1900mm 燃料域B：-2300mm (3/31 4:40 現在)	※2	停止域 2216mm (3/31 6:00 現在)	停止域 1703mm (3/31 6:00 現在)
原子炉圧力	0.333MPa g (A) 0.511MPa g (B) (3/31 4:00 現在)	-0.018MPa g (A) -0.020MPa g (B) (3/31 4:00 現在)	0.020MPa g (A) -0.090MPa g (C) (3/31 4:40 現在)	※2	0.007MPa g (3/31 6:00 現在)	0.003MPa g (3/31 6:00 現在)
原子炉水温度	(系統流量がないため採取不可)			※2	61.9℃ (3/31 6:00 現在)	24.0℃ (3/31 6:00 現在)
原子炉圧力容器 温度	給水ノズル温度：251.2℃ 圧力容器下部温度：128.0℃ (3/31 4:00 現在)	給水ノズル温度：181.2℃ 圧力容器下部温度 ※1 (3/31 4:00 現在)	給水ノズル温度：88.5℃(調査中) 圧力容器下部温度：114.2℃ (3/31 4:40 現在)	4u:原子炉内に発熱体(燃料)なし 5,6u:原子炉水温度にて監視中		
D/W・S/C圧力	D/W 0.210MPa abs S/C 0.210MPa abs (3/31 4:00 現在)	D/W 0.110MPa abs S/C ダウンスケール(調査中) (3/31 4:00 現在)	D/W 0.1073MPa abs S/C 0.1764MPa abs (3/31 4:40 現在)	※2		
CAMS	D/W 4.17×10 ¹ Sv/h S/C 1.82×10 ¹ Sv/h (3/31 4:00 現在)	D/W 3.87×10 ¹ Sv/h S/C 1.19×10 ² Sv/h (3/31 4:00 現在)	D/W 257×10 ¹ Sv/h S/C 1.05×10 ² Sv/h (3/31 4:40 現在)	※2		
D/W設計使用圧力	0.384MPa g(0.485MPa abs)	0.384MPa g(0.485MPa abs)	0.384MPa g(0.485MPa abs)	※2		
D/W最高使用圧力	0.427MPa g(0.528MPa abs)	0.427MPa g(0.528MPa abs)	0.427MPa g(0.528MPa abs)	※2		
使用済燃料プール	※1	58.0℃ (3/31 4:00 現在)	※1	※1	32.4℃ (3/31 6:00 現在)	24.0℃ (3/31 6:00 現在)
FPCノズル 位置	4500mm (3/31 4:00 現在現在)	5600mm (3/31 4:00 現在)	※1	5200mm (3/31 4:40 現在)	※2	
電源	外部電源受電中 (P/G2C)			外部電源受電中 (P/C4D)		外部電源受電中
その他情報	・3号機 原子炉圧力容器温度について、データ採取を行い、状況推移を継続調査中。 ・2号機 S/C 圧力について、状況推移を継続調査中。			共用プール： 32℃程度 (3/30 08:20)		5u: SHCモード (3/29 22:01~) 6u: 非熱モード (3/30 9:58~)

圧力換算 ゲージ圧(MPa g) = 絶対圧(MPa abs) - 大気圧(標準大気圧 0.1013 MPa)
絶対圧(MPa abs) = ゲージ圧(MPa g) + 大気圧(標準大気圧 0.1013 MPa)

Other information	Unit3: Collecting the data of RPV temperature and continuing survey for transitional situation Unit2: Confirmed the indicated value of S/C Pressure but continuing to survey the transition of condition	Common pool: about 32 °C (As of 8:30, March 29th)	Unit5:SHC*5 mode (From 22:01 March 29th)	Unit6:SHC*5 mode (From 10:16 March 29th)
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Pressure conversion	$\text{Gauge pressure (MPa g)} = \text{Absolute pressure (MPa abs)} - \text{Atmospheric pressure (Normal atmospheric pressure 0.1013MPa)}$ $\text{Absolute pressure (MPa abs)} = \text{Gauge pressure (MPa g)} + \text{Atmospheric pressure (Normal atmospheric pressure 0.1013MPa)}$
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- *1 D/W : Dry Well
- *2 S/C : Suppression Chamber
- *3 CAMS : Containment Atmospheric Monitoring System
- *4 P/C : Power Center
- *5 SHC : Shutdown Cooling

- #1 : Measuring instrument malfunction
- #2 : Except from data collection

Fukushima Di-ichi Nuclear Power Station Major Parameters of the Plant (As of 6:00, March 30th)

Unit No.	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Situation of water injection	Injecting freshwater via the Water Supply Line. Flow rate of injected water : 133 ℓ/min (As of 8:32, March 29th) temporary measuring instrument	Injecting freshwater via the Fire Extinguish Line. Flow rate of injected water :117 ℓ/min (As of 0:12, March 28th) temporary measuring instrument	Injecting freshwater via the Fire Extinguish Line. Flow rate of injected water: 116 ℓ/min (As of 14:39, March 29th) temporary measuring instrument	Under shutdown	Under shutdown	Under shutdown
Reactor water level	Fuel range A : -1,600mm Fuel range B : -1,600mm (As of 4:00, March 30th)	Fuel range A : -1,500mm (As of 4:00, March 30th)	Fuel range A:-1,850mm Fuel range B:-2,250mm (As of 3:50, March 30th)	#2	Shutdown range measurement 2,250mm (As of 6:00, March 30th)	Shutdown range measurement 1,761mm (As of 6:00, March 30th)
Reactor pressure	0.353MPa g(A) 0.488MPa g(B) (As of 4:00, March 30th)	-0.025MPa g (A) -0.025MPa g (B) (As of 4:00, March 30th)	0.023MPa g (A) -0.092MPa g (C) (As of 3:50, March 30th)	#2	0.007MPa g (As of 6:00, March 30th)	0.005MPa g (As of 6:00, March 30th)
Reactor water temperature	(Impossible collection due to low system flow rate)			#2	34.7°C (As of 6:00, March 30th)	21.6°C (As of 6:00, March 30th)
Reactor Pressure Vessel (RPV) temperature	Feedwater nozzle temperature: 281.2°C Temperature at the bottom head of RPV: 133.9°C (As of 4:00, March 30th)	Feedwater nozzle temperature: 170.7°C Temperature at the bottom head of RPV: 87.7°C (As of 4:00, March 30th)	Feedwater nozzle temperature: 75.3°C (under survey) Temperature at the bottom head of RPV: 116.0°C (As of 3:50, March 30th)	Unit 4 No heating element (fuel) inside the reactor Unit 5,6 Monitoring by the reactor water temperature		
D/W*1 Pressure, S/C*2 Pressure	D/W: 0.235MPa abs S/C: 0.235MPa abs (As of 4:00, March 30th)	D/W: 0.100MPa abs S/C:Down scale (under survey) (As of 4:00, March 30th)	D/W: 0.1071MPa abs S/C: 0.1780MPa abs (As of 3:50, March 30th)	#2		
CAMS*3	D/W: 3.32×10^1 Sv/h S/C: 1.91×10^1 Sv/h (As of 4:00, March 30th)	D/W: 4.00×10^1 Sv/h S/C: 1.28×10^0 Sv/h (As of 4:00, March 30th)	D/W: 2.76×10^1 Sv/h S/C: 1.11×10^0 Sv/h (As of 3:50, March 30th)	#2		
D/W*1 design operating pressure	0.384MPa g(0.485MPa abs)	0.384MPa g(0.485MPa abs)	0.384MPa g(0.485MPa abs)	#2		
D/W*1 maximum operating pressure	0.427MPa g(0.528MPa abs)	0.427MPa g(0.528MPa abs)	0.427MPa g(0.528MPa abs)	#2		
Spent Fuel Pool water	#1	46.0°C (As of 4:00, March 30th)	#1	#1	34.2°C (As of 6:00, March 30th)	28.0°C (As of 6:00, March 30th)
FPC skimmer level	4,500mm (As of 4:00, March 30th)	5,700mm (As of 4:00, March 30th)	#1	5,250mm (As of 3:50, March 30th)	#2	
Power supply	Receiving external power supply (P/C*4 2C)		Receiving external power supply (P/C4D)		Receiving external power supply	

From: CommissionCalendar Resource
To: Apostolakis, George; Ash, Darren; Blake, Kathleen; Borchardt, Bill; Bozin, Sunny; Bubar, Patrice; Burns, Stephen; Cianci, Sandra; Commission Hearing Room; Crawford, Carrie; Davis, Chon; Franovich, Mike; GBJGroupCalendar Resource; GEA Daily Cal Resource; GEA Staff Daily Resource; Harves, Carolyn; Hasan, Nasreen; Hayden, Elizabeth; Herr, Linda; Jaczko, Gregory; Joosten, Sandy; Kock, Andrea; Langlie, Liz; Lepre, Janet; Mamish, Nader; Muessle, Mary; Nieh, Ho; Pulley, Deborah; Sharkey, Jeffrey; Svinicki, Kristine; Taylor, Renee; Temp, WCO; Temp, WDM; Vietti-Cook, Annette; Virgilio, Martin
Subject: Hearing: Japan at 10:00am - Senate Energy and Water Development Subcommittee, Committee on Appropriations

When: Wednesday, March 30, 2011 12:00 AM to Thursday, March 31, 2011 12:00 AM (GMT-05:00) Eastern Time (US & Canada).
Where: Dirksen 138

Note: The GMT offset above does not reflect daylight saving time adjustments.

~~*~*~*~*~*~*~*~*

Senate Energy and Water Development Subcommittee, Committee on Appropriations
Time and Location: 10 a.m., Dirksen 138
Agenda: A Review of Nuclear Safety in Light of the Impact of Natural Disasters on Japanese Nuclear Facilities

WV/263

From: PMT03 Hoc
Sent: Wednesday, March 30, 2011 9:27 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 03302011.xlsx

Please find attached an update to our US Nuclear Plan reported measurements (see highlighted). We received an update from Palo Verde Nuclear Generating Station on Wednesday, March 30, 2011 7:36 PM.

We will continue to provide updates as we receive them. Thanks.

PMT

VVV/264

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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
3/30/2011	San Onofre	I-131	2.2E-13 uCi/cc
3/30/2011	San Onofre	Cs-137	1.9E-13 to 3.1E-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

~~OFFICIAL USE ONLY~~

From: OST01 HOC
Sent: Wednesday, March 30, 2011 4:06 PM
To: OST01 HOC
Subject: FW: ACTION DUE by 3/31 COB: Questions on the use of MOX fuel

Importance: High

****NOTE****

This is being tracked by the EDOs office.

From: Frazier, Alan
Sent: Wednesday, March 30, 2011 2:12 PM
To: Meighan, Sean; Nguyen, Quynh; Armstrong, Kenneth; Shropshire, Alan; Deegan, George
Cc: Wittick, Brian; Andersen, James; Merzke, Daniel; OST01 HOC; OST02 HOC; Rini, Brett; Bowman, Gregory; Brock, Kathryn; Muessle, Mary; Layton, Michael
Subject: ACTION DUE by 3/31 COB: Questions on the use of MOX fuel
Importance: High

All,

Commissioner Ostendorff would like additional information regarding the article below that was in the "NRC in the News" yesterday. Below are the Commissioner's specific questions and proposed office leads. **Please respond if possible by Thursday, March 31.** If you need more time, please let me know so I can inform the Commissioner's office. Please send responses to Alan Frazier and Brian Wittick for consolidation.

1. Specifically, has the NRC staff verified the claim that Reactor 3 at Fukushima contains MOX fuel, and if so, has the fact that some of the fuel is MOX posed any safety challenges during the event? **RES** (note that RES provided information on MOX yesterday, to help prepare the Chairman for today's hearing, which may be sufficient to answer questions 1 and 2)
2. Has the staff evaluated the concerns that MOX fuel poses greater safety concerns? **RES**
3. Has the staff evaluated the concerns that MOX fuel poses greater security concerns? **NSIR**
4. I understand that the staff completed a safety assessment of the use of MOX fuel for Catawba and the Browns Ferry. Can you provide a summary of the dose/health consequence analysis and a synopsis of the staff's evaluation of any public health risk from the use of MOX? **NRR lead, FSME support.**

Alan

ARTICLE: **Mixed Oxide Nuclear Fuel Raises Safety Questions.** The Scientific American (3/25, Matson) reported that reactor No. 3 at the troubled Fukushima Daiichi power station in Japan "has one characteristic that differentiates it from its neighboring reactors and from any operating reactor in the US" Among the "hundreds of standard nuclear fuel assemblies in its core... are some that contain a mix of uranium and plutonium," or MOX. The use of MOX is controversial, and some "critics say that MOX is riskier than standard fuel and that there are better ways to dispose of excess plutonium." Notably, "the federally owned Tennessee Valley Authority (TVA), which operates the Browns Ferry Nuclear Plant and two other nuclear facilities, has

592/NN

expressed some interest in trying MOX and may step up to take fuel from" the Mixed Oxide Fuel Fabrication Facility (MFFF) in South Carolina.

From: OST02 HOC
Sent: Wednesday, March 30, 2011 9:48 PM
To: PMT03 Hoc
Subject: Scanned File
Attachments: Re-entry.pdf

As requested.

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

VVV/266

From: OST01 HOC
Sent: Wednesday, March 30, 2011 3:07 PM
To: Craffey, Ryan; Brandon, Lou; Chowdhury, Prosanta; Patel, Jay; Raddatz, Michael; Foster, Jack
Cc: OST02 HOC; OST01 HOC
Subject: RE: PMT Coordinator position that needs to be filled over the weekend

Ryan,

You are on the Master ERO Staffing Schedule for the PMTR Coordinator position for Wednesday, April 6 from 3pm to 11pm.

Tony McMurtray
EST Coordinator

Lou,

Please note this change.

Tony

From: Craffey, Ryan
Sent: Wednesday, March 30, 2011 1:19 PM
To: Brandon, Lou; Chowdhury, Prosanta; Patel, Jay; Raddatz, Michael; Foster, Jack
Cc: OST02 HOC; OST01 HOC
Subject: RE: PMT Coordinator position that needs to be filled over the weekend

I will cover the Wed 4/6 3pm-11pm PMT Coordinator shift.

Ryan Craffey
General Engineer
US Nuclear Regulatory Commission
Office of New Reactors
(301) 415-5509

From: Brandon, Lou
Sent: Wednesday, March 30, 2011 2:39 AM
To: Chowdhury, Prosanta; Patel, Jay; Craffey, Ryan; Raddatz, Michael; Foster, Jack
Subject: PMT Coordinator position that needs to be filled over the weekend

All,

Sun 4/3 7am-3pm

Also upcoming:

Wed 4/6 3pm-11pm
Wed/Thurs 4/6-7 11pm-7am

292/ANN

If you can cover any of these slots, your assistance would be greatly appreciated. Please respond to everyone, including the OST01 and OST02 email addresses to be added to the roster.

My apologies if you've already been contacted by OST.

Thanks everyone.

Lou

From: OST01 HOC
Sent: Wednesday, March 30, 2011 9:03 PM
To: Brandon, Lou
Subject: FW: PMT PAAD Slots that need to be filled through the weekend

Morning,

Just wanted to get your ok on Candace Clemons-Webb filling the PMTR RAAD position on Sunday from 3-11.

Thanks

Stacy Smith
EST Coordinator

From: Clemons-Webb, Candace
Sent: Wednesday, March 30, 2011 2:27 PM
To: OST02 HOC
Cc: OST01 HOC
Subject: RE: PMT PAAD Slots that need to be filled through the weekend

I've served as the assistant RAAD in a drill last September...is the paperwork correct? Please let me know. Thank you,

From: OST02 HOC
Sent: Wednesday, March 30, 2011 9:21 AM
To: Clemons-Webb, Candace
Cc: OST01 HOC
Subject: RE: PMT PAAD Slots that need to be filled through the weekend

Candace, if you are qualified at the PMTR RAAD position that is available 3-11pm on Sunday.

From: Clemons-Webb, Candace
Sent: Wednesday, March 30, 2011 9:01 AM
To: OST02 HOC; Magruder, Stewart; Brandon, Lou; Williams, Kevin; Eads, Johnny; Johnson, Don; Schneider, Stewart
Cc: OST01 HOC
Subject: RE: PMT PAAD Slots that need to be filled through the weekend

Hi Lou,

I could take the Sunday from 3-11.

Thank you,
Candace

From: OST02 HOC
Sent: Wednesday, March 30, 2011 7:56 AM
To: Magruder, Stewart; Brandon, Lou; Williams, Kevin; Clemons-Webb, Candace; Eads, Johnny; Johnson, Don; Schneider, Stewart

892/VNN

Cc: OST01 HOC

Subject: RE: PMT PAAD Slots that need to be filled through the weekend

Stewart, you have been added to the Watchbill schedule PMT PAAD for Friday, April 1st from 3pm – 11pm.

From: Magruder, Stewart

Sent: Wednesday, March 30, 2011 7:33 AM

To: Brandon, Lou; Williams, Kevin; Clemons-Webb, Candace; Eads, Johnny; Johnson, Don; Schneider, Stewart

Cc: OST01 HOC; OST02 HOC

Subject: RE: PMT PAAD Slots that need to be filled through the weekend

Lou,

I can cover either of the first two slots on your list – possibly others if needed.

Stu

From: Brandon, Lou

Sent: Wednesday, March 30, 2011 1:51 AM

To: Williams, Kevin; Clemons-Webb, Candace; Eads, Johnny; Johnson, Don; Schneider, Stewart; Magruder, Stewart

Cc: OST01 HOC; OST02 HOC

Subject: PMT PAAD Slots that need to be filled through the weekend

All,

Friday 4/1 3pm-7pm

Sat 4/2 7am-3pm

Sat/Sun 4/2-4/3 11pm-7am

Sun 4/3 3pm-11pm

If you can cover any of these slots, your assistance would be greatly appreciated. Please respond to everyone, including the OST01 and OST02 email addresses to be added to the roster.

If you've not staffed this position before, there is opportunity to become oriented during this week at the Op Center.

My apologies if you've already been contacted by OST.

Thanks everyone.

Lou

From: OST01 HOC
Sent: Thursday, March 31, 2011 11:33 AM
To: Ralph, Melissa
Subject: NRC Ops Center Support - Actions Officer - 4/5 (Tues), 4/7 (Thurs), 4/9 (Sat) from 7am to 3pm

Any interest?

WV/269

From: LIA02 Hoc
Sent: Thursday, March 31, 2011 8:35 PM
To: LIA03 Hoc
Subject: FW: Ralph Way BB Status

From: ET02 Hoc
Sent: Thursday, March 31, 2011 8:31 PM
To: Way, Ralph
Cc: LIA02 Hoc
Subject: RE: Ralph Way BB Status

Dr. Way

If you get this message please try the following:

1. Remove the battery from your Blackberry
2. Wait two minutes
3. Replace the battery and try again

If this still does not work please call the NOC at 301-425-8150, they are aware of your problem and will try and help you. Your CSC ticket number is 509146.

--Omar

From: LIA02 Hoc
Sent: Thursday, March 31, 2011 8:21 PM
To: ET02 Hoc
Cc: LIA03 Hoc
Subject: Ralph Way BB Status

Please see below.

From: Way, Ralph
Sent: Thursday, March 31, 2011 4:49 PM
To: LIA02 Hoc; Patel, Bhavin
Subject: RE: BB Status

Sorry for dropping off line. I am in meetings and working in a SCIF and can't take my phone in.

the phone is still not working I will call later today. The last question i waas asked regarding the phone was is the GSM showing in th eupper right corner. i believe yes. It says G3, the ant is uo and all bars are showing.

r

From: LIA02 Hoc
Sent: Thursday, March 31, 2011 12:56 PM

012/270

To: Way, Ralph
Subject: BB Status

Ralph – Is your blackberry still not working? Please let us know if your problems have been addressed or not. We still have an open ticket for this and are worried that it has not been resolved for you. I have Ccd Danielle Emche and Eric Stahl from your team over in Japan in case you are not receiving your emails due to this problem. Danielle and Eric, please let me know if he is out of range and still needs help getting his BB fixed.

Thanks!
Lauren
International Liaison Team

From: Champ, Billie
Sent: Thursday, March 31, 2011 8:05 AM
To: ET05 Hoc
Subject: FW: eWASH WH0160
Attachments: FW: eWASH WH0160

Rel

VVV/271

From: OST01 HOC
Sent: Thursday, March 31, 2011 11:41 AM
To: Anderson, Brian
Subject: Give me a call - Tony

242/NN

From: LIA05 Hoc
Sent: Thursday, March 31, 2011 7:33 AM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Attachments: NRC Status Update 3.31.11--0430.pdf

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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444 / 273

From: CommissionCalendar Resource
To: Apostolakis, George; Ash, Darren; Blake, Kathleen; Borchart, Bill; Bozin, Sunny; Bubar, Patrice; Burns, Stephen; Cianci, Sandra; Commission Hearing Room; Crawford, Carrie; Davis, Chon; Franovich, Mike; GBJGroupCalendar Resource; GEA Daily Cal Resource; GEA Staff Daily Resource; Harves, Carolyn; Hasan, Nasreen; Hayden, Elizabeth; Herr, Linda; Jaczko, Gregory; Joosten, Sandy; Kock, Andrea; Langlie, Liz; Lepre, Janet; Mamish, Nader; Muesle, Mary; Nieh, Ho; Pulley, Deborah; Sharkey, Jeffrey; Svinicki, Kristine; Taylor, Renee; Temp, WCO; Temp, WDM; Vietti-Cook, Annette; Virgilio, Martin
Subject: Hearing: FY 2012 Budget at 10:00am - House Committee on Appropriations – Energy and Water Subcommittee

When: Thursday, March 31, 2011 12:00 AM to Friday, April 01, 2011 12:00 AM (GMT-05:00) Eastern Time (US & Canada).
Where: 2362B Rayburn

Note: The GMT offset above does not reflect daylight saving time adjustments.

~~*~*~*~*~*~*~*~*

Budget Hearing – House Subcommittee on Energy and Water Development, and Related Agencies, Committee on Appropriations

Date: 3/31/11
Time: 10:00 AM
Location: 2362B Rayburn

VVV | 274

Subject: Telecon between Mr. Patrick McCabe (PACOM) and M. Case (RST Director)

Start: Thu 3/31/2011 6:00 PM
End: Thu 3/31/2011 6:30 PM

Recurrence: (none)

Meeting Status: Meeting organizer

Organizer: PMT03 Hoc
Required Attendees: Hoc, PMT12

As plant conditions change, provide leading indicators or trends at the site to NSS/OSTP and PACOM to facilitate decision making regarding protective actions for U.S. personnel. This is a long-term ongoing action that should remain open as long as there is the potential for plant conditions to deteriorate.

Response: Per the ET, this action will be accomplished through a combination of Vince Holahan's interface with PACOM and through the IPC and Deputies SVTCs attended by the ET. RST should continue to support both Vince and the ET as they have to date.

A Telecon has been set-up for 1700 EDT tomorrow (3/31). PACOM will call through the HOO.

Per Telecon between Mr. Patrick McCabe (PACOM) and M. Case (RST Director), phone call on 3/31/2011 will be rescheduled for 1800 EDT

No change. Call is expected 3/31/2011 for 1800 EDT. LR-Chronologist

VVV 275

From: PMT03 Hoc
Sent: Thursday, April 07, 2011 9:18 AM
To: PMT07 Hoc
Subject: FW: Supplement to Package on Rascal Runs
Attachments: Supplement to Rascal run documentation.pdf

From: Hoc, PMT12
Sent: Thursday, April 07, 2011 8:06 AM
To: PMT03 Hoc; PMT11 Hoc
Subject: FW: Supplement to Package on Rascal Runs

e-mail that went to LT for OCA on 4/5.

From: Hoc, PMT12
Sent: Tuesday, April 05, 2011 6:22 PM
To: LIA06 Hoc
Cc: Hoc, PMT12; Jones, Cynthia; PMT02 Hoc; PMT09 Hoc
Subject: Supplement to Package on Rascal Runs

LT,

Please provide the attached supplement to the package delivered on 4/4/11 on Rascal runs supporting the March 16 press release to OCA. Thanks,

PMT

**SUPPLEMENT TO PACKAGE DELIVERED TO CHAIRMAN 04/04/2011 ON RASCAL RUNS
SUPPORTING MARCH 16 PRESS RELEASE AND JUSTIFICATION OF EXPANSION OF
EVACUATION TO 50 MILES
Provided 04/05/2011 by PMT**

The initial packaged delivered to the Chairman to justify the expansion of the 50 mile (80 km) EPZ included the input files that directly support the RASCAL runs included in the March 16, 2011 NRC press release. A March 15, 2011 RASCAL run to justify the expansion to 50 mile EPZ [evacuation distance] was not included. The file for this initial run is attached. Below is additional background regarding the initial RASCAL run and other factors influencing the decision to expand to a 50 mile evacuation distance.

The decision to recommend that American citizens located within 50 miles (80 km) of the Fukushima Daiichi Nuclear Power Plant (NPP) evacuate was based on deteriorating conditions of the plant and a need to provide protection in the face of considerable uncertainty and conflicting information. A general assessment of plant conditions concluded that three of the units had been operating at the time of the earthquake and tsunami and had suffered significant damage to cooling water systems, leading to potential exposure of fuel rods and subsequent fuel melt. At least two spent fuel pools also faced similar loss of coolant and partial exposure of fuel, and the status of a common spent fuel pool was unknown. The very limited data on the concentrations of radioactive materials on the ground and in the air were indicative of significant core damage. Furthermore, there was great concern that large releases of radionuclides could occur. Weather patterns indicated that winds had the potential to expose a 360 degree radial area around the plant to the radioactive plume within the next few days.

Although only two RASCAL runs were attached to the March 16 Press release, another calculation had been performed initially. The initial run (attached) indicated PAGs would not be exceeded at a distance of 50 miles. However, the uncertainty about the degradation of plant conditions, combined with this initial RASCAL run, supported a decision to recommend evacuation to 50 miles. Two additional RASCAL runs were performed, which indicated the potential to exceed PAGs at 50 miles. These two runs (that show PAGs exceeded at 50 miles) were attached to the Press Release. All of the early RASCAL assessments are highly speculative, given the lack of actual (representative) site data available at the time.

Initial Calculation - RASCAL Run to Justify Expansion to 50 mile EPZ

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15 March 2011 02:56am (EDT), NRC Operations Center, Protective Measures Team

This data is based on system condition estimates for a hypothetical, single reactor site, 2350 MWt, Boiling Water Reactor. Model results are projections only and may **not** be representative of an actual release. This projection uses modeled forecast meteorological conditions and is subject to change.

Case Summary

Event Type Nuclear Power Plant

Location

Name: Fukushima Unit 2
City, county, state: <undefined>, <undefined>, <undefined>
Lat / Long / Elev: 37.4214° N, 141.0325° E, 0 m
Time zone: <undefined>
Population: not available

Reactor Parameters

Reactor power: 2350 MWt
Average fuel burn-up: 30000 MWD / MTU
Containment type: BWR Mark I
Containment volume: 2.50E+05 ft³
Design pressure: 60 lb/in²
Design leak rate: 0.54 %/d
Coolant mass: 1.25E+05 kg
Assemblies in core: 550

Source Term

Type: Time Core Is Uncovered
Shutdown: 2011/03/11 14:46
Core uncovered: 2011/03/15 00:00
Core recovered: No

Release Pathway

Type: BWR - Release Through Dry Well
via direct, unfiltered pathway
Description: Unit 2 mid-day release 3-15-11
Release height: 10. m

Release events

2011/03/15 00:00 Sprays Off
2011/03/15 11:45 Leak rate (% vol) Total failure

Meteorology

Type: Actual Observations
Dataset name: Fukushima 2011 03-14 1600
Dataset desc: Obs/fcsts for Fukushima Unit 1

Summary of data	Dir	Speed	Stab	Temp		
at release point:	Type	deg	m/s	class	Precip	°C

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Initial Calculation - RASCAL Run to Justify Expansion to 50 mile EPZ

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2011/03/12 14:00	Obs	265	1.0	B	?
2011/03/12 15:00	Obs	265	1.0	B	?
2011/03/12 16:00	Obs	277	1.3	B	?
2011/03/12 17:00	Obs	260	2.4	B	?
2011/03/12 18:00	Obs	241	1.4	E	?
2011/03/12 19:00	Obs	236	2.1	E	?
2011/03/12 20:00	Obs	239	2.1	E	?
2011/03/12 21:00	Obs	229	3.8	E	?
2011/03/12 22:00	Obs	224	5.1	E	?
2011/03/12 23:00	Obs	226	3.9	E	?
2011/03/13 00:00	Obs	228	4.1	E	?
2011/03/13 01:00	Obs	235	2.6	E	?
2011/03/13 02:00	Obs	233	3.9	E	?
2011/03/13 03:00	Obs	225	1.8	E	?
2011/03/13 04:00	Obs	225	1.3	E	?
2011/03/13 05:00	Obs	225	2.2	E	?
2011/03/13 06:00	Obs	225	2.2	E	?
2011/03/13 07:00	Obs	248	2.7	E	?
2011/03/13 08:00	Obs	248	2.7	E	?
2011/03/13 09:00	Obs	270	3.1	E	?
2011/03/13 12:00	Obs	271	7.4	D	?
2011/03/13 13:00	Obs	276	6.2	D	?
2011/03/13 14:00	Obs	312	2.8	B	?
2011/03/14 18:00	Obs	258	4.8	unk	?
2011/03/14 19:00	Obs	268	5.0	unk	?
2011/03/14 20:00	Obs	330	2.2	unk	?
2011/03/14 21:00	Fcst	337	4.6	unk	?
2011/03/14 22:00	Fcst	323	7.2	unk	?
2011/03/14 23:00	Fcst	305	6.6	unk	?
2011/03/15 00:00	Fcst	015	8.6	unk	?
2011/03/15 02:00	Fcst	002	7.5	unk	?
2011/03/15 03:00	Fcst	347	5.2	E	None
2011/03/15 04:00	Fcst	332	5.6	E	None
2011/03/15 05:00	Fcst	332	4.0	E	None
2011/03/15 06:00	Fcst	344	3.5	E	Lgt rain
2011/03/15 07:00	Fcst	026	3.8	E	Lgt rain
2011/03/15 08:00	Fcst	044	4.4	E	Lgt rain
2011/03/15 09:00	Fcst	020	4.2	E	Lgt rain
2011/03/15 10:00	Fcst	010	3.4	E	None
2011/03/15 11:00	Fcst	030	3.5	D	Lgt rain
2011/03/15 12:00	Fcst	027	3.0	D	Lgt rain
2011/03/15 13:00	Fcst	037	3.4	D	Lgt rain
2011/03/15 14:00	Fcst	053	3.7	B	None
2011/03/15 15:00	Fcst	058	3.7	B	None
2011/03/15 16:00	Fcst	067	3.2	C	Lgt rain
2011/03/15 17:00	Fcst	081	3.9	C	Lgt rain
2011/03/15 18:00	Fcst	089	4.7	B	None
2011/03/15 19:00	Fcst	085	4.4	B	None
2011/03/15 20:00	Fcst	083	4.4	B	Lgt rain
2011/03/15 21:00	Fcst	074	4.6	C	Lgt rain
2011/03/15 22:00	Fcst	054	5.0	D	Lgt rain
2011/03/15 23:00	Fcst	029	5.6	D	Rain

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Initial Calculation - RASCAL Run to Justify Expansion to 50 mile EPZ

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2011/03/16 00:00	Fcst	011	5.1	D	Lgt rain
2011/03/16 01:00	Fcst	346	4.3	C	Lgt rain
2011/03/16 02:00	Fcst	350	5.3	D	Lgt rain
2011/03/16 03:00	Fcst	323	5.6	D	Lgt rain
2011/03/16 04:00	Fcst	316	5.4	D	None
2011/03/16 05:00	Fcst	298	4.8	D	None
2011/03/16 06:00	Fcst	314	5.6	D	None
2011/03/16 07:00	Fcst	312	4.7	D	None
2011/03/16 08:00	Fcst	331	4.9	D	None
2011/03/16 09:00	Fcst	353	4.1	D	None

Dataset options: Est. missing stability using: Wind speed, time of day, etc.
 Adjust stability for consistency: No
 Modify winds for topography: Yes

Calculations

Case description: Fukushima Unit 2 mid day release 15MAR
 End of calculations: 2011/03/16 03:45
 Start of release to atmosphere + 16 h
 Distance of calculation: Close-in + to 50 miles
 Close-in distances: 0.5, 1.0, 1.5, 2.0, 3.0, 5.0, 7.0, 10.0 miles

Source Term

Total amount released to atmosphere: 9.9E+07 Ci

Nuclide	Ci	Nuclide	Ci	Nuclide	Ci
Am-241	1.7E-01	Nb-97	1.5E+02	Sr-92	8.2E-05
Ba-140	2.4E+06	Nd-147	4.0E+04	Tc-99m	3.3E+04
Ce-141	1.2E+05	Np-239	5.4E+05	Te-127	2.6E+05
Ce-143	1.7E+04	Pm-147	1.3E+02	Te-127m	6.1E+04
Ce-144*	1.0E+05	Pr-143	9.5E+04	Te-129	1.6E+05
Cm-242	3.2E+03	Pr-144	1.0E+05	Te-129m	2.4E+05
Cs-134	8.7E+05	Pu-238	2.8E-01	Te-131	2.1E+04
Cs-136	2.9E+05	Pu-239	3.1E-01	Te-131m	9.6E+04
Cs-137*	6.0E+05	Pu-241	9.9E+03	Te-132	2.6E+06
I-131	4.3E+06	Rb-86	1.1E+04	Xe-131m	6.8E+05
I-132	2.7E+06	Rb-88	4.5E-03	Xe-133	7.7E+07
I-133	5.2E+05	Rh-103m	7.6E+04	Xe-133m	1.2E+06
I-135	6.1E+02	Rh-105	9.6E+03	Xe-135	2.3E+05
Kr-83m	2.9E-09	Ru-103	7.6E+04	Xe-135m	2.9E+03
Kr-85	5.1E+05	Ru-105	2.6E-02	Y-90	1.6E+04
Kr-85m	7.5E+00	Ru-106*	2.2E+04	Y-91	8.9E+04
Kr-88	4.4E-03	Sb-127	1.8E+05	Y-91m	1.3E+03
La-140	4.5E+05	Sb-129	4.0E-01	Y-92	4.9E-03
La-141	8.8E-03	Sr-89	1.4E+06	Y-93	1.2E+02
Mo-99	3.4E+04	Sr-90	1.1E+05	Zr-95	1.3E+05
Nb-95	1.3E+05	Sr-91	2.0E+03	Zr-97*	2.7E+03

Notes:

• Nuclides with * in name include implicit daughters.

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**Initial Calculation - RASCAL Run to Justify Expansion to 50 mile EPZ
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Maximum Dose Values (rem) - Close-In

Dist from release miles (kilometers)	0.5 (0.8)	1. (1.61)	1.5 (2.41)	2. (3.22)	3. (4.83)	5. (8.05)	7. (11.27)	10. (16.09)
Total EDE	<u>4.1E+03</u>	<u>1.7E+03</u>	<u>1.0E+03</u>	<u>7.2E+02</u>	<u>4.4E+02</u>	<u>8.7E+01</u>	<u>4.5E+01</u>	<u>4.1E+00</u>
Thyroid CDE	<u>9.9E+03</u>	<u>2.9E+03</u>	<u>1.4E+03</u>	<u>8.2E+02</u>	<u>4.4E+02</u>	<u>1.0E+02</u>	<u>6.2E+01</u>	<u>7.2E+00</u>
Inhalation CEDE	<u>1.2E+03</u>	<u>3.3E+02</u>	<u>1.5E+02</u>	<u>8.7E+01</u>	<u>4.4E+01</u>	<u>8.8E+00</u>	<u>4.8E+00</u>	<u>4.7E-01</u>
Cloudshine	8.4E+00	3.1E+00	1.5E+00	7.5E-01	2.9E-01	2.0E-01	1.4E-01	5.8E-02
4-day Groundshine	<u>2.9E+03</u>	<u>1.4E+03</u>	<u>8.6E+02</u>	<u>6.3E+02</u>	<u>3.9E+02</u>	<u>7.8E+01</u>	<u>4.0E+01</u>	<u>3.6E+00</u>
Inter Phase 1st Yr	<u>4.5E+04</u>	<u>2.1E+04</u>	<u>1.3E+04</u>	<u>9.9E+03</u>	<u>6.1E+03</u>	<u>1.2E+03</u>	<u>6.1E+02</u>	<u>5.4E+01</u>
Inter Phase 2nd Yr	<u>2.2E+04</u>	<u>1.1E+04</u>	<u>6.6E+03</u>	<u>4.9E+03</u>	<u>3.0E+03</u>	<u>5.9E+02</u>	<u>3.0E+02</u>	<u>2.6E+01</u>

Notes:

- Doses exceeding PAGs are underlined.
- Early-Phase PAGs: TEDE - 1 rem, Thyroid (iodine) CDE - 5 rem
- Intermediate-Phase EPA PAGs: 1st year - 2 rem, 2nd year - 0.5 rem
- *** indicates values less than 1 mrem
- To view all values - use Detailed Results | Numeric Table
- Total EDE = Inhalation CEDE + Cloudshine + 4-Day Groundshine

Maximum Dose Values (rem) - To 50 mi

Dist from release miles (kilometers)	15 (24.1)	20 (32.2)	30 (48.3)	40 (64.4)	50 (80.5)
Total EDE	<u>2.1E+00</u>	<u>2.8E+00</u>	<u>2.7E+00</u>	5.6E-01	1.7E-01
Thyroid CDE	<u>2.0E+01</u>	<u>1.7E+01</u>	<u>1.1E+01</u>	<u>5.0E+00</u>	3.5E+00
Inhalation CEDE	<u>1.3E+00</u>	<u>1.0E+00</u>	6.2E-01	2.0E-01	1.4E-01
Cloudshine	2.9E-02	2.5E-02	1.7E-02	8.1E-03	5.8E-03
4-day Groundshine	1.6E+00	2.5E+00	2.0E+00	3.6E-01	3.7E-02
Inter Phase 1st Yr	<u>2.5E+01</u>	<u>3.8E+01</u>	<u>2.3E+01</u>	<u>2.1E+00</u>	3.2E-01
Inter Phase 2nd Yr	<u>1.2E+01</u>	<u>1.9E+01</u>	<u>1.0E+01</u>	<u>6.6E-01</u>	1.2E-01

Notes:

- Doses exceeding PAGs are underlined.
- Early-Phase PAGs: TEDE - 1 rem, Thyroid (iodine) CDE - 5 rem
- Intermediate-Phase PAGs: 1st year - 2 rem, 2nd year - 0.5 rem
- *** indicates values less than 1 mrem
- To view all values - use Detailed Results | Numeric Table
- Total EDE = CEDE Inhalation + Cloudshine + 4-Day Groundshine
- Total Acute Bone = Bone Inhalation + Cloudshine + Period Groundshine

TEDE - Total Effective Dose Equivalent
 CDE - Committed Dose Equivalent
 CEDE - Committed Effective Dose Equivalent
 PAGs - Protective Action Guidelines
 EPA - Environmental Protection Agency

From: LIA05 Hoc
Sent: Thursday, March 31, 2011 2:37 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: March 31 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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WVU / 276

From: OST01 HOC
Sent: Thursday, March 31, 2011 11:31 PM
To: Stone, Rebecca
Subject: FW

From: ET07 Hoc
Sent: Thursday, March 31, 2011 11:29 PM
To: OST01 HOC
Subject:

<http://nsir-ops.nrc.gov/default.aspx>

VVV / 277

From: ET02 Hoc
Sent: Thursday, March 31, 2011 7:14 PM
To: ET04 Hoc
Subject: FW: sfp4 video

From: ET02 Hoc
Sent: Thursday, March 31, 2011 7:13 PM
To: ET02 Hoc; RST12 Hoc; RST01 Hoc; RST09 Hoc
Subject: sfp4 video

<http://www.ustream.tv/recorded/13684184>

WV/278

From: PMT03 Hoc
Sent: Friday, April 01, 2011 3:38 PM
To: Bush-Goddard, Stephanie
Subject: RE: PMT Dose Assessor watch standers needed

Ok. 11-7 Th,F,Sa.

From: Bush-Goddard, Stephanie
Sent: Friday, April 01, 2011 3:34 PM
To: PMT03 Hoc
Subject: Re: PMT Dose Assessor watch standers needed

Give me only thur, fri and sat 11pm to 7am

From: Bush-Goddard, Stephanie
To: PMT03 Hoc
Sent: Fri Apr 01 15:31:05 2011
Subject: Re: PMT Dose Assessor watch standers needed

Wait wait that was not the full intent of my email

From: PMT03 Hoc
To: Nosek, Andrew; White, Bernard; Sun, Casper; LaVera, Ronald; Sturz, Fritz; Bush-Goddard, Stephanie; Tomon, John
Cc: OST02 HOC; Brandon, Lou
Sent: Fri Apr 01 15:27:36 2011
Subject: RE: PMT Dose Assessor watch standers needed

Stephanie Bush-Goddard is now scheduled for:

Tue/Wed	5/6-Apr	11P-7A	Andrew Nosek / Bush-Goddard
Thu/Fri	7/8-Apr	11P-7A	Bernie White / Bush-Goddard
Fri/Sat	8/9-Apr	11P-7A	Ron LaVera / Bush-Goddard
Sat/Sun	9/10-Apr	11P-7A	Bush-Goddard / ???

Vacancies still open for:

Fri	8-Apr	3P-11P	Casper Sun / ???
Sat	9-Apr	3P-11P	Casper Sun / ???
Sat	9-Apr	7A-3P	Fritz Sturz / ???
Sat/Sun	9/10-Apr	11P-7A	Bush-Goddard / ???

From: PMT03 Hoc
Sent: Friday, April 01, 2011 12:50 PM
To: Nosek, Andrew; White, Bernard; Sun, Casper; LaVera, Ronald; Sturz, Fritz; Brandon, Lou
Cc: PMT03 Hoc; PMT01 Hoc; PMT02 Hoc; PMT09 Hoc; OST02 HOC
Subject: PMT Dose Assessor watch standers needed
Importance: High

Team:

h2/nm

We have some watches for PMT Dose Assessor between 4/5 and 4/9 that still need volunteers. If you can stand watch in any of the below slots, please copy all on this email. Also, if I missed anybody on this email chain that can support these Dose Assessment watches, please forward this email.

Thanks,
Duane

Tue/Wed	5/6-Apr	11P-7A	Andrew Nosek / ???
Thu/Fri	7/8-Apr	11P-7A	Bernie White / ???
Fri/Sat	8/9-Apr	11P-7A	Ron LaVera / ???
Sat	9-Apr	7A-3P	Fritz Sturz / ???
Sat	9-Apr	3P-11P	Casper Sun / ???
Sat/Sun	9/10-Apr	11P-7A	??? / ???

From: Bush-Goddard, Stephanie
Sent: Friday, April 01, 2011 3:13 PM
To: PMT03 Hoc
Cc: Brandon, Lou; Tomon, John
Subject: RE: PMT Dose Assessor watch standers needed

Hi,

My name is Stephanie Bush-Goddard. I am a GIS Analyst, but took the RASCAL Training in FY 09. I am also a Health Physicist by training and Chief of the Health Effects Branch in RES, so I am some knowledge in dose assessment.

I would be more than happy to share a shift with a highly trained and skilled Dose Assessor, if you need someone to take the load off the current team.

John Tomon got the request and I can fill in where he cannot.

Thanks
-Stephanie

I am available:

Tue/Wed	5/6-Apr	11P-7A	Andrew Nosek / ???
Thu/Fri	7/8-Apr	11P-7A	Bernie White / ???
Fri/Sat	8/9-Apr	11P-7A	Ron LaVera / ???
Sat	9-Apr	7A-3P	Fritz Sturz / ???
Sat/Sun	9/10-Apr	11P-7A	??? / ???

From: PMT03 Hoc
Sent: Friday, April 01, 2011 2:42 PM
To: Tomon, John
Cc: Brandon, Lou; OST02 HOC; Hardesty, Duane; PMT03 Hoc
Subject: FW: PMT Dose Assessor watch standers needed
Importance: High

John –

Thanks for agreeing to support. Below is the open slots we need filled.

Prior to one of these slots you can come in and sit with any of the dose assessors on any shift 4/2 through 4/7.

Please just reply back with dates so we can fill the slots!

Regards,

Duane Hardesty

From: PMT03 Hoc
Sent: Friday, April 01, 2011 12:50 PM
To: Nosek, Andrew; White, Bernard; Sun, Casper; LaVera, Ronald; Sturz, Fritz; Brandon, Lou

08/2/11

Cc: PMT03 Hoc; PMT01 Hoc; PMT02 Hoc; PMT09 Hoc; OST02 HOC

Subject: PMT Dose Assessor watch standers needed

Importance: High

Team:

We have some watches for PMT Dose Assessor between 4/5 and 4/9 that still need volunteers.

If you can stand watch in any of the below slots, please copy all on this email. Also, if I missed anybody on this email chain that can support these Dose Assessment watches, please forward this email.

Thanks,

Duane

Tue/Wed	5/6-Apr	11P-7A	Andrew Nosek / ???
Thu/Fri	7/8-Apr	11P-7A	Bernie White / ???
Fri	8-Apr	3P-11P	Casper Sun / ???
Fri/Sat	8/9-Apr	11P-7A	Ron LaVera / ???
Sat	9-Apr	7A-3P	Fritz Sturz / ???
Sat	9-Apr	3P-11P	Casper Sun / ???
Sat/Sun	9/10-Apr	11P-7A	??? / ???

From: Hardesty, Duane
Sent: Friday, April 01, 2011 4:29 PM
To: PMT03 Hoc; Tomon, John
Subject: RE: PMT Dose Assessor watch standers needed

Nima:
He needs to shadow too. That day may be ideal?
Duane.

From: PMT03 Hoc
Sent: Friday, April 01, 2011 3:28 PM
To: Tomon, John
Cc: Hardesty, Duane
Subject: RE: PMT Dose Assessor watch standers needed

John,

We have a full team plus an individual shadowing the dose assessor team on 4/4 7-3pm. I'd recommend coming in another time if you are interested in sitting with the dose assessors on any shift 4/2 through 4/7. Current openings:

Vacancies still open for:

Fri	8-Apr	3P-11P	Casper Sun / ???
Sat	9-Apr	3P-11P	Casper Sun / ???
Sat	9-Apr	7A-3P	Fritz Sturz / ???
Sat/Sun	9/10-Apr	11P-7A	Bush-Goddard / ???

Nima

PMT

From: Tomon, John
Sent: Friday, April 01, 2011 3:08 PM
To: PMT03 Hoc
Cc: Hardesty, Duane
Subject: RE: PMT Dose Assessor watch standers needed

Duane

From: PMT03 Hoc
Sent: Friday, April 01, 2011 2:42 PM
To: Tomon, John
Cc: Brandon, Lou; OST02 HOC; Hardesty, Duane; PMT03 Hoc
Subject: FW: PMT Dose Assessor watch standers needed
Importance: High

John –

Thanks for agreeing to support. Below is the open slots we need filled.

Prior to one of these slots you can come in and sit with any of the dose assessors on any shift 4/2 through 4/7.

Please just reply back with dates so we can fill the slots!

Regards,

Duane Hardesty

From: PMT03 Hoc
Sent: Friday, April 01, 2011 12:50 PM
To: Nosek, Andrew; White, Bernard; Sun, Casper; LaVera, Ronald; Sturz, Fritz; Brandon, Lou
Cc: PMT03 Hoc; PMT01 Hoc; PMT02 Hoc; PMT09 Hoc; OST02 HOC
Subject: PMT Dose Assessor watch standers needed
Importance: High

Team:

We have some watches for PMT Dose Assessor between 4/5 and 4/9 that still need volunteers.

If you can stand watch in any of the below slots, please copy all on this email. Also, if I missed anybody on this email chain that can support these Dose Assessment watches, please forward this email.

Thanks,

Duane

Tue/Wed	5/6-Apr	11P-7A	Andrew Nosek / ???
Thu/Fri	7/8-Apr	11P-7A	Bernie White / ???
Fri	8-Apr	3P-11P	Casper Sun / ???
Fri/Sat	8/9-Apr	11P-7A	Ron LaVera / ???

Sat	9-Apr	7A-3P	Fritz Sturz / ???
Sat	9-Apr	3P-11P	Casper Sun / ???
Sat/Sun	9/10-Apr	11P-7A	??? / ???

From: LIA05 Hoc
Sent: Friday, April 01, 2011 7:14 PM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Subject: 1800 NRC Status Update
Attachments: NRC Status Update 4.01.11--1800.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~~

1821/11/11

From: LIA05 Hoc
Sent: Friday, April 01, 2011 7:02 AM
To: Dan Feighert; Andrew Seward; Harry Sherwood; John Simpson; Lisa Hamilton; Michelle Ralston; Rebecca Fontenot; Steve Horwitz; Tim Greten; Vanessa E. Quinn
Attachments: NRC Status Update 4.01.11--0430.pdf

Per your request

Bonnie Sheffield Dayshift 0700-1500
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~~

282 / MNR

From: OST01 HOC
Sent: Friday, April 01, 2011 9:27 AM
To: Hoc, PMT12; PMT03 Hoc
Cc: OST02 HOC; OST01 HOC
Subject: FW: Updated Watchlist for March 27 - April 2 (Final)

Do you want us to fill in the PMT PAAD position for the April 9, 7am – 3pm shift?

From: OST02 HOC
Sent: Friday, April 01, 2011 9:11 AM
To: Brandon, Lou; OST01 HOC
Subject: FW: Updated Watchlist for March 27 - April 2 (Final)

From: Brock, Kathryn
Sent: Friday, April 01, 2011 9:07 AM
To: OST02 HOC
Subject: RE: Updated Watchlist for March 27 - April 2 (Final)

Are you scheduling the PMT for the week of April 4th? Does the PMT need help? I'm a PAAD.

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; Bars, 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; Eason, 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, 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;

2/2/11

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; Smiroldo, 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

From: LIA07 Hoc
Sent: Saturday, April 02, 2011 6:16 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 - 0600 EDT, April 2, 2011
Attachments: NRC Status Update 4.2.11--0430.pdf; TEPCO Press Release 246.pdf; ET Chronology 4-2-11 0600.pdf

Attached, please find updated information for the "Go Books".

The updates include:

- The 0430 EDT, 04/02/11 Status Update
- The latest ET Chronology
- TEPCO Press Release (246)

Please let me know if you have any questions or concerns.

-Jim

Jim Anderson
Office of Nuclear Security & Incident Response
US Nuclear Regulatory Commission
LIA07.HOC@nrc.gov (Operations Center)
james.anderson@nrc.gov

482 / NNN

Press Releases

Press Release (Apr 02, 2011)

Status of TEPCO's Facilities and its services after the Tohoku-Taiheiyou-Oki Earthquake (as of 10:00AM)

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 has been conducted since around 0:00 pm, March 31st.
- From 1:03 pm, March 31st, the water spray by the concrete pumping vehicle was started, and finished at 4:04 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.
- *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 21st, 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.

* 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.
- *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.
- *A 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 15:38, April 1st, we started to replenish the fresh water with filtrate tanks.
- *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 200m². 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: OST01 HOC
Sent: Saturday, April 02, 2011 9:10 AM
To: OST01 HOC
Subject: FW: April 9-16

From: OST01 HOC
Sent: Saturday, April 02, 2011 9:09 AM
To: Russell, Tonya
Cc: OST02 HOC
Subject: RE: April 9-16

Tonya,

This will be passed on as a turn over item until it is resolved. When the reason is identified for your name appearing to the right of the normal staff column, instead of in the staff column for the shifts you specified in the below email, you will be notified and any applicable schedule changes will be made. Thanks for the information and sorry for any confusion.

Regards,

Stacy Smith
EST Coordinator

From: Russell, Tonya
Sent: Saturday, April 02, 2011 8:00 AM
To: LIA07 Hoc; Mroz (Sahm), Sara
Cc: OST01 HOC; OST02 HOC; McMurtray, Anthony; Chen, Yen-Ju
Subject: FW: April 9-16

Hi Sara:

While on shift with you yesterday (FRI 4/1/11 5:37pm), Tabitha Howard forwarded my schedule for week of April 9-16. [Please see below.] This morning (SAT 4/2 7:30am, I noticed I had been removed from the current schedule for the dates, in RED. As a result these slots are now available. I wish to be reinstated for these slots, if needed.

Per Jim Anderson, he did not make the schedule changes, and I assume you did.

Please be sensitive that we make advance logistical arrangements with family and friends for coverage in order to support the NRC Ops Center. For planning and coordination purposes, if you had made these changes, I wish that you had notified me first of my schedule changes before removing me from schedule.

As always, I am more than willing to lend support. [FYI, at this moment, I noticed slot for EBT Admin Assist is available for WED 4/6 3-11pm - I can fill this spot from 4:15-9:30pm if needed.]

Thanks for understanding.

Tonya
301.415-2147

5/2/11

From: OST02 HOC
Sent: Friday, April 01, 2011 5:37 PM
To: Russell, Tonya
Subject: April 9-16

EBT Admin. Assistant			
Sat-Sun	4/9-4/10	11pm - 7am	N/A
Sun	10-Apr	7am - 3pm	Carolyn Kahler
Sun	10-Apr	3pm-11pm	Tonya Russell (3pm - 9:00pm)
Sun-Mon	4/10-4/11	11pm - 7am	N/A
Mon	11-Apr	7am - 3pm	Andrea Wimbush
Mon	11-Apr	3pm-11pm	Louise Lovell
Mon-Tue	4/11-12/5	11pm - 7am	N/A
Tue	12-Apr	7am - 3pm	Carolyn Kahler/Sapna Hurd
Tue	12-Apr	3pm-11pm	Tonya Russell (4:30pm-9:30pm)
Tue-Wed	4/12-13/6	11pm - 7am	N/A
Wed	13-Apr	7am - 3pm	Carolyn Kahler/Sapna Hurd
Wed	13-Apr	3pm-11pm	Tonya Russell (4:30pm-9:30pm)
Wed-Thur	4/13-4/14	11pm - 7am	N/A (was Christina Merritt)
Thur	14-Apr	7am - 3pm	Andrea Wimbush
Thur	14-Apr	3pm-11pm	Louise Lovell
Thur-Fri	4/14-4/15	11pm - 7am	N/A
Fri	15-Apr	7am - 3pm	
Fri	15-Apr	3pm-11pm	Tonya Russell (4:30pm-9:30pm)
Fri-Sat	4/15-4/16	11pm-7am	N/A

From: LIA07 Hoc
Sent: Saturday, April 02, 2011 10:34 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: 2200 EDT April 2 one-pager attached (EOM)
Attachments: April 2 2200 EDT CA Brief one pager (2).pdf

Jeremy Susco
Executive Briefing Team Coordinator
US Nuclear Regulatory Commission
LIA07.HOC@nrc.gov (Operations Center)
jeremy.susco@nrc.gov

4/2/11 10:36

From: PMT09 Hoc
Sent: Sunday, April 03, 2011 7:39 AM
To: PMT11 Hoc
Subject: FW: Non-Urgent - new task request: MELCOR source terms to re-create previous RASCAL runs for Fukushima "Plausible Realistic Scenario"

From: PMT09 Hoc
Sent: Sunday, April 03, 2011 7:38 AM
To: PMT02 Hoc; PMT01 Hoc
Subject: FW: Non-Urgent - new task request: MELCOR source terms to re-create previous RASCAL runs for Fukushima "Plausible Realistic Scenario"

Tony-

Pls follow up with RES (or leave a note for next Team Dose assessor to check the status of this request to RES Since it was sent on Thursday.

Ideally since RES completed the worst case runs yesterday or Friday, they can run this to verify the source term from RASCAL.

Thanks
Cyndi

From: PMT09 Hoc
Sent: Thursday, March 31, 2011 11:37 AM
To: Tinkler, Charles; Schaperow, Jason
Cc: Uhle, Jennifer; Hoc, PMT12; PMT03 Hoc; PMT07 Hoc
Subject: Non-Urgent - new task request: MELCOR source terms to re-create previous RASCAL runs for Fukushima "Plausible Realistic Scenario"

This is a non-urgent request. When RES is done with the previous request for a "pessimistic" case for Tokyo. We would like to have MELCOR calculate source terms that would be related to the scenarios used previous RASCAL runs that we had sent to NARAC. The basic scenario information used in RASCAL was:

Reactor Unit	Core Melt	Containment Release Rate	Release Start Time (UTC)	Release End Time (UTC)
Unit 1	70%	10% per day	3/12 06:25	3/24 06:25
Unit 2	33%	5 in ² hole, 60 psi initial pressure	3/14 22:00	3/16 22:00
Unit 3	33%	100% per day*	3/14 02:00	3/15 02:00

* Unit 3: all material is released during first day

Please let us know if this is something that you can do, and when we may see the source terms. To repeat, this is not urgent, but is something we would like to have in the operations center in order to determine if the 50-mile evacuation recommendation should be reduced.

AS2/NNR

From: PMT09 Hoc
Sent: Sunday, April 03, 2011 4:17 PM
To: Virgilio, Martin
Cc: Hoc, PMT12; PMT03 Hoc
Subject: FW: Surface radioactivity screening levels
Attachments: Table 1 Screening Levels for Clearance.pdf

Marty,

Scott Flanders said you were asking us to confirm that we believe a surface contamination level of 4 Bq/cm² (for Cs-137, Sr-90, or I-131; but Cs and Sr are more limiting than I-131) would result in a dose no greater than 4 mrem/yr. PMT dose analysts looked into this earlier today: below is our conclusion. This was based primarily on the draft ANSI/HPS standard, but the analysts performed additional analyses to confirm order of magnitude.

Duane Schmidt, PMTR RAAD
PMT-Ops Center

From: PMT02 Hoc
Sent: Sunday, April 03, 2011 1:18 PM
To: PMT09 Hoc; Hoc, PMT12
Cc: PMT02 Hoc; PMT11 Hoc
Subject: Surface radioactivity screening levels

PMT 09 and PMT 12,

Attached is a pdf of screening values for release of materials with surface contamination from the draft ANSI/HPS N13.12 Surface and Volume Radioactivity Standards for Clearance. The radioactivity concentration (screening value) for Cs-137 and Sr-90 is 1 Bq-cm², which equates to a dose of 1 mrem/yr TEDE. Accordingly, a 4 Bq-cm² contamination level on cargo would be about 4 mrem/yr TEDE. If transuranics were detected on cargo surfaces, the screening value is decreased to 0.1 Bq-cm², which equates to a dose of 40 mrem/yr TEDE for a 4 Bq-cm² contamination level

PMT-Ops Center

882 / NNN

Table 1 Screening Levels for Clearance

Radionuclide Groups ^(a)	Volume Screening Levels (S.I. Units) ^(b)	Surface Screening (Conventional Units) ^(b)	Volume Screening (Conventional Units) ^(b)
	(Bq/cm ² or Bq/g) ^(c)	(dpm/100 cm ²)	(pCi/g)
Group 1 Radium, Thorium, & Transuranics and Mobile Beta-Gamma Emitters: ^{110m} Ag, ¹²⁹ I ^(d) , ²¹⁰ Po, ²¹⁰ Pb, ²²⁶ Ra, ²²⁸ Ra, ²²⁸ Th, ²²⁹ Th, ²³⁰ Th, ²³² Th, ²³² U, ²³⁸ Pu, ²³⁹ Pu, ²⁴⁰ Pu, ²⁴² Pu, ²⁴⁴ Pu, ²⁴¹ Am, ²⁴³ Am, ²⁴⁵ Cm, ²⁴⁶ Cm, ²⁴⁷ Cm, ²⁴⁸ Cm, ²⁴⁹ Cf, ²⁵¹ Cf, ²⁵⁴ Es, and associated decay chains ^(e) , and others ^(a)	0.1	600	3
Group 2 Uranium and Selected Beta-Gamma Emitters: ¹⁴ C, ²² Na ^(f) , ³⁶ Cl, ⁴⁶ Sc ^(f) , ⁵⁴ Mn ^(f) , ⁵⁶ Co ^(f) , ⁵⁷ Co, ⁵⁸ Co, ⁶⁰ Co ^(f) , ⁶⁵ Zn ^(f) , ⁷⁵ Se, ⁸⁵ Sr, ⁹⁰ Sr, ⁹⁴ Nb ^(f) , ⁹⁵ Zr, ⁹⁹ Tc, ¹⁰⁶ Ru ^(f) , ¹⁰⁹ Cd, ¹²⁴ Sb, ¹²⁵ Sb ^(f) , ¹³⁴ Cs ^(f) , ¹³⁷ Cs ^(f) , ¹⁴⁰ Ba, ¹⁵² Eu ^(f) , ¹⁵⁴ Eu ^(f) , ¹⁵⁵ Eu, ¹⁶⁰ Tb ^(f) , ¹⁸² Ta ^(f) , ¹⁹⁰ Ir, ¹⁹² Ir, ²⁰⁴ Tl, ²⁰⁷ Bi ^(f) , ²³³ U, ²³⁴ U, ²³⁵ U, ²³⁸ U, Natural Uranium ^(g) , ²³⁷ Np, ²³⁶ Pu, ²⁴³ Cm, ²⁴⁴ Cm, ²⁴⁸ Cf, ²⁵⁰ Cf, ²⁵² Cf, ²⁵⁴ Cf, and others ^(a)	1	6,000	30
Group 3 General Beta-Gamma Emitters: ⁷ Be, ⁵⁹ Fe ^(f) , ⁷⁴ As, ^{93m} Nb, ⁹³ Mo, ⁹⁷ Tc, ¹⁰³ Ru, ¹⁰⁵ Ag ^(f) , ^{114m} In, ¹¹³ Sn ^(f) , ¹²⁵ Sn, ^{123m} Te ^(f) , ^{127m} Te, ^{129m} Te, ¹³¹ I, ¹³¹ Ba, ¹³⁹ Ce ^(f) , ¹⁴⁴ Ce, ¹⁵³ Gd, ¹⁶⁰ Tb ^(f) , ¹⁸¹ Hf ^(f) , ¹⁸¹ W, ¹⁸⁵ Os ^(f) , ²⁰³ Hg, ²⁰² Tl, ²²⁵ Ra, ²³⁰ Pa, ²³³ Pa, ²³⁶ U, ²⁴¹ Pu, ²⁴² Cm, and others ^(a)	10	60,000	300
Group 4 Other Beta-Gamma Emitters: ³ H, ³⁵ S, ⁴⁵ Ca, ⁵¹ Cr, ⁵³ Mn, ⁵⁹ Ni, ⁶³ Ni, ⁸⁶ Rb, ⁹¹ Y, ⁹³ Zr ^(f) , ^{97m} Tc, ^{115m} Cd, ^{115m} In, ¹²⁵ I, ¹³⁵ Cs, ¹⁴¹ Ce, ¹⁴⁷ Nd, ¹⁷⁰ Tm, ¹⁹¹ Os, ²³⁷ Pu, ²⁴⁹ Bk, ²⁵³ Cf, and others ^(a)	100	600,000	3,000
Group 5 Low Dose Beta Emitters: ⁵⁵ Fe, ⁷³ As, ⁸⁹ Sr, ^{125m} Te, ¹⁴⁷ Pm, ¹⁵¹ Sm, ¹⁷¹ Tm, ¹⁸⁵ W, and others ^(a)	1,000 ^(h)	600,000 ^(h)	30,000

- (a) To determine the specific group for radionuclides not shown, a comparison of the screening factors, by exposure scenario, listed in Tables B. 1, C.1 and D.1 of NCRP Report No. 123I (NCRP 1996) for the radionuclides in question and the radionuclides in the general groups above *should* be performed and a determination of the proper group made, as described in Annex A.
- (b) Values have been rounded to one significant figure.
- (c) The screening levels shown are used for either surface radioactivity (in units of Bq/cm² assuming an average surface to mass ratio of 1:1 as discussed in Annex A), or volume radioactivity (in units of Bq/g).
- (d) Because of potential ground water concerns, the volume radioactivity values for ¹²⁹I *should* be lowered by one order of magnitude when disposal to landfills or direct disposal to soil is anticipated.
- (e) For decay chains, the screening levels represent the total activity (i.e., the activity of the parent plus the activity of all progeny) present.
- (f) Because of photon dose-rate concerns, the volume values shown *should* be lowered by one order of magnitude for clearance of bulk quantities in excess of 1 metric ton.
- (g) Where the Natural Uranium activity equals 48.9% from ²³⁸U, plus 48.9% from ²³⁴U, plus 2.2% from ²³⁵U (plus all progeny in equilibrium).
- (h) For contamination control considerations, surface radioactivity screening levels for Group 5 radionuclides are controlled to the Group 4 screening levels.

From: ET07 Hoc
Sent: Sunday, April 03, 2011 7:23 AM
To: McGinty, Tim
Subject: FW: Go Book Update: April 3 0700 EDT One Pager
Attachments: April 3 0700 EDT CA Brief one pager .pdf

From: LIA07 Hoc
Sent: Sunday, April 03, 2011 7:08 AM
To: Batkin, Joshua; Borchartdt, 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: April 3 0700 EDT One Pager

Attached, please find the April 3, 0700 EDT One Pager for the "Go Book" update.

Please let me know if you have any questions or concerns.

Yen

Yen Chen
US Nuclear Regulatory Commission
LIA07.HOC@nrc.gov (Operations Center)

444/289

From: LIA07 Hoc
Sent: Sunday, April 03, 2011 3:23 PM
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: RE: One Pager - 1500 EDT April 3, 2011
Attachments: April 3 1500 EDT CA Brief one pager .pdf

My apologies—with the attachment

NMG

From: LIA07 Hoc
Sent: Sunday, April 03, 2011 3:20 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 - 1500 EDT April 3, 2011

Attached is the "one pager" for 1500 EDT, April 3, 2011.
Please let me know if there are questions or concerns.
-Nichole

Nichole Glenn
Executive Briefing Team Coordinator
LIA07.HOC@nrc.gov (Operations Center)

062/nrc

From: ET02 Hoc
Sent: Sunday, April 03, 2011 1:23 AM
To: ET04 Hoc
Subject: FW: construction and tutorial video for fukushima

From: ET02 Hoc
Sent: Saturday, April 02, 2011 7:35 PM
To: ET02 Hoc; RST01 Hoc; RST09 Hoc; RST12 Hoc
Subject: construction and tutorial video for fukushima

<http://www.youtube.com/watch?v=sspp6D8giHc>

192/1111

From: OST01 HOC
Sent: Sunday, April 03, 2011 8:03 PM
To: McGinty, Tim
Cc: OST02 HOC
Subject: Open Shift Friday 0700-1500

Good Evening Sir,

There is an open shift for ET Response Advisor this Friday (4/8) from 0700-1500. Could you fill it? Please respond to this email or OST02.hoc@nrc.gov.

Thanks,
Rebecca Stone
EST Coordinator

262/292

From: Hoc, PMT12
Sent: Monday, April 04, 2011 1:25 PM
To: PMT03 Hoc
Subject: FW: NOAA Point of Contact Information

Please put this contact info in the log/chronology.

From: LIA01 Hoc
Sent: Monday, April 04, 2011 12:34 PM
To: Hoc, PMT12; PMT02 Hoc
Cc: LIA08 Hoc; LIA06 Hoc; steven.fine@noaa.gov; sdm@noaa.gov
Subject: NOAA Point of Contact Information

The NOAA Point of Contact is Steve Fine, 301-713-2458, and the email contacts are: steven.fine@noaa.gov and sdm@noaa.gov with is the Watch Officer.

NRC Incident Response Center
Federal Liaison

JV V | 293

From: OST01 HOC
Sent: Monday, April 04, 2011 10:47 AM
To: Hoc, PMT12; Brandon, Lou
Cc: Jones, Cynthia; OST02 HOC; OST01 HOC
Subject: Andrew Nosek is out sick tonight

Importance: High

He has the 11pm – 7 am shift as Dose Assessor. John Parillo is the second assessor on that shift.

If you wish to have this position filled with two assessors, please find a replacement for Andrew.

Thanks

Steve Campbell
EST Coordinator

VVV/294

From: OST02 HOC
Sent: Monday, April 04, 2011 2:21 PM
To: OST01 HOC
Subject: INSTRUCTIONS and MISCELLANEOUS INFORMATION.docx
Attachments: INSTRUCTIONS and MISCELLANEOUS INFORMATION.docx

562/ANR

INSTRUCTIONS and MISCELLANEOUS INFORMATION

- 1) All incoming emails forward respectively to the appropriate "TO" recipients below, and cc to FIOA Response.Hoc Resources
- 2) Go to Outlook's Sent Box and drag these "Sent" emails to Archive Folders: Sent to FOIA Resource.
- 3) This Instruction Sheet was typed by Tonya Russell on Monitor LIA07.

STATION	Daily TO DO	
OST02 EST Admin Assistant	<ul style="list-style-type: none"> ▶ Sign -In/Sign-Out as ET Staff ▶ Verify "Press Releases" ▶ Print Master Roster each shift ▶ Print A→Z (2x) List for Guards at Ops Center entrance, each shift ▶ Print Master Roster each shift ▶ When staffing shifts, 1) ask new volunteers/responders to A→Z List and 2) e-mail distribution (Japanese Event Responders). Do not add non-NRC to e-mails. 	
OST01 (EST Coordinator)	<ul style="list-style-type: none"> ▶ Sign-In/Sign-Out as EST Coordinator ▶ Review and filter/forward incoming emails accordingly to list below. 	
	FROM	TO
	Data/Docs Re: Radiation/Radioactivity	PMT02, PMT11, PMT12
	Hysplit Output	PMT02, PMT11, PMT12
	IAEA Press Release	LIA07, LIA02, LIA03
	Intermediate Phase Supercore?	PMT01, PMT02, PMT12
	Meti, Seismic	RST01
	Mext	RST01, PMT01, PMT02, PMT11
	Monitoring Data	PMT02, PMT11, PMT12
	Speedi	PMT02, PMT11, PMT12
	SITREPs	LIA07, current ET, RST01, PMT01 PMT02; PMT11, PMT12
	Telecom	RST01
	Weather Service	PMT01, PMT02
	Wind	PMT01
	Coordinators	Email Addresses
	LT	LIA08
	RST	RST01
	PMT	PMT03
	EB	LIA07
MISCELLANEOUS INFORMATION		
Volunteer List	M:\Ostfiles\Japanese Earthquake and Tsunami\Volunteers Spreadsheet	
NRC Operations Center Contact	Telephone: 301-816-5100 Fax: 301-816-5151 (Not Secure)	

M:\Japanese Document\Instructions and Miscellaneous Information.docx

From: ET02 Hoc
Sent: Sunday, April 03, 2011 1:23 AM
To: ET04 Hoc
Subject: FW: part 2 of construction video

From: ET02 Hoc
Sent: Saturday, April 02, 2011 7:41 PM
To: ET02 Hoc; RST01 Hoc; RST12 Hoc; RST09 Hoc
Subject: part 2 of construction video

<http://www.youtube.com/watch?v=cTshYXmN1AY>

VVV/296

From: LIA07 Hoc
Sent: Monday, April 04, 2011 3:28 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 for 1500 EDT, April 4
Attachments: April 4 1500 EDT CA Brief one pager .docx

Attached is the "one pager" for 1500 EDT, April 4, 2011.
Please let me know if there are questions or concerns.

Yen

Yen Chen
Executive Briefing Team Coordinator
LIA07.HOC@nrc.gov (Operations Center)

2/29/11

From: McDermott, Brian
Sent: Tuesday, April 05, 2011 2:13 AM
To: ET07 Hoc
Subject: FW: NSIR Japan Tsunami Salary Cap List
Attachments: Japan_Tsunami_Salary_Cap_Employees_04012011.xlsx

From: Williams, Kevin
Sent: Monday, April 04, 2011 11:36 AM
To: Curran, Bridget; Dudek, Michael; Williamson, Linda; Abraham, Susan; McDermott, Brian; Rheume, Cynthia; Morris, Scott; Thaggard, Mark
Cc: Howard, Tabitha; Ma, May
Subject: RE: NSIR Japan Tsunami Salary Cap List

I have updated DPR's list for all pay periods.

Kevin

From: Curran, Bridget
Sent: Monday, April 04, 2011 11:15 AM
To: Brown, Cris; Dudek, Michael; Riffle, Deani; Shropshire, Alan; VandenBerghe, John; Williamson, Linda; Abraham, Susan; Holahan, Patricia; Layton, Michael; McDermott, Brian; Rheume, Cynthia; Caldwell, Robert; Erlanger, Craig; Morris, Scott; Thaggard, Mark; Williams, Kevin
Cc: Howard, Tabitha; Ma, May
Subject: NSIR Japan Tsunami Salary Cap List

Good morning,

CFO is looking for a list of employees who are affected by the salary cap and performed emergency response work per pay period.

The attached list reflects, by pay period, those employees in NSIR who have been affected by the salary cap in pay periods 6, 7 and 8 (so far).

I have received the feedback last week regarding pay periods 6 and 7. However, I don't have a complete list of those employees affected by the salary cap who are supporting the Japan effort this pay period – pay period 8. Please take a moment to review the attached list, and let me know who is and who will be supporting the Japan effort this pay period.

Thanks,

Bridget Curran
Program Analyst
NSIR/PMDA/FMB
301-415-1060

VVV/298

**NSIR Employees Supporting the Op Center for the Japan Effort
Affected by Salary Cap**

4/4/2011

		PP 06 02/27 - 03/12	PP07 03/13 - 03/26	PP08 03/27 - 04/09	PP09 04/10 - 04/23	PP10 04/24 - 05/07	PP11 05/08 - 05/21	PP12 05/22 - 06/04
PMDA								
Evans-Brown	Clarissa (Cris)		X	X				
Valencia	Sandra			X				
DSO								
Costello	Ralph		X					
Dodmead	James	X	X					
Everly	James		X					
Hahn	Matthew		X	X				
Johnson	Daryl		X					
Johnson	Robert Clay		X					
Masse	Todd		X					
Norman	Robert							
Stapleton	Bernard	X	X					
Whitney	James		X					
DSP								
Brochman	Philip		X					
Bukharin	Oleg		X					
Caldwell	Robert							
Erlanger	Craig		X					
Harris	Timothy		X					
Huyck	Douglas		X					
Purdy	Gary		X					
Resner	Mark							
Sturz	Frederick		X					
Wastler	Sandra		X					
DPR								
Anderson	Joseph		X	X	X	X	X	X
Barrs	Daniel		X	X	X	X	X	X
Brandon	Louis	X	X	X	X	X	X	X
Collins	Joseph	X	X	X	X	X	X	X
Dudek	Michael	X	X	X	X	X	X	X
Gott	William	X	X	X	X	X	X	X
Grant	Jeffrey	X	X	X	X	X	X	X

Hasselberg	Frederick		X	X	X	X	X	X	X
Johnson	Don				X	X	X	X	X
Kahler	Robert			X	X	X	X	X	X
Kozal	Jason		X	X	X	X	X	X	X
Lavie	Stephen		X	X	X	X	X	X	X
Marshall	Jane		X	X	X	X	X	X	X
Musico	Bruce				X	X	X	X	X
Norris	Michael		X	X	X	X	X	X	X
Stransky	Robert		X	X	X	X	X	X	X
Sullivan	Randolph		X	X	X	X	X	X	X
Williams	Kevin		X	X	X	X	X	X	X
Wright	Lisa Gibney		X	X	X	X	X	X	X

From: ET05 Hoc
Sent: Tuesday, April 05, 2011 10:50 PM
To: LIA07 Hoc
Subject: FW: UPDATED: One Pager, 2200 - April 5, 2011
Attachments: April 5 2200 EDT Brief one pager.docx

Importance: High

See below

From: ET05 Hoc
Sent: Tuesday, April 05, 2011 10:48 PM
To: RST01 Hoc; LIA06 Hoc; LIA08 Hoc; Hoc, PMT12; OST04 Hoc; OST02 HOC; OST01 HOC
Cc: Giitter, Joseph; Carpenter, Cynthia
Subject: UPDATED: One Pager, 2200 - April 5, 2011
Importance: High

FYI: Attached is the latest One Pager updated 2200 on April 5th.

This was approved by Joe Giitter and Cindi Carpenter.

Thanks, EST Actions Officer

VVV/299

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TRIP NOTES
April 5-8 2011

- The long term nature of the recovery seems to be well understood, with an appropriate sense of urgency for near term actions. Hosono (assigned by PM to lead Fukushima accident efforts) had prepared a draft time line document and asked for feedback from NRC team leader Casto and me. Most of our comments concerned the need for short term stabilization of the site, remote cooling operations, and better instrumentation wherever possible. Salt removal was also stressed in addition to rad cleanup.
- Parting request from Hosono-issue a press release supportive of the ocean releases. I had told him that I believed the action was essential to avoid additional contamination.
- Need to reinforce infrastructure and plan for remote operations – I discussed this in many meetings and there was general agreement that this needs to be done quickly. On 4/7, TEPCO stated that they would have remote operation of the giraffes ready by April 21.
- Ambassador must either reissue the evacuation order on 4/15 or rescind it. The SNL team there is doing some worst case analyses, which are leading to a pretty moderate future threat. The evacuation order is issued in 30 day increments. Ambassador is leaning towards rescission, I concurred that situation is stabilizing.
- Need to clear space in spent fuel pools for handling of damaged materials – NISA has catalogued open SFP space throughout Japan. But they are trying to avoid use of elevated pools, which greatly limits their options. They are considering construction of a new SFP near 1F.
- Hosono – there will be no operation of units 5 and 6 for at least many years due to public concern. They are considering a tent over the damaged units to avoid dust movement and minimize rain.
- The PNNL team working on cooling issues seems to be very well integrated with and accepted by the Japanese leadership. I discussed with the PNNL team the need to involve other labs in the work, with which they agreed.
- In several meetings, I discussed how DOE labs can function as an honest broker to critique industrial proposals. There was strong interest in that DOE role.

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VVV/300

- TEPCO: they are rigging a water sampling system for the giraffes and will try to get SFP samples soon. They are very interested in water injection into the gap between primary containment and concrete and are exploring use of the "leak detection line" for injection. TEPCO is considering various options for Unit 2 to stop the apparent torus leak: grout the entire torus bldg (which seemed impossible to me), develop a closed loop recirc system fed by the leaking water in the torus area, and find the hole and fix it robotically (which they agree is rather hard to imagine).
- The NYT article with the leaked ODO document on stabilization strategies and potential worst cases was unfortunate. It was mentioned in many of my meetings. It was recognized that the leaked document was several days old and somewhat out of date, but the leak of the document may have impacted the level of trust between GOJ and US entities seeking to offer assistance.
- In many cases, Japanese leaders were not aware of papers under development by DOE and the consortium with NRC. An example is the corrosion paper, where TEPCO urgently needs advice on that issue and did not have the paper. Maybe these papers are still in review, or maybe we need a better and broader distribution.
- Mr. Omoto, NISA Commissioner, noted that the calls with Kondo, which include TEPCO on the line (I was not aware that TEPCO was present) are much less effective than they could be if the information was transmitted by email with minimal discussion. He noted that the English language skills of most of the TEPCO workers are extremely limited.
- JAEA is developing maps of contaminated areas that may be closed to agriculture. Dr. Suzuki wants any advice we have on Cs/Sr cleanup from soils and Monica Regalbuto has provided some suggestions.
- Toshiba Proposal – lays out a credible short- and long-term path for site stabilization and recovery, time scales may be ambitious. Large teams from Shaw, B&W, and Westinghouse (over 20 people) are working with Toshiba.
- GOJ, especially JAEA, seems eager to use the AMS capability after the DOE teams return home.
- The daily 11 a.m. meeting including NRC/TEPCO/NISA/DOE seems to be a good information exchange where questions can be asked on details of site operations.

Issues surrounding flow rate and containment flooding on Unit 1 were confusing. First I was told by INPO that TEPCO was not a member of the US BWR Owners Group and did not have access to the US SAMGs (Severe Accident Management Guidelines) until they were provided by the INPO team weeks after the quake. Then I was told by the GE-Hitachi team that TEPCO is a member of

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some other BWR Owners Group, presumably within Japan, and they have developed their own set of SAMGs, different from the US SAMGs. U.S. industry and the NRC were concerned that TEPCO was not injecting at adequate rates, but then an engineer-to-engineer talk between GE and TEPCO late on Thursday (apparently the first one of its kind) led to GE stating that the TEPCO approach might be OK. This issue seemed confused as I left on Friday.

- Kondo has formed 6 special project teams: radiation level reduction, spent fuel recovery and transport, remote control, long term cooling, recovery of rad waste, and environmental issues/radiation mapping. NISA and Hosono meet regularly with Kondo, at least every other day, and NISA's Nei referred to frequent emails from Kondo.
- TEPCO leadership: no acetylene was in Unit 4. All cutting was by EDM.
- Hattori, JAIF, is discussing with Hosono a review commission with international participation reporting to the GOJ, analogous to the Kemeny report for TMI. I assured him that I was confident that key US nuclear experts would be willing to participate on such a commission.
- Significant advances while I was in Japan: Leak into the ocean from Unit 2 was stopped, nitrogen injection into Unit 1 started, and low activity waste was emptied from tanks into the ocean to enable storage of high activity wastes. The INL rad-hard robot was arriving as I left the country.
- Several GOJ leaders with whom I usually readily converse in English either used translators or used significantly degraded English. The stress on key leaders is very evident.
- Dr. Atsu Suzuki started our meeting at JAEA with a profound apology for destroying the US opportunity for a nuclear renaissance.
- Shortly before my arrival, NISA issued a new set of regulations requiring "station black-out" precautions analogous to the B.5.b. provisions from the NRC.

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Documents Received

Many in Japanese with minimal translation.

Efforts to end the Fukushima Nuclear Incident (draft) – Steps to be taken now, by June, by September, long-term. Goshi Hosono – Proprietary

Notes on cooling options – Omoto Proprietary

Data on Spent Fuel Pool Temperatures - Omoto

Space available in all Spent Fuel Pools in Japan – NISA Proprietary

Proposal to TEPCO for Recovery Operations from Tohoku Earthquake –Toshiba Proprietary (with Shaw, Westinghouse, B&W)

Implementation of Emergency Safety Measures at other Power Plants drawn from the 2011 Accident at Fukushima Dai-ichi and Dai-ni NP Stations. Released March 30. NISA

The 2011 Pacific Earthquake off the Pacific coast of Tohoku and the Seismic damage to the NPPs. NISA and JNES, presented on April 4, 2011 at the Convention on Nuclear Safety, Vienna

Summary of the Fukushima Daiichi Accident, Atsuyuki Suzuki, JAEA

Estimated area for long-term evacuation, Atsuyuki Suzuki, JAEA proprietary

Information on Status of NPPs in Fukushima , 20:00 April 7– JAIF

Observed Doses by Prefecture and Date – JAIF

Cooling Options – JAIF

Monitoring of Radioactive Concentrations in Nearby Sea of Fukushima Daiichi – JAIF

Observed doses around Fukushima, AMS and others – JAIF

Notes on Decision Points/Fundamental Assumptions: NRC/Casto – OUO

Briefing for Ambassador – Yokota – U.S. Forces Japan/Joint Task Force 519 - OUO

From: LIA06 Hoc
Sent: Tuesday, April 05, 2011 3:35 PM
To: Ader, Charles
Subject: FW: Link to Good Photos of the Fukushima Daiichi Site. Note the location of the fire trucks

Link to some dated photos but still very interesting.

Mark Lombard
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>

VVV / 301

From: PMT03 Hoc
Sent: Wednesday, April 06, 2011 4:25 AM
To: Morris, Scott
Subject: information for briefing sheet update

- The embassy accepted all of NRC's comments on the draft memo from the embassy to DOS regarding the return of embassy dependants to Tokyo. The memo will be expanded to discuss impacts if dependants do not return.

VVV/302

From: OST02 HOC
Sent: Wednesday, April 06, 2011 5:01 PM
To: LIA06 Hoc; LIA08 Hoc; LIA04 Hoc; OST03 HOC; OST05 Hoc; LIA09 Hoc; LIA05 Hoc; LIA01 Hoc; LIA11 Hoc; LIA12 Hoc; LIA03 Hoc; LIA10 Hoc; LIA02 Hoc; ET01 Hoc; ET02 Hoc; ET03 Hoc; ET04 Hoc; ET05 Hoc; ET06 Hoc; ET07 Hoc; OST01 HOC; OST02 HOC; OST04 Hoc; LIA07 Hoc; RST01 Hoc; RST01A Hoc; RST01B Hoc; RST02 Hoc; RST03 Hoc; RST04 Hoc; RST05 Hoc; RST06 Hoc; RST07 Hoc; RST08 Hoc; RST09 Hoc; RST10 Hoc; RST11 Hoc; RST12 Hoc; RST13 Hoc; RST14 Hoc; RST15 Hoc; Hoc, RST16; PMT01 Hoc; PMT02 Hoc; PMT03 Hoc; PMT04 Hoc; PMT05 Hoc; PMT07 Hoc; PMT08 Hoc; PMT09 Hoc; PMT10 Hoc; PMT11 Hoc; Hoc, PMT12; PMTERDS Hoc; GIS Hoc
Subject: Protection of Agency Documents in the Operations Center

Protection of Agency Documents in the Operations Center

The NRC appreciates the hard work of everyone involved in the Japan response. Your efforts have been extensive and exhaustive and have produced a number of documents that have been used by many people throughout the government. This message is a reminder to carefully respect the markings on all documents and reiterate to everyone receiving them the importance of respecting the nature of the distribution of these documents. For us to be able to make effective decisions only public documents should be released outside of the appropriate distribution channels. Keep up your great work but be mindful of your responsibility as well.

Thank You,
Operations Center

VVV/303

From: LIA06 Hoc
Sent: Wednesday, April 06, 2011 5:27 PM
To: ET01 Hoc; ET05 Hoc; ET06 Hoc; ET07 Hoc
Subject: FW: Request for Translation - FW: URGENT:Start of Injection of Nitrogen Gas

FYI-information on nitrogen injection.

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

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

From: Nakanishi, Tony
Sent: Wednesday, April 06, 2011 4:34 PM
To: LIA06 Hoc; Bahadur, Sher; Ruland, William
Subject: RE: Request for Translation - FW: URGENT:Start of Injection of Nitrogen Gas

You may have this already, but the English version is now out.
<http://www.tepco.co.jp/en/press/corp-com/release/11040613-e.html>

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

From: LIA06 Hoc
Sent: Wednesday, April 06, 2011 11:48 AM
To: Bahadur, Sher; Ruland, William; Nakanishi, Tony
Cc: LIA06 Hoc
Subject: Request for Translation - FW: URGENT:Start of Injection of Nitrogen Gas

If possible, could Mr. Nakanishi please translate the attached document. We do need this as soon as possible, so an estimate of time required would be greatly appreciated.

Thanks

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

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

From: LIA02 Hoc
Sent: Wednesday, April 06, 2011 11:43 AM
To: LIA06 Hoc
Subject: FW: URGENT:Start of Injection of Nitrogen Gas

WVV/304

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

From: RST01 Hoc
Sent: Wednesday, April 06, 2011 11:05 AM
To: LIA02 Hoc
Cc: Hoc, PMT12
Subject: FW: URGENT:Start of Injection of Nitrogen Gas

Could you get this document translated into English.
RST Coordinator

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

From: LIA02 Hoc
Sent: Wednesday, April 06, 2011 10:38 AM
To: Hoc, PMT12; RST01 Hoc
Subject: FW: URGENT:Start of Injection of Nitrogen Gas

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

From: Emche, Danielle
Sent: Wednesday, April 06, 2011 10:29 AM
To: LIA02 Hoc
Subject: Fw: URGENT:Start of Injection of Nitrogen Gas

I don't know if you have a translator still there. Either way, this is a notification.
Danielle
Sent from an NRC BlackBerry.

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

From: PROTOCOLOFFICE-EM <protocoloffice-em@mofa.go.jp>
To: PROTOCOLOFFICE-EM <protocoloffice-em@mofa.go.jp>
Sent: Wed Apr 06 09:45:08 2011
Subject: URGENT:Start of Injection of Nitrogen Gas

URGENT

(22:10) Wednesday, 6 April 2011

To All Missions (Embassies, Consular posts and International Organizations in Japan)

TEPCO announced that the start of injection of nitrogen gas into the containment vessel of the Unit 1 of the Fukushima Dai-ichi Nuclear Power Plant at around 22:30 with a view to avoiding possibility of a hydrogen explosion.

The press release by TEPCO (only in Japanese at this stage) is attached to this message.

Details will follow at the tomorrow's regular briefing.

Contact: International Nuclear Energy Cooperation Division, Tel 03-5501-8227

From: RST01 Hoc
Sent: Wednesday, April 06, 2011 2:58 PM
To: ET05 Hoc; ET06 Hoc
Subject: RST needs more guidance for Tasks 3609 & 4077

See Task Tracker.
RST Coordinator

VVV/305

From: Hoc, PMT12
Sent: Wednesday, April 06, 2011 9:16 AM
To: decair.sara@epa.gov
Cc: FOIA Response.hoc Resource; PMT03 Hoc
Subject: EPA RADNET question from NRC

Hi Sara.

Thanks for discussing with us today about the status of deploying EPA RADNET monitors in Japan. We understand you will talk with your management and let us know what the EPA position is on using these monitors. If you want to email us, please use this address. If you want to call us, please call 301-816-5100 and ask for the PMT.

Thanks.

Protective Measures Team (PMT)

VVV/306

From: Hoc, PMT12
Sent: Wednesday, April 06, 2011 2:27 PM
To: McGinty, Tim
Cc: PMT03 Hoc
Subject: April 6 1500 EDT Brief one pager
Attachments: April 6 1500 EDT Brief one pager.docx

Tim. Please see redline/strikeout for the PMT.

✓✓✓✓✓
307

From: Giitter, Joseph
Sent: Wednesday, April 06, 2011 10:08 PM
To: LIA06 Hoc
Subject: FW: April 6 1500 EDT Brief one pager.docx
Attachments: April 6 1500 EDT Brief one pager.docx

This is the most recent!

From: McGinty, Tim
Sent: Wednesday, April 06, 2011 2:18 PM
To: LIA06 Hoc; RST01 Hoc; Hoc, PMT12
Cc: LIA07 Hoc; Wiggins, Jim; Zimmerman, Roy; Giitter, Joseph
Subject: April 6 1500 EDT Brief one pager.docx

Please review proposed draft one-pager for 1500 update. Comment by 1445 EDT please. I deleted a decent amount to get it back down to one page, please try to keep any proposed editions as brief as possible. Thanks, Tim

803/nnt

From: Hoc, PMT12
Sent: Thursday, April 07, 2011 8:06 AM
To: PMT03 Hoc; PMT11 Hoc
Subject: FW: Supplement to Package on Rascal Runs
Attachments: Supplement to Rascal run documentation.pdf

e-mail that went to LT for OCA on 4/5.

From: Hoc, PMT12
Sent: Tuesday, April 05, 2011 6:22 PM
To: LIA06 Hoc
Cc: Hoc, PMT12; Jones, Cynthia; PMT02 Hoc; PMT09 Hoc
Subject: Supplement to Package on Rascal Runs

LT,

Please provide the attached supplement to the package delivered on 4/4/11 on Rascal runs supporting the March 16 press release to OCA. Thanks,

PMT

VVVV/309

SUPPLEMENT TO PACKAGE DELIVERED TO CHAIRMAN 04/04/2011 ON RASCAL RUNS
SUPPORTING MARCH 16 PRESS RELEASE AND JUSTIFICATION OF EXPANSION OF
EVACUATION TO 50 MILES
Provided 04/05/2011 by PMT

The initial packaged delivered to the Chairman to justify the expansion of the 50 mile (80 km) EPZ included the input files that directly support the RASCAL runs included in the March 16, 2011 NRC press release. A March 15, 2011 RASCAL run to justify the expansion to 50 mile EPZ [evacuation distance] was not included. The file for this initial run is attached. Below is additional background regarding the initial RASCAL run and other factors influencing the decision to expand to a 50 mile evacuation distance.

The decision to recommend that American citizens located within 50 miles (80 km) of the Fukushima Daiichi Nuclear Power Plant (NPP) evacuate was based on deteriorating conditions of the plant and a need to provide protection in the face of considerable uncertainty and conflicting information. A general assessment of plant conditions concluded that three of the units had been operating at the time of the earthquake and tsunami and had suffered significant damage to cooling water systems, leading to potential exposure of fuel rods and subsequent fuel melt. At least two spent fuel pools also faced similar loss of coolant and partial exposure of fuel, and the status of a common spent fuel pool was unknown. The very limited data on the concentrations of radioactive materials on the ground and in the air were indicative of significant core damage. Furthermore, there was great concern that large releases of radionuclides could occur. Weather patterns indicated that winds had the potential to expose a 360 degree radial area around the plant to the radioactive plume within the next few days.

Although only two RASCAL runs were attached to the March 16 Press release, another calculation had been performed initially. The initial run (attached) indicated PAGs would not be exceeded at a distance of 50 miles. However, the uncertainty about the degradation of plant conditions, combined with this initial RASCAL run, supported a decision to recommend evacuation to 50 miles. Two additional RASCAL runs were performed, which indicated the potential to exceed PAGs at 50 miles. These two runs (that show PAGs exceeded at 50 miles) were attached to the Press Release. All of the early RASCAL assessments are highly speculative, given the lack of actual (representative) site data available at the time.

**Initial Calculation - RASCAL Run to Justify Expansion to 50 mile EPZ
- OFFICIAL USE ONLY -**

15 March 2011 02:56am (EDT), NRC Operations Center, Protective Measures Team

This data is based on system condition estimates for a hypothetical, single reactor site, 2350 MWt, Boiling Water Reactor. Model results are projections only and may not be representative of an actual release. This projection uses modeled forecast meteorological conditions and is subject to change.

Case Summary

Event Type Nuclear Power Plant

Location

Name: Fukushima Unit 2
City, county, state: <undefined>, <undefined>, <undefined>
Lat / Long / Elev: 37.4214° N, 141.0325° E, 0 m
Time zone: <undefined>
Population: not available

Reactor Parameters

Reactor power: 2350 MWt
Average fuel burn-up: 30000 MWD / MTU
Containment type: BWR Mark I
Containment volume: 2.50E+05 ft³
Design pressure: 60 lb/in²
Design leak rate: 0.54 %/d
Coolant mass: 1.25E+05 kg
Assemblies in core: 550

Source Term

Type: Time Core Is Uncovered
Shutdown: 2011/03/11 14:46
Core uncovered: 2011/03/15 00:00
Core recovered: No

Release Pathway

Type: BWR - Release Through Dry Well
via direct, unfiltered pathway
Description: Unit 2 mid-day release 3-15-11
Release height: 10. m

Release events

2011/03/15 00:00 Sprays Off
2011/03/15 11:45 Leak rate (% vol) Total failure

Meteorology

Type: Actual Observations
Dataset name: Fukushima 2011 03-14 1600
Dataset desc: Obs/fcsts for Fukushima Unit 1

Summary of data	Dir	Speed	Stab	Temp		
at release point:	Type	deg	m/s	class	Precip	°C

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Initial Calculation - RASCAL Run to Justify Expansion to 50 mile EPZ

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2011/03/12 14:00	Obs	265	1.0	B	?
2011/03/12 15:00	Obs	265	1.0	B	?
2011/03/12 16:00	Obs	277	1.3	B	?
2011/03/12 17:00	Obs	260	2.4	B	?
2011/03/12 18:00	Obs	241	1.4	E	?
2011/03/12 19:00	Obs	236	2.1	E	?
2011/03/12 20:00	Obs	239	2.1	E	?
2011/03/12 21:00	Obs	229	3.8	E	?
2011/03/12 22:00	Obs	224	5.1	E	?
2011/03/12 23:00	Obs	226	3.9	E	?
2011/03/13 00:00	Obs	228	4.1	E	?
2011/03/13 01:00	Obs	235	2.6	E	?
2011/03/13 02:00	Obs	233	3.9	E	?
2011/03/13 03:00	Obs	225	1.8	E	?
2011/03/13 04:00	Obs	225	1.3	E	?
2011/03/13 05:00	Obs	225	2.2	E	?
2011/03/13 06:00	Obs	225	2.2	E	?
2011/03/13 07:00	Obs	248	2.7	E	?
2011/03/13 08:00	Obs	248	2.7	E	?
2011/03/13 09:00	Obs	270	3.1	E	?
2011/03/13 12:00	Obs	271	7.4	D	?
2011/03/13 13:00	Obs	276	6.2	D	?
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2011/03/14 21:00	Fcst	337	4.6	unk	?
2011/03/14 22:00	Fcst	323	7.2	unk	?
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2011/03/15 00:00	Fcst	015	8.6	unk	?
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2011/03/15 13:00	Fcst	037	3.4	D	Lgt rain
2011/03/15 14:00	Fcst	053	3.7	B	None
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2011/03/15 21:00	Fcst	074	4.6	C	Lgt rain
2011/03/15 22:00	Fcst	054	5.0	D	Lgt rain
2011/03/15 23:00	Fcst	029	5.6	D	Rain

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Initial Calculation - RASCAL Run to Justify Expansion to 50 mile EPZ

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2011/03/16 00:00	Fcst	011	5.1	D	Lgt rain
2011/03/16 01:00	Fcst	346	4.3	C	Lgt rain
2011/03/16 02:00	Fcst	350	5.3	D	Lgt rain
2011/03/16 03:00	Fcst	323	5.6	D	Lgt rain
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2011/03/16 08:00	Fcst	331	4.9	D	None
2011/03/16 09:00	Fcst	353	4.1	D	None

Dataset options: Est. missing stability using: Wind speed, time of day, etc.
 Adjust stability for consistency: No
 Modify winds for topography: Yes

Calculations

Case description: Fukushima Unit 2 mid day release 15MAR
 End of calculations: 2011/03/16 03:45
 Start of release to atmosphere + 16 h
 Distance of calculation: Close-in + to 50 miles
 Close-in distances: 0.5, 1.0, 1.5, 2.0, 3.0, 5.0, 7.0, 10.0 miles

Source Term

Total amount released to atmosphere: 9.9E+07 Ci

Nuclide	Ci	Nuclide	Ci	Nuclide	Ci
Am-241	1.7E-01	Nb-97	1.5E+02	Sr-92	8.2E-05
Ba-140	2.4E+06	Nd-147	4.0E+04	Tc-99m	3.3E+04
Ce-141	1.2E+05	Np-239	5.4E+05	Te-127	2.6E+05
Ce-143	1.7E+04	Pm-147	1.3E+02	Te-127m	6.1E+04
Ce-144*	1.0E+05	Pr-143	9.5E+04	Te-129	1.6E+05
Cm-242	3.2E+03	Pr-144	1.0E+05	Te-129m	2.4E+05
Cs-134	8.7E+05	Pu-238	2.8E-01	Te-131	2.1E+04
Cs-136	2.9E+05	Pu-239	3.1E-01	Te-131m	9.6E+04
Cs-137*	6.0E+05	Pu-241	9.9E+03	Te-132	2.6E+06
I-131	4.3E+06	Rb-86	1.1E+04	Xe-131m	6.8E+05
I-132	2.7E+06	Rb-88	4.5E-03	Xe-133	7.7E+07
I-133	5.2E+05	Rh-103m	7.6E+04	Xe-133m	1.2E+06
I-135	6.1E+02	Rh-105	9.6E+03	Xe-135	2.3E+05
Kr-83m	2.9E-09	Ru-103	7.6E+04	Xe-135m	2.9E+03
Kr-85	5.1E+05	Ru-105	2.6E-02	Y-90	1.6E+04
Kr-85m	7.5E+00	Ru-106*	2.2E+04	Y-91	8.9E+04
Kr-88	4.4E-03	Sb-127	1.8E+05	Y-91m	1.3E+03
La-140	4.5E+05	Sb-129	4.0E-01	Y-92	4.9E-03
La-141	8.8E-03	Sr-89	1.4E+06	Y-93	1.2E+02
Mo-99	3.4E+04	Sr-90	1.1E+05	Zr-95	1.3E+05
Nb-95	1.3E+05	Sr-91	2.0E+03	Zr-97*	2.7E+03

Notes:

• Nuclides with * in name include implicit daughters.

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Initial Calculation - RASCAL Run to Justify Expansion to 50 mile EPZ

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Maximum Dose Values (rem) - Close-In

Dist from release miles (kilometers)	0.5 (0.8)	1. (1.61)	1.5 (2.41)	2. (3.22)	3. (4.83)	5. (8.05)	7. (11.27)	10. (16.09)
Total EDE	<u>4.1E+03</u>	<u>1.7E+03</u>	<u>1.0E+03</u>	<u>7.2E+02</u>	<u>4.4E+02</u>	<u>8.7E+01</u>	<u>4.5E+01</u>	<u>4.1E+00</u>
Thyroid CDE	<u>9.9E+03</u>	<u>2.9E+03</u>	<u>1.4E+03</u>	<u>8.2E+02</u>	<u>4.4E+02</u>	<u>1.0E+02</u>	<u>6.2E+01</u>	<u>7.2E+00</u>
Inhalation CEDE	1.2E+03	3.3E+02	1.5E+02	8.7E+01	4.4E+01	8.8E+00	4.8E+00	4.7E-01
Cloudshine	8.4E+00	3.1E+00	1.5E+00	7.5E-01	2.9E-01	2.0E-01	1.4E-01	5.8E-02
4-day Groundshine	2.9E+03	1.4E+03	8.6E+02	6.3E+02	3.9E+02	7.8E+01	4.0E+01	3.6E+00
Inter Phase 1st Yr	<u>4.5E+04</u>	<u>2.1E+04</u>	<u>1.3E+04</u>	<u>9.9E+03</u>	<u>6.1E+03</u>	<u>1.2E+03</u>	<u>6.1E+02</u>	<u>5.4E+01</u>
Inter Phase 2nd Yr	<u>2.2E+04</u>	<u>1.1E+04</u>	<u>6.6E+03</u>	<u>4.9E+03</u>	<u>3.0E+03</u>	<u>5.9E+02</u>	<u>3.0E+02</u>	<u>2.6E+01</u>

Notes:

- Doses exceeding PAGs are underlined.
- Early-Phase PAGs: TEDE - 1 rem, Thyroid (iodine) CDE - 5 rem
- Intermediate-Phase EPA PAGs: 1st year - 2 rem, 2nd year - 0.5 rem
- *** indicates values less than 1 mrem
- To view all values - use Detailed Results | Numeric Table
- Total EDE = Inhalation CEDE + Cloudshine + 4-Day Groundshine

Maximum Dose Values (rem) - To 50 mi

Dist from release miles (kilometers)	15 (24.1)	20 (32.2)	30 (48.3)	40 (64.4)	50 (80.5)
Total EDE	<u>2.1E+00</u>	<u>2.8E+00</u>	<u>2.7E+00</u>	5.6E-01	1.7E-01
Thyroid CDE	<u>2.0E+01</u>	<u>1.7E+01</u>	<u>1.1E+01</u>	<u>5.0E+00</u>	3.5E+00
Inhalation CEDE	1.3E+00	1.0E+00	6.2E-01	2.0E-01	1.4E-01
Cloudshine	2.9E-02	2.5E-02	1.7E-02	8.1E-03	5.8E-03
4-day Groundshine	1.6E+00	2.5E+00	2.0E+00	3.6E-01	3.7E-02
Inter Phase 1st Yr	<u>2.5E+01</u>	<u>3.8E+01</u>	<u>2.3E+01</u>	<u>2.1E+00</u>	3.2E-01
Inter Phase 2nd Yr	<u>1.2E+01</u>	<u>1.9E+01</u>	<u>1.0E+01</u>	<u>6.6E-01</u>	1.2E-01

Notes:

- Doses exceeding PAGs are underlined.
- Early-Phase PAGs: TEDE - 1 rem, Thyroid (iodine) CDE - 5 rem
- Intermediate-Phase PAGs: 1st year - 2 rem, 2nd year - 0.5 rem
- *** indicates values less than 1 mrem
- To view all values - use Detailed Results | Numeric Table
- Total EDE = CEDE Inhalation + Cloudshine + 4-Day Groundshine
- Total Acute Bone = Bone Inhalation + Cloudshine + Period Groundshine

TEDE - Total Effective Dose Equivalent
 CDE - Committed Dose Equivalent
 CEDE - Committed Effective Dose Equivalent
 PAGs - Protective Action Guidelines
 EPA - Environmental Protection Agency

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From: LIA07 Hoc
Sent: Thursday, April 07, 2011 6:53 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 - 0600 EDT, April 7, 2011
Attachments: April 7 0600 EDT Brief one pager.pdf

Attached, please find updated information for the "Go Books".

The update includes:
- The 0600 EDT, 04/07/11 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

222/310

From: PMT02 Hoc
Sent: Thursday, April 07, 2011 8:50 AM
To: PMT11 Hoc
Subject: FW: Supplement to Package on Rascal Runs - Official Use Only
Attachments: Supplement to Rascal run documentation.pdf

From: Hoc, PMT12
Sent: Thursday, April 07, 2011 8:36 AM
To: LIA08 Hoc; LIA06 Hoc
Cc: PMT03 Hoc; FOIA Response.hoc Resource; OST02 HOC; PMT02 Hoc
Subject: Supplement to Package on Rascal Runs - Official Use Only

Liaison Team,

Please send this to the Japan Team. The ET has ok'd the transmittal.

On March 16, 2011, the NRC issued a news release that recommended that US citizens residing within a 50 mile radius of the Fukushima I (Daiichi) reactors evacuate to locations beyond 50 miles. The press release included two computer calculations from RASCAL dose estimate model runs conducted on March 15 and March 16, which indicated TEDE and CDE PAG limits were exceeded at 50 miles. The press release stated that these calculations were used to support the NRC recommendations, but these calculations, because the PAG limits were exceeded at 50 miles, did not appear to bound the protective action recommendations.

There was another RASCAL calculation that was not included in the press release, and this calculation was also used in the discussion among ET and PMT staff in determining the recommendations for US citizens. This calculation used assumptions that the PMT believed more realistically represented site conditions and offsite releases. The calculation indicated that PAG limits for TEDE were exceeded between 30 – 40 miles, and CDE PAG limits were exceeded up to 40 miles. A 50 mile evacuation recommendation bounded this RASCAL calculation.

The staff believes that the additional RASCAL calculation documents the high level of uncertainty that the NRC possessed at the time that recommendations for US citizens were being considered. The staff feels that the decisions for evacuation were conservative, but because of the significant level of uncertainty of events and plant conditions, the staff remains confident that protection of the public was achieved with the recommendations made on March 16.

11/3/11

SUPPLEMENT TO PACKAGE DELIVERED TO CHAIRMAN 04/04/2011 ON RASCAL RUNS
SUPPORTING MARCH 16 PRESS RELEASE AND JUSTIFICATION OF EXPANSION OF
EVACUATION TO 50 MILES
Provided 04/05/2011 by PMT

The initial packaged delivered to the Chairman to justify the expansion of the 50 mile (80 km) EPZ included the input files that directly support the RASCAL runs included in the March 16, 2011 NRC press release. A March 15, 2011 RASCAL run to justify the expansion to 50 mile EPZ [evacuation distance] was not included. The file for this initial run is attached. Below is additional background regarding the initial RASCAL run and other factors influencing the decision to expand to a 50 mile evacuation distance.

The decision to recommend that American citizens located within 50 miles (80 km) of the Fukushima Daiichi Nuclear Power Plant (NPP) evacuate was based on deteriorating conditions of the plant and a need to provide protection in the face of considerable uncertainty and conflicting information. A general assessment of plant conditions concluded that three of the units had been operating at the time of the earthquake and tsunami and had suffered significant damage to cooling water systems, leading to potential exposure of fuel rods and subsequent fuel melt. At least two spent fuel pools also faced similar loss of coolant and partial exposure of fuel, and the status of a common spent fuel pool was unknown. The very limited data on the concentrations of radioactive materials on the ground and in the air were indicative of significant core damage. Furthermore, there was great concern that large releases of radionuclides could occur. Weather patterns indicated that winds had the potential to expose a 360 degree radial area around the plant to the radioactive plume within the next few days.

Although only two RASCAL runs were attached to the March 16 Press release, another calculation had been performed initially. The initial run (attached) indicated PAGs would not be exceeded at a distance of 50 miles. However, the uncertainty about the degradation of plant conditions, combined with this initial RASCAL run, supported a decision to recommend evacuation to 50 miles. Two additional RASCAL runs were performed, which indicated the potential to exceed PAGs at 50 miles. These two runs (that show PAGs exceeded at 50 miles) were attached to the Press Release. All of the early RASCAL assessments are highly speculative, given the lack of actual (representative) site data available at the time.

Initial Calculation - RASCAL Run to Justify Expansion to 50 mile EPZ

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15 March 2011 02:56am (EDT), NRC Operations Center, Protective Measures Team

This data is based on system condition estimates for a hypothetical, single reactor site, 2350 MWt, Boiling Water Reactor. Model results are projections only and may **not** be representative of an actual release. This projection uses modeled forecast meteorological conditions and is subject to change.

Case Summary

Event Type Nuclear Power Plant

Location

Name: Fukushima Unit 2
City, county, state: <undefined>, <undefined>, <undefined>
Lat / Long / Elev: 37.4214° N, 141.0325° E, 0 m
Time zone: <undefined>
Population: not available

Reactor Parameters

Reactor power: 2350 MWt
Average fuel burn-up: 30000 MWD / MTU
Containment type: BWR Mark I
Containment volume: 2.50E+05 ft³
Design pressure: 60 lb/in²
Design leak rate: 0.54 %/d
Coolant mass: 1.25E+05 kg
Assemblies in core: 550

Source Term

Type: Time Core Is Uncovered
Shutdown: 2011/03/11 14:46
Core uncovered: 2011/03/15 00:00
Core recovered: No

Release Pathway

Type: BWR - Release Through Dry Well
via direct, unfiltered pathway
Description: Unit 2 mid-day release 3-15-11
Release height: 10. m

Release events

2011/03/15 00:00 Sprays Off
2011/03/15 11:45 Leak rate (% vol) Total failure

Meteorology

Type: Actual Observations
Dataset name: Fukushima 2011 03-14 1600
Dataset desc: Obs/fcsts for Fukushima Unit 1

Summary of data at release point:	Dir Type deg	Speed m/s	Stab class	Precip	Temp °C
--------------------------------------	-----------------	--------------	---------------	--------	------------

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Dataset options: Est. missing stability using: Wind speed, time of day, etc.
 Adjust stability for consistency: No
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Calculations

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Source Term

Total amount released to atmosphere: 9.9E+07 Ci

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Am-241	1.7E-01	Nb-97	1.5E+02	Sr-92	8.2E-05
Ba-140	2.4E+06	Nd-147	4.0E+04	Tc-99m	3.3E+04
Ce-141	1.2E+05	Np-239	5.4E+05	Te-127	2.6E+05
Ce-143	1.7E+04	Pm-147	1.3E+02	Te-127m	6.1E+04
Ce-144*	1.0E+05	Pr-143	9.5E+04	Te-129	1.6E+05
Cm-242	3.2E+03	Pr-144	1.0E+05	Te-129m	2.4E+05
Cs-134	8.7E+05	Pu-238	2.8E-01	Te-131	2.1E+04
Cs-136	2.9E+05	Pu-239	3.1E-01	Te-131m	9.6E+04
Cs-137*	6.0E+05	Pu-241	9.9E+03	Te-132	2.6E+06
I-131	4.3E+06	Rb-86	1.1E+04	Xe-131m	6.8E+05
I-132	2.7E+06	Rb-88	4.5E-03	Xe-133	7.7E+07
I-133	5.2E+05	Rh-103m	7.6E+04	Xe-133m	1.2E+06
I-135	6.1E+02	Rh-105	9.6E+03	Xe-135	2.3E+05
Kr-83m	2.9E-09	Ru-103	7.6E+04	Xe-135m	2.9E+03
Kr-85	5.1E+05	Ru-105	2.6E-02	Y-90	1.6E+04
Kr-85m	7.5E+00	Ru-106*	2.2E+04	Y-91	8.9E+04
Kr-88	4.4E-03	Sb-127	1.8E+05	Y-91m	1.3E+03
La-140	4.5E+05	Sb-129	4.0E-01	Y-92	4.9E-03
La-141	8.8E-03	Sr-89	1.4E+06	Y-93	1.2E+02
Mo-99	3.4E+04	Sr-90	1.1E+05	Zr-95	1.3E+05
Nb-95	1.3E+05	Sr-91	2.0E+03	Zr-97*	2.7E+03

Notes:

• Nuclides with * in name include implicit daughters.

M:\PMT\Fukushima\03162011 Press Release Basis\Initial Calculation - expansion to 50 mile EPZ.doc

~~OFFICIAL USE ONLY~~

Initial Calculation - RASCAL Run to Justify Expansion to 50 mile EPZ
—OFFICIAL USE ONLY—

Maximum Dose Values (rem) - Close-In

Dist from release miles (kilometers)	0.5 (0.8)	1. (1.61)	1.5 (2.41)	2. (3.22)	3. (4.83)	5. (8.05)	7. (11.27)	10. (16.09)
Total EDE	<u>4.1E+03</u>	<u>1.7E+03</u>	<u>1.0E+03</u>	<u>7.2E+02</u>	<u>4.4E+02</u>	<u>8.7E+01</u>	<u>4.5E+01</u>	<u>4.1E+00</u>
Thyroid CDE	<u>9.9E+03</u>	<u>2.9E+03</u>	<u>1.4E+03</u>	<u>8.2E+02</u>	<u>4.4E+02</u>	<u>1.0E+02</u>	<u>6.2E+01</u>	<u>7.2E+00</u>
Inhalation CEDE	<u>1.2E+03</u>	<u>3.3E+02</u>	<u>1.5E+02</u>	<u>8.7E+01</u>	<u>4.4E+01</u>	<u>8.8E+00</u>	<u>4.8E+00</u>	<u>4.7E-01</u>
Cloudshine	<u>8.4E+00</u>	<u>3.1E+00</u>	<u>1.5E+00</u>	<u>7.5E-01</u>	<u>2.9E-01</u>	<u>2.0E-01</u>	<u>1.4E-01</u>	<u>5.8E-02</u>
4-day Groundshine	<u>2.9E+03</u>	<u>1.4E+03</u>	<u>8.6E+02</u>	<u>6.3E+02</u>	<u>3.9E+02</u>	<u>7.8E+01</u>	<u>4.0E+01</u>	<u>3.6E+00</u>
Inter Phase 1st Yr	<u>4.5E+04</u>	<u>2.1E+04</u>	<u>1.3E+04</u>	<u>9.9E+03</u>	<u>6.1E+03</u>	<u>1.2E+03</u>	<u>6.1E+02</u>	<u>5.4E+01</u>
Inter Phase 2nd Yr	<u>2.2E+04</u>	<u>1.1E+04</u>	<u>6.6E+03</u>	<u>4.9E+03</u>	<u>3.0E+03</u>	<u>5.9E+02</u>	<u>3.0E+02</u>	<u>2.6E+01</u>

Notes:

- Doses exceeding PAGs are underlined.
- Early-Phase PAGs: TEDE - 1 rem, Thyroid (iodine) CDE - 5 rem
- Intermediate-Phase EPA PAGs: 1st year - 2 rem, 2nd year - 0.5 rem
- *** indicates values less than 1 mrem
- To view all values - use Detailed Results | Numeric Table
- Total EDE = Inhalation CEDE + Cloudshine + 4-Day Groundshine

Maximum Dose Values (rem) - To 50 mi

Dist from release miles (kilometers)	15 (24.1)	20 (32.2)	30 (48.3)	40 (64.4)	50 (80.5)
Total EDE	<u>2.1E+00</u>	<u>2.8E+00</u>	<u>2.7E+00</u>	<u>5.6E-01</u>	<u>1.7E-01</u>
Thyroid CDE	<u>2.0E+01</u>	<u>1.7E+01</u>	<u>1.1E+01</u>	<u>5.0E+00</u>	<u>3.5E+00</u>
Inhalation CEDE	<u>1.3E+00</u>	<u>1.0E+00</u>	<u>6.2E-01</u>	<u>2.0E-01</u>	<u>1.4E-01</u>
Cloudshine	<u>2.9E-02</u>	<u>2.5E-02</u>	<u>1.7E-02</u>	<u>8.1E-03</u>	<u>5.8E-03</u>
4-day Groundshine	<u>1.6E+00</u>	<u>2.5E+00</u>	<u>2.0E+00</u>	<u>3.6E-01</u>	<u>3.7E-02</u>
Inter Phase 1st Yr	<u>2.5E+01</u>	<u>3.8E+01</u>	<u>2.3E+01</u>	<u>2.1E+00</u>	<u>3.2E-01</u>
Inter Phase 2nd Yr	<u>1.2E+01</u>	<u>1.9E+01</u>	<u>1.0E+01</u>	<u>6.6E-01</u>	<u>1.2E-01</u>

Notes:

- Doses exceeding PAGs are underlined.
- Early-Phase PAGs: TEDE - 1 rem, Thyroid (iodine) CDE - 5 rem
- Intermediate-Phase PAGs: 1st year - 2 rem, 2nd year - 0.5 rem
- *** indicates values less than 1 mrem
- To view all values - use Detailed Results | Numeric Table
- Total EDE = CEDE Inhalation + Cloudshine + 4-Day Groundshine
- Total Acute Bone = Bone Inhalation + Cloudshine + Period Groundshine

TEDE - Total Effective Dose Equivalent
 CDE - Committed Dose Equivalent
 CEDE - Committed Effective Dose Equivalent
 PAGs - Protective Action Guidelines
 EPA - Environmental Protection Agency

From: LIA07 Hoc
Sent: Thursday, April 07, 2011 3:32 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: 1500 EDT April 7
Attachments: April7 1500 EDT one pager.doc

Attached is the One Pager, 1500 EDT, April 7, 2011.

213/222

From: HOO Hoc
Sent: Friday, April 08, 2011 5:11 PM
To: LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Subject: FW: Update of forecast wind conditions for Fukushima Daiichi 1
Attachments: WRF_Fukushima_NPP_Forecast_2011-04-08_12Z (5km).xlsx

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: Simpson, Matthew D. [mailto:simpson35@lnl.gov]
Sent: Friday, April 08, 2011 3:15 PM
To: HOO Hoc; PMT02 Hoc; PMT01 Hoc; CMHT@nnsa.doe.gov; nitops@nnsa.doe.gov; alan.remick@nnsa.doe.gov; 'McMichael, Lukas C CIV SEA 08 NR'; na30ecc@nr.doe.gov; Christopher.hanson@yokota.af.mil
Cc: narac@lnl.gov
Subject: Update of forecast wind conditions for Fukushima Daiichi 1

A spreadsheet is attached containing the latest forecast wind conditions at the Fukushima Power Plant.

The forecast time series is derived from the latest NARAC WRF simulation with 5 km horizontal grid spacing.

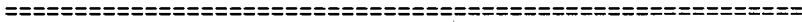
NOTE: Onshore winds and precipitation during forecast period.

Fukushima Power Plant Forecast Summary:

08 April 18:00 Z to 09 April 11:00 Z:	Northwesterly to northeasterly winds at 2 - 4 m/s. Periods of moderate rainfall likely.
09 April 11:00 Z to 10 April 01:00 Z:	Winds varying between northwesterly and southwesterly at 1 - 5 m/s.
10 April 01:00 Z to 10 April 09:00 Z:	Southeasterly (onshore) flow at 5 - 7 m/s.
10 April 09:00 Z to end of forecast period:	Westerly winds at 5 - 7 m/s.

313/NNV

Matthew Simpson
NARAC Atmospheric Scientist



Forecast Model: WRF

Horizontal Grid Spacing: 5 km

Vertical Levels: 44

Forecast Location: Fukushima NPP, Japan

Data Produced by Matthew Simpson (NARAC, 925 / 422-7627)

YEAR	MO	DY	HR	WSP	WDR	CLASS	Temp (2m)	RAIN
----	--	--	(UTC)	(m/s)	---	----	(C)	(in/hr)
2011	4	8	18	4.3	309	E	6	0
2011	4	8	19	4.2	301	E	6	0
2011	4	8	20	4.2	305	D	6	0
2011	4	8	21	3.7	304	E	6	0
2011	4	8	22	3.1	319	C	8	0.01
2011	4	8	23	3.4	343	C	8	0.03
2011	4	9	0	2.9	357	C	8	0.01
2011	4	9	1	2.5	4	C	8	0.04
2011	4	9	2	1.8	1	C	8	0
2011	4	9	3	1.6	19	C	8	0.06
2011	4	9	4	2.3	78	C	8	0.13
2011	4	9	5	3.9	5	C	7	0.1
2011	4	9	6	0.8	342	D	8	0.09
2011	4	9	7	1.5	30	C	8	0.07
2011	4	9	8	2.2	28	C	7	0.08
2011	4	9	9	1.5	357	E	8	0.17
2011	4	9	10	1.9	355	F	8	0.06
2011	4	9	11	1.8	42	F	8	0
2011	4	9	12	5.4	327	D	8	0
2011	4	9	13	4	323	D	7	0
2011	4	9	14	5.5	304	D	6	0
2011	4	9	15	5.8	303	D	6	0
2011	4	9	16	4.4	312	E	4	0
2011	4	9	17	2.3	321	F	4	0
2011	4	9	18	1.1	333	F	4	0
2011	4	9	19	1.1	213	F	4	0
2011	4	9	20	1.2	212	F	4	0
2011	4	9	21	0.5	329	F	4	0
2011	4	9	22	0.6	284	B	7	0
2011	4	9	23	1.4	306	B	9	0
2011	4	10	0	0.7	30	B	11	0
2011	4	10	1	3.7	129	C	11	0
2011	4	10	2	3.3	144	C	11	0
2011	4	10	3	4.7	146	C	12	0
2011	4	10	4	6.4	152	C	12	0
2011	4	10	5	7.1	156	C	12	0
2011	4	10	6	7.9	157	C	12	0
2011	4	10	7	7.2	161	C	12	0

2011	4	10	8	5.4	165	D	11	0
2011	4	10	9	3.5	210	E	9	0
2011	4	10	10	5.2	263	E	8	0
2011	4	10	11	5.8	251	D	8	0
2011	4	10	12	7.5	261	D	9	0

From: LIA07 Hoc
Sent: Friday, April 08, 2011 6:10 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; Monninger, John; 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 8, 2011
Attachments: TEPCO Press Release 302.pdf; TEPCO Press Release 303.pdf; TEPCO Press Release 304.pdf; TEPCO Press Release 305.pdf; TEPCO Press Release 306.pdf; TEPCO Press Release 307.pdf; TEPCO Press Release 308.pdf; TEPCO Press Release 309.pdf; TEPCO Press Release 310.pdf; USNRC Earthquake-Tsunami Update.040811.1800EDT.pdf; April 8.1500 EDT.pdf; Pages 1-6 from ET Chronology 4-08-11 1800.pdf

Attached, please find updated information for the "Go Books".

The updates include:

- The 1800 EDT, 04/08/11 Status Update
- The latest ET Chronology
- The latest "One Pager" (1500 EDT, 04/08/11)
- TEPCO Press Releases (302-310)

Please let me know if you have any questions or concerns.

-Sara

Sara Mroz
Executive Briefing Team Coordinator
Office of Nuclear Security & Incident Response
US Nuclear Regulatory Commission
LIA07.HOC@nrc.gov (Operations Center)

JNV / 314



Press Releases

Press Release (Apr 08,2011)

The detection of radioactive materials in the water on the 1st basement of the turbine building at the site of Fukushima

On March 28th 2011, we received advice from Nuclear Safety Commission of Japan to conduct a sampling survey of the water on the first basement of the turbine building of Fukushima Daiichi Nuclear Power Station as well as to reinforce the sampling survey of seawater in order to secure safety and to monitor the leakage of the water on the basement into underground and/or the sea. Pursuant to the advice, we have been continuously conducting the surveys.

(Previously announced)

On April 6th, 2011, we conducted nuclide analyses of radioactive materials, the samples of which were collected from the water on the 1st basement (sub drainage) of the turbine building at the site of Fukushima Daiichi Nuclear Power Station. Because radioactive materials were detected as a result, as shown in the attachment, we reported the result to Nuclear and Industry Safety Agency as well as to the government of Fukushima Prefecture today.

We are planning to conduct these surveys continuously.

Appendix:Fukushima Daiichi The result of the nuclide analysis of the groundwater in the sub drainage(PDF 10.3KB)

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Press Releases

Press Release (Apr 08,2011)

Electricity bill discounts due to planned rolling blackouts

We will discount the electricity bills of the customers in the areas where our supply of electricity was suspended due to the Tohoku-Chihou-Taiheiyo-Oki Earthquake on Friday, March 11, 2011 and its afterquakes and due to the implementation of planned rolling blackouts since Monday, March 14, 2011.

We will discount 4% of demand charges per day for customers including general households who receive low voltage power or those who receive high voltage power with their contract capacity of less than 500 kW if the total hour of outage is equal to or exceeds 1 hour in a day. We will sequentially conduct bill adjustments on and after we charge May 2011 bills.

We sincerely regret causing inconvenience and anxiety to our customers and the society regarding the implementation of planned rolling blackouts due to the tight power supply and demand balance. We appreciate your understanding.

Appendix:Exhibit (PDF 11.9KB)

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Press Releases

Press Release (Apr 08,2011)

A Correction of "Detection of radioactive materials from the seawater near Fukushima Daiichi Nuclear Power Station (announced on April 7th)"

We would like to make a correction to a part of the appendix "The result of the nuclide analysis of the seawater" of "Detection of radioactive materials from the seawater near Fukushima Daiichi Nuclear Power Station (announced on April 7th)". We apologize for any inconvenience and would like to correct as follows:

< Correction part and content >

- "The result of the nuclide analysis of the seawater (around the north water discharge of Fukushima Daiichi Nuclear Power Station (around Units 3 and 4))"

With regard to the detected nuclide for the nuclide analysis of the seawater collected around the north water discharge of Fukushima Daiichi Nuclear Power Station, we mistakenly reported and put on the press release the data of some nuclides other than the 3 nuclides of I-131, Cs-134 and Cs-137, which data are supposed to be announced.

Concerning the data of the other detected nuclides than the above-mentioned 3 nuclides, we will re-evaluate and announce them, pursuant to the policy on the recurrence prevention formulated by the NISA's warning (previously announced on April 4th).

Appendix: The result of the nuclide analysis of the seawater (Around the north water discharge of Fukushima Daiichi Nuclear Power Station (around Units 3 and 4) (approx. 10km from Fukushima Daiichi Nuclear Power Station)) (PDF 53.5KB)

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Press Releases

Press Release (Apr 08,2011)

Application for approval of modification on safety regulations on nuclear reactor facilities

In connection with the incident at Fukushima Daiichi Nuclear Power Station caused by the tidal wave associated with Tohoku-Chihou-Taiheiyou-Oki Earthquake on March 11th, 2011, "Rules on the Installation and Operation of Commercial Power Reactors" was amended on March 30th. In parallel with amendment of this ministry ordinance, we received an order*1 from Minister of Economy, Trade and Industry to apply for approval of modification on safety regulations on nuclear reactor facilities. Today, we applied to Ministry of Economy, Trade and Industry for approval of modification on safety regulations on nuclear reactor facilities of Kashiwazaki Kariwa Nuclear Power Station*2.

Based on the requirement of ministry ordinance to improve system for maintaining reactor facilities under circumstances where tidal waves cause loss of function to all the facilities receiving alternating-current power, all the reactor cooling facilities utilizing seawater and all the facilities for spent fuel pool cooling ("Station Blackout"), we have set forth the follows.

- Allocate staff in order to maintain reactor facilities under Station Blackout.
- Train staff who operate to maintain reactor facilities under Station Blackout.
- Install power source cars, fire-fighting vehicles, fire fighting hoses and other equipments necessary for operation to maintain reactor facilities under Station Blackout.

We deeply apologize for the public's distress from the extensive damage that Fukushima Daiichi Nuclear Power Station caused by the leakage of radioactive materials to the surrounding areas of the power station, Fukushima Prefecture, and broader society. Currently, we are working around the clock to bring the situation under control with support and cooperation from the society, related ministries and government offices and local governments.

Appendix: Comparison chart for amendment of Safety regulations on nuclear reactor facilities for Kashiwazaki Kariwa Nuclear power Station (PDF 88.1KB)

*1: Details of the order from Minister of Economy, Trade and Industry are as follows.

In order to prevent damage to reactor core and spent fuel, suppress discharge of radioactive materials and restore cooling function of reactor facilities under circumstances where 3 functions (all functions regarding facilities receiving alternating-current power, all function to cool reactor facilities by utilizing seawater and all functions to cool spent fuel pool) are lost due to tidal wave, we were ordered to take emergency safety measure and apply for approval of modification on safety regulations in association with the amendment of Rules on the Installation and Operation of Commercial Power Reactors.

*2: Safety regulations on nuclear reactor facilities

In accordance with Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors, Paragraph 1, Article 37, the business operator shall draw it up and apply for government's approval. It provides overall operation on overall security activities in regard to operation of power plant, fuel management and radiation dose management.

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Press Releases

Press Release (Apr 08,2011)

Avoiding implementation of rolling blackouts and measures to maintain power supply-demand balance toward summer period

Due to the tight power supply-demand balance, TEPCO has been implementing rolling blackouts since March 14 (Mon). We sincerely regret causing anxiety and inconvenience to our customers and the society. We appreciate your cooperation in conserving electricity consumption. Since number of our nuclear power stations and thermal power stations were damaged by Tohoku-Chihou-Taiheiyu-Oki Earthquake and were shut down, we are currently focusing on restoration and maintenance of supply capacity. As a result of widespread cooperation from our customers in conserving electricity, the supply-demand balance has improved significantly. Considering the situation, we have decided to cease the implementation of rolling blackouts for the time being.

1. Forecast of power supply-demand balance

Currently, peak demand of each day has been continuing to be approximately 20% lower compared to that of previous year. We consider this as an effect of not only stagnant of corporate activity due to the earthquake but also effort to conserve electricity driven by the customers.

We are assuming that weekly peak demand of April and May will decrease for the meanwhile as a result of rising temperature and Golden Week holidays, in addition to customer's cooperation on conserving electricity. Subsequently, the demand will increase toward the end of May but at a relatively low level around 38,000 MW.

By restoring power plants, we would be able to maintain supply capacity at around 390,000 MW to 420,000 MW. Accordingly, our supply capacity shall have some allowance.

2. Cease implementing rolling blackouts

Taking into account these assumptions, we consider that power supply-demand balance will be maintained. Hence, in principle, we have decided to cease the implementation of rolling blackouts.

Since the electricity demand may increase rapidly due to unexpected weather changes or trouble in our facilities such as restored power plants, we kindly request our customers to continue conserving electricity. In case the power supply-demand balance gets tightened, we may implement rolling blackouts after giving prior notice, therefore your cooperation would be very much appreciated.

3. Measures regarding power supply-demand balance toward this summer

On the other hand, supply capacity (465,000 MW) is deemed to be significantly short considering the peak demand (assumed to be 550,000 MW*). (supply capacity and peak demand are forecasts at the end of July) [previously announced on March 25th]

*Peak demand of last summer (July 23rd) was 599,000 MW due to remarkably high temperature.

Hence, in order to continue to cease the implementation of rolling blackouts in the summer period, we will be taking measures as follows.

(1) Measures on supply side

We will make our best efforts as follows to further enhance supply capacity.

- Further restoration and start-up of thermal power plants including jointly owned power plants.
- Installation of emergency power sources such as gas turbines.
- Utilization of in-house power generators.
- Utilization of pumped-storage hydroelectric power generators

(2) Measures on demand side

At present, despite the measures to be taken on supply side, power supply-demand balance is unlikely to be maintained. Therefore, we appreciate your cooperation in conserving electricity during the summer period.

Taking into account the "framework for measures on electricity supply and demand during summer period" presented from governmental headquarters for emergency measures on electricity supply and demand, we will proactively provide consultancy services, information, equipment inspection, recommendation on entering into contract for control of demand and supply to household, commercial and industrial customers in order to enable enhancement of electricity conservation.

We sincerely regret causing anxiety and inconvenience to our customers, and appreciate your continuous cooperation in conserving electricity consumption.

Appendix: Prediction of Weekly Power Supply and Demand
(for 8 weeks from that of April 9) (PDF 10.8KB)

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Press Releases**Press Release (Apr 08,2011)****Plant Status of Fukushima Daiichi Nuclear Power Station (as of 6:00 pm, April 8)***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.
- From 3:37 pm on March 25th, we started injecting freshwater.
- As it is suspected that hydrogen gas is accumulated inside reactor containment vessel, we commenced the valve opening operation concerning injection of nitrogen gas into the reactor container vessel at 10:30 pm April 6th and commenced injection at 1:31am April 7th.

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.
- From 10:10 am on March 26th, we started injecting freshwater to the reactor and are now injecting fresh water by a motor driven pump powered by the off-site transmission line.

Unit 3 (Shut down)

- Explosive sound and white smoke were confirmed at approximately 11:01am March 14th. It was assumed to be hydrogen explosion.
- From 6:02 pm on March 25th, we started injecting fresh water to the reactor and are now injecting fresh water by a motor driven pump powered by the off-site transmission line.

Unit 4 (outage due to regular inspection)

- At approximately 6:00 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 5:00 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 3:42 pm, Mar 25 respectively.
- At this moment, we do not consider any reactor coolant leakage inside the reactor happened.

Operation for cooling the spent fuel pools

- From 6:23 pm to 7:40 pm on April 7th, spraying water to Unit 4 by concrete pump vehicle was conducted.
- From 5:06 pm on April 8th, spraying water to Unit 3 by concrete pump vehicle was conducted.
- We will conduct further water spray depending on the conditions of spent fuel pools, if needed.

Draining water from underground floor of turbine buildings

- At 1:55 pm April 3rd, in Unit 1, water transfer from a condensate storage tank to a suppression pool water surge-tank was initiated.
- At 5:10 pm, April 2nd, in Unit 2, water transfer from a condensate storage tank was to a suppression pool water surge-tank was initiated.

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.
- 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.
- 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.
- From April 2nd, we began to transfer the radioactive water we collected from the Central Environmental Facility to the Unit 4 turbine building. On April 4th, water level of the pit in the trench of Unit 3 increased by 15cm from previous day. Pathway of water flow is unknown. We can not deny the possibility that water in the turbine building of Unit 4 flows into the trench of Unit 3. So, we stopped transferring water to the Unit 4 turbine building to make assurance. Present water level of the pit in the trench of Unit 3 is not changed from the time we stopped transferring, and is being stable.
- As a countermeasure against outflow of radioactive water into the sea near the cooling water intake at Unit 2 of Fukushima Daiichi Nuclear Power Station, we have injected coagulant into the pit from April 5th and we have observed stoppage of spilling of water from the crack on the concrete lateral of the pit at 5:38 am, April 6th. We have put 6,000 liters of coagulant into the breakage and surrounding ground after investigation of the leakage route by putting tracer into the 9 holes drilled around electrical conduit and the pit. On April 6th, we installed rubber boards and jigs as a countermeasure against the outflow from the intake. We will further investigate if there is any other leakage.
- From 7:03 pm, April 4, we started to discharge to the sea approximately ten thousand tons of the accumulated low level radioactive water in the Central Radioactive Waste Disposal Facility. From 9:00 pm, April 4, we started to discharge a total of 1,500 tons of the low level radioactive subsurface water stored in the sub drain pits of Unit 5 and 6.
- From 3:00 pm to 4:30 pm, April 5th, in order to prevent diffusion of radioactive contaminated water out from the site port facility to breakwater area which is south to the power station, we began repair of breakwater by founding the large sandbag around it to replace damaged steel water bar. We will continue the operation to prevent diffusion.
- At approximately 2:33 pm, April 7th, one of the workers in charge of stuffing sandbags at the soil disposal place at the northern part of the site became ill and was brought to the J-Village. After we confirmed that he was not contaminated by completing the radiation survey of his body, he was brought to Iwaki City Kyoritsu Hospital by an ambulance. Later, he was diagnosed with dehydration and transient examination.
- We patrolled the site due to the earthquake occurred at approximately 11:32 pm on April 7 and have not found any abnormalities.
- 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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Japan Earthquake ERO Staffing Roster

Mar 27-Apr 2, 2011

Pay Period 8 - Week 1

Sun-Mon	3/27-3/28	11pm - 7am	Thomas Scarbrough
Mon	28-Mar	7am - 3pm	Hector Rodriguez
Mon	28-Mar	3pm-11pm	Rebecca Karas
Mon-Tue	3/28-3/29	11pm - 7am	
Tue	29-Mar	7am - 3pm	Vanice Perin
Tue	29-Mar	3pm-11pm	Rebecca Karas
Tue-Wed	3/29-3/30	11pm - 7am	
Wed	30-Mar	7am - 3pm	Hector Rodriguez
Wed	30-Mar	3pm-11pm	Rebecca Karas
Wed-Thur	3/30-3/31	11pm - 7am	Thomas Scarbrough
Thur	31-Mar	7am - 3pm	Vanice Perin
Thur	31-Mar	3pm-11pm	Rebecca Karas
Thur-Fri	3/31-4/1	11pm - 7am	Nick Ballam
Fri	1-Apr	7am - 3pm	Sandra Valencia
Fri	1-Apr	3pm-11pm	Rebecca Karas
Fri-Sat	4/1-4/2	11pm-7am	Nick Ballam
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	Roberto Figueroa
Sun	27-Mar	7am - 3pm	Omar Khan
Sun	27-Mar	3pm-11pm	Cris Brown
Sun-Mon	3/27-3/28	11pm - 7am	Roberto Figueroa
Mon	28-Mar	7am - 3pm	Karen Jackson
Mon	28-Mar	3pm-11pm	Cris Brown
Mon-Tue	3/28-3/29	11pm - 7am	Omar Khan
Tue	29-Mar	7am - 3pm	Bob Stransky
Tue	29-Mar	3pm-11pm	Cris Brown
Tue-Wed	3/29-3/30	11pm - 7am	Karen Jackson
Wed	30-Mar	7am - 3pm	Omar Khan
Wed	30-Mar	3pm-11pm	Cris Brown
Wed-Thur	3/30-3/31	11pm - 7am	Bob Stransky
Thur	31-Mar	7am - 3pm	Karen Jackson
Thur	31-Mar	3pm-11pm	Omar Khan
Thur-Fri	3/31-4/1	11pm - 7am	Bob Stransky
Fri	1-Apr	7am - 3pm	Roberto Figueroa
Fri	1-Apr	3pm-11pm	Karen Jackson
Fri-Sat	4/1-4/2	11pm-7am	Omar Khan
Sat	2-Apr	7am - 3pm	Roberto Figueroa
Sat	2-Apr	3pm-11pm	Karen Jackson
Sat-Sun	4/2-4/3	11pm - 7am	Omar Khan
EST Admin. Assistant			
Sat-Sun	3/26-3/27	11pm - 7am	N/A
Sun	27-Mar	7am - 3pm	Karen Meyer
Sun	27-Mar	3pm-11pm	Cynthia Dorsey
Sun-Mon	3/27-3/28	11pm - 7am	N/A

Japan Earthquake ERO Staffing Roster

Mar 27-Apr 2, 2011

Pay Period 8 - Week 1

Mon	28-Mar	7am - 3pm	Michelle Manahan
Mon	28-Mar	3pm-11pm	Carol Greenwood
Mon-Tue	3/28-3/29	11pm - 7am	N/A
Tue	29-Mar	7am - 3pm	Michelle Manahan
Tue	29-Mar	3pm-11pm	Mary Glenn Crutchley
Tue-Wed	3/29-3/30	11pm - 7am	N/A
Wed	30-Mar	7am - 3pm	Cynthia Dorsey
Wed	30-Mar	3pm-11pm	Mary Glenn Crutchley
Wed-Thur	3/30-3/31	11pm - 7am	N/A
Thur	31-Mar	7am - 3pm	Amy Salus
Thur	31-Mar	3pm-11pm	Tabitha Howard
Thur-Fri	3/31-4/1	11pm - 7am	N/A
Fri	1-Apr	7am - 3pm	Carol Greenwood
Fri	1-Apr	3pm-11pm	Tabitha Howard
Fri-Sat	4/1-4/2	11pm-7am	N/A
Sat	2-Apr	7am - 3pm	Karen Meyer
Sat	2-Apr	3pm-11pm	Cynthia Dorsey
Sat-Sun	4/2-4/3	11pm - 7am	N/A
Liaison Team			
LT Director			
Sat-Sun	3/26-3/27	11pm - 7am	Marissa Bailey
Sun	27-Mar	7am - 3pm	Mike Tschiltz
Sun	27-Mar	3pm-11pm	Marrisa Bailey
Sun-Mon	3/27-3/28	11pm - 7am	Mark Thaggard
Mon	28-Mar	7am - 3pm	Allen Howe
Mon	28-Mar	3pm-11pm	Marrisa Bailey
Mon-Tue	3/28-3/29	11pm - 7am	
Tue	29-Mar	7am - 3pm	Allen Howe
Tue	29-Mar	3pm-11pm	Marrisa Bailey
Tue-Wed	3/29-3/30	11pm - 7am	
Wed	30-Mar	7am - 3pm	Allen Howe
Wed	30-Mar	3pm-11pm	Marrisa Bailey
Wed-Thur	3/30-3/31	11pm - 7am	
Thur	31-Mar	7am - 3pm	John Adams
Thur	31-Mar	3pm-11pm	Mark Lombard
Thur-Fri	3/31-4/1	11pm - 7am	Bob Webber
Fri	1-Apr	7am - 3pm	John Adams
Fri	1-Apr	3pm-11pm	Mark Lombard
Fri-Sat	4/1-4/2	11pm-7am	Tom Bergman
Sat	2-Apr	7am - 3pm	John Adams
Sat	2-Apr	3pm-11pm	Mark Lombard
Sat-Sun	4/2-4/3	11pm - 7am	Tom Bergman
LT Coordinator			
Sat-Sun	3/26-3/27	11pm - 7am	Milt Murray
Sun	27-Mar	7am - 3pm	Lisa Gibney
Sun	27-Mar	3pm-11pm	Jeff Temple
Sun-Mon	3/27-3/28	11pm - 7am	Milt Murray

Japan Earthquake ERO Staffing Roster

Mar 27-Apr 2, 2011

Pay Period 8 - Week 1

Mon	28-Mar	7am - 3pm	Jeff Temple
Mon	28-Mar	3pm-11pm	Rani Franovich
Mon-Tue	3/28-3/29	11pm - 7am	Janelle Jessie
Tue	29-Mar	7am - 3pm	Milt Murray
Tue	29-Mar	3pm-11pm	Rani Franovich
Tue-Wed	3/29-3/30	11pm - 7am	Janelle Jessie
Wed	30-Mar	7am - 3pm	Milt Murray
Wed	30-Mar	3pm-11pm	Jeff Temple
Wed-Thur	3/30-3/31	11pm - 7am	Janelle Jessie
Thur	31-Mar	7am - 3pm	Milt Murray
Thur	31-Mar	3pm-11pm	Jeff Temple
Thur-Fri	3/31-4/1	11pm - 7am	Rani Franovich
Fri	1-Apr	7am - 3pm	Jeff Temple
Fri	1-Apr	3pm-11pm	Janelle Jessie
Fri-Sat	4/1-4/2	11pm-7am	Rani Franovich
Sat	2-Apr	7am - 3pm	Jeff Temple
Sat	2-Apr	3pm-11pm	Milt Murray
Sat-Sun	4/2-4/3	11pm - 7am	
LT State Liaison			
Sat-Sun	3/26-3/27	9pm-7am	A. Rivera/A. Noonan (ON CALL)
Sun	27-Mar	7am-2pm	Alison Rivera (ON CALL)
Sun	27-Mar	2pm-9pm	Alison Rivera (ON CALL)
Sun-Mon	3/27-3/28	9pm-7am	Alison Rivera (ON CALL)
Mon	28-Mar	7am-2pm	C. Maupin/C. Flannery (ON CALL)
Mon	28-Mar	2pm-9pm	Stuart Easson
Mon-Tue	3/28-3/29	9pm-7am	R. Virgilio (ON CALL)
Tue	29-Mar	7am-2pm	C. Maupin/C. Flannery (ON CALL)
Tue	29-Mar	2pm-9pm	Stuart Easson
Tue-Wed	3/29-3/30	9pm-7am	Richard Turtill (ON CALL)
Wed	30-Mar	7am-2pm	Cindy Flannery
Wed	30-Mar	2pm-9pm	Michelle Ryan
Wed-Thur	3/30-3/31	9pm-7am	Richard Turtill (ON CALL)
Thur	31-Mar	7am-2pm	Amanda Noonan
Thur	31-Mar	2pm-9pm	Michelle Ryan
Thur-Fri	3/31-4/1	9pm-7am	Richard Turtill (ON CALL)
Fri	1-Apr	7am-2pm	Kim Lukes
Fri	1-Apr	2pm-9pm	Alison Rivera
Fri-Sat	4/1-4/2	9pm-7am	Richard Turtill (ON CALL)
Sat	2-Apr	7am-2pm	Amanda Noonan (ON CALL)
Sat	2-Apr	2pm-9pm	Amanda Noonan (ON CALL)
Sat-Sun	2-Apr	9pm-7am	Amanda Noonan (ON CALL)
LT Federal Liaison (2)			
Sat-Sun	3/26-3/27	11pm - 7am	Scott Sloan
Sun	27-Mar	7am - 3pm	Susan Salter / Lisa Gibney
Sun	27-Mar	3pm-11pm	Jerry Hale
Sun-Mon	3/27-3/28	11pm - 7am	Scott Sloan
Mon	28-Mar	7am - 3pm	Susan Salter / Lisa Gibney

Japan Earthquake ERO Staffing Roster

Mar 27-Apr 2, 2011

Pay Period 8 - Week 1

Mon	28-Mar	3pm-11pm	Lisa Wright
Mon-Tue	3/28-3/29	11pm - 7am	Ned Wright
Tue	29-Mar	7am - 3pm	Susan Salter / Jerry Hale
Tue	29-Mar	3pm-11pm	Lisa Wright
Tue-Wed	3/29-3/30	11pm - 7am	Ned Wright
Wed	30-Mar	7am - 3pm	Bethany Cecere / Jerry Hale
Wed	30-Mar	3pm-11pm	Lisa Wright
Wed-Thur	3/30-3/31	11pm - 7am	Ned Wright
Thur	31-Mar	7am - 3pm	Jeff Temple / Jason Lising
Thur	31-Mar	3pm-11pm	Ted Smith
Thur-Fri	3/31-4/1	11pm - 7am	Ned Wright
Fri	1-Apr	7am - 3pm	Jeff Lynch / Beth Reed
Fri	1-Apr	3pm-11pm	Jerry Hale
Fri-Sat	4/1-4/2	11pm-7am	Jason Lising
Sat	2-Apr	7am - 3pm	Beth Reed
Sat	2-Apr	3pm-11pm	Bethany Cecere
Sat-Sun	4/2-4/3	11pm - 7am	Jason Lising

LT Congressional Liaison (2)

Sat-Sun	3/26-3/27	11pm - 7am	Amy Powell (ON CALL)
Sun	27-Mar	7am - 3pm	Amy Powell (ON CALL)
Sun	27-Mar	3pm-11pm	Amy Powell (ON CALL)
Sun-Mon	3/27-3/28	11pm - 7am	Amy Powell (ON CALL)
Mon	28-Mar	7am - 3pm	Amy Powell (ON CALL)
Mon	28-Mar	3pm-11pm	Amy Powell (ON CALL)
Mon-Tue	3/28-3/29	11pm - 7am	Amy Powell (ON CALL)
Tue	29-Mar	7am - 3pm	Amy Powell (ON CALL)
Tue	29-Mar	3pm-11pm	Amy Powell (ON CALL)
Tue-Wed	3/29-3/30	11pm - 7am	Amy Powell (ON CALL)
Wed	30-Mar	7am - 3pm	Amy Powell (ON CALL)
Wed	30-Mar	3pm-11pm	Amy Powell (ON CALL)
Wed-Thur	3/30-3/31	11pm - 7am	Amy Powell (ON CALL)
Thur	31-Mar	7am - 3pm	Amy Powell (ON CALL)
Thur	31-Mar	3pm-11pm	Amy Powell (ON CALL)
Thur-Fri	3/31-4/1	11pm - 7am	Amy Powell (ON CALL)
Fri	1-Apr	7am - 2pm	Amy Powell (ON CALL)
Fri	1-Apr	2pm-9pm	Amy Powell (ON CALL)
Sat	2-Apr	7am - 2pm	Amy Powell (ON CALL)
Sat	2-Apr	2pm-9pm	Amy Powell (ON CALL)
Sun	3-Apr	7am-2pm	Amy Powell (ON CALL)

LT International Liaison (2)

Sat-Sun	3/26-3/27	11pm - 7am	Cindy Rosales/ Elizabeth Smiroldo
Sun	27-Mar	7am - 3pm	Jill Shepard/ Karen Henderson
Sun	27-Mar	3pm-11pm	Nancy Fragoyannis/ Jenny Tobin
Sun-Mon	3/27-3/28	11pm - 7am	Steve Baker / Brian Wittick
Mon	28-Mar	7am - 3pm	Jill Shepard/ Karen Henderson
Mon	28-Mar	3pm-11pm	Nancy Fragoyannis / Cindy Rosales
Mon-Tue	3/28-3/29	11pm - 7am	Steve Baker / Brian Wittick

Japan Earthquake ERO Staffing Roster

Mar 27-Apr 2, 2011

Pay Period 8 - Week 1

Tue	29-Mar	7am - 3pm	Jill Shepard/ Karen Henderson
Tue	29-Mar	3pm-11pm	Nancy Fragoyannis / Gerri Fehst
Tue-Wed	3/29-3/30	11pm - 7am	Steve Baker / Brian Wittick
Wed	30-Mar	7am - 3pm	Eric Stahl / Lauren Mayros (J. Tobin 12-3)
Wed	30-Mar	3pm-11pm	Danielle Emche / Mugah Afshar-Tous
Wed-Thur	3/30-3/31	11pm - 7am	Jen Schwartzman / Charlotte Abrams
Thur	31-Mar	7am - 3pm	Jill Shepard / Lauren Mayros
Thur	31-Mar	3pm-11pm	Gerri / Mugah Afshar-Tous
Thur-Fri	3/31-4/1	11pm - 7am	Jen Schwartzman / Charlotte Abrams
Fri	1-Apr	7am - 3pm	Cindy Rosales/ Lauren Mayros
Fri	1-Apr	3pm-11pm	Gerri/ Mugah Afshar-Tous
Fri-Sat	4/1-4/2	11pm-7am	Jen Schwartzman / Charlotte Abrams
Sat	2-Apr	7am - 3pm	Steve Bloom/ Karen Henderson
Sat	2-Apr	3pm-11pm	Janice Owens / Jenny Tobin
Sat-Sun	4/2-4/3	11pm - 7am	Gerri Fehst / Elizabeth Smiroldo

Protective Measures Team

PMTR Director

Sat-Sun	3/26-3/27	11pm - 7am	Randy Sullivan
Sun	27-Mar	7am - 3pm	Don Cool
Sun	27-Mar	3pm-11pm	Vince Holahan
Sun-Mon	3/27-3/28	11pm - 7am	John Tappert
Mon	28-Mar	7am - 3pm	Don Cool
Mon	28-Mar	3pm-11pm	Vince Holahan
Mon-Tue	3/28-3/29	11pm - 7am	John Tappert
Tue	29-Mar	7am - 3pm	Terry Reis
Tue	29-Mar	3pm-11pm	Vince Holahan
Tue-Wed	3/29-3/30	11pm - 7am	Patricia Milligan
Wed	30-Mar	7am - 3pm	Terry Reis
Wed	30-Mar	3pm-11pm	Vince Holahan
Wed-Thur	3/30-3/31	11pm - 7am	Patricia Milligan
Thur	31-Mar	7am - 3pm	Randy Sullivan
Thur	31-Mar	3pm-11pm	Terry Reis
Thur-Fri	3/31-4/1	11pm - 7am	Christiana Lui
Fri	1-Apr	7am - 3pm	Randy Sullivan
Fri	1-Apr	3pm-11pm	Don Cool
Fri-Sat	4/1-4/2	11pm-7am	Christiana Lui
Sat	2-Apr	7am - 3pm	Randy Sullivan
Sat	2-Apr	3pm-11pm	Don Cool
Sat-Sun	4/2-4/3	11pm - 7am	Christiana Lui

PMTR Coordinator

Sat-Sun	3/26-3/27	11pm - 7am	Lou Brandon
Sun	27-Mar	7am - 3pm	Ryan Craffey
Sun	27-Mar	3pm-11pm	Jay Patel
Sun-Mon	3/27-3/28	11pm - 7am	Lou Brandon
Mon	28-Mar	7am - 3pm	Duane Hardesty
Mon	28-Mar	3pm-11pm	Nima Ashkeboussi
Mon-Tue	3/28-3/29	11pm - 7am	Lou Brandon

Japan Earthquake ERO Staffing Roster

Mar 27-Apr 2, 2011

Pay Period 8 - Week 1

Tue	29-Mar	7am - 3pm	Duane Hardesty
Tue	29-Mar	3pm-11pm	Nima Ashkeboussi
Tue-Wed	3/29-3/30	11pm - 7am	Lou Brandon
Wed	30-Mar	7am - 3pm	Michael Raddatz
Wed	30-Mar	3pm-11pm	Jay Patel
Wed-Thur	3/30-3/31	11pm - 7am	Ryan Craffey
Thur	31-Mar	7am - 3pm	Duane Hardesty
Thur	31-Mar	3pm-11pm	Michael Raddatz
Thur-Fri	3/31-4/1	11pm - 7am	
Fri	1-Apr	7am - 3pm	Duane Hardesty
Fri	1-Apr	3pm-11pm	Nima Ashkeboussi
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	Greg Casto
Sun	27-Mar	7am - 3pm	Kevin Williams
Sun	27-Mar	3pm-11pm	Tim Harris
Sun-Mon	3/27-3/28	11pm - 7am	Greg Casto/Jessical Kratchman
Mon	28-Mar	7am - 3pm	Sandra Wastler
Mon	28-Mar	3pm-11pm	Mike McCoppin
Mon-Tue	3/28-3/29	11pm - 7am	Greg Casto/Jessical Kratchman
Tue	29-Mar	7am - 3pm	
Tue	29-Mar	3pm-11pm	Tim Harris
Tue-Wed	3/29-3/30	11pm - 7am	Greg Casto
Wed	30-Mar	7am - 3pm	Alemu Bezakulu
Wed	30-Mar	3pm-11pm	Sandra Wastler
Wed-Thur	3/30-3/31	11pm - 7am	Greg Casto
Thur	31-Mar	7am - 3pm	Jessica Kratchman
Thur	31-Mar	3pm-11pm	Tim Harris
Thur-Fri	3/31-4/1	11pm - 7am	
Fri	1-Apr	7am - 3pm	Sandra Wastler/Jessica Kratchman
Fri	1-Apr	3pm-11pm	
Fri-Sat	4/1-4/2	11pm-7am	
Sat	2-Apr	7am - 3pm	Alemu Bezakulu
Sat	2-Apr	3pm-11pm	
Sat-Sun	4/2-4/3	11pm - 7am	
PMTR RAAD			
Sat-Sun	3/26-3/27	11pm - 7am	Mike Norris
Sun	27-Mar	7am - 3pm	Michelle Hart
Sun	27-Mar	3pm-11pm	
Sun-Mon	3/27-3/28	11pm - 7am	Mike Norris
Mon	28-Mar	7am - 3pm	Steve LaVie
Mon	28-Mar	3pm-11pm	Michelle Hart
Mon-Tue	3/28-3/29	11pm - 7am	Mike Norris
Tue	29-Mar	7am - 3pm	

Japan Earthquake ERO Staffing Roster

Mar 27-Apr 2, 2011

Pay Period 8 - Week 1

Tue	29-Mar	3pm-11pm	
Tue-Wed	3/29-3/30	11pm - 7am	Mike Norris
Wed	30-Mar	7am - 3pm	
Wed	30-Mar	3pm-11pm	Steve LaVie
Wed-Thur	3/30-3/31	11pm - 7am	
Thur	31-Mar	7am - 3pm	Michelle Hart
Thur	31-Mar	3pm-11pm	
Thur-Fri	3/31-4/1	11pm - 7am	
Fri	1-Apr	7am - 3pm	
Fri	1-Apr	3pm-11pm	Steve LaVie
Fri-Sat	4/1-4/2	11pm-7am	Michelle Hart
Sat	2-Apr	7am - 3pm	
Sat	2-Apr	3pm-11pm	
Sat-Sun	4/2-4/3	11pm - 7am	
PMTR Dose Assessment (RASCAL) - Need 2			
Sat-Sun	3/26-3/27	11pm - 7am	John Parillo/Ron LaVera
Sun	27-Mar	7am - 3pm	Tony Huffert
Sun	27-Mar	3pm-11pm	Casper Sun/Ed Roach
Sun-Mon	3/27-3/28	11pm - 7am	Margaret Cervera/John Parillo
Mon	28-Mar	7am - 3pm	Rich Clement/Tony Huffert
Mon	28-Mar	3pm-11pm	Bernie White/Casper Sun
Mon-Tue	3/28-3/29	11pm - 7am	Margaret Cervera/John Parillo
Tue	29-Mar	7am - 3pm	Tony Huffert/Rich Clement
Tue	29-Mar	3pm-11pm	Casper Sun
Tue-Wed	3/29-3/30	11pm - 7am	Margaret Cervera/Bernie White
Wed	30-Mar	7am - 3pm	Tony Huffert/Rich Clement
Wed	30-Mar	3pm-11pm	Casper Sun
Wed-Thur	3/30-3/31	11pm - 7am	Margaret Cervera/John Parillo
Thur	31-Mar	7am - 3pm	Rich Clement/Joe DeCicco
Thur	31-Mar	3pm-11pm	Bernie White (Maybe)/Casper Sun
Thur-Fri	3/31-4/1	11pm - 7am	John Parillo
Fri	1-Apr	7am - 3pm	/Rich Clement
Fri	1-Apr	3pm-11pm	Casper Sun
Fri-Sat	4/1-4/2	11pm-7am	John Parillo
Sat	2-Apr	7am - 3pm	Tony Huffert
Sat	2-Apr	3pm-11pm	Casper Sun
Sat-Sun	4/2-4/3	11pm - 7am	
PMTR GIS Analyst			
Sat-Sun	3/26-3/27	11pm - 7am	N/A
Sun	27-Mar	7am - 3pm	(ON CALL)
Sun	27-Mar	3pm-11pm	N/A
Sun-Mon	3/27-3/28	11pm - 7am	N/A
Mon	28-Mar	7am - 3pm	(ON CALL)
Mon	28-Mar	3pm-11pm	N/A
Mon-Tue	3/28-3/29	11pm - 7am	N/A
Tue	29-Mar	7am - 3pm	(ON CALL)
Tue	29-Mar	3pm-11pm	N/A

Japan Earthquake ERO Staffing Roster

Mar 27-Apr 2, 2011

Pay Period 8 - Week 1

Tue-Wed	3/29-3/30	11pm - 7am	N/A
Wed	30-Mar	7am - 3pm	(ON CALL)
Wed	30-Mar	3pm-11pm	N/A
Wed-Thur	3/30-3/31	11pm - 7am	N/A
Thur	31-Mar	7am - 3pm	(ON CALL)
Thur	31-Mar	3pm-11pm	N/A
Thur-Fri	3/31-4/1	11pm - 7am	N/A
Fri	1-Apr	7am - 3pm	(ON CALL)
Fri	1-Apr	3pm-11pm	N/A
Fri-Sat	4/1-4/2	11pm-7am	N/A
Sat	2-Apr	7am - 3pm	(ON CALL)
Sat	2-Apr	3pm-11pm	N/A
Sat-Sun	4/2-4/3	11pm - 7am	N/A
PMTR Meteorologist			
Sat-Sun	3/26-3/27	11pm - 7am	N/A
Sun	27-Mar	7am - 3pm	(ON CALL)
Sun	27-Mar	3pm-11pm	N/A
Sun-Mon	3/27-3/28	11pm - 7am	N/A
Mon	28-Mar	7am - 3pm	(ON CALL)
Mon	28-Mar	3pm-11pm	N/A
Mon-Tue	3/28-3/29	11pm - 7am	N/A
Tue	29-Mar	7am - 3pm	(ON CALL)
Tue	29-Mar	3pm-11pm	N/A
Tue-Wed	3/29-3/30	11pm - 7am	N/A
Wed	30-Mar	7am - 3pm	(ON CALL)
Wed	30-Mar	3pm-11pm	N/A
Wed-Thur	3/30-3/31	11pm - 7am	N/A
Thur	31-Mar	7am - 3pm	(ON CALL)
Thur	31-Mar	3pm-11pm	N/A
Thur-Fri	3/31-4/1	11pm - 7am	N/A
Fri	1-Apr	7am - 3pm	(ON CALL)
Fri	1-Apr	3pm-11pm	N/A
Fri-Sat	4/1-4/2	11pm-7am	N/A
Sat	2-Apr	7am - 3pm	(ON CALL)
Sat	2-Apr	3pm-11pm	N/A
Sat-Sun	4/2-4/3	11pm - 7am	N/A
Reactor Safety Team			
RST Director			
Sat-Sun	3/26-3/27	11pm - 7am	Dave Skeen
Sun	27-Mar	7am - 3pm	Pat Hiland
Sun	27-Mar	3pm-11pm	Fred Brown
Sun-Mon	3/27-3/28	11pm - 7am	Dave Skeen
Mon	28-Mar	7am - 3pm	Pat Hiland
Mon	28-Mar	3pm-11pm	Fred Brown
Mon-Tue	3/28-3/29	11pm - 7am	Dave Skeen
Tue	29-Mar	7am - 3pm	Jennifer Uhle
Tue	29-Mar	3pm-11pm	Fred Brown

Japan Earthquake ERO Staffing Roster

Mar 27-Apr 2, 2011

Pay Period 8 - Week 1

Tue-Wed	3/29-3/30	11pm - 7am	Dave Skeen
Wed	30-Mar	7am - 3pm	Jennifer Uhle
Wed	30-Mar	3pm-11pm	Fred Brown
Wed-Thur	3/30-3/31	11pm - 7am	Mike Case
Thur	31-Mar	7am - 3pm	Jennifer Uhle
Thur	31-Mar	3pm-11pm	Bill Ruland
Thur-Fri	3/31-4/1	11pm - 7am	Mike Case
Fri	1-Apr	7am - 3pm	Jennifer Uhle
Fri	1-Apr	3pm-11pm	Bill Ruland
Fri-Sat	4/1-4/2	11pm-7am	Mike Case
Sat	2-Apr	7am - 3pm	Brian Holian
Sat	2-Apr	3pm-11pm	Bill Ruland
Sat-Sun	4/2-4/3	11pm - 7am	Mike Case
RST Coordinator			
Sat-Sun	3/26-3/27	11pm - 7am	Brett Rini
Sun	27-Mar	7am - 3pm	Peter Alter
Sun	27-Mar	3pm-11pm	Rick Hasselberg
Sun-Mon	3/27-3/28	11pm - 7am	Frank Collins
Mon	28-Mar	7am - 3pm	Peter Alter
Mon	28-Mar	3pm-11pm	Rick Hasselberg
Mon-Tue	3/28-3/29	11pm - 7am	Mike Morlang
Tue	29-Mar	7am - 3pm	Peter Alter
Tue	29-Mar	3pm-11pm	Greg Schoenebeck
Tue-Wed	3/29-3/30	11pm - 7am	Mike Morlang
Wed	30-Mar	7am - 3pm	Peter Alter
Wed	30-Mar	3pm-11pm	Greg Schoenebeck
Wed-Thur	3/30-3/31	11pm - 7am	Frank Collins
Thur	31-Mar	7am - 3pm	Peter Alter
Thur	31-Mar	3pm-11pm	Greg Schoenebeck
Thur-Fri	3/31-4/1	11pm - 7am	Frank Collins
Fri	1-Apr	7am - 3pm	Brett Rini
Fri	1-Apr	3pm-11pm	
Fri-Sat	4/1-4/2	11pm-7am	Frank Collins
Sat	2-Apr	7am - 3pm	Peter Alter
Sat	2-Apr	3pm-11pm	Brett Rini
Sat-Sun	4/2-4/3	11pm - 7am	Oleg Bukharin
Severe Accident/PRA			
Sat-Sun	3/26-3/27	11pm - 7am	Ray Skarda
Sun	27-Mar	7am - 3pm	Andy Howe
Sun	27-Mar	3pm-11pm	Jeff Mitman
Sun-Mon	3/27-3/28	11pm - 7am	Jim Gilmer
Mon	28-Mar	7am - 3pm	Jeff Circle
Mon	28-Mar	3pm-11pm	Len Ward
Mon-Tue	3/28-3/29	11pm - 7am	Steve Arndt
Tue	29-Mar	7am - 3pm	Hossein Esmaili
Tue	29-Mar	3pm-11pm	Ed Fuller
Tue-Wed	3/29-3/30	11pm - 7am	Steve Arndt

Japan Earthquake ERO Staffing Roster

Mar 27-Apr 2, 2011

Pay Period 8 - Week 1

Wed	30-Mar	7am - 3pm	Jim Gilmer
Wed	30-Mar	3pm-11pm	Hossein Esmaili
Wed-Thur	3/30-3/31	11pm - 7am	Steve Arndt
Thur	31-Mar	7am - 3pm	Don Chung
Thur	31-Mar	3pm-11pm	Hossein Esmaili
Thur-Fri	3/31-4/1	11pm - 7am	Steve Arndt
Fri	1-Apr	7am - 3pm	Jeff Mitman
Fri	1-Apr	3pm-11pm	Don Hilton
Fri-Sat	4/1-4/2	11pm-7am	Ray Skarda
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	Eva Brown
Sun	27-Mar	7am - 3pm	Mike Brown
Sun	27-Mar	3pm-11pm	Chuck Norton
Sun-Mon	3/27-3/28	11pm - 7am	Eva Brown
Mon	28-Mar	7am - 3pm	Mike Brown
Mon	28-Mar	3pm-11pm	Chuck Norton
Mon-Tue	3/28-3/29	11pm - 7am	Jim Shea
Tue	29-Mar	7am - 3pm	Mike Brown
Tue	29-Mar	3pm-11pm	Chuck Norton
Tue-Wed	3/29-3/30	11pm - 7am	Jim Shea
Wed	30-Mar	7am - 3pm	Mike Brown
Wed	30-Mar	3pm-11pm	Chuck Norton
Wed-Thur	3/30-3/31	11pm - 7am	Jim Shea
Thur	31-Mar	7am - 3pm	Mike Brown
Thur	31-Mar	3pm-11pm	Chuck Norton
Thur-Fri	3/31-4/1	11pm - 7am	Jim Shea
Fri	1-Apr	7am - 3pm	Mike Brown
Fri	1-Apr	3pm-11pm	Chuck Norton
Fri-Sat	4/1-4/2	11pm-7am	Eva Brown
Sat	2-Apr	7am - 3pm	Mike Brown
Sat	2-Apr	3pm-11pm	Chuck Norton
Sat-Sun	4/2-4/3	11pm - 7am	Eva Brown

RST Comm/ERDS Operator

Sat-Sun	3/26-3/27	11pm - 7am	Denise McGovern
Sun	27-Mar	7am - 3pm	Mark Padovan
Sun	27-Mar	3pm-11pm	Bill Roggenbrodt
Sun-Mon	3/27-3/28	11pm - 7am	Denise McGovern
Mon	28-Mar	7am - 3pm	Mark Padovan
Mon	28-Mar	3pm-11pm	Rick Jervey
Mon-Tue	3/28-3/29	11pm - 7am	Brian Horn
Tue	29-Mar	7am - 3pm	John Thorp
Tue	29-Mar	3pm-11pm	Andy Kugler
Tue-Wed	3/29-3/30	11pm - 7am	Brian Horn
Wed	30-Mar	7am - 3pm	Steve Bloom

Japan Earthquake ERO Staffing Roster

Mar 27-Apr 2, 2011

Pay Period 8 - Week 1

Wed	30-Mar	3pm-11pm	Bill Roggenbrodt
Wed-Thur	3/30-3/31	11pm - 7am	
Thur	31-Mar	7am - 3pm	Jerry Dozier
Thur	31-Mar	3pm-11pm	John Thorp
Thur-Fri	3/31-4/1	11pm - 7am	
Fri	1-Apr	7am - 3pm	Andy Kugler
Fri	1-Apr	3pm-11pm	
Fri-Sat	4/1-4/2	11pm-7am	Liliana Ramadan
Sat	2-Apr	7am - 3pm	John Thorp
Sat	2-Apr	3pm-11pm	Mark Padovan
Sat-Sun	4/2-4/3	11pm - 7am	
RST Support (Seismology Q&A)			
Sat-Sun	3/26-3/27	11pm - 7am	(ON CALL)
Sun	27-Mar	7am - 3pm	(ON CALL)
Sun	27-Mar	3pm-11pm	(ON CALL)
Sun-Mon	3/27-3/28	11pm - 7am	(ON CALL)
Mon	28-Mar	7am - 3pm	(ON CALL)
Mon	28-Mar	3pm-11pm	(ON CALL)
Mon-Tue	3/28-3/29	11pm - 7am	(ON CALL)
Tue	29-Mar	7am - 3pm	(ON CALL)
Tue	29-Mar	3pm-11pm	(ON CALL)
Tue-Wed	3/29-3/30	11pm - 7am	(ON CALL)
Wed	30-Mar	7am - 3pm	(ON CALL)
Wed	30-Mar	3pm-11pm	(ON CALL)
Wed-Thur	3/30-3/31	11pm - 7am	(ON CALL)
Thur	31-Mar	7am - 3pm	(ON CALL)
Thur	31-Mar	3pm-11pm	(ON CALL)
Thur-Fri	3/31-4/1	11pm - 7am	(ON CALL)
Fri	1-Apr	7am - 3pm	(ON CALL)
Fri	1-Apr	3pm-11pm	(ON CALL)
Fri-Sat	4/1-4/2	11pm-7am	(ON CALL)
Sat	2-Apr	7am - 3pm	(ON CALL)
Sat	2-Apr	3pm-11pm	(ON CALL)
Sat-Sun	4/2-4/3	11pm - 7am	(ON CALL)
RST Support (Structural)			
Sat-Sun	3/26-3/27	11pm - 7am	Off (ON CALL)
Sun	27-Mar	7am - 3pm	Off (ON CALL)
Sun	27-Mar	3pm-11pm	Off (ON CALL)
Sun-Mon	3/27-3/28	11pm - 7am	Off (ON CALL)
Mon	28-Mar	7am - 3pm	Off (ON CALL)
Mon	28-Mar	3pm-11pm	Off (ON CALL)
Mon-Tues	3/28-3/29	11pm - 7am	Off (ON CALL)
Tues	29-Mar	7am - 3pm	Off (ON CALL)
Tues	29-Mar	3pm-11pm	Off (ON CALL)
Tues-Wed	3/29-3/30	11pm - 7am	Off (ON CALL)
Wed	30-Mar	7am - 3pm	Off (ON CALL)
Wed	30-Mar	3pm-11pm	Off (ON CALL)

Japan Earthquake ERO Staffing Roster

Mar 27-Apr 2, 2011

Pay Period 8 - Week 1

Wed-Thur	3/30-3/31	11pm - 7am	Off (ON CALL)
Thur	31-Mar	7am - 3pm	Off (ON CALL)
Thur	31-Mar	3pm-11pm	Off (ON CALL)
Thur-Fri	3/31-4/1	11pm - 7am	Off (ON CALL)
Fri	1-Apr	7am - 3pm	Off (ON CALL)
Fri	1-Apr	3pm-11pm	Off (ON CALL)
Fri-Sat	4/1-4/2	11pm-7am	Off (ON CALL)

From: HOO Hoc
Sent: Friday, April 08, 2011 7:28 PM
To: LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Cc: ET07 Hoc; ET05 Hoc; ET02 Hoc
Subject: FW: Briefing Calls for Chairman Jaczko - CANCELLED FOR 0715

FYI

From: Pace, Patti
Sent: Friday, April 08, 2011 7:25 PM
To: HOO Hoc
Cc: Batkin, Joshua
Subject: Briefing Calls for Chairman Jaczko

Good Evening,

Please note, Chairman Jaczko would like to cancel the 7:15AM briefing calls on Saturday April 9th and Sunday April 10th. Please keep the 3:15p briefing call and 6:30p call with Chuck Casto for each day over the weekend.

Thank you!

Patti Pace
Assistant to Chairman Gregory B. Jaczko
U.S. Nuclear Regulatory Commission
301-415-1820 (office)
301-415-3504 (fax)

VVV/315

From: Hoc, PMT12
Sent: Friday, April 08, 2011 7:20 AM
To: PMT03 Hoc
Subject: Fukushima NPP Radiation Health Risks v.1
Attachments: Fukushima NPP Radiation Health Risks v.1.doc

Can you please use this file to replace the attachment in action 4335? We added the italics at the top.

4/8/11 3:16

Draft

This document should only be used for informational purposes, not for decision-making in changing protective action recommendations. The PMT needs actual field measurements in order to make recommendations to expand or relax the current protective actions or to permit entry into the emergency planning zone. The staff has asked the site team for this data, but has not yet received the information.

Summary of Radiological Hazards in Japan

The situation at the Fukushima Daiichi Nuclear Power Plant remains very serious although there are early signs of recovery based on decreasing doses in and around the power plant. This nuclear incident raises concern for the possible impact of radiation on the Japanese public.

On-site at the Fukushima Daiichi plant, radiation levels in certain areas continue to be life-threatening –30 Sv/hr (3,000 R/hr) in the dry wells for units 1 and 2 and 20 Sv/hr (2,000 R/hr) near the drywell of unit 3. Additionally, debris has been located outside of the reactor building of unit 3 with radiation levels measuring 1 Sv/hr (100 R/hr) [1].

Dose rates are being measured at four different locations around the site, as shown on Figure 1: the gymnasium, northwest gate, main building and the main gate. Currently, the highest radiation level, 84 μ Sv/hr, is at the main gate located west of unit 4. The dose rate at the west gate is slightly lower at 65 μ Sv/hr [2].

Figure 1

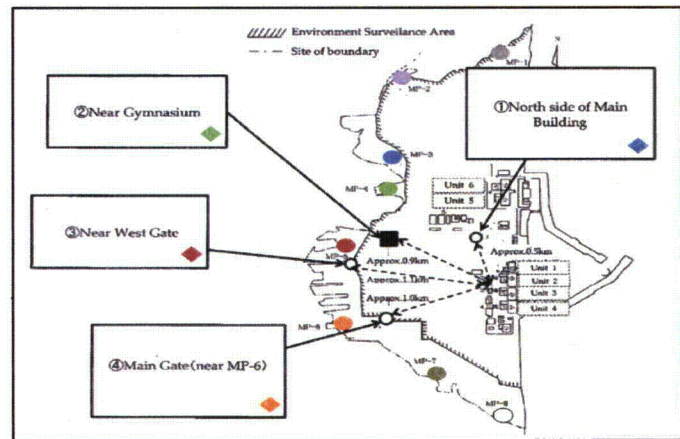
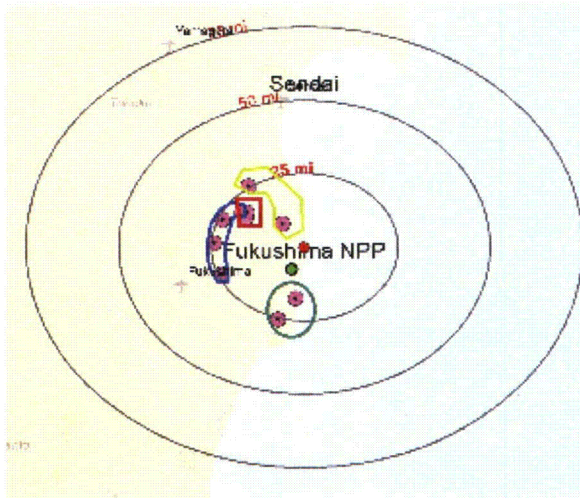


Figure 2



The largest radiation plume was observed to pass in the north-west direction as confirmed by MEXT radiation monitoring results [3]. Four clusters of exposure data were plotted based on 89 measurement locations supplied by MEXT (see figure 2). The exposure rates plotted were spread across the west, northwest, and south and a tight cluster of locations to the northwest. The highest exposure rates were in the northwest cluster and have been slowly decreasing from the high of 170 μ Sv/hr, 30km from the Fukushima Daiichi plant.

In Tokyo, radiation levels are nearly indistinguishable from other manmade background radiation levels, ranging between 0.03 and 0.08 μ Sv/hr.

April 8, 2001, 6:00am

Draft

MEXT samples for dust, drinking water and vegetation test positive for both I-131 and Cs-137 contamination [4]. Most of these monitoring points are located at least 30km (18.6 miles) from the site. While the data on the concentration of I-131 and Cs-137 in dust is inconsistently reported from each sampling location, most locations show I-131 concentrations (measured in Bq/m³) decreasing to the single digits for the first week of April. Typical Cs-137 concentrations within 30 km (18 miles) vary from 0.5 to 4.5 Bq/m³. Half of the sampling locations beyond 40 km (24.8 miles) show I-131 and Cs-137 below detectable levels, with the highest readings in the north and northwest and do not show a consistent pattern, based on a single daily sample.

Soil samples, taken on April 5 and 6, indicate I-131 and concentrations ranging from 41,000 to 200,000 Bq/kg and Cs-137 levels 25,000 to 100,000 Bq/kg, respectively.

Deposition of these radionuclides in leafy vegetation, measured at the same locations, are consistently higher than in soil, and show a high value of 300,000 Bq/kg for I-131 and 1,440,000 Bq/kg for Cs-137 at a distance of 40 km (24.8 miles) northwest of the site. Other sampling locations to the north, south and west show concentrations an order magnitude lower for each radionuclide.

References:

- [1] NRC Emergency Operations Center Status Update dated April 4, 2011.
- [2] MEXT data
- [3] MEXT http://www.mext.go.jp/english/radioactivity_level/detail/1304082.htm
- [4] "Japan Earthquake Response – April 7, 2011 // 0600 EDT." DOE

From: PMT03 Hoc
Sent: Friday, April 08, 2011 7:45 AM
To: Hoc, PMT12
Subject: RE: Fukushima NPP Radiation Health Risks v.1

Done.

From: Hoc, PMT12
Sent: Friday, April 08, 2011 7:20 AM
To: PMT03 Hoc
Subject: Fukushima NPP Radiation Health Risks v.1

Can you please use this file to replace the attachment in action 4335? We added the italics at the top.

WV/317

From: ET07 Hoc
Sent: Friday, April 08, 2011 1:32 PM
To: RMTFACTSU_ELNRC
Subject: RE: USAID

The HOOs will always be essential, so they will be here and know who is working that day or shift.

From: RMTFACTSU_ELNRC [mailto:RMTFACTSU_ELNRC@ofda.gov]
Sent: Friday, April 08, 2011 12:44 PM
To: ET07 Hoc
Cc: Dudek, Michael; Kozal, Jason; Trocine, Leigh
Subject: RE: USAID
Importance: High

I've been told that USAID/OFDA plans to send a reminder email to the DART team members and that, before traveling, the travelers received the appropriate travel contact information/instructions from OFDA (i.e., the appropriate emergency travel numbers).

First – Main USAID Response Management Team (RMT) – 202-712-0039
Second – Duluth Travel – Main # (866-343-5009), Emergency After-Hours # (888-498-3707), Email (usaid@duluthtravel.com).

I've also been told that, if folks already have their tickets, their travel should not be impacted. If something needs to be changed or ticketed, the travelers would use their government credit cards (like they would on an emergency or weekend travel situation), and the necessary amendments would be made when the main travel offices are back up and running.

Per the attached email, it appears that the NRC has already declared the NRC staff members on the DART as essential employees.

FUTURE USAID CONTACT INFO –USAID's Response Management Team (RMT) members are considered to be essential, and the USAID center will be staffed on weekdays through the end of April by a Response Manager (RM) and Admin Coordinator (AC). The USAID center main telephone number is 202-712-0039, and the RM and AC can also be reached via email at RMTFACTSU_RM (RMTFACTSU_RM@ofda.gov) and RMTFACTSU_AC (RMTFACTSU_AC@ofda.gov), respectively. (NOTE: I plan to send out a separate email to the liaisons with contact information.)

QUICK ?? – On a separate note, are the folks in the operations center going to be listed as essential (i.e., will USAID still be able to contact our Federal Liaisons for information)?

I hope this helps! ☺

Cheers,
Leigh

11/13/11

From: ET07 Hoc [mailto:ET07.Hoc@nrc.gov]
Sent: Friday, April 08, 2011 8:23 AM
To: RMTFACTSU_ELNRC
Subject: USAID
Importance: High

Is USAID pulling back on travel because of the government shutdown? What do we need to do for our folks in Japan?

From: OST01 HOC
Sent: Friday, April 08, 2011 5:53 AM
To: LIA07 Hoc; PMT02 Hoc; PMT11 Hoc; Hoc, PMT12; PMT01 Hoc; Uhle, Jennifer; Wiggins, Jim
Subject: FW: NRC's Daily Assessment of Conditions at Fukushima Daiichi
Attachments: NRC Daily Assessment of Daiichi - 4-8-11.pdf

From: OST02 HOC
Sent: Friday, April 08, 2011 5:50 AM
To: OST01 HOC
Subject: FW: NRC's Daily Assessment of Conditions at Fukushima Daiichi

From: Weber, Michael
Sent: Friday, April 08, 2011 5:46 AM
To: Johnson, Michael; ET01 Hoc; ET05 Hoc; OST02 HOC; RST01 Hoc
Subject: FYI - NRC's Daily Assessment of Conditions at Fukushima Daiichi

From: Salay, Michael
To: Jaczko, Gregory
Cc: Borchardt, Bill; Weber, Michael; Virgilio, Martin; Casto, Chuck; Leeds, Eric; RST01 Hoc
Sent: Fri Apr 08 04:28:17 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 are two changes of note for today. Following the earthquake last night the unit 1 feedwater nozzle temperature and drywell radiation monitors indicated higher levels. This is reflected by a down arrow in the attached for cooling of the Unit 1 Vessel. The injection flow rate to the Unit 2 reactor vessel was reduced from 8 cubic meters per hour to 7 cubic meters per hour. This is reflected by a down arrow in the attached for cooling of the Unit 2 Vessel. We will continue to discuss these issues with NISA and TEPCO.

If you have any questions, please don't hesitate to ask.

Best regards,
Mike Salay
NRC Japan Team

b13 / NRC

~~Official Use Only~~

NRC's Daily Assessment of Conditions at Fukushima Daiichi Nuclear Power Plant

Unit 1		Today	Yesterday
Vessel	Cooling	Challenged	Challenged
		↓	↓
Integrity	Integrity	Intact	Intact
		↔	↔
Containment	Flooding	Inc./Needed	Inc./Needed
		↔	↔
Integrity	Integrity	Challenged	Challenged
		↔	↔
Spent Fuel Pool	Cooling/Level	Adequate	Adequate
		↔	↔
Integrity	Integrity	Intact	Intact
		↔	↔

Unit 3		Today	Yesterday
Vessel	Cooling	Adequate	Adequate
		↔	↔
Integrity	Integrity	Failed	Failed
		↔	↔
Containment	Flooding	Challenged	Challenged
		↔	↔
Integrity	Integrity	Failed	Failed
		↔	↔
Spent Fuel Pool	Cooling/Level	Challenged	Challenged
		↔	↔
Integrity	Integrity	Challenged	Challenged
		↔	↔

Unit 2		Today	Yesterday
Vessel	Cooling	Challenged	Challenged
		↓	↔
Integrity	Integrity	Failed	Failed
		↔	↔
Containment	Flooding	Inc./Needed	Inc./Needed
		↔	↔
Integrity	Integrity	Failed	Failed
		↔	↔
Spent Fuel Pool	Cooling/Level	Adequate	Adequate
		↔	↔
Integrity	Integrity	Intact	Intact
		↔	↔

Unit 4		Today	Yesterday
Spent Fuel Pool	Cooling/Level	Challenged	Challenged
		↔	↔
Integrity	Integrity	Failed	Failed
		↔	↔

		Today	Yesterday
Protective Measures	Exposure Risk	Low	Low
		↔	↔

~~Official Use Only~~

April 8, 2011

Methodology for Developing the Fukushima Daiichi Daily Assessment Report

PURPOSE: The report is prepared to provide a qualitative high level assessment of daily conditions at Fukushima Daiichi that the U.S. Ambassador can use to assess the safety of American citizens in Japan.

DISCLAIMER: The development of the daily assessment report includes a number of inputs. Some of these are objective, such as plant data provided by TEPCO, while others are subjective, such as engineering insights from the NRC's reactor and protective measures specialists in Japan. It should be recognized that there are many unknowns and uncertainties associated with having a complete understanding of conditions in each of the Daiichi reactors and spent fuel pools. As such, this tool represents the collective judgment of the NRC staff in Japan based on all available data.

For each of the major plant parameters listed below, the NRC staff assesses its status daily and bins it into one of the three categories listed. The staff uses the listed plant information and conditions in making its assessment. The arrows on the report indicate the relative trend in plant conditions from the previous day.

1. Reactor Pressure Vessel
 - a. Cooling – Adequate, Challenged, or Inadequate.
 - i. Flow or Injection Rate
 - ii. Reliability of Injection
 - iii. Source of Water
 - b. Integrity – Intact, Challenged, or Failed.
 - i. Temperature indications
 - ii. Pressure readings
2. Primary Containment
 - a. Flooding Status – Complete/Not needed, Challenged, or Incomplete/Needed.
 - i. Water Level
 - ii. Sources
 - iii. Injection capacity/rate
 - b. Integrity - Intact, Challenged, or Failed.
 - i. Pressure readings
 - ii. Bypass evaluations
 - iii. Temperature indications
3. Spent Fuel Pools
 - a. Cooling/Level – Adequate, Challenged, or Inadequate.
 - i. Flow or Injection Rate
 - ii. Reliability of Injection
 - iii. Source of Water
 - b. Integrity – Intact, Challenged, or Failed. Due to limited available data, this assessment relies strongly on the NRC team's engineering judgment.
4. Protective Measures – Exposure Risk to American citizens in Japan outside the U.S. government's recommended 50-mile evacuation zone.
 - a. Low – 50-mile recommendation remains sufficient
 - b. Medium – New information has raised questions regarding the sufficiency of the 50-mile recommendation.
 - c. High – 50-mile recommendation is no longer sufficient due to changing plant condition

From: ET07 Hoc
Sent: Saturday, April 09, 2011 7:27 PM
To: HOO Hoc
Subject: Lessons Learned input

The teams should develop a single entry point for electronic communications much like the ENS or HPN communicator. This position would process all incoming email ensuring the appropriate member of the team receives the information and/or logs any action items into the task tracker. They would also need to be included in any response to emails.

04/09/11 3:20
VNV

From: PMT03 Hoc
Sent: Saturday, April 09, 2011 10:33 AM
To: Roach, Edward
Cc: Hoc, PMT12
Subject: dosimetry readings for Japan team members

Importance: High

Ed:

The Protective Measures Team has an outstanding Tickler to obtain dosimetry readings from the returning NRC Japan team members (Ref.: 3106 dated 3/28/2011). We wanted to remind you that we have this open item and to please provide data as it is processed. We would appreciate an estimate of when we can expect to start receiving this data. Thank you,
PMTR

3/28/11

From: LIA08 Hoc
Sent: Saturday, April 09, 2011 10:20 AM
To: HOO Hoc; LIA02 Hoc; LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Cc: PMT02 Hoc; LIA06 Hoc; LIA01 Hoc
Subject: RE: EPA environmental monitoring data-IAEA
Attachments: image001.jpg

Cyndi Jones is our ENAC National officer point of contact. In the meantime, the LT can check with the EPA and see if they have any objection to having IAEA list their websites on the ENAC (Early Notification and Assistance Convention) website. Jeff Temple

From: HOO Hoc
Sent: Saturday, April 09, 2011 5:27 AM
To: LIA02 Hoc; LIA08 Hoc; LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Cc: PMT02 Hoc
Subject: FW: EPA environmental monitoring data-IAEA

IAEA request for review.

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: IEC6@iaea.org [mailto:IEC6@iaea.org]
Sent: Saturday, April 09, 2011 5:17 AM
To: HOO Hoc; HOO2 Hoc; Huffman, William
Subject: EPA environmental monitoring data

Dear Sir / Madam,

The IEC is currently collating information provided by Member States on environmental monitoring data after the Fukushima NPP accident.

Two public EPA websites containing relevant information have been brought to our attention:

<http://www.epa.gov/japan2011/rert/radnet-data-map.html>

<http://www.epa.gov/japan2011/rert/radnet-sampling-data.html>

I'm writing to you, as an official ENAC Contact Point, to confirm whether we can post these two links in the ENAC website, and by extension include the USA on the list of Member States which have provided or made accessible monitoring data.

Could you please confirm whether this is acceptable?

UNN/322

Best regards
Lea Ruscio
Liaison Officer
IAEA IEC
Tel. +43-1-2698846
Tel. +43-1-2600-2203

This email message is intended only for the use of the named recipient. Information contained in this email message and its attachments may be privileged, confidential and protected from disclosure. If you are not the intended recipient, please do not read, copy, use or disclose this communication to others. Also please notify the sender by replying to this message and then delete it from your system.

From: HOO Hoc
Sent: Saturday, April 09, 2011 2:39 AM
To: HOO Hoc
Cc: Virgilio, Martin; Jaczko, Gregory; LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Subject: FW: Fax from 81355105111-Chuck Casto Fax
Attachments: File1.PDF

See attached Dose At 30 KM.

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: Saturday, April 09, 2011 2:26 AM
To: HOO Hoc
Subject: Fax from 81355105111

RECEIVE NOTIFICATION FOR JOB 00018121

Notice for: HOO1

Remote ID: 81355105111

Received at: 04/09/2011 02:24

Pages: 3

Routed by:

Routed at: 04/09/2011 02:24

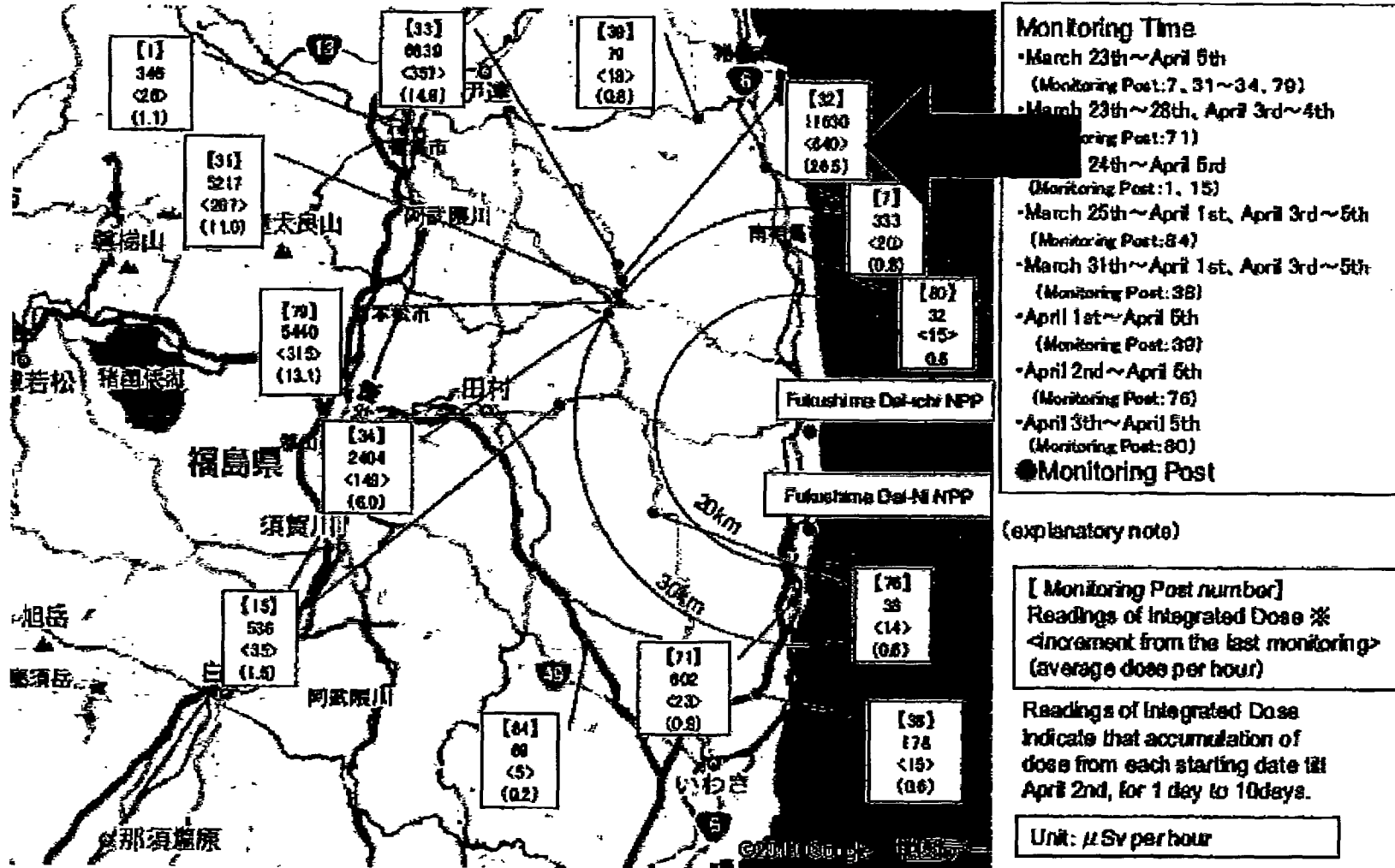
WV | 323

Please send to the Chairman and Marty 4/19/11

- C ASFO

MEXT: Radiation Dose at 30 Km

Readings of Integrated Dose at Monitoring Post out of Fukushima Dai-ichi NPP

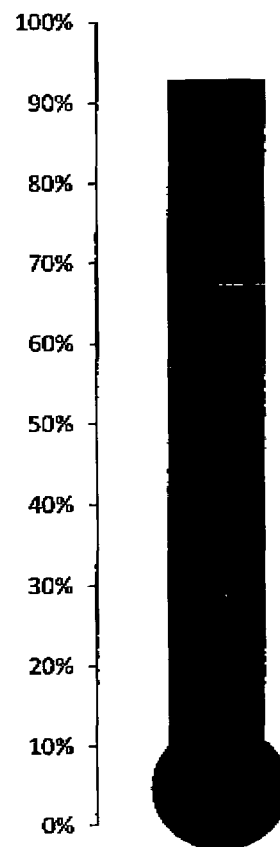


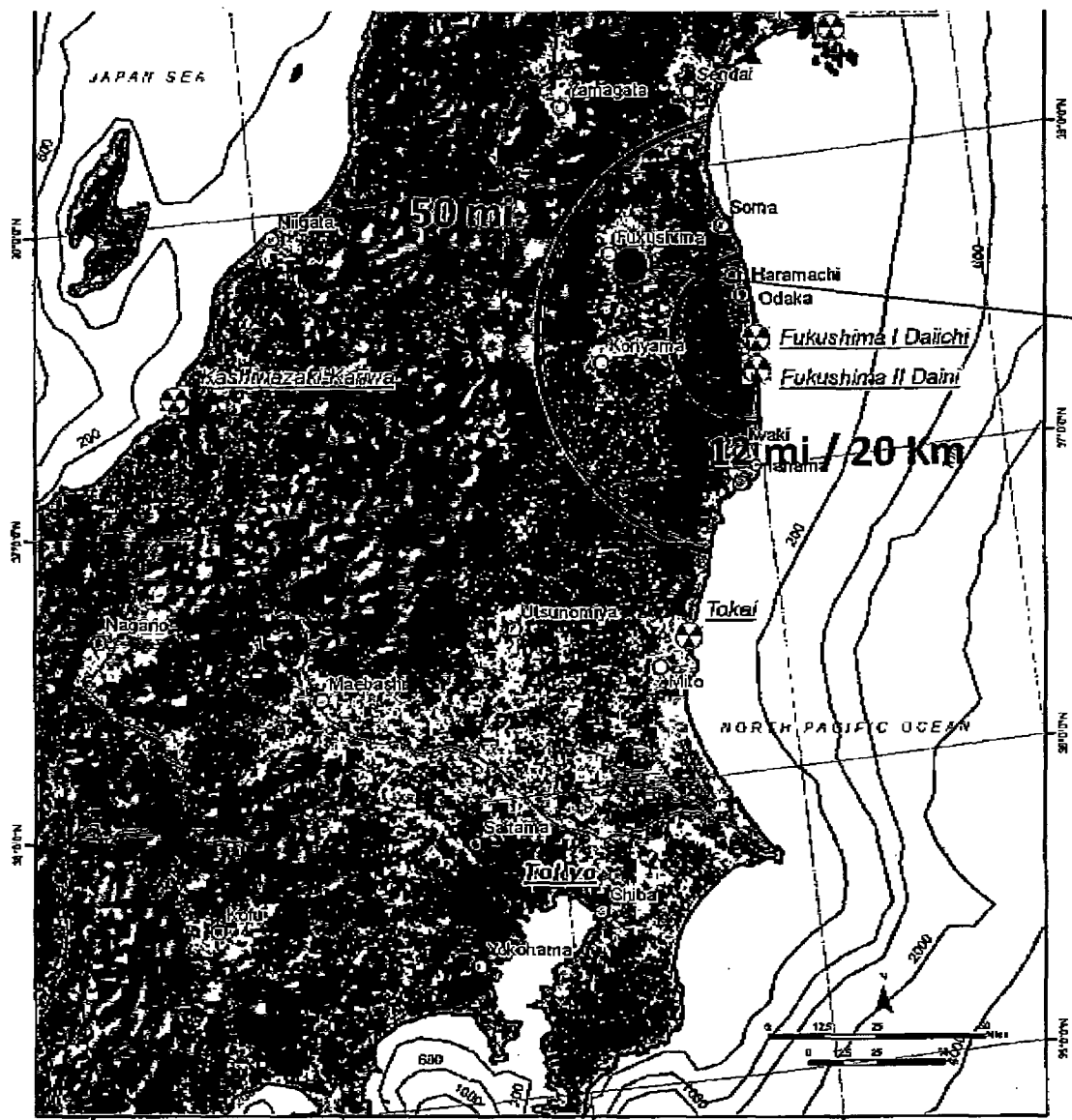
Radiation Dose at 30 Km

MP 32 Mar 23-Apr 5, 2011

**OSHA 90-Day Exposure Limit
(At 93% of Limit in 14 Days)**

Standard	Accumulated Dose (μ Sv)	Comment
ATSDR Min Risk Level (1 yr exposure)	1000	Exceeded
OSHA Limit General Public 1 Yr Exposure	1000	Exceeded
ATSDR Min Risk Level (14-Day Exposure)	4000	Exceeded
OSHA Limit Pregnant Worker 1 Yr Exposure	5000	Exceeded
MP 32 (NW side of 30 km radius)	11630	Detected
OSHA 90-day Limit Radiation Worker	12500	93%
OSHA Annual Limit Radiation Worker	50000	Annual Limit





Evacuation Radii

MP 32

The U.S. 50-mile radius adequately protects public health, but the Japanese 20-kilometer (12 mile) radius may not protect the health of the general public, pregnant female radiation workers, or radiation workers who remain longer than 2 weeks near MP 32.

- Map by WFP

From: LIA07 Hoc
Sent: Saturday, April 09, 2011 10:00 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; Monninger, John; Pace, Patti; Schwarz, Sherry; Sheron, Brian; Speiser, Herald; Sprogeris, Patricia; Taylor, Renee; Virgilio, Martin; Walker, Dwight; Walls, Lorena; Weber, Michael
Subject: Go Book Update - 2200 EDT, April 9, 2011
Attachments: April 9 2200 EDT one pager.pdf

Attached, please find updated information for the "Go Books".

The update includes:

- The 2200 EDT, 04/09/11 One-pager/Briefing Sheet

Please let me know if you have any questions or concerns.

Yen

Yen Chen
Executive Briefing Team Coordinator
US Nuclear Regulatory Commission
LIA07.HOC@nrc.gov (Operations Center)

4/28/11

From: LIA07 Hoc
Sent: Friday, April 08, 2011 10:40 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; Monninger, John; Pace, Patti; Schwarz, Sherry; Sheron, Brian; Speiser, Herald; Sprogeris, Patricia; Taylor, Renee; Virgilio, Martin; Walker, Dwight; Walls, Lorena; Weber, Michael
Subject: OOU - April 8, 2200 EDT "One Pager"
Attachments: April 8 2200 EDT one pager.pdf

Please find attached today's 2200 EDT "one pager" from the ET.
-Sara

2011/3/25

From: ET02 Hoc
Sent: Sunday, April 10, 2011 10:43 AM
To: ET07 Hoc
Subject: FW: Draft Protective Action Recommendations (Composite Document) and Draft Summary

From: ET01 Hoc
Sent: Sunday, April 10, 2011 10:42:52 AM
To: ET02 Hoc
Subject: FW: Draft Protective Action Recommendations (Composite Document) and Draft Summary
Auto forwarded by a Rule

From: Virgilio, Martin
Sent: Sunday, April 10, 2011 10:42:50 AM
To: Hoc, PMT12; ET01 Hoc; RST01 Hoc
Cc: Dyer, Jim
Subject: RE: Draft Protective Action Recommendations (Composite Document) and Draft Summary
Auto forwarded by a Rule

Hi PMT/RST

I am currently in my office and will be visiting you later this morning. In general I believe we are on our way to having a good document to support an IPC and or deputies meeting later this week.

I have a couple of comments.

First, in my view the recommendation to evacuate American citizens was also based on concerns around the infrastructure in Japan around the site following the earthquake (roads, communications and other elements you would need to support a timely evacuation). A recommendation to allow folks back in would need to be based on reasonable confidence that those issues have been resolved.

Second, Phase 1 stability should be based in part upon reasonable (note not high, just reasonable) confidence that there would not be an energetic release that could be achieved with the right plant conditions and commercial grade equipment and that protective actions could be put back in place if necessary. Phase 2 stability provides a higher (note this is not without some residual risk) degree of confidence. I do not believe there would be much change if any around the action steps. Your call.

Marty

6/22/11

From: Hoc, PMT12
Sent: Saturday, April 09, 2011 4:07 PM
To: Virgilio, Martin
Subject: Draft Protective Action Recommendations (Composite Document) and Draft Summary

Marty

Attached is a draft of the Protective Action Recommendations (composite of Grab & Go; Stability Paper; and Long-term Re-entry) and a draft of the summary for your review. These are still in progress and comments are still coming in. Let me know if you have any questions.

Sandi
PMT-PAAD

From: LIA07 Hoc
Sent: Sunday, April 10, 2011 10:36 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; Monninger, John; Pace, Patti; Schwarz, Sherry; Sheron, Brian; Speiser, Herald; Sprogeris, Patricia; Taylor, Renee; Virgilio, Martin; Walker, Dwight; Walls, Lorena; Weber, Michael
Subject: Go Book Update - 2200 EDT, April 10, 2011
Attachments: April 10 2200hrs.pdf

Attached, please find updated information for the "Go Books".

The update includes:
- 2200 EDT, 04/10/11 One-pager/briefing sheet

Please let me know if you have any questions or concerns.

Thanks,
Jeremy

Jeremy Susco
Executive Briefing Team Coordinator
US Nuclear Regulatory Commission
LIA07.HOC@nrc.gov (Operations Center)
jeremy.susco@nrc.gov

223 | NNN

From: Kotzalas, Margie
Sent: Sunday, April 10, 2011 12:32 PM
To: OST01 HOC
Subject: RE: Reduced Staffing in the Headquarters Operations Center

I understand that my position will not be staffed starting Monday 7 am. I will come in tonight for my last 11pm shift.

From: OST01 HOC
Sent: Sunday, April 10, 2011 7:56 AM
To: Kotzalas, Margie
Subject: Reduced Staffing in the Headquarters Operations Center

Margie,

The Chairman has approved a reduced staffing roster for this upcoming week. The reduced staffing will begin on Monday morning at 7am and will only include 6 positions, and as such, many of the previously staffed shifts will not be staffed. I see that you were on watch last night but I do not have a note that this information has been provided to you. You are on the watchbill for overnights tonight, Monday, and Tuesday as the RST Communicator/ERDS Operator. So as not to interrupt your rest period between shifts, please respond to this email to confirm your awareness of the staffing reduction. If we do not hear from you, we will make efforts to call you on evening shift.

Thank you,
Headquarters Operations Center Executive Support
(OST01.hoc@nrc.gov)

4/11/328

From: LIA07 Hoc
Sent: Sunday, April 10, 2011 6:00 PM
To: Batkin, Joshua; Borchartdt, 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; Monninger, John; Pace, Patti; Schwarz, Sherry; Sheron, Brian; Speiser, Herald; Sprogeris, Patricia; Taylor, Renee; Virgilio, Martin; Walker, Dwight; Walls, Lorena; Weber, Michael
Cc: OST04 Hoc
Subject: Go Book Update - 1800 EDT, April 10, 2011
Attachments: Pages 1-5 ET Chronology 4.10.11_1700.pdf; April 10 1400hrs (3).pdf; USNRC Earthquake-Tsunami Update 041011 1800EDT.pdf

Attached, please find updated information for the "Go Books".

The update includes:

- The 1800 EDT, 04/10/11 Status Update
- The 1400 EDT, 04/10/11 One-pager/briefing sheet
- The latest ET Chronology

Please let me know if you have any questions or concerns.

Thanks,
Jeremy

Jeremy Susco
Executive Briefing Team Coordinator
US Nuclear Regulatory Commission
LIA07.HOC@nrc.gov (Operations Center)
jeremy.susco@nrc.gov

1023/11/11

From: OST01 HOC
Sent: Monday, April 11, 2011 1:07 PM
To: Virgilio, Martin
Subject: Toshiba/Shaw Plan
Attachments: Toshiba Plan

Marty,

Please find the soft copy attached. Please let me know if there's anything else I can help with.

Regards,
Melissa

MMV / 330

Attachment Toshiba Plan.pdf(25627656 bytes) cannot be converted to PDF format.

From: Wiggins, Jim
Sent: Monday, April 11, 2011 4:31 AM
To: Uhle, Jennifer
Cc: ET07 Hoc
Subject: Re: Agreement States' Access to Sit Rep

The first I heard of this one way or the other. I'd hesitate to stop giving the ASs the SitRep if we had been doing so thus far. On the other hand, I'd not start giving them the reports if we haven't been doing so.

From: Uhle, Jennifer
To: Wiggins, Jim
Cc: ET07 Hoc
Sent: Mon Apr 11 02:42:01 2011
Subject: Agreement States' Access to Sit Rep

Jim, I had heard that the decision was to provide the sit reps to the States and then today the liaison officer Jeff Temple say that Roy said not to. So, what is the final answer?? They have been given the sit reps so it would be odd to stop providing them to them. Jennifer

VVV / 331

From: OST01 HOC
Sent: Monday, April 11, 2011 3:58 PM
To: RST03 Hoc
Subject: HOC Red Ticket Process
Attachments: HOC Red Ticket Process.doc

2332
|
1111

HOC Red Ticket Process

Background:

NRC is realigning the functions for the Japan Earthquake and Tsunami response to better serve the changing information needs of stakeholders. The Headquarters Operations Center will continue to have enhanced staffing around the clock dedicated to this response, but will have fewer individuals per shift in the Operations Center. The focus of staff in the Operations Center will be coordination and communications. Most of the Technical work associated with this response will shift to NRC's regular line organizations. To facilitate this goal, the Headquarters Operations Center has developed the HOC Red Ticket process to track and assign technical work outside of the Headquarters Operations Center.

Objective:

The objective of the HOC Red Ticket process is to provide a consistent approach for assigning and tracking technical work performed outside of the Headquarters Operations Center for high-priority short and medium term actions. Longer term actions in support of the Headquarters Operations Center will be tasked through the normal OEDO Green Ticket process.

Process Overview:

Tasks initiated through the Headquarters Operations Center in support of NRC response efforts will be evaluated by the Headquarters Response Team to determine if the task involves technical work that should be performed outside of the Operations Center. If the Headquarters Response Team identifies a need for work to be performed outside of the Operations Center, the Operations Center will initiate a ticket. If the task requires longer term work that be assigned through the normal Green Ticket process without detriment to the response efforts, the Headquarters Response Team will work with OEDO to generate a Green Ticket. If the task requires a shorter response timeframe, it will be assigned through the HOC Red Ticket process. Assignments will include specific expectations for the date and time of completion of the assignment, deliverable to be provided back to the Executive Team, and the level of internal coordination and concurrence (if any).

Red Tickets will be tracked via the NSIR Ops. Share Point site and will be assigned a tracking number that corresponds with the WEBEOC Task Tracker record number associated with the task. Office points of contacts are strongly encouraged to subscribe to the SharePoint HOC Red Ticket list via the "Alert Me" feature. Once the task is entered into the SharePoint site, a PDF assignment sheet will be transmitted electronically to the assigned Office point of contact and technical staff. *Work on the Red Ticket task should begin as soon as possible after assignment to meet the assigned due date and time, as well as the requested level of coordination and concurrence.* Supervisors are advised to authorize overtime work as needed to support timely completion of these tasks. Technical staff should contact the Operations Center to, at a minimum, confirm receipt and understanding of the assignment. If the technical staff need more information on the task, or if they cannot meet the assigned due date, staff should contact the Headquarters Operations Center at 301-816-5100 for discussion of the assignment.

Responsibilities:

Headquarters Response Team – The Headquarters Response Team is responsible for reviewing tasks and assigning them within the Operations Center via the Task Tracker or outside the Operations Center through initiation of a Green Ticket with OEDO or issuance of an HOC Red Ticket through the process outlined above.

OEDO – OEDO is responsible for supporting the Headquarters Operations Center by issuing and tracking Green Tickets associated with longer-term work initiated by the Headquarters Operations Center.

Office Points of Contact – Office points of contact are responsible for receiving HOC Red Tickets from the Headquarters Operations Center. If the tasking does not identify a specific staff person, the Office Points of Contact are responsible for identifying the technical staff responsible for the task and providing that information to the Headquarters Operations Center.

Technical Staff – NRC technical staff are responsible for providing support for the completion of assigned Headquarter Operations Center tasks within the appropriate timeframe. Completion of these tasks should be given high a priority but should not interfere with the NRC's responsibility to protect the U.S. public health and safety and the environment. Questions regarding priorities should be directed by the staff to their supervision. NRC Technical Staff should contact the Headquarters Operations Center (301-816-5100) as necessary to obtain clarification on specific tasks adjustment of due dates.

Managers and Supervisors – Managers and supervisors are responsible for supporting technical staff in completion of Headquarters Operations Center actions (including through the approval of overtime) without interfering with the NRC's responsibility to protect the U.S. public health and safety and the environment.

Effective Date:

Monday, April 11, 2011.

From: LIA06 Hoc
Sent: Monday, April 11, 2011 12:04 PM
To: LIA08 Hoc
Subject: FW: OOU -- 1200 EDT (April 11, 2011) USNRC Earthquake-Tsunami Update
Attachments: USNRC Earthquake-Tsunami Update.041111.1200EDT.pdf

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

From: LIA07 Hoc
Sent: Monday, April 11, 2011 12:04 PM
Subject: OOU -- 1200 EDT (April 11, 2011) USNRC Earthquake-Tsunami Update

Attached, please find a 1200 EDT, April 11, 2011, status update from the US Nuclear Regulatory Commission's Emergency Operations Center regarding the impacts of the earthquake/tsunami.

Starting today, the NRC is transitioning a great portion of its response support efforts to its line organizations, resulting in a reduction in staffing at the Headquarters Operations Center. As such, we will only be issuing the status update once a day at 1200 EDT. The timing and frequency of the updates may change to support evolving needs of the NRC Site Team in Japan.

Please note that this information is "Official Use Only" and is not intended to be shared with other stakeholders without NRC approval.

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

Thank you,
Sara

Sara Mroz
US Nuclear Regulatory Commission
LIA07.HOC@nrc.gov (Operations Center)

VVV/333

From: OST01 HOC
Sent: Monday, April 11, 2011 3:57 PM
To: RST03 Hoc
Subject: boardfile
Attachments: boardfile.docx

MSL/ANR

Operations Center Transition Plan to Reduced Staffing for Fukushima Dai-ichi Event

Based on the Chairman's April 8, 2011 memorandum to the EDO with approval of Operations Center staffing for the Japan event, staff is beginning to transition current staffing levels to a six-person team as described in the memorandum:

"I have been briefed by the staff and understand their proposal recommending a reduction in the Operations Center staffing in response to the event. Provided that adequate support to the site team can be maintained, I approve the staff's recommendation to reduce the Operations Center response team to one team directed by a member of the Executive Team (ET), and consisting of two members from the Reactor Safety Team (RST), one member of the Protective Measures Team (PMT), and one member of the Liaison Team (L T) to provide immediate support to the site team, and one assistant to the ET director. The team should be supplemented as necessary based on workload, and line organizations should be tasked as a high priority for support as needed. The team should be staffed around-the-clock as long as the site team is staffed."

The intent of this document is to detail the actions taken and planned for an orderly transition to the six-person agency watch staff, the associated actions to transfer incoming requests to NRC line organizations, and the subsequent reduction of products delivered by the agency watch team and/or participation in conferences or calls regarding the event. It is expected that each NRC Office will have a central point of contact and a distribution network to properly process and distribute to key available staff members the requests sent by the agency watch team as it continues to support the needs of the Site Team in Japan. The principal roles of the team in the Operations Center are to provide a point of contact for the site team and to ensure that site team needs are met with a similar response time as a fully-staffed Operations Center. The change is that the Operations Center team is not expected to provide support directly, but rather to manage that support from the line organizations. The Operations Center team will provide direct support consistent with the limited resources and available skill sets of the new team size.

Messaging on Transition

NRC is realigning the functions for the Japan Earthquake and Tsunami response to better serve the changing information needs for stakeholders. The following realignment will occur, beginning Monday April 11, 2011:

1. The NRC Site Team in Japan will continue to be staffed at the current level. Additional NRC staff are preparing to depart the U.S. for Japan for turnover to allow some of the current staff to return to the U.S.
2. NRC's line organizations will be leveraged to perform detailed technical analyses previously performed by the full Reactor Support and Protective Measures Teams in the NRC HQ Operations Center.
3. The Headquarters Operations Center will continue to have enhanced staffing around the clock dedicated to this response, but will have fewer individuals per shift in the Operations Center. Their focus will be coordination and communications while shifting

most of the technical work associated with this response to NRC's regular line organizations.

Actions by Team:

Executive Team

1. Continue to update the ET one-pager.
2. Define roles and skills needed for each position.
3. Determine when and if temporary augmentation of the Ops Center staff is needed (when tasks cannot be efficiently or effectively worked through the line organization), which skill sets are needed, and the duration of the augmentation.
4. Change to 2 Commissioners' Assistants (CA) briefings per week starting April 11. Briefings will be Tuesdays and Thursdays at 10 am (CAs notified on 4/10/11 call).
5. Modify Ops Center Status Update as of April 11 to once per day and shorten.
6. Brief TAs on new schedule for status updates. (completed 4/10/11)
7. Determine criteria or date to move team of 6 to the _____ Room?
8. Determine staff for the start of the 6 person team on Monday April 11 – April 16 (completed 4/9/11)
9. Develop implementing plan for new staffing starting April 17.
10. Ensure ODs provide a point of contact for Japan-event related tasks coordinated through the Ops Center. (M. Evans sent an email request to ODs on 4/9/11 to provide a POC.)
11. Ensures consistency in document nomenclature for various documents and responses to information requests. Identify reports/documents to be sunsetted, as more global documents are created and kept up-to-date.

Executive Briefing Team

1. Based on feedback from external stakeholders, the SitRep will continue to be provided in its current format. The update frequency will be reduced to once per day. Obtain input from PMT/RST and issue SitRep daily at NOON EDT.

ET Support Team

1. Update list of calls for ops center.
2. Support staff should have appropriate coordination skills to work with the entire team to facilitate the completion of actions and provide support as needed.
3. Teams should provide information so that support staff can be aware of the existence and location and nomenclature of important documents.
4. Coordinate with the HOOs to schedule and announce non-routine Commissioner Assistance briefings for emergent issues as directed by ET Director (HOOs need 2 hrs to make notifications and setup the voice conferencing system for CA calls).

NSIR Incident Response Staff (weekday dayshift; as part of the line organization)

1. Implement a process for capturing relevant items from various workstations and emails (an auto-forward or bounce-back message may help for emails).
2. Provide SharePoint and WebEOC access and instruction to support staff so that SharePoint can be utilized once the briefing products are consolidated/discontinued.
3. Determine an effective method to track actions, information, and decisions if Chronology is to be discontinued.
4. Address Ops Center operational issues (facility and Ops Center computer system issues)
5. Determine computer work station usage and how to transition to the 6 person team functions.

Protective Measures Team

1. Notify participants on 0930 call – change to weekly. Consider moving to line organizations for conducting weekly calls.
2. Agree with recommendation to go to weekly calls for information exchange on monitoring data (1100).
3. Modify calls with the Japan team to once per day, but team should select the best time.
4. Maintain 1545 radiological community of interest call with PACOM – done in SCIF, supported by Whitney, Uises, and V. Holahan.
5. Modify PACOM J2 calls to on an as-needed basis from 1700 daily.
6. Maintain daily calls w/ V. Holahan, and PACOM.
7. Determine computer work station usage and how to transition to person/shift.

Reactor Safety Team

1. Staff the BWR Expert position with a person with the following skills: Strong BWR experience and continuity in the Japan event in RST area.
2. Staff a Severe Accident/BWR Analyst position with the following skills in priority order: (1) severe accident/PRA, (2) BWR experience, and (3) Ops center function and equipment experience.
3. Assign to the BWR expert the primary responsibility to:
 - a. Lead the overall RST activities for the Japan Event
 - b. Lead periodic calls with the consortium and Japan site team
 - c. Develop assessments on RST activities for Japan site team and appropriate stakeholders.
 - d. Provide recommendation on release of RST assessments to the ET director.
 - e. Develop taskings for line organization to assist site team.
4. Assign to the Severe Accident/BWR analyst the primary responsibility to:
 - a. Provide support to the BWR expert on RST assessments
 - b. Provide updates to Fukushima status update chart
 - c. Coordinate and track external requests going to line organizations

- d. Maintain RST task tracker
5. Move responsibility of the UK/Canada/France call to the line organization or discontinue. Notify participants on Monday, 4/11/11.
6. Consolidate two calls with the industry consortium/Japan team (one at 0300, and one at 1700). Include PMT in both calls. Suspend 1100 consortium call on Tuesday.

Liaison Team

In addition to site team support, the LT member is responsible for providing liaison support to the Operations Center team consistent with normal Liaison Team responsibilities. The LT member will work with the POCs identified in each supporting office (principally OIP, FSME, and OCA) to ensure that tasks, deliverables, and schedules are understood by the appropriate line organization.

The LT member will participate on the following calls:

1. Calls with the site team.
2. 1100 Emergency Support Function (ESF)-8 call – this occurs on Tuesdays only now (state or OIP and LT Coordinator)
3. 1400 USAID Congressional call – this call occurs on Tuesdays only now (OCA and LT Coordinator)
4. 1700 HHS call with 50 states and federal partners – State Liaison and LT Coordinator participate – now down to Tuesdays and Thursdays only

These calls can be handled by the LT member and, at their judgment, by including appropriate program office staff. These calls may stop altogether in the near future due to diminishing interest by other stakeholders.

Actions to Implement Prior to Transition

There are no LT calls that need to be cancelled and no actions required to interact with other stakeholders prior to implementing the new ops center staffing plan.

1. Issue new roster for the revised staffing (Completed 4/9/11 for interim staffing; longer-term staffing will be worked week of April 11).
2. Brief new team on roles/responsibilities
3. Identify POC's for Offices to provide as "reach-back" access, Brief Offices on transition and implications including need for close communications (M. Evans requested Office POCs by email dated 4/9/11)
 - a. FSME –
 - b. NMSS – Doug Weaver
 - c. NRR – Pat Hiland (backup: Dave Skeen)
 - d. NSIR – Michael Dudek
 - e. OPA - ?
 - f. OCA - ?

- g. OIP –Steve Bloom (backup: Danielle EmcheNRO – Jeff Ciocco (backup: Tom Kevern
 - h.
4. Notify stakeholders that the SitRep will be issued once daily.

From: HOO Hoc
Sent: Monday, April 11, 2011 12:17 PM
To: LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Subject: FW: [METI Japan](Apr_11)Update on Seismic and Tsunami Damage Information
Attachments: [METI] Apr 8_0800_Tohoku-Pacific Ocean Earthquake and the Seismic Damages to the NPSs.pdf; Apr_11 Radioactivity Level Map [Chart].pdf

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

From: meti-info@meti.go.jp [mailto:meti-info@meti.go.jp]
Sent: Monday, April 11, 2011 12:13 PM
To: meti-info@meti.go.jp
Subject: [METI Japan](Apr_11)Update on Seismic and Tsunami Damage Information

For your reference, Ministry of Economy, Trade and Industry of Japan (METI) is providing latest information on the seismic and tsunami damages to the nuclear power stations (NPSs) in Japan, including those caused to Fukushima Dai-ichi NPS.

This Monday, the following information has been updated.

---- Today's news ----

We have regular updates as follow.

---- Updates from METI ----

1. [METI] Apr 8_0800_Tohoku-Pacific Ocean Earthquake and the Seismic Damages to the NPSs [Please refer to the attached file]
2. [METI] Apr 11_Radioactivity Level Map Chart [Please refer to the attached file]

---- Updates from NISA ----

3. [NISA] Apr 11 1500_Current Situation of Onagawa, Fukushima Dai-ichi, Fukushima Dai-ni, Tokai Dai-ni NPSs (only Japanese version is now available. English version will be uploaded.)
<http://www.meti.go.jp/press/2011/04/20110411007/20110411007-1.pdf>

[NISA] Apr 8 0800_Current Situation of Onagawa, Fukushima Dai-ichi, Fukushima Dai-ni, Tokai Dai-ni NPSs (English version) <http://www.nisa.meti.go.jp/english/files/en20110411-1-1.pdf>

4. [NISA] Apr 11 0200_Fukushima Dai-ichi Major Parameters of the Plant (only Japanese version is available. English version will be uploaded.) <http://www.meti.go.jp/press/2011/04/20110411003/20110411003-3.pdf>

[NISA] Apr 8 0600_Fukushima Dai-ichi Major Parameters of the Plant (English version)
<http://www.nisa.meti.go.jp/english/files/en20110411-1-3.pdf>

SECRET

---- Major Updates from other agencies of Japanese Government --- 5. [MLIT] Apr 11 PM_Measurement of Radiation Doses in the Ports around Tokyo Bay http://www.mlit.go.jp/kowan/kowan_fr1_000041.html
Currently, the level of radiation in Tokyo City, Yokohama City, Kawasaki City and Ichikawa City (Chiba) were as shown in the attachment at very safe level to health.

6. [MLIT] Apr 11 PM_Measurement of radiation doses around the Metropolitan Airports
http://www.mlit.go.jp/koku/koku_tk7_000003.html
The current level of radiation does not have any effects on human health.

7. [NSC] Apr 10 1645_Assessment of the result of environment monitoring (only Japanese version is available)
http://www.nsc.go.jp/nsc_mnt/110410_1.pdf

If you need to add other e-mail address to this mailing list or do not need our information mail any more, please contact at meti-info@meti.go.jp

=====
International Public Relations Team
Ministry of Economy, Trade and Industry (METI)
1-3-1 Kasumigaseki, Chiyoda-ku, Tokyo 100-8901, Japan E-mail : meti-info@meti.go.jp
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(See attached file: [METI] Apr 8_0800_Tohoku-Pacific Ocean Earthquake and the Seismic Damages to the NPSs.pdf)

(See attached file: Apr_11 Radioactivity Level Map [Chart].pdf)

Tohoku Pacific Earthquake and the seismic damage to the NPSs

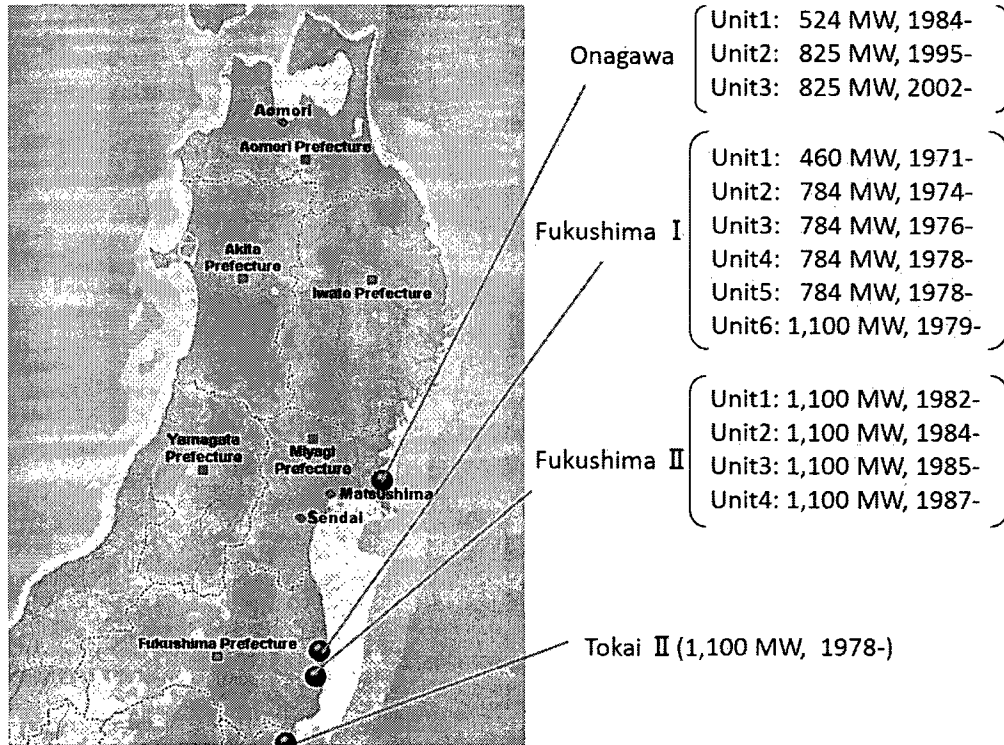
As of 8:00am April 8th, 2011 (JST)
Ministry of Economy, Trade and Industry

Earthquake and automatic shut-down of nuclear reactors

The Tohoku Pacific Earthquake of historic magnitude 9.0 struck the northeastern part of Japan at 14:46 on March 11th, 2011.

At the time of the earthquake occurrence, 3 reactors (Units 4, 5 and 6 at Fukushima Dai-ichi (I) Nuclear Power Station (NPS) of Tokyo Electric Power Co. Inc.(TEPCO)) were under periodic inspection outage, and 11 reactors (Units 1, 2 and 3 at Onagawa NPS of Tohoku Electric Power Co. Ltd.; Units 1, 2 and 3 at Fukushima I NPS of TEPCO; Units 1, 2, 3 and 4 of Fukushima Dai-ni (II) NPS of TEPCO; and an unit of Tokai Dai-ni (II) NPS of Japan Atomic Power Co. Ltd.) were automatically shut-down.

After the automatic shut-down, Units 1, 2 and 3 at Onagawa, Unit 3 at Fukushima II, and the Unit at Tokai II have been cold shut down safely. As for the Units 1, 2 and 4 at Fukushima II, TEPCO operator of the station reported the nuclear emergency situation to Nuclear and Industrial Safety Agency (NISA), but afterward the three units have been cold shut down.



Tsunami damaged the cooling systems at the Fukushima Dai-ichi (I)

Since the external power supply was cut off upon the earthquake occurrence at 14:46 on March 11th, the emergency diesel power generators at Fukushima I automatically started generating electricity and the cooling systems began their operation. Then, the massive earthquake triggered the devastating Tsunami wiping away houses, buildings, cars along the widespread areas of the northeast coast.

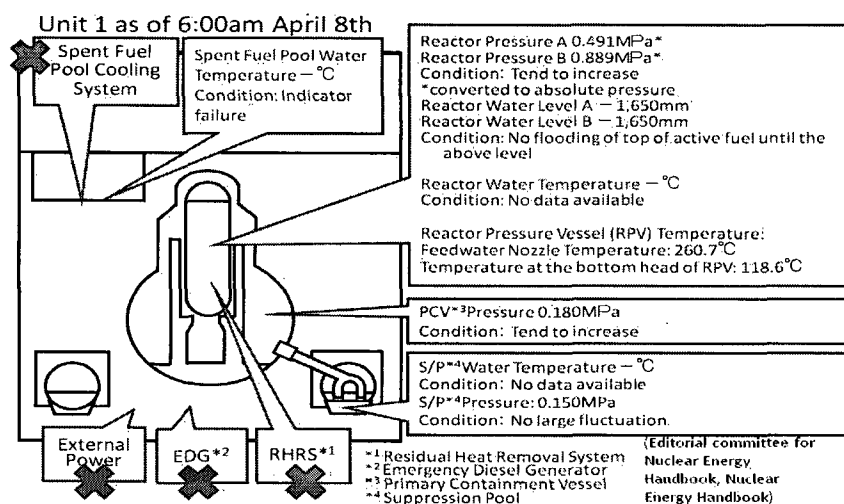
The emergency diesel power generators and the pumps supplying seawater to the cooling system were halted at 15:41 on March 11th due to the Tsunami estimated more than 10 meters high from the seawater level. Fukushima I lost the AC power sources for Unit 1, 2, 3 and 4 and lost function necessary for cooling down the reactor cores (Unit 1, 2 and 3) and spent fuel kept in the pools (Unit 1, 2, 3 and 4) inside reactor buildings. Consequently, the pressure and temperature of reactor cores and the water temperature of spent fuel pools went up.

For counter measures, water is being injected into the reactor pressure vessels of Units 1, 2 and 3. At the same time, police, fire brigade and the Self Defense Forces are attempting to pour water into the spent fuel pool of Units 3 and 4 by spraying seawater from helicopters, water cannon trucks and fire engine. Further, TEPCO engineers are working to restore external power supply to Units 1, 2, 3 and 4 (power supply to Units 5 and 6 was completed) by installing the electricity cable connecting to the transmission line of Tohoku Electric Power Co. Ltd. and other transmission route.

Report concerning incidents at the Fukushima Dai-ichi (I)

Unit 1 Fresh water is being injected to the spent fuel pool and the reactor pressure vessel.

- After the reactor was automatically shut-down and the Tsunami disabled the equipments, the temperature of the reactor core went up and the water level inside the pressure vessel dropped and the reaction of cladding metal of fuel and water generated hydrogen. Vent of the primary containment vessel was operated at 10:17am on March 12th. The hydrogen leaked outside of the containment vessel and caused the explosion at the upper-part of a concrete building housing at 15:36 on March 12th.
- Seawater was being injected into the reactor pressure vessel; thereafter, fresh water is being injected as of 8:00am April 8th, instead of seawater. On March 29th, the pump for the fresh water injection was switched from the fire pump truck to the temporary motor-driven pump.
- On March 31st, spray of fresh water over the spent fuel pool of Unit 1 using the concrete pump truck was carried out. On April 2nd, a test water spray over the spent fuel pool was carried out in order to confirm the appropriate position for water spray.
- Lighting in the main control room was recovered on March 24th. On April 2nd, lighting in the turbine building was partially turned on. And the power supply for the fresh water injection to the reactor pressure vessel was switched to the external power supply on April 3rd.
- White smoke was confirmed to generate continuously as of 6:30am April 8th.
- As the result of concentration measurement, in the stagnant water on the basement floor of the turbine building, $2.1 \times 10^5 \text{ Bq/cm}^3$ of ^{131}I (Iodine) and $1.8 \times 10^6 \text{ Bq/cm}^3$ of ^{137}Cs (Caesium) were detected as major radioactive nuclides. Since around 17:00 March 24th, the stagnant water has been transferred to the condenser. As the condenser was confirmed to be almost filled with water, pumping out the water to the condenser was stopped at 7:30am on March 29th.
- In order to prepare to transfer the stagnant water on the basement floor of the turbine building to the condenser, the water in the condensate storage tank was transferred to the surge tank of suppression pool water (A) (12:00 March 31th). After switching the place where the water was to be transferred to the surge tank of suppression pool water (B) (15:25 March 31th), the transfer was restarted and finished. (15:26 April 2nd) Thereafter, the water in the condenser was transferred to the condensate storage tank at 13:55 on April 3rd.
- Aiming at reducing the possibility of hydrogen combustion in the primary containment vessel of Unit 1, the operations for the injection of nitrogen to the vessel were started at 22:30 on April 6th.
- The start of nitrogen injection to the primary containment vessel of Unit 1 was confirmed. (1:31am April 7th)



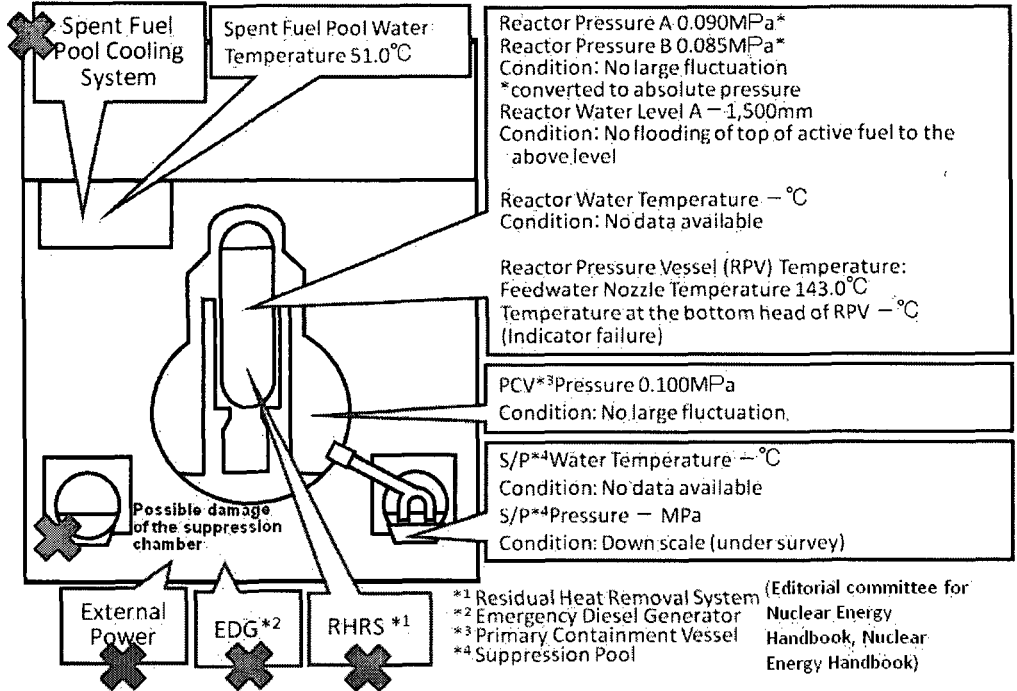
Unit 2 Fresh water is being injected to the spent fuel pool and the reactor pressure vessel.

- After the automatic shut-down of the reactor, the water injection function was sustained, but the reactor water level tended to decrease. And vent of the primary containment vessel was operated at 11:00am on March 13th and at 0:02am on March 15th.
- At 6:10am on March 15th, TEPCO reported that there was an explosion sound at Unit 2. Given the fact that the pressure in the suppression chamber decreased, it is presumed that there is possibility of certain damage on the suppression chamber.
- Seawater was being injected into the reactor pressure vessel; thereafter, fresh water is being injected as of 8:00am April 8th, instead of seawater. On March 27th, the pump for the fresh water injection was switched from the fire pump truck to the temporary motor-driven pump.
- The seawater injection to the spent fuel pool of Unit 2 using the fire pump truck was switched to the fresh water injection using the temporary motor-driven pump on March 29th. On March 30th, April 1st, 4th and 7th, the injection of fresh water to the spent fuel pool via the spent fuel cooling line were carried out. At 3:00am on April 8th, the temperature in the spent fuel pool was 63.0 degree centigrade.
- The power center of Unit 2 received electricity on March 20th. On March 26th, lighting of the main control room was recovered. On April 2nd, lighting in the turbine building was partially turned on. And the power supply for the fresh water injection to the reactor pressure vessel was switched to the external power supply on April 3rd.
- White smoke was confirmed to generate continuously as of 6:30am April 8th.
- In order to prepare for transferring the stagnant water on the basement floor of turbine building to the condenser, the water in the condensate storage tank was transferred to the surge tank of suppression pool water from 16:45 March 29th till 11:50am April 1st. Thereafter, the water in the condenser was transferred to the condensate storage tank at 17:10 on April 2nd, and 13:55 on April 3rd.
- One more pump for the transfer of the water in the condenser of Unit 2 to the condensate storage tank was installed at 15:40 April on 5th.
- The water, of which the dose rate was at the level of more than 1,000 mSv/h, was confirmed to be collected in the pit (a vertical portion of an underground structure) for laying electric cables, located near the intake channel of Unit 2. In addition, the outflow from the crack with a length of around 20 cm in the concrete portion of the lateral surface of the pit into the sea was confirmed. (as of around 9:30 April 2nd) In order to stop the outflow, concrete was started to be poured into the pit. (16:25 and 19:02 April 2nd)
- As the measure to prevent the outflow of the water accumulated in the pits for conduit in the area around the inlet bar screen of Unit 2, the upper part of the power cable trench for power source at the intake channel was crushed and sawdust, high polymer absorbent and cutting-processed newspaper were put inside. (From 13:47 till 14:30 April 3rd)
- The tracer solution was put in from the two holes dug around the pit for the conduit near the inlet bar screen of Unit 2 and was confirmed to be flowed out from the crack to the sea at 14:15 April 5th. The coagulant (soluble glass) started to be injected from the holes around the pit in order to prevent the outflowing of the water at 15:07 April 5th. The outflow of the water was confirmed to stop at around 5:38am April 6th. In addition, it was confirmed that the water level in the turbine building did not rise. Furthermore, the measures to stop water by means of rubber board and jig (prop) were implemented at the outflowing point. (Finished at 13: 15 April 6th)

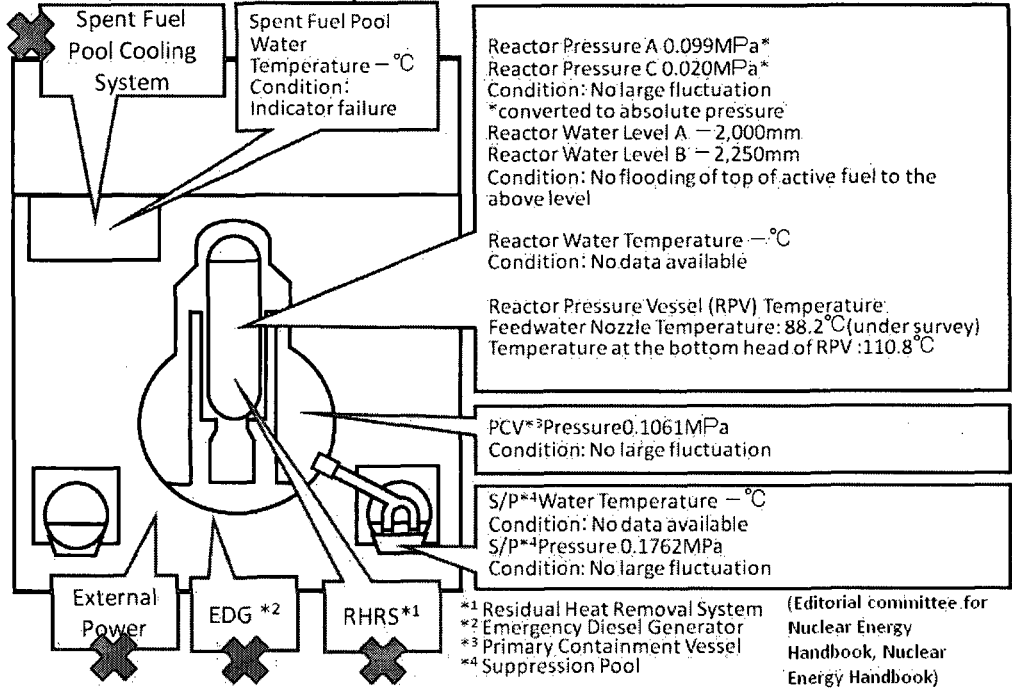
Unit 3 Fresh water is being injected to the spent fuel pool and the reactor pressure vessel.

- After the automatic shut-down of the reactor, fresh water and subsequently seawater were injected into the reactor pressure vessel through the fire extinguishing system line. And vent of the primary containment vessel was operated at 20:41 on March 12th, at 8:41am on March 13th and at 5:20am on March 14th. However, the pressure in the primary containment vessel rose up unusually and the explosion took place around the reactor building at 11:01am on March 14th.
- On March 16th, 21st and 23rd, the smoke (sometimes whitish, grayish or slightly blackish one) was generated from Unit 3 and died down. As of 6:30am April 8th, white smoke was confirmed to generate continuously.
- For counter measures, seawater was being injected into the reactor pressure vessel, thereafter; fresh water was being injected from March 25th, instead of seawater. On March 28th, the pump for the fresh water injection was switched from the fire pump truck to the temporary motor-driven pump. Fresh water is being injected as of 8:00 April 8th.
- At the same time, to pour water into the spent fuel pool, helicopters, water cannon trucks, fire engines and concrete pump trucks discharged water to the spent fuel pool of Unit 3 from sky and ground. Injection of seawater to the spent fuel pool via the cooling and purification line was carried out on March 23rd and March 24th. From March 29th till April 7th, fresh water spray over the spent fuel pool using the concrete pump truck had been carried out five times.
- The pressure in the primary containment vessel of Unit 3 rose. (320 kPa as of 11:00 March 20th) Judging from the situation, immediate pressure relief was not required, and monitoring of the pressure continues. (106.1 kPa as of 1:30am April 8th)
- Works for the recovery of external power supply is being carried out. At 22:43 on March 22nd, lighting in the main control room was recovered. On April 2nd, lighting in the turbine building was partially turned on. And the power supply for the fresh water injection to the reactor pressure vessel was switched to the external power supply at 12:18 on April 3rd.
- In order to prepare for transferring the stagnant water on the basement floor of turbine building to the condenser, the water in the condensate storage tank is being transferred to the surge tank of suppression pool water from 17:40 March 28th till around 8:40am March 31st.

Unit 2 as of 6:00am April 8th

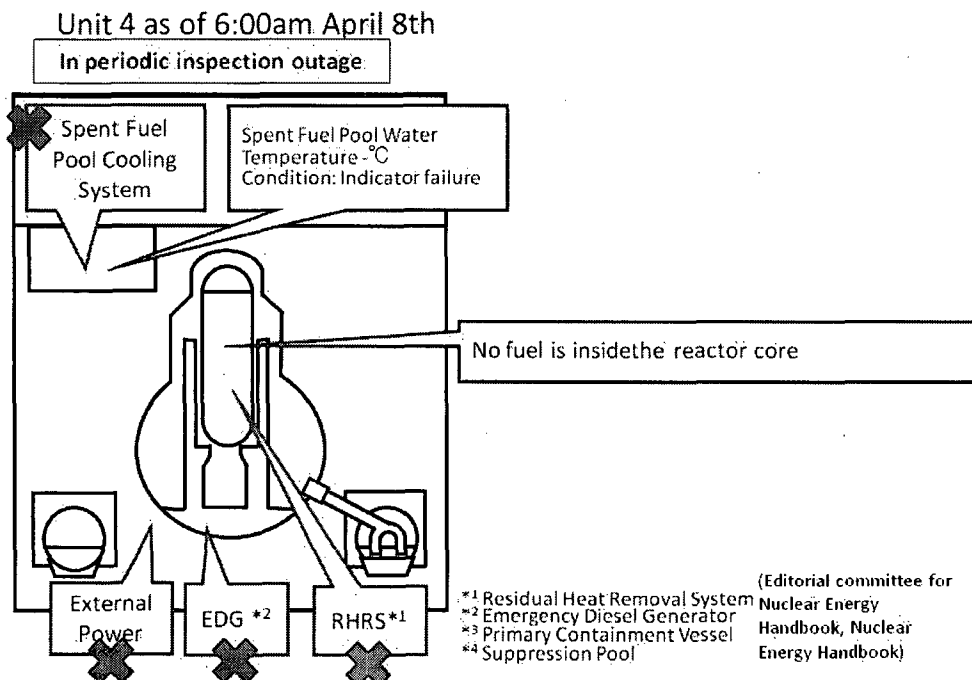


Unit 3 as of 6:00am April 8th



Unit 4 No fuel is in the reactor pressure vessel. Fresh water is being injected to the spent fuel pool.

- There is no fuel in the reactor pressure vessel due to replacement work of the shroud.
- The temperature of water in the spent fuel pool went up. At 4:08am on March 14th, the temperature in the spent fuel pool of Unit 4 was 84 degree centigrade.
- It was confirmed that a part of wall of the operation floor of the reactor building of Unit 4 was damaged at 6:14am on March 15th. A fire took place at Unit 4 at 9:38am, but the fire was extinguished spontaneously as of 11:00am. And at 5:45am on March 16th, it was reported that a fire occurred at Unit 4; however, no fire was confirmed by TEPCO staff on the ground at 6:15am.
- White smoke was confirmed to generate continuously as of 6:30am April 8th.
- Water spray over the spent fuel pool of Unit 4 by Self-Defense Force was carried out three times from March 20th till March 21st. And water spray using a concrete pump truck had been carried out five times with seawater from March 22nd till March 27th and five times with fresh water from March 30th till April 7th. Injection of seawater to the spent fuel pool via the fuel pool cooling line was carried out on March 25th.
- The power center received electricity on March 22nd. On March 29th, lighting in the main control room was recovered. On April 2nd, lighting in the turbine building was partially turned on.
- From April 2nd, the stagnant water in the main building of radioactive waste treatment facilities was being transferred to the turbine building of Unit 4. As the water level in the vertical portion of the trench for Unit 3 rose from 3 April, by way of precaution, the transfer was suspended notwithstanding that the path of the water was not clear.(9:22am April 4th)



Unit 5&6 Unit 5 & 6 is under cold shut down.

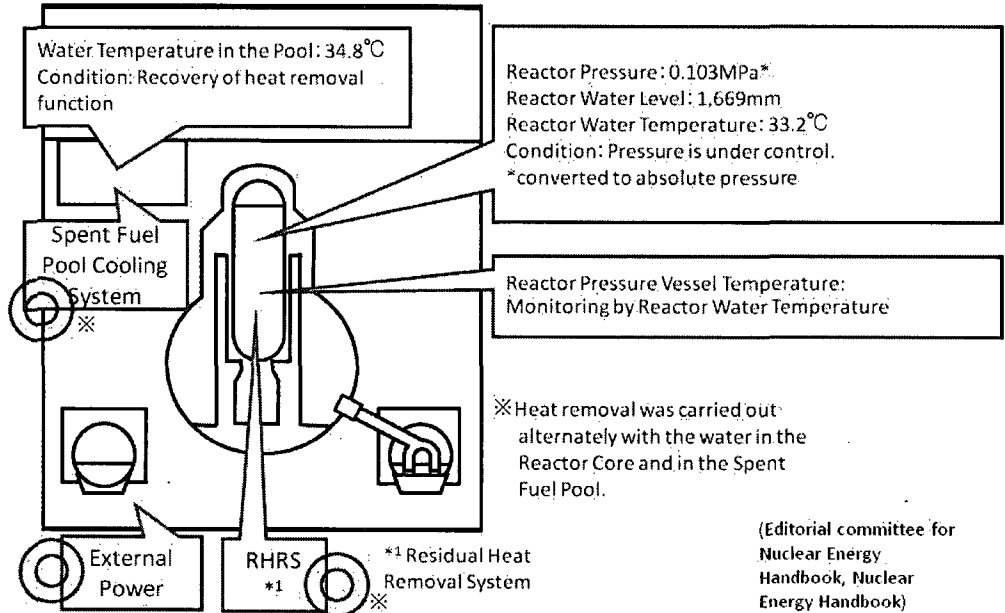
- The emergency generator (B) for Unit 6 was operating and supplying electricity to Unit 5 and Unit 6. Fresh water was being injected into the reactor pressure vessels and the spent fuel pools by make-up water condensate system.
- The pump for residual heat removal system (RHR) (C) for Unit 5 and RHR (B) for Unit 6 started up on March 19th and recovered heat removal function. (power supply: emergency diesel generators for Unit 6)
- Unit 5 was under cold shut down at 14:30 and Unit 6 was under cold shut down at 19:27 on March 20th.
- Unit 5 and Unit 6 received electricity reached to the starting transformer on March 20th. The power supply of Unit 5 and Unit 6 was switched from the emergency diesel generator to the external power supply on March 21st and March 22nd.
- The temporary pump of RHR seawater system (RHRS) for Unit 5 was automatically stopped at 17:24 on March 23rd when the power supply was switched from the temporary to the permanent. Thereafter, repair of the temporary pump of RHRS was completed at 16:14 and cooling was started again at 16:35 on March 24th.
- Power supply for the temporary pumps for RHRS of Unit 6 was switched from the temporary to the permanent at 15:38 and 15:42 on March 25th.
- The temperature of water in the spent fuel pool of Unit 5 and Unit 6 were 34.8 degree centigrade and 28.0 degree centigrade, respectively as of 6:00am April 8th.
- The groundwater with low-level radioactivity in the sub drain pits of Units 5 and 6 (around 1,500t) was started to be discharged through the water discharge canal to the sea at 21:00 April 4th.

Common Spent Fuel Pool

- The power supply was started at 15:37 and cooling was also started at 18:05 on March 24th. As of 7:45am April 7th, the water temperature of the pool was around 28 degree centigrade.

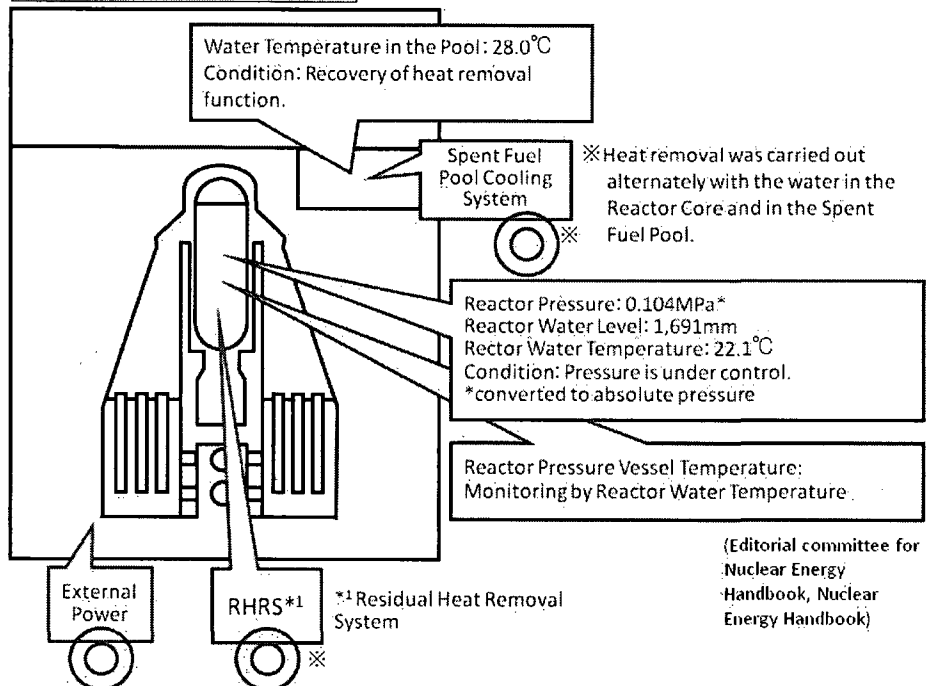
Unit 5 as of 6:00am April 8th

In periodic inspection outage



Unit 6 as of 6:00am April 8th

In periodic inspection outage



Other

- As the result of nuclide analysis at around the southern water discharge canal, $7.4 \times 10^1 \text{ Bq/cm}^3$ of ^{131}I (1850.5 times higher than the limit of concentration of water outside the Environmental Monitoring Area) was detected as of 14:30 March 26th. (As the result of measurement on March 29th, it was detected as 3355.0 times higher than the limit in water.)
- As the result of the analysis at the northern water discharge canal, $4.6 \times 10^1 \text{ Bq/cm}^3$ of ^{131}I (1262.5 times higher than the limit) was detected as of 14:10 March 29th.
- The water was confirmed to be collected in the vertical parts of the trenches (an underground structure for laying pipes, shaped like a tunnel) outside of the turbine building of Units 1 to 3. The dose rates on the water surface were 0.4 mSv/h of the Unit 1's trench and 1,000 mSv/h of the Unit 2's trench. The rate of the Unit 3's trench could not measure because of the rubble. (Around 15:30 March 27th) The water of the Unit 1's was transferred to the storage tank in the main building of radioactive waste treatment facilities by the temporary pump. Thereafter the water level from the top of the vertical part went down from approximately -0.14m to approximately -1.14m. (From 9:20am till 11:25 March 31st)
- In the samples of soil collected on March 21st and 22nd on the site (at 5 points) of Fukushima I, plutonium 238, 239 and 240 were detected (23:45 March 28th announced by TEPCO). The concentration of the detected plutonium was at the equivalent level of the fallout (radioactive fallout) that was observed in Japan concerning the past atmospheric nuclear testing, i.e. at the equivalent level of the normal condition of environment, and was not at the level of having harmful influence on human body.
- In the samples of soil (7 samples in total) collected on 25 March (at 4 points) and 28 March (at 3 points) on the site of Fukushima Dai-ichi NPS, ^{238}Pu (Plutonium), ^{239}Pu (Plutonium) and ^{240}Pu (Plutonium) were detected (18:30 April 6th announced by TEPCO). The concentration of the detected plutonium was, in the same as the last one (Announced on 28 March), at the equivalent level of the fallout (radioactive fallout) that was observed in Japan concerning the past atmospheric nuclear testing, i.e. at the equivalent level of the normal condition of environment, and was not at the level of having harmful influence on human body.
- On March 28th, the stagnant water was confirmed in the main building of radioactive waste treatment facilities. As the result of analysis of radioactivity, the total amount of the radioactivity $1.2 \times 10^1 \text{ Bq/cm}^3$ in the controlled area and that of $2.2 \times 10^1 \text{ Bq/cm}^3$ in the non-controlled area were detected in March 29th.
- The barge (the first ship) of the US armed forces carrying fresh water for cooling reactors, etc. landed in the exclusive port of the power station, being towed by the ships of Japan Maritime Self-Defense Force. (15:42 March 31st) The transfer of fresh water from the barge to the filtrate tank was started. (15:58 April 1st) Thereafter it was suspended due to the malfunction of the hose (16:25 April 1st), but was carried out from 10:20am till 16:40 April 2nd.
- The barge (the second ship) of the US armed forces carrying fresh water for cooling reactors, etc. landed in the exclusive port of the power station, being towed by the ships of Japan Maritime Self-Defense Force. (9:10am April 2nd)
- The spraying for test scattering of anti-scattering agent was carried out in the area of about 500 m² on the mountain-side of the Common Pool. (From 15:00 till 16:05 April 1st)
- The freshwater was transferred from the barge (the second ship) of the US armed force to the other barge (the first ship). (From 09:52 till 11:15 April 3rd)

- The stagnant water with low-level radioactivity in the main building of radioactive waste treatment facilities (Around 10,000t) was started to be discharged from the southern side of the water discharge canal to the sea, using the first pump at 19:03 April 4th. Further, at 19:07 on the same day, the discharge using 10 pumps in total was carried out.
- In order to prevent the contaminated water from outflowing from the exclusive port, the work for stopping water by means of large-sized sandbags was implemented around the seawall on the south side of the NPS. (From 15:00 till 16:30 April 5th)
- The test scattering of antiscattering agent to prevent the radioactive materials on the ground surface from being scattered was carried out in the area of about 600 m² on the mountain-side of the Common Pool. (April 5th, 6th)

Current Situation

- Evacuation as far as 20 kilometers from Fukushima I NPS and 10 kilometers from Fukushima II NPS was almost completed (see the diagram “Fukushima prefecture”). The residents in the areas from 20 kilometers to 30 kilometers radius from Fukushima I NPS are directed to stay in-house.
- On March 16th, the Local Emergency Response Headquarter issued “the direction to administer the stable Iodine during evacuation from the evacuation area (20 km radius)” to the Prefecture Governors and the heads of cities, towns and villages.

Monitoring Data

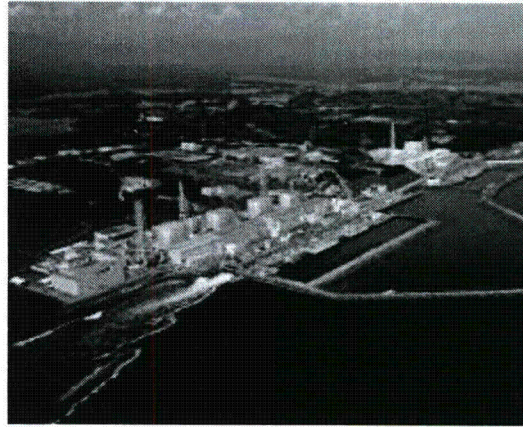
1) The data of Monitoring Post out of 20 kilometers zone of Fukushima I NPS is available on the following website:

http://www.mext.go.jp/a_menu/saigaijohou/syousai/1303726.htm

2) The real-time radiation data collected via the System for Prediction of Environment Emergency Dose Information (SPEEDI) is available on the following website:

<http://www.bousai.ne.jp/eng/>

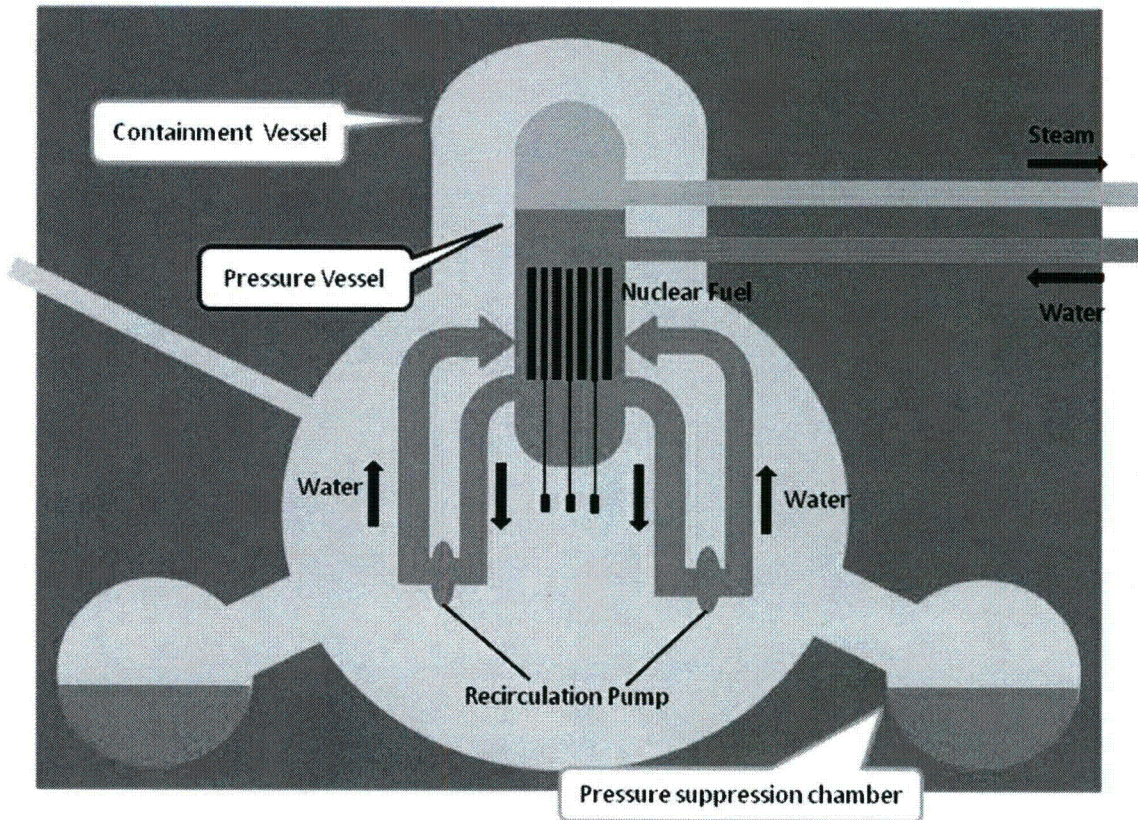
Outline of the Fukushima I Nuclear Power Station



(Fukushima Dai-ichi nuclear power station)

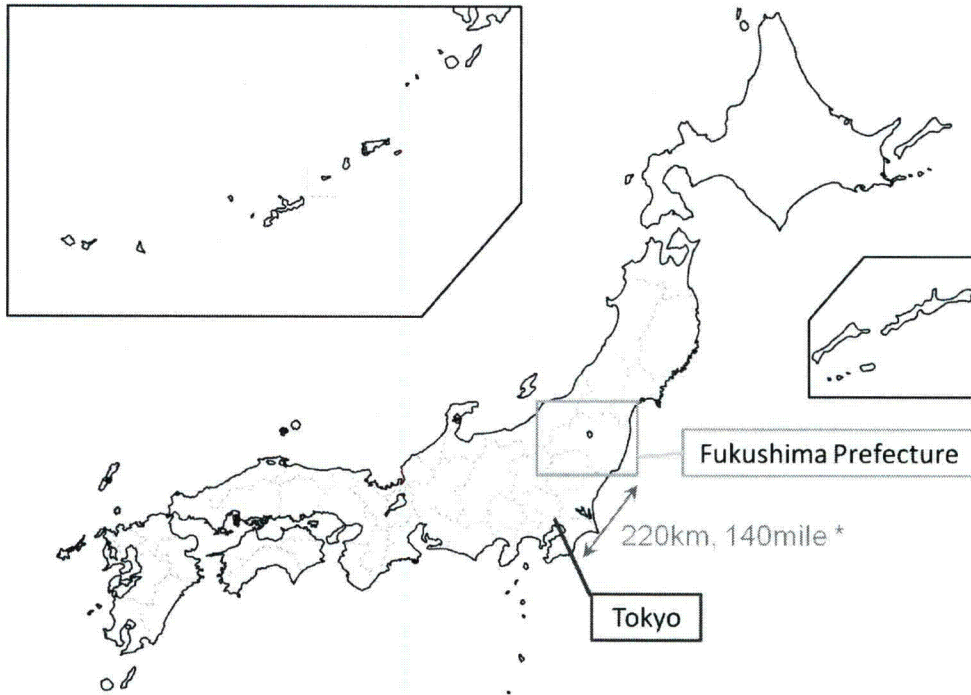


Concrete Building Housing

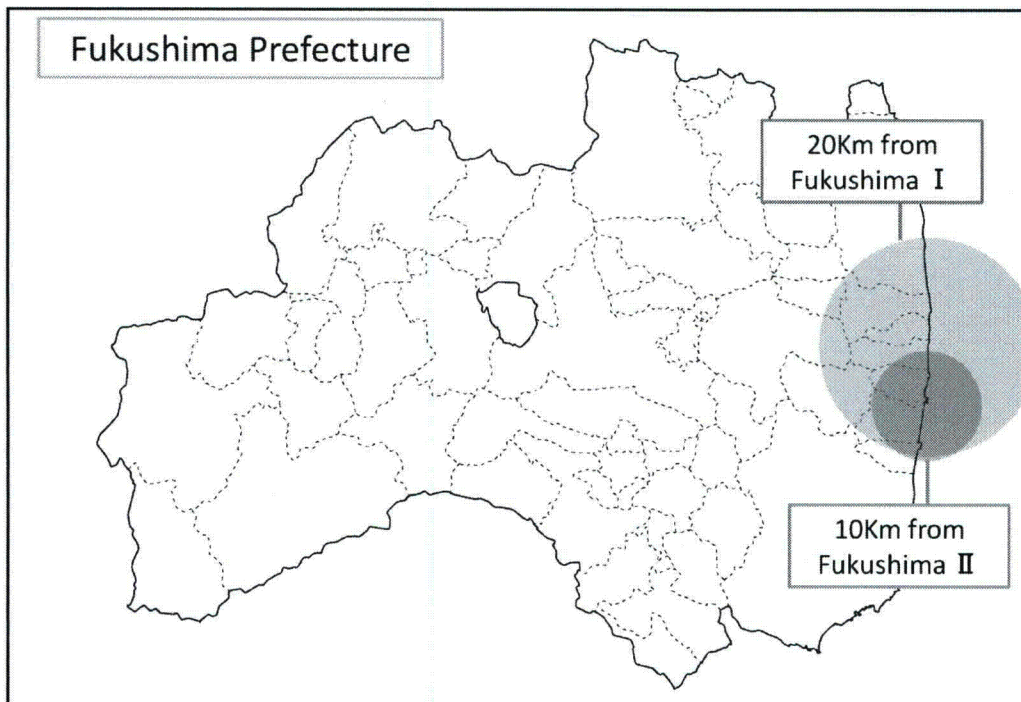


(Structure of BWR)

Location of Fukushima I and II in Japan



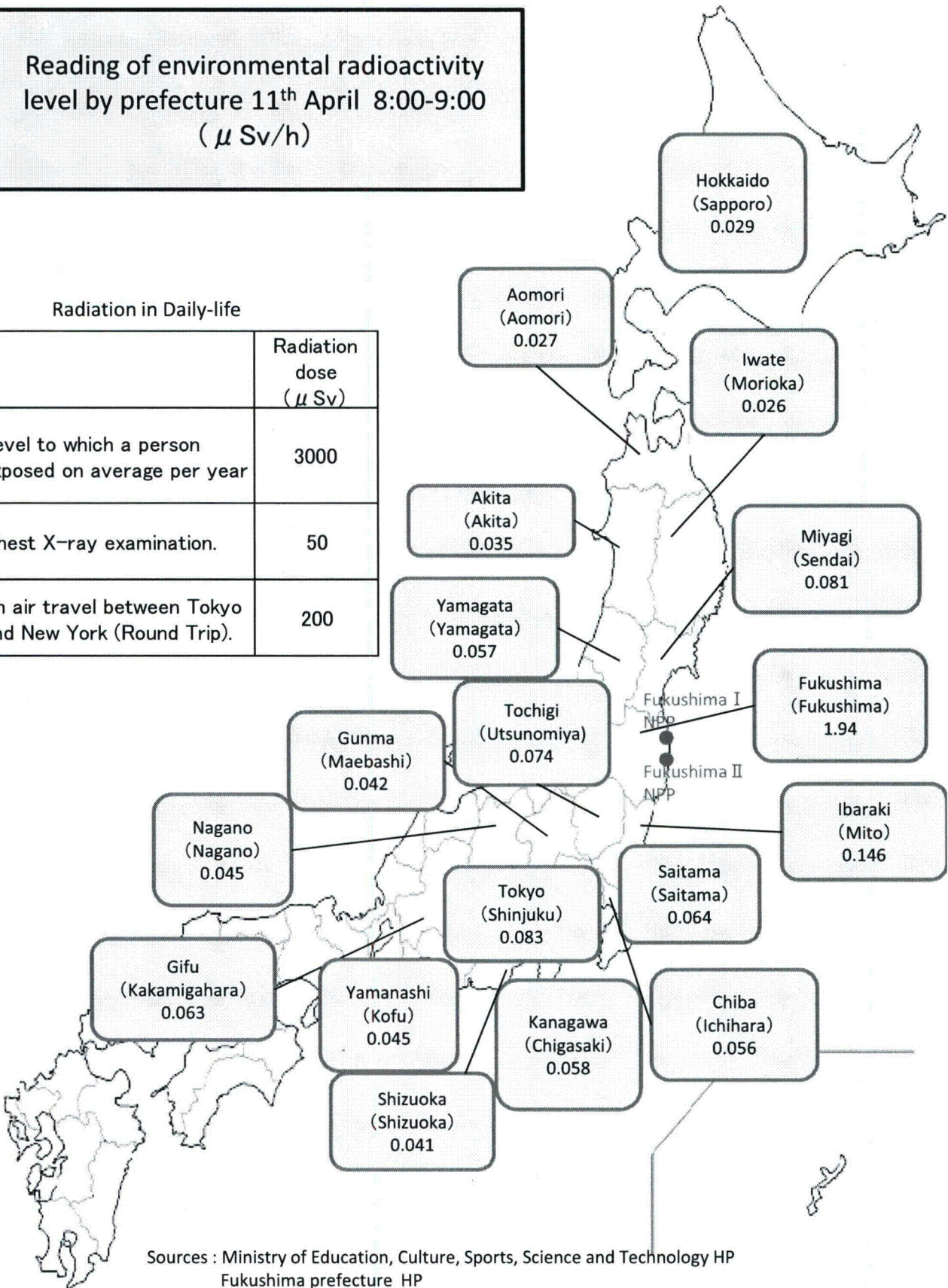
*Distance between Three Mile Island and Washington D.C. 140 km, 88mile



Reading of environmental radioactivity level by prefecture 11th April 8:00-9:00 (μ Sv/h)

Radiation in Daily-life

	Radiation dose (μ Sv)
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 and Technology HP
Fukushima prefecture HP

From: LIA08 Hoc
Sent: Monday, April 11, 2011 9:37 PM
To: OST01 HOC; Carpenter, Cynthia
Subject: FW: Tasker for OCFO from Ops Center Executive Team: Transition From USAID to NRC of Support of Japan Team (Tasker #4604)

FYI

Clyde Ragland
Liaison Team Coordinator
US Nuclear Regulatory Commission
Email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: LIA08 Hoc
Sent: Monday, April 11, 2011 9:25 PM
To: Brown, Milton
Subject: Tasker for OCFO from Ops Center Executive Team: Transition From USAID to NRC of Support of Japan Team (Tasker #4604)

Desc: Determine the strategy to replace current support provided by USAID for coordinating NRC personnel regarding getting to and returning from Japan and logistics and support while in Japan (eg. hotels, etc.). Need Points of Contact in Program offices to support staff in Japan.

Note: DART team leaves at the end of April

Response: Per M. Virgilio, strategy is for OCFO to send USAID a 2-week notice this week informing them that NRC will take over funding of NRC personnel by May 1.

Mr Brown:

According to Mr. Virgilio, OCFO should take the lead in making this transition from USAID to NRC. Request your assistance in providing the necessary support to make sure this happens. Thank you.

Clyde Ragland
Liaison Team Coordinator
US Nuclear Regulatory Commission
Email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

955 | 336
VNV

From: HOO Hoc
Sent: Monday, April 11, 2011 12:17 PM
To: LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Subject: FW: [METI Japan](Apr_11)Update on Seismic and Tsunami Damage Information
Attachments: [METI] Apr 8_0800_Tohoku-Pacific Ocean Earthquake and the Seismic Damages to the NPSs.pdf; Apr_11 Radioactivity Level Map [Chart].pdf

FYI

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: meti-info@meti.go.jp [mailto:meti-info@meti.go.jp]
Sent: Monday, April 11, 2011 12:13 PM
To: meti-info@meti.go.jp
Subject: [METI Japan](Apr_11)Update on Seismic and Tsunami Damage Information

For your reference, Ministry of Economy, Trade and Industry of Japan (METI) is providing latest information on the seismic and tsunami damages to the nuclear power stations (NPSs) in Japan, including those caused to Fukushima Dai-ichi NPS.

This Monday, the following information has been updated.

---- Today's news ----

We have regular updates as follow.

---- Updates from METI ----

1. [METI] Apr 8_0800_Tohoku-Pacific Ocean Earthquake and the Seismic Damages to the NPSs [Please refer to the attached file]
2. [METI] Apr 11_Radioactivity Level Map Chart [Please refer to the attached file]

---- Updates from NISA ----

3. [NISA] Apr 11 1500_Current Situation of Onagawa, Fukushima Dai-ichi, Fukushima Dai-ni, Tokai Dai-ni NPSs (only Japanese version is now available. English version will be uploaded.)
<http://www.meti.go.jp/press/2011/04/20110411007/20110411007-1.pdf>

VVV/337

[NISA] Apr 8 0800_Current Situation of Onagawa, Fukushima Dai-ichi, Fukushima Dai-ni, Tokai Dai-ni NPSs (English version) <http://www.nisa.meti.go.jp/english/files/en20110411-1-1.pdf>

4. [NISA] Apr 11 0200_Fukushima Dai-ichi Major Parameters of the Plant (only Japanese version is available. English version will be uploaded.) <http://www.meti.go.jp/press/2011/04/20110411003/20110411003-3.pdf>

[NISA] Apr 8 0600_Fukushima Dai-ichi Major Parameters of the Plant (English version)
<http://www.nisa.meti.go.jp/english/files/en20110411-1-3.pdf>

---- Major Updates from other agencies of Japanese Government --- 5. [MLIT] Apr 11 PM_Measurement of Radiation Doses in the Ports around Tokyo Bay http://www.mlit.go.jp/kowan/kowan_fr1_000041.html
Currently, the level of radiation in Tokyo City, Yokohama City, Kawasaki City and Ichikawa City (Chiba) were as shown in the attachment at very safe level to health.

6. [MLIT] Apr 11 PM_Measurement of radiation doses around the Metropolitan Airports
http://www.mlit.go.jp/koku/koku_tk7_000003.html
The current level of radiation does not have any effects on human health.

7. [NSC] Apr 10 1645_Assessment of the result of environment monitoring (only Japanese version is available)
http://www.nsc.go.jp/nsc_mnt/110410_1.pdf

If you need to add other e-mail address to this mailing list or do not need our information mail any more, please contact at meti-info@meti.go.jp

=====
International Public Relations Team
Ministry of Economy, Trade and Industry (METI)
1-3-1 Kasumigaseki, Chiyoda-ku, Tokyo 100-8901, Japan E-mail : meti-info@meti.go.jp
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(See attached file: [METI] Apr 8_0800_Tohoku-Pacific Ocean Earthquake and the Seismic Damages to the NPSs.pdf)

(See attached file: Apr_11 Radioactivity Level Map [Chart].pdf)

Tohoku Pacific Earthquake and the seismic damage to the NPSs

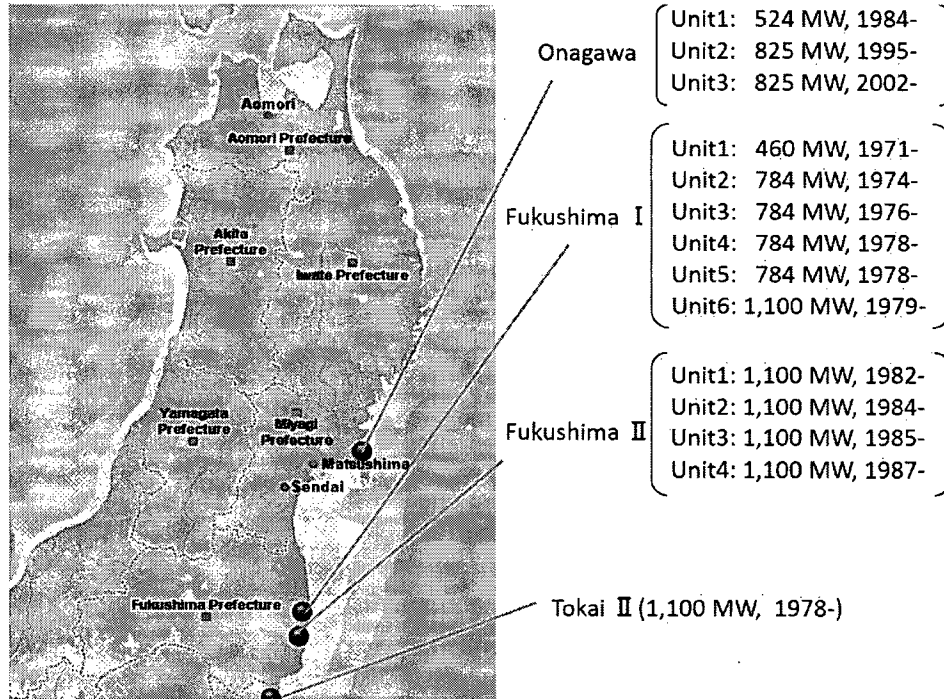
As of 8:00am April 8th, 2011 (JST)
Ministry of Economy, Trade and Industry

Earthquake and automatic shut-down of nuclear reactors

The Tohoku Pacific Earthquake of historic magnitude 9.0 struck the northeastern part of Japan at 14:46 on March 11th, 2011.

At the time of the earthquake occurrence, 3 reactors (Units 4, 5 and 6 at Fukushima Dai-ichi (I) Nuclear Power Station (NPS) of Tokyo Electric Power Co. Inc.(TEPCO)) were under periodic inspection outage, and 11 reactors (Units 1, 2 and 3 at Onagawa NPS of Tohoku Electric Power Co. Ltd.; Units 1, 2 and 3 at Fukushima I NPS of TEPCO; Units 1, 2, 3 and 4 of Fukushima Dai-ichi (II) NPS of TEPCO; and an unit of Tokai Dai-ichi (II) NPS of Japan Atomic Power Co. Ltd.) were automatically shut-down.

After the automatic shut-down, Units 1, 2 and 3 at Onagawa, Unit 3 at Fukushima II, and the Unit at Tokai II have been cold shut down safely. As for the Units 1, 2 and 4 at Fukushima II, TEPCO operator of the station reported the nuclear emergency situation to Nuclear and Industrial Safety Agency (NISA), but afterward the three units have been cold shut down.



Tsunami damaged the cooling systems at the Fukushima Dai-ichi (I)

Since the external power supply was cut off upon the earthquake occurrence at 14:46 on March 11th, the emergency diesel power generators at Fukushima I automatically started generating electricity and the cooling systems began their operation. Then, the massive earthquake triggered the devastating Tsunami wiping away houses, buildings, cars along the widespread areas of the northeast coast.

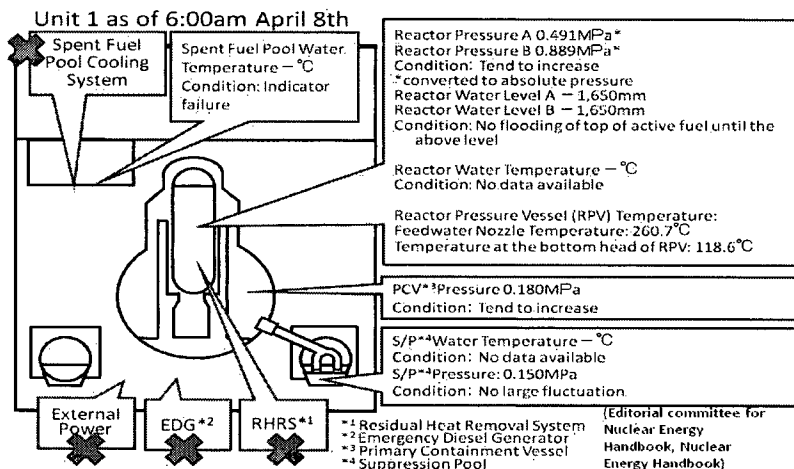
The emergency diesel power generators and the pumps supplying seawater to the cooling system were halted at 15:41 on March 11th due to the Tsunami estimated more than 10 meters high from the seawater level. Fukushima I lost the AC power sources for Unit 1, 2, 3 and 4 and lost function necessary for cooling down the reactor cores (Unit1,2 and 3) and spent fuel kept in the pools (Unit1,2,3 and 4) inside reactor buildings. Consequently, the pressure and temperature of reactor cores and the water temperature of spent fuel pools went up.

For counter measures, water is being injected into the reactor pressure vessels of Units 1, 2 and 3. At the same time, police, fire brigade and the Self Defense Forces are attempting to pour water into the spent fuel pool of Units 3 and 4 by spraying seawater from helicopters, water cannon trucks and fire engine. Further, TEPCO engineers are working to restore external power supply to Units 1, 2, 3 and 4 (power supply to Units 5 and 6 was completed) by installing the electricity cable connecting to the transmission line of Tohoku Electric Power Co. Ltd. and other transmission route.

Report concerning incidents at the Fukushima Dai-ichi (I)

Unit 1 Fresh water is being injected to the spent fuel pool and the reactor pressure vessel.

- After the reactor was automatically shut-down and the Tsunami disabled the equipments, the temperature of the reactor core went up and the water level inside the pressure vessel dropped and the reaction of cladding metal of fuel and water generated hydrogen. Vent of the primary containment vessel was operated at 10:17am on March 12th. The hydrogen leaked outside of the containment vessel and caused the explosion at the upper-part of a concrete building housing at 15:36 on March 12th.
- Seawater was being injected into the reactor pressure vessel; thereafter, fresh water is being injected as of 8:00am April 8th, instead of seawater. On March 29th, the pump for the fresh water injection was switched from the fire pump truck to the temporary motor-driven pump.
- On March 31st, spray of fresh water over the spent fuel pool of Unit 1 using the concrete pump truck was carried out. On April 2nd, a test water spray over the spent fuel pool was carried out in order to confirm the appropriate position for water spray.
- Lighting in the main control room was recovered on March 24th. On April 2nd, lighting in the turbine building was partially turned on. And the power supply for the fresh water injection to the reactor pressure vessel was switched to the external power supply on April 3rd.
- White smoke was confirmed to generate continuously as of 6:30am April 8th.
- As the result of concentration measurement, in the stagnant water on the basement floor of the turbine building, $2.1 \times 10^5 \text{ Bq/cm}^3$ of ^{131}I (Iodine) and $1.8 \times 10^6 \text{ Bq/cm}^3$ of ^{137}Cs (Caesium) were detected as major radioactive nuclides. Since around 17:00 March 24th, the stagnant water has been transferred to the condenser. As the condenser was confirmed to be almost filled with water, pumping out the water to the condenser was stopped at 7:30am on March 29th.
- In order to prepare to transfer the stagnant water on the basement floor of the turbine building to the condenser, the water in the condensate storage tank was transferred to the surge tank of suppression pool water (A) (12:00 March 31th). After switching the place where the water was to be transferred to the surge tank of suppression pool water (B) (15:25 March 31th), the transfer was restarted and finished. (15:26 April 2nd) Thereafter, the water in the condenser was transferred to the condensate storage tank at 13:55 on April 3rd.
- Aiming at reducing the possibility of hydrogen combustion in the primary containment vessel of Unit 1, the operations for the injection of nitrogen to the vessel were started at 22:30 on April 6th.
- The start of nitrogen injection to the primary containment vessel of Unit 1 was confirmed. (1:31am April 7th)



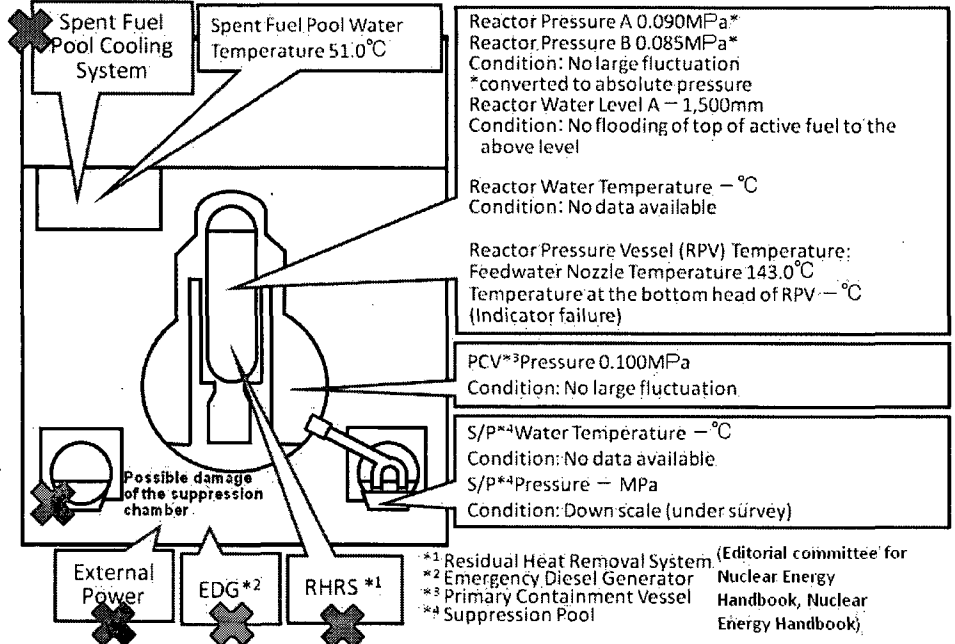
Unit 2 Fresh water is being injected to the spent fuel pool and the reactor pressure vessel.

- After the automatic shut-down of the reactor, the water injection function was sustained, but the reactor water level tended to decrease. And vent of the primary containment vessel was operated at 11:00am on March 13th and at 0:02am on March 15th.
- At 6:10am on March 15th, TEPCO reported that there was an explosion sound at Unit 2. Given the fact that the pressure in the suppression chamber decreased, it is presumed that there is possibility of certain damage on the suppression chamber.
- Seawater was being injected into the reactor pressure vessel; thereafter, fresh water is being injected as of 8:00am April 8th, instead of seawater. On March 27th, the pump for the fresh water injection was switched from the fire pump truck to the temporary motor-driven pump.
- The seawater injection to the spent fuel pool of Unit 2 using the fire pump truck was switched to the fresh water injection using the temporary motor-driven pump on March 29th. On March 30th, April 1st, 4th and 7th, the injection of fresh water to the spent fuel pool via the spent fuel cooling line were carried out. At 3:00am on April 8th, the temperature in the spent fuel pool was 63.0 degree centigrade.
- The power center of Unit 2 received electricity on March 20th. On March 26th, lighting of the main control room was recovered. On April 2nd, lighting in the turbine building was partially turned on. And the power supply for the fresh water injection to the reactor pressure vessel was switched to the external power supply on April 3rd.
- White smoke was confirmed to generate continuously as of 6:30am April 8th.
- In order to prepare for transferring the stagnant water on the basement floor of turbine building to the condenser, the water in the condensate storage tank was transferred to the surge tank of suppression pool water from 16:45 March 29th till 11:50am April 1st. Thereafter, the water in the condenser was transferred to the condensate storage tank at 17:10 on April 2nd, and 13:55 on April 3rd.
- One more pump for the transfer of the water in the condenser of Unit 2 to the condensate storage tank was installed at 15:40 April on 5th.
- The water, of which the dose rate was at the level of more than 1,000 mSv/h, was confirmed to be collected in the pit (a vertical portion of an underground structure) for laying electric cables, located near the intake channel of Unit 2. In addition, the outflow from the crack with a length of around 20 cm in the concrete portion of the lateral surface of the pit into the sea was confirmed. (as of around 9:30 April 2nd) In order to stop the outflow, concrete was started to be poured into the pit. (16:25 and 19:02 April 2nd)
- As the measure to prevent the outflow of the water accumulated in the pits for conduit in the area around the inlet bar screen of Unit 2, the upper part of the power cable trench for power source at the intake channel was crushed and sawdust, high polymer absorbent and cutting-processed newspaper were put inside. (From 13:47 till 14:30 April 3rd)
- The tracer solution was put in from the two holes dug around the pit for the conduit near the inlet bar screen of Unit 2 and was confirmed to be flowed out from the crack to the sea at 14:15 April 5th. The coagulant (soluble glass) started to be injected from the holes around the pit in order to prevent the outflowing of the water at 15:07 April 5th. The outflow of the water was confirmed to stop at around 5:38am April 6th. In addition, it was confirmed that the water level in the turbine building did not rise. Furthermore, the measures to stop water by means of rubber board and jig (prop) were implemented at the outflowing point. (Finished at 13: 15 April 6th)

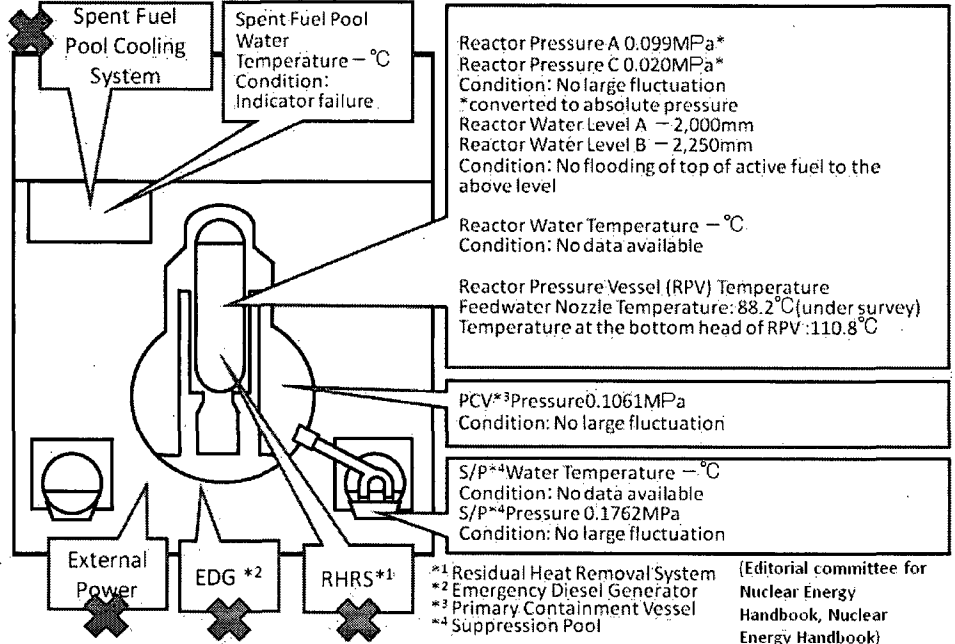
Unit 3 Fresh water is being injected to the spent fuel pool and the reactor pressure vessel.

- After the automatic shut-down of the reactor, fresh water and subsequently seawater were injected into the reactor pressure vessel through the fire extinguishing system line. And vent of the primary containment vessel was operated at 20:41 on March 12th, at 8:41am on March 13th and at 5:20am on March 14th. However, the pressure in the primary containment vessel rose up unusually and the explosion took place around the reactor building at 11:01am on March 14th.
- On March 16th, 21st and 23rd, the smoke (sometimes whitish, grayish or slightly blackish one) was generated from Unit 3 and died down. As of 6:30am April 8th, white smoke was confirmed to generate continuously.
- For counter measures, seawater was being injected into the reactor pressure vessel, thereafter; fresh water was being injected from March 25th, instead of seawater. On March 28th, the pump for the fresh water injection was switched from the fire pump truck to the temporary motor-driven pump. Fresh water is being injected as of 8:00 April 8th.
- At the same time, to pour water into the spent fuel pool, helicopters, water cannon trucks, fire engines and concrete pump trucks discharged water to the spent fuel pool of Unit 3 from sky and ground. Injection of seawater to the spent fuel pool via the cooling and purification line was carried out on March 23rd and March 24th. From March 29th till April 7th, fresh water spray over the spent fuel pool using the concrete pump truck had been carried out five times.
- The pressure in the primary containment vessel of Unit 3 rose. (320 kPa as of 11:00 March 20th) Judging from the situation, immediate pressure relief was not required, and monitoring of the pressure continues. (106.1 kPa as of 1:30am April 8th)
- Works for the recovery of external power supply is being carried out. At 22:43 on March 22nd, lighting in the main control room was recovered. On April 2nd, lighting in the turbine building was partially turned on. And the power supply for the fresh water injection to the reactor pressure vessel was switched to the external power supply at 12:18 on April 3rd.
- In order to prepare for transferring the stagnant water on the basement floor of turbine building to the condenser, the water in the condensate storage tank is being transferred to the surge tank of suppression pool water from 17:40 March 28th till around 8:40am March 31st.

Unit 2 as of 6:00am April 8th

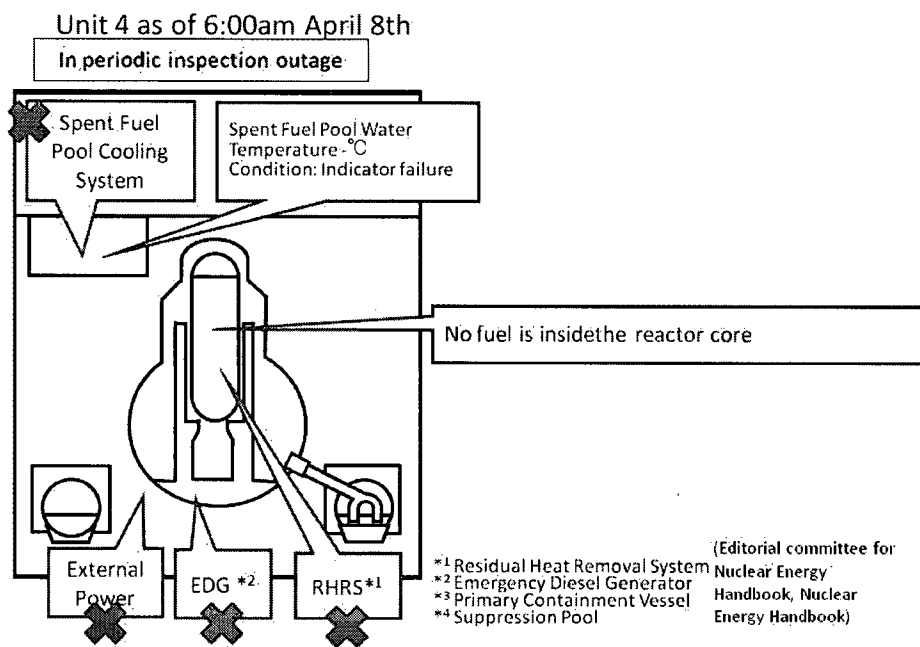


Unit 3 as of 6:00am April 8th



Unit 4 No fuel is in the reactor pressure vessel. Fresh water is being injected to the spent fuel pool.

- There is no fuel in the reactor pressure vessel due to replacement work of the shroud.
- The temperature of water in the spent fuel pool went up. At 4:08am on March 14th, the temperature in the spent fuel pool of Unit 4 was 84 degree centigrade.
- It was confirmed that a part of wall of the operation floor of the reactor building of Unit 4 was damaged at 6:14am on March 15th. A fire took place at Unit 4 at 9:38am, but the fire was extinguished spontaneously as of 11:00am. And at 5:45am on March 16th, it was reported that a fire occurred at Unit 4; however, no fire was confirmed by TEPCO staff on the ground at 6:15am.
- White smoke was confirmed to generate continuously as of 6:30am April 8th.
- Water spray over the spent fuel pool of Unit 4 by Self-Defense Force was carried out three times from March 20th till March 21st. And water spray using a concrete pump truck had been carried out five times with seawater from March 22nd till March 27th and five times with fresh water from March 30th till April 7th. Injection of seawater to the spent fuel pool via the fuel pool cooling line was carried out on March 25th.
- The power center received electricity on March 22nd. On March 29th, lighting in the main control room was recovered. On April 2nd, lighting in the turbine building was partially turned on.
- From April 2nd, the stagnant water in the main building of radioactive waste treatment facilities was being transferred to the turbine building of Unit 4. As the water level in the vertical portion of the trench for Unit 3 rose from 3 April, by way of precaution, the transfer was suspended notwithstanding that the path of the water was not clear.(9:22am April 4th)



Unit 5&6 Unit 5 & 6 is under cold shut down.

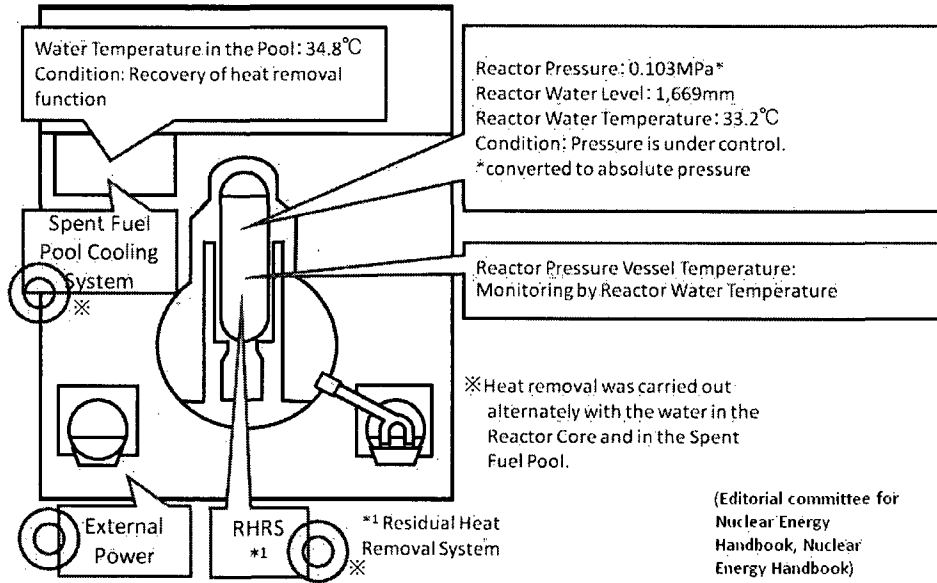
- The emergency generator (B) for Unit 6 was operating and supplying electricity to Unit 5 and Unit 6. Fresh water was being injected into the reactor pressure vessels and the spent fuel pools by make-up water condensate system.
- The pump for residual heat removal system (RHR) (C) for Unit 5 and RHR (B) for Unit 6 started up on March 19th and recovered heat removal function. (power supply: emergency diesel generators for Unit 6)
- Unit 5 was under cold shut down at 14:30 and Unit 6 was under cold shut down at 19:27 on March 20th.
- Unit 5 and Unit 6 received electricity reached to the starting transformer on March 20th. The power supply of Unit 5 and Unit 6 was switched from the emergency diesel generator to the external power supply on March 21st and March 22nd.
- The temporary pump of RHR seawater system (RHRS) for Unit 5 was automatically stopped at 17:24 on March 23rd when the power supply was switched from the temporary to the permanent. Thereafter, repair of the temporary pump of RHRS was completed at 16:14 and cooling was started again at 16:35 on March 24th.
- Power supply for the temporary pumps for RHRS of Unit 6 was switched from the temporary to the permanent at 15:38 and 15:42 on March 25th.
- The temperature of water in the spent fuel pool of Unit 5 and Unit 6 were 34.8 degree centigrade and 28.0 degree centigrade, respectively as of 6:00am April 8th.
- The groundwater with low-level radioactivity in the sub drain pits of Units 5 and 6 (around 1,500t) was started to be discharged through the water discharge canal to the sea at 21:00 April 4th.

Common Spent Fuel Pool

- The power supply was started at 15:37 and cooling was also started at 18:05 on March 24th. As of 7:45am April 7th, the water temperature of the pool was around 28 degree centigrade.

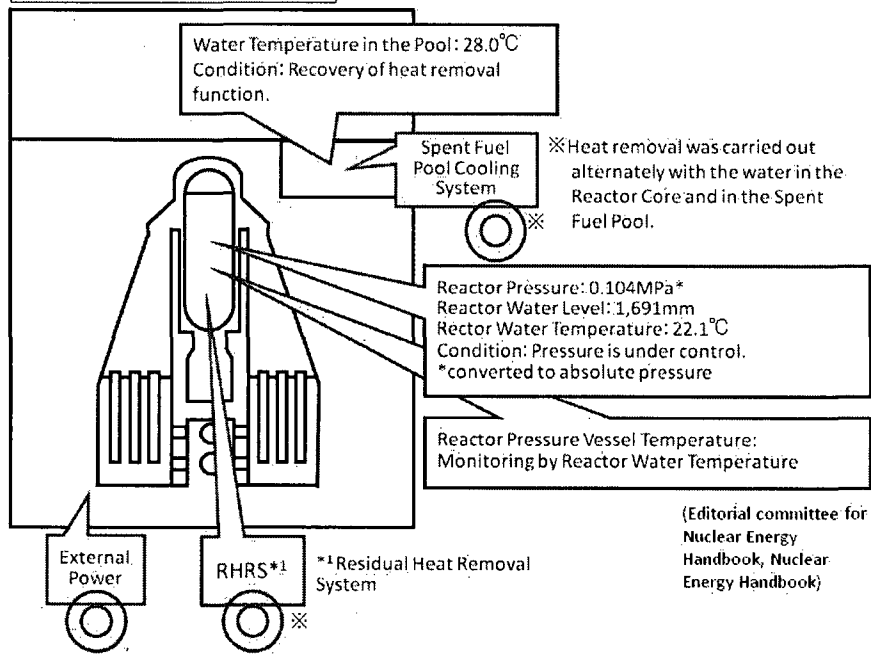
Unit 5 as of 6:00am April 8th

In periodic inspection outage



Unit 6 as of 6:00am April 8th

In periodic inspection outage



Other

- As the result of nuclide analysis at around the southern water discharge canal, $7.4 \times 10^1 \text{ Bq/cm}^3$ of ^{131}I (1850.5 times higher than the limit of concentration of water outside the Environmental Monitoring Area) was detected as of 14:30 March 26th. (As the result of measurement on March 29th, it was detected as 3355.0 times higher than the limit in water.)
- As the result of the analysis at the northern water discharge canal, $4.6 \times 10^1 \text{ Bq/cm}^3$ of ^{131}I (1262.5 times higher than the limit) was detected as of 14:10 March 29th.
- The water was confirmed to be collected in the vertical parts of the trenches (an underground structure for laying pipes, shaped like a tunnel) outside of the turbine building of Units 1 to 3. The dose rates on the water surface were 0.4 mSv/h of the Unit 1's trench and 1,000 mSv/h of the Unit 2's trench. The rate of the Unit 3's trench could not measure because of the rubble. (Around 15:30 March 27th) The water of the Unit 1's was transferred to the storage tank in the main building of radioactive waste treatment facilities by the temporary pump. Thereafter the water level from the top of the vertical part went down from approximately -0.14m to approximately -1.14m. (From 9:20am till 11:25 March 31st)
- In the samples of soil collected on March 21st and 22nd on the site (at 5 points) of Fukushima I, plutonium 238, 239 and 240 were detected (23:45 March 28th announced by TEPCO). The concentration of the detected plutonium was at the equivalent level of the fallout (radioactive fallout) that was observed in Japan concerning the past atmospheric nuclear testing, i.e. at the equivalent level of the normal condition of environment, and was not at the level of having harmful influence on human body.
- In the samples of soil (7 samples in total) collected on 25 March (at 4 points) and 28 March (at 3 points) on the site of Fukushima Dai-ichi NPS, ^{238}Pu (Plutonium), ^{239}Pu (Plutonium) and ^{240}Pu (Plutonium) were detected (18:30 April 6th announced by TEPCO). The concentration of the detected plutonium was, in the same as the last one (Announced on 28 March), at the equivalent level of the fallout (radioactive fallout) that was observed in Japan concerning the past atmospheric nuclear testing, i.e. at the equivalent level of the normal condition of environment, and was not at the level of having harmful influence on human body.
- On March 28th, the stagnant water was confirmed in the main building of radioactive waste treatment facilities. As the result of analysis of radioactivity, the total amount of the radioactivity $1.2 \times 10^1 \text{ Bq/cm}^3$ in the controlled area and that of $2.2 \times 10^1 \text{ Bq/cm}^3$ in the non-controlled area were detected in March 29th.
- The barge (the first ship) of the US armed forces carrying fresh water for cooling reactors, etc. landed in the exclusive port of the power station, being towed by the ships of Japan Maritime Self-Defense Force. (15:42 March 31st) The transfer of fresh water from the barge to the filtrate tank was started. (15:58 April 1st) Thereafter it was suspended due to the malfunction of the hose (16:25 April 1st), but was carried out from 10:20am till 16:40 April 2nd.
- The barge (the second ship) of the US armed forces carrying fresh water for cooling reactors, etc. landed in the exclusive port of the power station, being towed by the ships of Japan Maritime Self-Defense Force. (9:10am April 2nd)
- The spraying for test scattering of anti-scattering agent was carried out in the area of about 500 m² on the mountain-side of the Common Pool. (From 15:00 till 16:05 April 1st)
- The freshwater was transferred from the barge (the second ship) of the US armed force to the other barge (the first ship). (From 09:52 till 11:15 April 3rd)

- The stagnant water with low-level radioactivity in the main building of radioactive waste treatment facilities (Around 10,000t) was started to be discharged from the southern side of the water discharge canal to the sea, using the first pump at 19:03 April 4th. Further, at 19:07 on the same day, the discharge using 10 pumps in total was carried out.
- In order to prevent the contaminated water from outflowing from the exclusive port, the work for stopping water by means of large-sized sandbags was implemented around the seawall on the south side of the NPS. (From 15:00 till 16:30 April 5th)
- The test scattering of antiscattering agent to prevent the radioactive materials on the ground surface from being scattered was carried out in the area of about 600 m² on the mountain-side of the Common Pool. (April 5th, 6th)

Current Situation

- Evacuation as far as 20 kilometers from Fukushima I NPS and 10 kilometers from Fukushima II NPS was almost completed (see the diagram "Fukushima prefecture"). The residents in the areas from 20 kilometers to 30 kilometers radius from Fukushima I NPS are directed to stay in-house.
- On March 16th, the Local Emergency Response Headquarter issued "the direction to administer the stable Iodine during evacuation from the evacuation area (20 km radius)" to the Prefecture Governors and the heads of cities, towns and villages.

Monitoring Data

- 1) The data of Monitoring Post out of 20 kilometers zone of Fukushima I NPS is available on the following website:

http://www.mext.go.jp/a_menu/saigaijohou/syousai/1303726.htm

- 2) The real-time radiation data collected via the System for Prediction of Environment Emergency Dose Information (SPEEDI) is available on the following website:

<http://www.bousai.ne.jp/eng/>

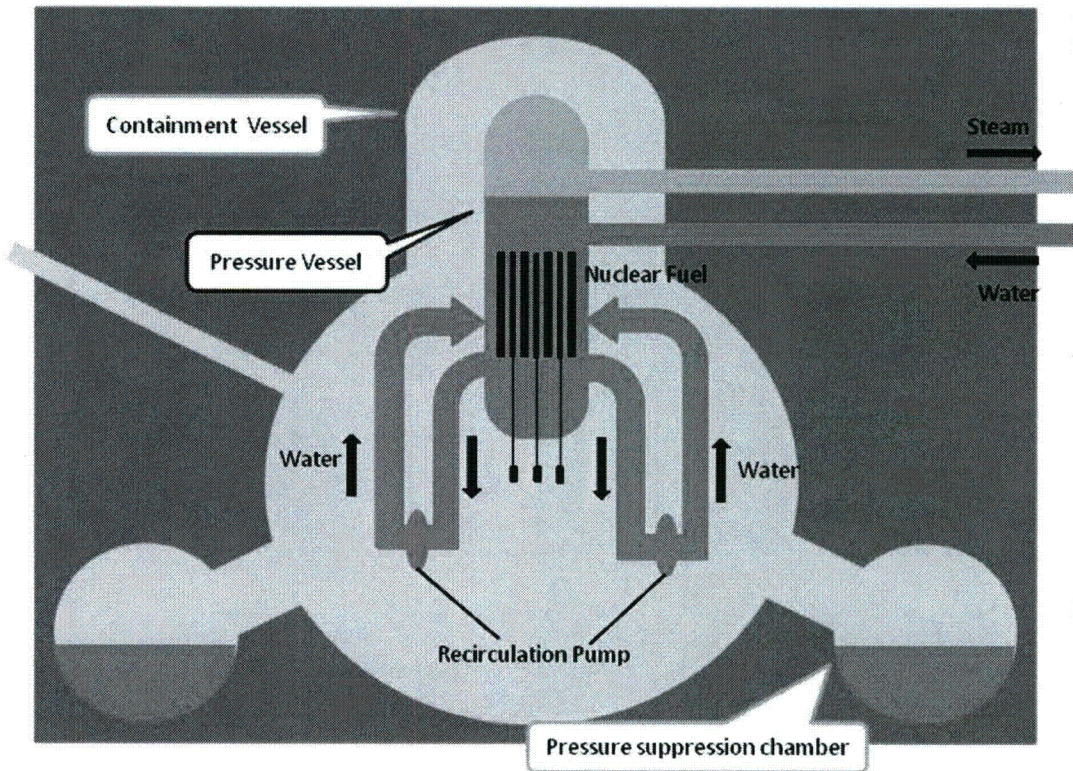
Outline of the Fukushima I Nuclear Power Station



(Fukushima Dai-ichi nuclear power station)

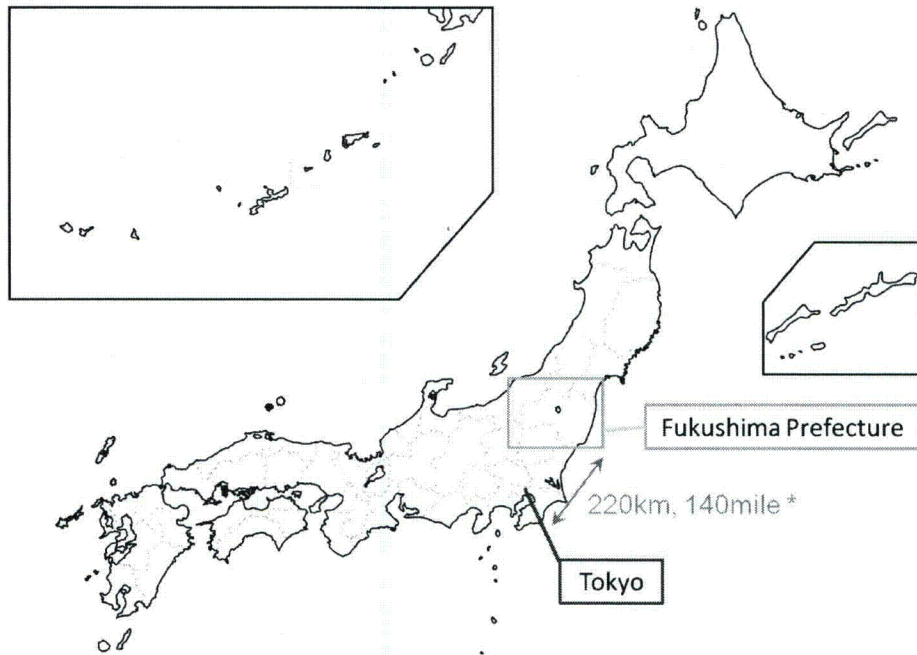


Concrete Building Housing

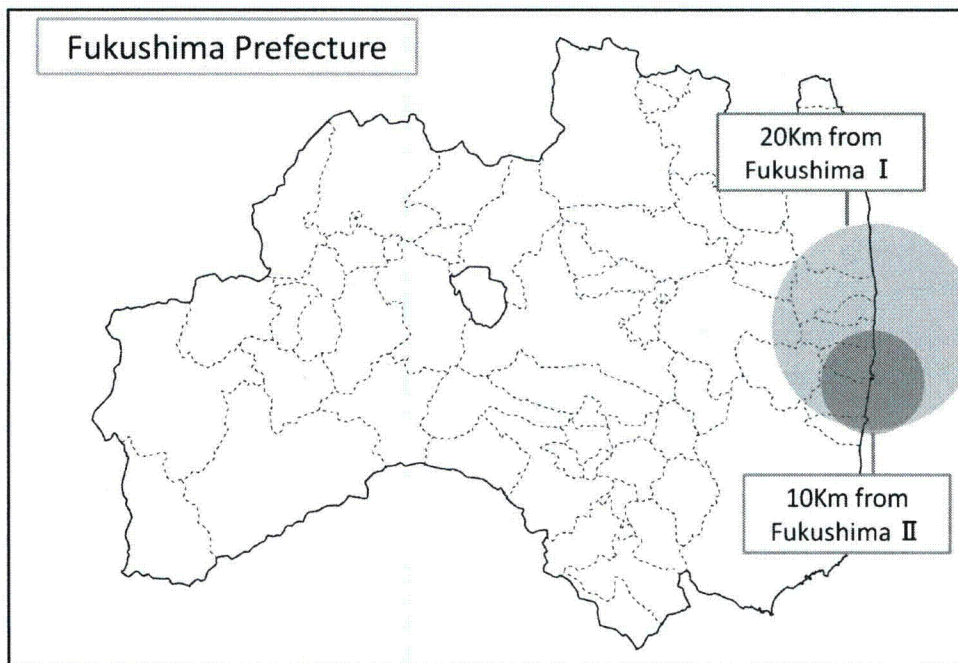


(Structure of BWR)

Location of Fukushima I and II in Japan



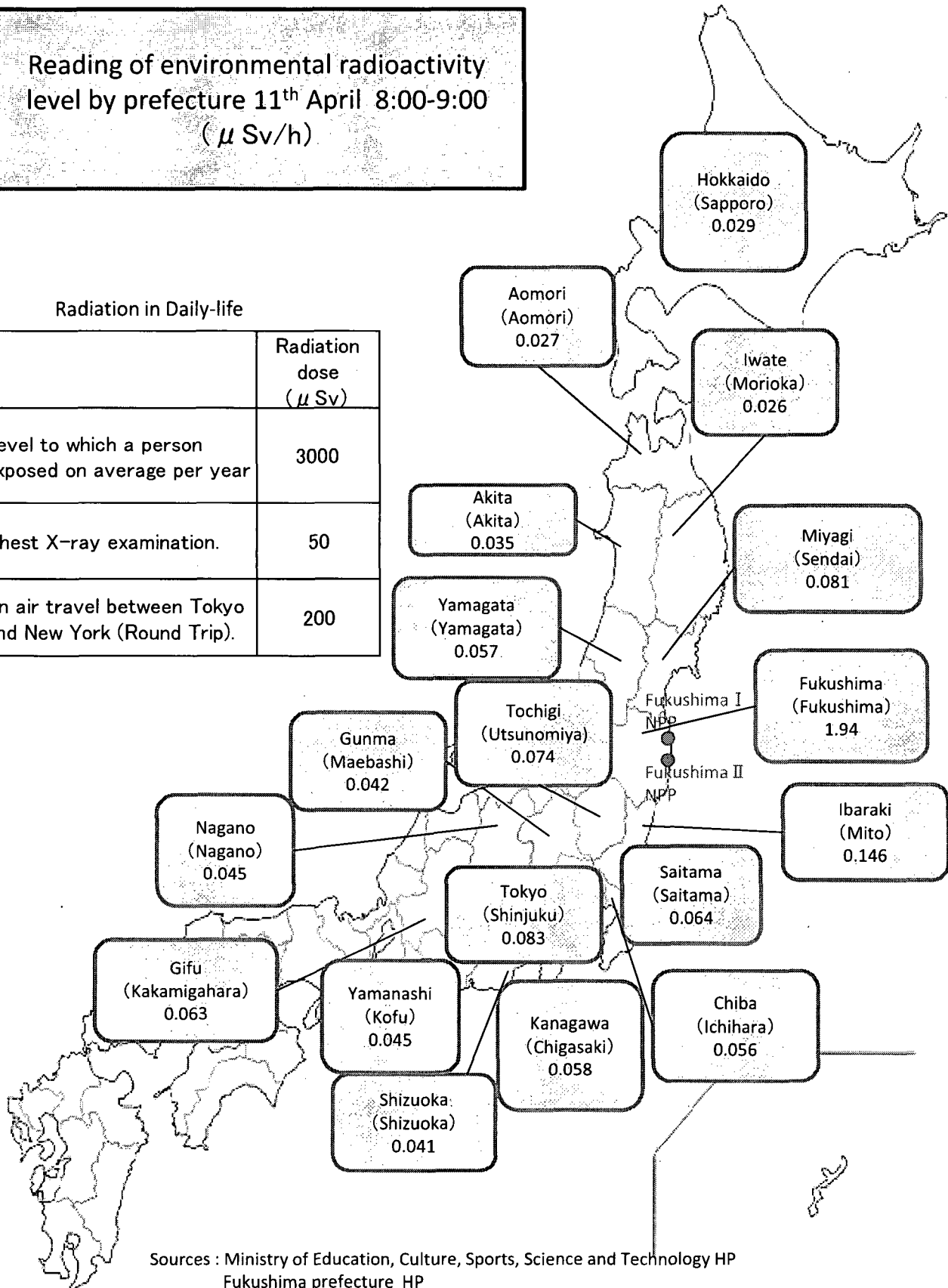
*Distance between Three Mile Island and Washington D.C. 140 km, 88mile



Reading of environmental radioactivity level by prefecture 11th April 8:00-9:00 (μ Sv/h)

Radiation in Daily-life

	Radiation dose (μ Sv)
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 and Technology HP
Fukushima prefecture HP

From: OST01 HOC
Sent: Tuesday, April 12, 2011 8:16 AM
To: Marshall, Jane
Subject: RE: Transition Plan

Okay, I will be glad too. Should I post the One Pager on web EOC under "ET Misc. Documents?" We were doing this when I was EBT Assistant. Please advise.

Thank you,
Annette

From: Marshall, Jane
Sent: Tuesday, April 12, 2011 8:13 AM
To: OST01 HOC
Subject: RE: Transition Plan

Can you pull that one out and send it to me so we don't have version control problems? I'll update it and send it back later today.

From: OST01 HOC
Sent: Tuesday, April 12, 2011 8:12 AM
To: Marshall, Jane
Subject: Transition Plan

Hi Jane,

Just FYI, I did find a copy of the draft Transition Plan on WEB EOC, it was posted yesterday afternoon.

Annette

BSEE/ANL

From: Wiggins, Jim
Sent: Tuesday, April 12, 2011 6:43 AM
To: OST01 HOC
Subject: FW: Draft Global Assessment slides
Attachments: JapenGlobalAssessment.pptx

Plz update the Tracker to show we have a draft of the slides. The final slides and the full report are to go.

From: Casto, Chuck
Sent: Tuesday, April 12, 2011 6:09 AM
To: HOO Hoc; Wiggins, Jim
Cc: Virgilio, Martin; Jaczko, Gregory; Weber, Michael; Hay, Michael; Bernhard, Rudolph; Collins, Elmo; Blamey, Alan
Subject: Draft Global Assessment slides

Folks,

Attached is a very draft presentation that we would use to brief out the content of our Global Assessment. It needs some context placed around it, so we can brief you on that soonest. This will accompany the Global Assessment. That Assessment is almost complete and will follow soon. Meanwhile this presentation represents the insights from it.

We had a Tasker to develop a presentation for VIPs.....this would serve as the content of that presentation.....

Casto

b33 | 1111

From: OST01 HOC
Sent: Tuesday, April 12, 2011 9:13 PM
To: Carpenter, Cynthia
Subject: *REV* Japan One Pager 2300 EDT 4-12-11
Attachments: Japan One Pager 2300 EDT 4-12-11.doc

Per your request.

04/13/11

From: OST01 HOC
Sent: Thursday, April 28, 2011 11:14 PM
To: Hoc, PMT12; RST01 Hoc; LIA08 Hoc; Tracy, Glenn
Subject: One Pager for Updates
Attachments: Japan One Pager 2300 EDT 4-28-11.docx

Team,

Attached is the copy of the latest One-Pager. Please make updates during the shift and return them to me by 0500 for compilation and review.

Thanks!
-Nick Ballam

VVV/1341

From: Dyer, Jim
Sent: Tuesday, April 12, 2011 2:36 PM
To: OST01 HOC; LIA08 Hoc; RST01 Hoc; Hoc, PMT12
Cc: Carpenter, Cynthia
Subject: Please distribute the attached. (EOM)
Attachments: Japan One Pager 1500EDT 4-12-11.docx

JNV | 342

From: LIA08 Hoc
Sent: Wednesday, April 13, 2011 9:35 PM
To: OST01 HOC
Subject: FW: Thoughts for tonight's Turnover from the LT

From: Boger, Bruce
Sent: Wednesday, April 13, 2011 8:42 PM
To: LIA08 Hoc
Subject: RE: Thoughts for tonight's Turnover from the LT

OK with me. Thanks.

From: LIA08 Hoc
Sent: Wednesday, April 13, 2011 8:33 PM
To: Boger, Bruce
Subject: Thoughts for tonight's Turnover from the LT

Ok'd by the Site Team in Japan for your consideration for the LT segment of Turnover.
Thanks
Lisa

Lisa Gibney Wright
Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: Wittick, Brian
Sent: Wednesday, April 13, 2011 8:32 PM
To: LIA08 Hoc; Blamey, Alan
Subject: RE: Thoughts for tonight's Turnover from the LT

Sounds good.

From: LIA08 Hoc
Sent: Wednesday, April 13, 2011 8:28 PM
To: Blamey, Alan; Wittick, Brian
Subject: Thoughts for tonight's Turnover from the LT

Are you guys OK if I submit this for the LT turnover? I owe Bruce Boger an answer within about 30 minutes

Thoughts for tonight's Turnover from the LT

SMB/NNT

- The Cabinet meetings in Japan are now being held on just Tuesday/Thursday. The Site Team in Japan will discuss whether or not to move the Consortium calls to align with the evenings that the Cabinet meets. They will let HQ know their preference.
- Site Team has been experiencing some internet difficulties. To help resolve the issue, the AT&T air cards were reactivated.

From: OST01 HOC
Sent: Wednesday, April 13, 2011 2:42 PM
To: Dudek, Michael
Subject: FW: ACTION: Assessment of new ops configuration

As requested.

From: Hoc, PMT12
Sent: Wednesday, April 13, 2011 2:40 PM
To: OST01 HOC; RST01 Hoc; RST08 Hoc; RST07 Hoc; LIA08 Hoc
Cc: Brandon, Lou
Subject: RE: ACTION: Assessment of new ops configuration

1. Things are going pretty well for the PMT and I don't have any complaints. I had the first ticket that went to the line organization and it took a little work, but I think not going through OEDO (as is currently planned) it will work better.
2. You will see in Jim's turnover that we had a request from NARAC (John Nastrom) to provide a point of contact at NRC (either HQ or site team) to work on updated source terms and reviewing new source terms. This is not an expertise that is held by most of the PMT staffers at this point, so I suggested to Jim that we have a "RAAD on Call" to work with NARAC and the Japan Team on source terms. This issue still needs to be hashed out and we need to get back to NARAC soon.

MCS | NRC

From: LIA06 Hoc
Sent: Wednesday, April 13, 2011 12:13 PM
To: LIA08 Hoc
Subject: FW: OOU -- 1200 EDT (April 13, 2011) USNRC Earthquake-Tsunami Update
Attachments: USNRC Earthquake-Tsunami Update.041311.1200EDT.pdf

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

From: LIA07 Hoc
Sent: Wednesday, April 13, 2011 12:13 PM
To: LIA07 Hoc
Subject: OOU -- 1200 EDT (April 13, 2011) USNRC Earthquake-Tsunami Update

Attached, please find a 1200 EDT, April 13, 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 not intended to be shared outside of the Federal government without NRC approval.

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

Thank you,
Sara

Sara Mroz
US Nuclear Regulatory Commission
LIA07.HOC@nrc.gov (Operations Center)

VVV/345

From: Hasselberg, Rick
Sent: Wednesday, April 13, 2011 8:13 AM
To: Moore, Wendy
Cc: OST01 HOC; OST02 HOC; OST03 HOC; Grant, Jeffery
Subject: RE: John Kinneman's Availability

I'll pass that onto the Executive Support Team, Wendy. I expect it was they who had contacted John.

From: Moore, Wendy
Sent: Wednesday, April 13, 2011 8:09 AM
To: Hasselberg, Rick
Subject: Kinneman Availability

Good morning Rick,

The Op Center called John Kinneman's office last week asking about his availability for Monday through Sunday this week. John and I just had a conversation where I learned he heads home to Pennsylvania every Friday night. He is able to answer calls but is over 3 hours away every weekend. Are you the person to update his availability or should I contact someone else?

Wendy

Wendy Moore
Lead Administrative Assistant
NRC
Office of Nuclear Material Safety and Safeguards
Division of Fuel Cycle Safety and Safeguards
M/S E2-C40M
301-492-3132

WV/346

From: OST01 HOC
Sent: Wednesday, April 13, 2011 11:26 PM
To: Jaczko, Gregory
Cc: Pace, Patti; Batkin, Joshua; Gibbs, Catina; Speiser, Herald
Subject: April 13 - 2300EDT Briefing Sheet Fukushima Daiichi
Attachments: Japan One Pager 2300 EDT 4.13.11.pdf

Attached, please find a 2300 EDT, April 13, 2011, Briefing Sheet (One Pager).

Please note that this information is "Official Use Only."

2011/04/13

From: OST01 HOC
Sent: Wednesday, April 13, 2011 7:17 AM
To: Dyer, Jim
Subject: Japan One Pager 0600 EDT 4/13
Attachments: Japan One Pager 0600 EDT 4-13-11.doc

Attached is the requested document...

843/1111

From: Hoc, PMT12
Sent: Wednesday, April 13, 2011 2:40 PM
To: OST01 HOC; RST01 Hoc; RST08 Hoc; RST07 Hoc; LIA08 Hoc
Cc: Brandon, Lou
Subject: RE: ACTION: Assessment of new ops configuration

1. Things are going pretty well for the PMT and I don't have any complaints. I had the first ticket that went to the line organization and it took a little work, but I think not going through OEDO (as is currently planned) it will work better.
2. You will see in Jim's turnover that we had a request from NARAC (John Nastrom) to provide a point of contact at NRC (either HQ or site team) to work on updated source terms and reviewing new source terms. This is not an expertise that is held by most of the PMT staffers at this point, so I suggested to Jim that we have a "RAAD on Call" to work with NARAC and the Japan Team on source terms. This issue still needs to be hashed out and we need to get back to NARAC soon.

From: OST01 HOC
Sent: Wednesday, April 13, 2011 1:42 PM
To: RST01 Hoc; RST08 Hoc; RST07 Hoc; Hoc, PMT12; LIA08 Hoc
Subject: ACTION: Assessment of new ops configuration

Good morning,

NSIR is trying to figure out how everything is working in the new 6-person configuration. Now that we are a couple days into it, could you please think about the following questions:

1. What is going well?
2. What needs to be improved about the transition?

When you have time this morning, could you please survey all of the people on shift right now and send me any applicable comments regarding the areas in question above.

Thanks!
Michael I. Dudek

Michael Dudek | Technical Assistant | NSIR/Division of Preparedness & Response | U.S. NRC
11555 Rockville Pike, Rockville, MD 20852 | ☎ (301) 415-6500 | ✉ Michael.Dudek@nrc.gov

11/13/11

From: Weber, Michael
Sent: Wednesday, April 13, 2011 3:43 PM
To: Carpenter, Cynthia; ET05 Hoc; ET01 Hoc; OST02 HOC; OST01 HOC
Cc: Brenner, Eliot; Hayden, Elizabeth; Burnell, Scott; Doane, Margaret; Mamish, Nader; Virgilio, Martin; Merzke, Daniel
Subject: FYI - TOP STORY IN TODAY'S GLOBAL SECURITY NEWSWIRE
Attachments: image001.jpg

Japan Denies Withholding Evidence of Massive Radiation Release

Wednesday, April 13, 2011

Japanese authorities on Tuesday attempted to deflect criticism for withholding over a period of weeks indications of significant radioactive material leakages from the Fukushima Daiichi nuclear power plant, the *New York Times* reported (see [GSN](#), April 12).



(Apr. 13) - A perimeter fence, shown on Tuesday, restricts access to Japan's Fukushima Daiichi nuclear power plant. Tokyo last month did not release calculations pointing to major radioactive material releases from the severely damaged facility due to concerns over their accuracy, officials said this week (Athit Perawongmetha/Getty Images).

Japan on Tuesday upgraded the plant's incident level from 5 to 7, a classification reserved for the most severe nuclear crises. The government took the action in large part in response to calculations showing that extreme quantities of radioactive iodine and cesium had escaped from the six-reactor facility in the first week after it was crippled by the 9.0-magnitude earthquake and devastating tsunami that hit Japan on March 11. The confirmed death toll from those events now exceeds 12,000 people.

Uncertainty over the calculations' accuracy held up their release, Japanese Nuclear Safety Commission official Seiji Shiroya said. In addition, the official suggested the government was concerned the measurements could exacerbate public fear over the atomic crisis.

"Some foreigners fled the country even when there appeared to be little risk," Shiroya said. "If we immediately decided to label the situation as level 7, we could have triggered a panicked reaction."

"At first, the calculations could have been off by digits," the official added. "It was only when there was certainty that the margin of error was within two to three times that we made an announcement" ([New York Times](#), April 12).

OSG | NNT

Japanese Chief Cabinet Secretary Yukio Edano said he knew last month that the plant's incident level might be raised to 7, though details on radiation escaping from the facility were unclear at the time, Kyodo News reported. The Nuclear Safety Commission had measurements from only three sites away from the facility at that point, and the country's Nuclear and Industrial Safety Agency collects its own figures for verification.

The two organizations "said they could not vouch for the certainty of their estimates, so I told them to make a thorough, reliable analysis as soon as possible," Edano said, noting he was informed on Monday of the updated assessment (Kyodo News I, April 12).

The plant has released between 370,000 and 630,000 terabecquerels of radiation, Reuters reported, quoting estimates by both government offices.

"If that is the total radiation so far from the time of first leakage, that amount is very serious. It's undoubtedly very bad. That is close to one-tenth of Chernobyl's radiation in a month," said Lam Ching-wan, a member of the American Board of Toxicology and a chemical pathologist with the University of Hong Kong. "It means there is damage to soil, ecosystem, water, food and people. People receive this radiation. You can't escape it by just shutting the window."

"The radiation threat is there and there must be national radiation surveillance for health purposes ... they must decide if there should be regular screening for cancer," the expert said. Iodine 131, cesium 134 and cesium 137 can all produce cancer years after exposure (Tan Ee Lyn, Reuters I, April 12).

Japanese Prime Minister Naoto Kan on Tuesday denied concealing radiation data, the *Times* reported.

"What I can say for the information I obtained -- of course the government is very large, so I don't have all the information -- is that no information was ever suppressed or hidden after the accident," Kan said. "There are various ways of looking at this, and I know there are opinions saying that information could have been disclosed faster. However, as the head of the government, I never hid any information because it was inconvenient for us."

Separately, a senior executive for the plant's operator suggested the facility might eventually emit more radioactive material than was released in the 1986 Chernobyl disaster. The plant has so far hemorrhaged roughly 10 percent of the amount of radioactive contaminants released by the incident in the former Soviet Union, according to the Japanese government.

"The radiation leak has not stopped completely, and our concern is that it could eventually exceed Chernobyl," Tokyo Electric Power executive Junichi Matsumoto said on Tuesday.

NISA Deputy Director General Hidehiko Nishiyama, though, said he "cannot understand" the company's stance. He suggested the operator was being "prudent and thinking about the worst-case scenario," noting, "I think they don't want to be seen as optimistic."

The plant has now leaked "almost all" of the total amount of radioactive material that would escape, Nishiyama said, adding the level of contaminants leaving the facility has fallen by nine-tenths since the first days of the crisis (*New York Times*).

A senior International Atomic Energy Agency official said the "Fukushima accident and Chernobyl are very different," Kyodo News reported.

The Chernobyl reactor was running at the time of the incident, whereas operations at the Japanese plant were rapidly suspended following last month's earthquake and tsunami, IAEA Deputy Director General Denis Flory said ([Kyodo News II](#), April 12).

The Fukushima disaster's designation at the same level as the Chernobyl incident points to the need to revise the IAEA International Nuclear and Radiological Event Scale, Reuters on Wednesday quoted a specialist as saying.

"Fukushima was not as bad as Chernobyl. If Fukushima is a level 7 accident, maybe we need to go back and recalibrate the scale and add a level 8 or 9," said Najmedin Meshkati, a civil and environmental engineering professor with the University of Southern California (DiSavino/O'Grady, [Reuters II](#), April 12).

Meanwhile, plant personnel as of Wednesday morning had pumped nearly one-third of a 700-ton quantity of radiation-tainted water out of an underground area of the No. 2 reactor's turbine area and another passage into a steam condenser, Kyodo News reported. The operation, slated for completion by Thursday, had reduced the water's depth in the passage .

Recovery efforts were unaffected by a 5.8-magnitude earthquake on Wednesday morning, the Japanese atomic safety agency said.

Contaminated water has hindered efforts to restore cooling mechanisms needed to help prevent additional radioactive material from escaping the site. Workers intend to eventually transfer 60,000 tons of fluid flooding underground portions of the facility, including turbine areas at the plant's No. 1, No. 2 and No. 3 reactors.

The plant operator overnight fired 195 tons of fresh water into a spent nuclear fuel cooling point in the reactor 4 structure after the water was found on Tuesday to be approaching boiling temperature. The site's water depth has fallen as a series of tremors rocked the plant, according to the company ([Kyodo News III](#), April 13).

Tokyo Electric Power said a number of the spent fuel rods in storage at the reactor have been harmed, but most of the fuel seemed stable ([Kyodo News IV](#), April 13).

The firm intends on Wednesday to complete the deployment of seven steel radiation containment barriers close to a No. 2 reactor pipe for receiving ocean water. "Silt fence" installations were slated for placement near similar pipes at the No. 3 and No. 4 reactors ([Kyodo News III](#)).

Japan on Monday announced plans to establish "planned evacuation areas" and "evacuation-prepared areas" outside the exclusion zone extending 12.4 miles from the plant, the International Atomic Energy Agency said. Residents are expected to leave planned evacuation areas within one month, while individuals in evacuation-prepared areas could be asked to remain indoors or potentially to leave their homes (International Atomic Energy Agency [release](#), April 12).

The government has announced plans to evacuate five additional jurisdictions, possibly including more areas in the town of Miniamisoma located partially within the exclusion zone, the London *Guardian* reported. All but 10,000 of the town's 71,000 residents have already left (Justin McCurry, [London Guardian](#), April 12).

Radioactivity in Tokyo on Wednesday was found at levels typical prior to the Fukushima plant crisis, Kyodo News reported ([Kyodo News V](#), April 13).

A longer-term plan for containing plant radiation was still in development, Reuters quoted Tokyo Electric Power President Masataka Shimizu as saying on Wednesday.

"As instructed by Prime Minister Kan we are working out the specific details of how to handle the situation so they can be disclosed as soon as possible," Shimizu said. "We are making the utmost effort to bring the reactors at Fukushima Daiichi to a cold shutdown and halt the spread of radiation" (Fujioka/Uranaka, Reuters III, April 13).

Machinery operated from a distance has begun taking radioactive detritus from the area surrounding the plant, the *Asahi Shimbun* reported (Asahi Shimbun, April 13).

Japan on Wednesday prohibited deliveries of shiitake mushrooms grown in exposed areas close to the facility, *Kyodo News* reported (Kyodo News VII, April 13).

In South Korea, plutonium traces turned up in 12 ocean water samples taken between March 23 and April 6, the *Yonhap News Agency* reported.

"The amount detected is negligible with concentration levels being more than a millionth-to-one of the 1 millisievert safety standard set by the government," Korea Institute of Nuclear Safety President Yun Choul-ho said, adding the plutonium did not appear to have originated in Japan.

"Instead of carrying out biannual tests on seawater, Seoul will check for radiation every month starting in April," Yun said (Yonhap News Agency, April 13).

Chinese Premier Wen Jiabao on Tuesday pressed Prime Minister Kan to provide faster updates on the disaster, *China Daily* reported (China Daily, April 13).

Japanese Foreign Minister Takeaki Matsumoto on Wednesday said the government had not provided advance notice of a recent radioactive water release to all governments that have diplomatic ties with Tokyo, *Kyodo News* reported.

"It is true that our notification was sent after the water discharge started, but communication channels have since been improved," he said (Kyodo News VIII, April 13).

Tokyo is expected to dispatch a delegate to provide information on the crisis at a number of international atomic safety meetings in Ukraine (Kyodo News IX, April 13).

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: OST01 HOC
Sent: Thursday, April 14, 2011 3:29 PM
To: Boger, Bruce; LIA08 Hoc
Subject: FW: Draft Global Assessment slides
Attachments: JapenGlobalAssessment.pptx

FYI

From: OST01 HOC
Sent: Thursday, April 14, 2011 3:26 PM
To: Casto, Chuck; Collins, Elmo
Subject: FW: Draft Global Assessment slides

We are resending slides to make sure you received.

Executive Support Team

From: Dyer, Jim
Sent: Wednesday, April 13, 2011 1:06 PM
To: OST01 HOC
Subject: FW: Draft Global Assessment slides

Here's Jim Wiggins comments. I provided mine to Chuck verbally during the morning call. I believe we should close that item.jim

From: Wiggins, Jim
Sent: Tuesday, April 12, 2011 6:42 AM
To: Casto, Chuck; HOO Hoc
Cc: Virgilio, Martin; Weber, Michael; Hay, Michael; Bernhard, Rudolph; Collins, Elmo; Blamey, Alan; Dyer, Jim; Carpenter, Cynthia
Subject: RE: Draft Global Assessment slides

Some quick impressions/fdbk after a quick read of the slides w/o the benefit of the accompanying paper:

- Looks good overall
- Appears well-balanced; the assessment stays within the bounds of the data
- Seems to me that one key item that will govern the USG's evolving technical footprint in Japan would be an assessment of whether the GOJ, NISA and TEPCO have a firm grasp on the situation and have a well-established strategy for short, intermediate and long-term mitigative actions. Those organizations have to own not only the problems but the solutions. Otherwise, I don't foresee the Ambassador or PACOM getting, on any reasonable timeline, the level of confidence they need that US assets and people will be protected. Though this might not be suitable for capturing in the assessment (unless we can reach an affirmative conclusion), it would need to be a shared view among the key USG stakeholders.

Some minor points:

153/1111

- Slide 3 – Assessment Conclusions...1st bullet...it's Protective Action Decisions not PARS since we made the Recommendations to ourselves and then made the Decisions.
- Slide 3 – 3rd bullet – “Unknown” ocean impacts.....how about “Ocean impacts not fully characterized”
- Slide 4 – 1st bullet...read “short” a few times before I got the meaning in the context of the bullet. Maybe “Time to react to loss of injection cooling is short – e.g. 10 hours for U1”
- Slide 4 – 4th and 5th bullets – use conventional notation for probabilities – 1E-01/1E-02/1E-03 - or write them out – 1 in 10/1 in 100/1 in 1000.
- Slide 5 – heading – “more” actions or “further” action?” Also, is GOJ/NISA/TEPCO on a path to consider these for implementation? Do they have a reasonable rationale for not taking these action such as an alternate strategy?

Hope this helps.....

From: Casto, Chuck

Sent: Tuesday, April 12, 2011 6:09 AM

To: HOO Hoc; Wiggins, Jim

Cc: Virgilio, Martin; Jaczko, Gregory; Weber, Michael; Hay, Michael; Bernhard, Rudolph; Collins, Elmo; Blamey, Alan

Subject: Draft Global Assessment slides

Folks,

Attached is a very draft presentation that we would use to brief out the content of our Global Assessment. It needs some context placed around it, so we can brief you on that soonest. This will accompany the Global Assessment. That Assessment is almost complete and will follow soon. Meanwhile this presentation represents the insights from it.

We had a Tasker to develop a presentation for VIPs.....this would serve as the content of that presentation.....

Casto

NRC GLOBAL ASSESSMENT of
FUKUSHIMA EVENT

Background

- Consortium of U.S. nuclear organizations completed assessment
 - NRC; Department of Energy; Naval Reactors; Institute of Nuclear Power Operations; Electric Power Research Institute; General Electric
- Collaborated to complete technical assessments for safety issues for reactors and spent fuel pools
- All major assessments completed
- Provided results to TEPCO and NISA

Assessment Conclusions

- PARs remain conservative through all scenarios
 - Tokyo is not seriously threatened
- Unknown Ocean impacts
- Active releases ongoing
- Static but fragile accident conditions
- Mitigating features temporary and highly unconventional

Assessment Conclusions

- Timeline for action short upon loss of injection – less than 10 hours for Unit 1
- Fuel Damage estimates: U-1 67%; U-2 44%; U-3 30% (est.)
- Reliance on steam cooling for reactors
- Current situation results in a 1-10 to 1-100 probability of release
- Current situation could be improved to 1-1000 or greater by flooding
- Flooding reduces consequences by one-to-two orders of magnitude
- Containment flooding remains primary suggestion
- Feed and bleed assessment recommends more actions to mitigate additional events

Assessment Conclusions

- Stability requires more actions
 - Diversity and redundancy in feeding system
 - Automation of Giraffes and feeding systems
 - Additional feeding system injection points
 - Additional venting system
 - Completing actions to Phase 1 and Phase 2 stability
 - Procedures and training

From: Hoc, PMT12
Sent: Thursday, April 14, 2011 1:00 PM
To: Holahan, Eugene V SES PACOM, J91
Cc: OST01 HOC
Subject: PACOM support

Hi Vince. Kathy here. There was discussion today about how to support PACOM after your return to HQ. Some are suggesting that we send someone to replace you when you return. Some were suggesting that because we have the HOO, PACOM can always get in touch with NRC and we would make contact that way. Can you please tell me what your recommendation would be for going forward? Do you think we could handle it from here by using the HOO as a point of contact, or do you think we should send a replacement.

Thanks.

253/22

From: Mroz (Sahm), Sara
Sent: Thursday, April 14, 2011 9:08 AM
To: OST01 HOC
Subject: Out of Office: Question Re: SitRep

Thank you for your email.

I am out of the office on April 14 and 15, 2011.

Please contact Joe Anderson at joseph.anderson@nrc.gov if you need immediate assistance.

-Sara

35E/ANN

From: OST01 HOC
Sent: Thursday, April 14, 2011 8:58 PM
To: Dorsey, Cynthia
Subject: hl-011-user_list_mcust(9).xls
Attachments: hl-011-user_list_mcust(9).xls

msc | 354
VNV

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ROBERTELLIOTT
RAVINDERGROVER
MATTHEWHAMM
KHADIJAHHEMPHILL
KARENREICHARDS
CARLSCHULTEN
MELANASINGLETARY
GERALDWAIG

ANDE02039

ASHL01073

BROW02204

CART08345

FIEL01186

OBE Login Not Established

From: McDermott, Brian
Sent: Friday, April 15, 2011 11:21 AM
To: OST01 HOC
Subject: Out of Office: ET Director Information

I will be away from the office starting 14 April and will return to work 25 April.

Scott Morris will be the acting Director for the Division of Preparedness and Response (DPR) on 14 - 15 April. Scott can be reached at 301-415-7482.

Mark Thaggard will be the acting Director for DPR on 16 - 24 April. Mark can be reached at 301-415-2334.

If necessary, the Headquarters Operations Officers can reach me.

SSC/NNN

From: Zimmerman, Roy
Sent: Friday, April 15, 2011 1:15 PM
To: OST01 HOC
Subject: FW: OOU- Japan

From: Zimmerman, Roy
Sent: Friday, April 15, 2011 10:18 AM
To: Monninger, John; Virgilio, Martin
Cc: Merzke, Daniel; Wiggins, Jim; Holahan, Patricia; Evans, Michele; Weber, Michael
Subject: OOU- Japan

Just got off the phone call briefing with Chuck Casto and the Chairman. Chuck indicated that based on the TEPCO isotopic analysis of the Unit 4 SFP, TEPCO currently believes the spent fuel is undamaged. This is a more positive view than yesterday's statement that damage occurred to some fuel rods. Don't know whether they will release that view publically. The site team does not believe the isotopic analysis is accurate because it shows levels of iodine and cesium which are more representative of the water they recently added to the pool than the pool itself. The RST adds that the levels of iodine and cesium are below what we would expect to find in US spent fuel pools. We will revise our SITREP and one-pager to indicate there is some question on the level of damage, if any, to the fuel. Chuck suggested they take another sample, but based on the complexity involved, TEPCO is not currently planning another sample.

There are various theories about the cause of the explosion that occurred previously in the building, including acetylene tanks prepped for the outage, hydrogen explosion lower in the bldg, mg set lube oil fire/explosion. The site team tends to discount all but the hydrogen explosion.

Regarding the Interim comprehensive assessment of Fukushima event (Chuck requests we no longer refer to it as "global assessment" because confuses Japanese who think international input when hear global.) There is a mtg with the responsible line organization (Bill Ruland and Fred Brown) this afternoon at 1:30pm to discuss the document. Fred indicates it needs a fair amount of work and is at least a week away from being finished.

Regarding the composite assessment, NSIR has the lead and it is being worked by Trish Milligan. We are contacting Trish and will get back to you.

SoS briefing slides: Received from Chuck and provided to various folk, including you and I

953/11/11

From: Weber, Michael
Sent: Friday, April 15, 2011 5:53 PM
To: Boger, Bruce; OST01 HOC
Cc: Virgilio, Martin; Johnson, Michael; Zimmerman, Roy; LIA08 Hoc; RST01 Hoc; Hoc, PMT12; Doane, Margaret; Mamish, Nader; Casto, Chuck; Collins, Elmo; Reynolds, Steven
Subject: FYI - GLOBAL SECURITY NEWSWIRE REPORT ON ALLEGED CORE MELTS AT FUKUSHIMA-DAIICHI
Attachments: image001.jpg; image002.jpg

The information in these articles sounds a bit off, so take them with a large grain of salt.

Japan Plant Fuel Melted Partway Through Reactors: Report

Friday, April 15, 2011

Nuclear fuel has melted in three reactors at Japan's Fukushima Daiichi nuclear power plant and fallen to the lower sections of their container vessels, raising the specter of overheated material compromising a container and causing a massive radiation release, the Atomic Energy Society of Japan said in a report released on Friday (see *GSN*, April 15).



(Apr. 15) - *Abandoned flowers wilt on Tuesday in the exclusion zone surrounding Japan's Fukushima Daiichi nuclear power plant. Nuclear fuel has melted inside three reactors at the severely damaged facility, says an expert assessment published on Friday (Athit Perawongmetha/Getty Images).*

The group played down the possibility of a container breach, though, noting that only a small amount of fuel had melted so far and affected material had assumed a granulated structure and remained relatively cool, Kyodo News reported. The six-reactor plant was crippled by the 9.0-magnitude earthquake and devastating tsunami that hit Japan on March 11; the confirmed death toll from the events now exceeds 12,000 people.

The melted fuel was thought to have dispersed uniformly across the lower portions of the containers of reactors No. 1, No. 2 and No. 3, making the material highly unlikely to resume the fission process in a "recriticality," according to the organization, which said fuel rods in all three reactors had been harmed. Fuel in the No. 1 and No. 2 reactors has made contact with air, while the No. 3 reactor's rods have remained underwater, the group said.

Bringing the fuel under control could take between two and three months if restoration work moved forward as expected, said Takashi Sawada, the group's deputy chairman. The organization based its assessment on

LSB/AN

information provided by the Japanese Nuclear and Industrial Safety Agency and by Tokyo Electric Power, the plant's operator.

Plant personnel pressed ahead in efforts to prevent additional radioactive material from escaping the site, deploying steel barriers around a No. 2 reactor pipeline and proceeding with the insertion of nitrogen gas into the No. 1 reactor to prevent additional hydrogen blasts. Pressure in the No. 1 reactor has fallen to a certain degree, pointing to the possible escape of air, but radiation in the area has remained largely unchanged.

Tokyo Electric Power indicated it could drop sandbags filled with zeolite into the nearby ocean as soon as Friday to help curb the spread of radioactive contaminants (Kyodo News I, April 15). Silt fencing was deployed in front of screening at the No. 3 and No. 4 reactors for containing radioactive water, the International Atomic Energy Agency said on Thursday (International Atomic Energy Agency release, April 15).

Workers earlier this week transferred roughly 660 tons of radiation-tainted water out of an underground passage, but fluid flooding the area reached its original depth by Friday morning, Kyodo News quoted the atomic safety agency as saying. Contaminated water has hindered efforts to restore cooling mechanisms needed to help prevent additional radioactive material from escaping the site.

A nuclear waste treatment area intended to receive the water was still undergoing inspection for possible weak points in pipelines. "I'm hoping that work to stop water leaks at the (facility) is finished as soon as possible to start channeling the water there," said Industry Minister Banri Kaieda said on Friday (Kyodo News I).

Fresh water continued to be transferred into reactors No. 1, No. 2 and No. 3, the U.N. nuclear watchdog said. Conditions remained consistent at the No. 5 and No. 6 reactors (International Atomic Energy Agency release).

Soil samples taken at the facility between March 31 and April 4 contained small amounts of plutonium, Kyodo News reported on Friday. The finding marked the third detection of plutonium traces at the site (Kyodo News I).

Radioactive iodine and cesium levels might increased dozens of times over in groundwater close to the No. 1 and No. 2 reactors between April 6 and 13 (Kyodo News II, April 15). Strontium also turned up in soil close to the facility for the first time, the *Sydney Morning Herald* reported on Friday.

Tokyo Electric Power was still developing a longer-term strategy for stabilizing plant conditions, company president Masataka Shimizu said (Danielle Demetriou, Sydney Morning Herald, April 15).

Specialists with Toshiba, one supplier of plant components, said conditions could be brought under control "in several months," Norio Sasaki, the firm's chief executive, said on Thursday. A plan developed by the company calls for the removal of fuel from reactor containers to start after five years and for decontamination to take place over another five years, the *New York Times* reported on Thursday.

Hitachi, which has developed a separate plan to decommission the facility, said Toshiba's proposal was too hopeful and suggested the fuel removal process alone could take a decade to complete.

The status of the nuclear fuel at the site would affect the speed of dismantlement, said Tetsuo Matsumoto, a nuclear engineering professor with Tokyo City University. "Will it still be shaped like rods? Or will it have melted and collapsed into a big mass?" the expert asked. "It could be 10 years or it could be 30. You just won't know until you open up the reactor" (Hiroko Tabuchi, New York Times, April 14).

Tokyo Electric Power on Wednesday said the deterioration of spent fuel stored in the No. 4 reactor's cooling pond appeared confined, the *Asahi Shimbun* reported. Fuel in the reactor was only partly compromised, the company indicated (*Asahi Shimbun I*, April 15).

The Japanese government on Friday indicated a smaller quantity of radioactive contaminants had been poured into the ocean in a controlled dump of low-level radioactive water than previously suspected, Kyodo News reported. Tokyo Electric Power suggested the 10,393 tons of water jettisoned between April 4 and 10 contained up to 170 billion becquerels of contaminants, but the Nuclear and Industrial Safety Agency estimated the total amount released to fall around 150 billion becquerels (*Kyodo News III*, April 15).

The U.S. Energy Department was sending five massive steel containers and a tractor trailer for holding contaminated water from the plant, the U.S. Embassy in Tokyo indicated on Thursday (*Kyodo News IV*, April 14).

Fukushima University experts have plotted out the spread of air-based radioactive materials from the plant using samples taken late last month from 370 points around Fukushima prefecture, the *Asahi Shimbun* reported on Friday (*Asahi Shimbun II*, April 15).

In excess of 100 academic specialists intend next month to launch an investigation of the ecological and safety implications of radioactive contaminants released from the facility, Kyodo News reported. Members of the team are expected to help the Fukushima government gather soil samples from 1,500 points along 62 miles of coastline and as far as 37 miles from the ocean (*Kyodo News V*, April 14).

Russian Prime Minister Vladimir Putin on Friday said specialists in his country "will assess the impact of the Fukushima Daiichi nuclear plant accident on the environment and will also conduct environmental monitoring" (*Kyodo News V*, April 15).

Participating agencies would include the Russian Atomic Energy Ministry and Russian Meteorological Service, ITAR-Tass quoted Russian Geographical Society Vice President Artur Chilingarov as saying. The monitoring "starts on April 22 and will continue 24 days," he said (*ITAR-Tass*, April 15).

Japan Plant Emits More Radiation After Cooling Lapse

Thursday, April 14, 2011

The Fukushima Daiichi nuclear power plant in Japan emitted a new burst of radioactive material this week after a bungled cooling effort apparently affected spent atomic fuel in the site's No. 4 reactor cooling pond, the Associated Press reported (see *GSN*, April 13).



(Apr. 14) - *A destroyed area in the exclusion zone surrounding Japan's Fukushima Daiichi nuclear power plant. Radiation surged at a cooling pond in the severely damaged facility after workers stopped spraying water into the pool (Athit Perawongmetha/Getty Images).*

Workers were firing water into the pond from a distance in an effort to prevent the fuel from overheating and releasing radioactive contaminants, but fluid collecting in an adjacent flood control container triggered an incorrect warning that the pond had been filled. Personnel halted water transfers to the pool for a number of days in response to the warning, allowing heat and radiation levels to increase even though the fuel was thought to have remained submerged, Japanese Nuclear and Industrial Safety Agency Deputy Director General Hidehiko Nishiyama said. Water spraying began again on Wednesday.

The six-reactor plant was crippled by the 9.0-magnitude earthquake and devastating tsunami that hit Japan on March 11; the projected death toll of the events exceeds 26,000 people, though authorities have found the remains of only 11,250 individuals to date. A series of smaller tremors in recent days might have contributed to incorrect feedback from equipment at the facility, according to authorities.

An uptick in radiation at the cooling pond indicates the fuel in storage there had been compromised, authorities said. Concentrations of iodine 131, cesium 134 and cesium 137 have increased in the pond, said Junichi Matsumoto, an executive for plant operator Tokyo Electric Power.

Nishiyama, though, suggested "fuel rods in the pool are largely intact, or still keeping the normal shape of what they should look like."

"If they were totally messed up, we would have been looking at different sets of numbers from the water sampling," the official said (Yamaguchi/Yuasa, Associated Press/*Time*, April 14).

Separately, plant personnel on Tuesday and Wednesday transferred roughly 660 tons of radiation-tainted water out of an underground passage and into a steam condenser at the site's No. 2 reactor, Kyodo News reported (*Kyodo News I*, April 14). The condenser can hold as much as 3,000 tons of fluid, the Xinhua News Agency reported (*Xinhua News Agency*, April 14).

Still, the passage's water depth increased by roughly 1.8 inches since Wednesday evening, probably due to ongoing water transfers into the No. 2 reactor, Nishiyama said in the Kyodo report. "There is believed to be around 20,000 tons of water (in the No. 2 reactor turbine building and the trench connected to it), we're feeling the difficulty of lowering the level of the water in a stable manner," the official said.

Contaminated water has hindered efforts to restore cooling mechanisms needed to help prevent additional radioactive material from escaping the site. Workers intend to eventually transfer 60,000 tons of fluid flooding underground portions of the facility, including turbine areas at the plant's No. 1, No. 2 and No. 3 reactors.

Fluid in the No. 2 reactor's turbine area was thought to contain more radioactive contaminants than water elsewhere at the plant, possibly due to damage sustained by that reactor's fuel rods. Concerns of the fluid spilling into the ocean prompted officials to prioritize its removal.

The heat level in the No. 3 reactor's pressure vessel at one point appeared to spike, but the plant operator said the reading was probably the result of a technical error (Kyodo News I).

Delays in efforts to drain the radioactive water and restore cooling mechanisms might necessitate a different strategy for stabilizing conditions at the plant, Reuters quoted Nishiyama as saying.

"It may be difficult to completely remove the contaminated water and so allow work to proceed. We may need to think of other options," he said (Mayumi Negishi, Reuters I, April 13).

Acting on a government order issued on Wednesday in response to the more recent smaller earthquakes, Tokyo Electric Power began studying the ability of reactor structures at the facility to withstand additional tremors, Kyodo News reported. The company must inspect plant components and weigh repairs to any vulnerable areas, the atomic safety agency said.

Still, the operator warned it might not "immediately conduct an investigation" due to potential risks around areas slated for inspection (Kyodo News I).

Personnel were looking for damage to walls, floors or pipelines at the plant's main waste treatment area and in other sections where radiation-tainted water has collected, the *Asahi Shimbun* reported.

The primary worry, though, was the potential for new tremors to cut off electricity to pumps being used to move coolant into the site.

"Any cutoff of the cooling mechanism is an extremely dangerous development," said Matsumoto, the Tokyo Electric Power executive (Asahi Shimbun I, April 14).

Personnel are expected to relocate auxiliary electricity sources at higher elevations as a precaution against potential new tsunamis, Kyodo News reported (Kyodo News I).

Tokyo Electric Power intends to lift spent fuel out of the No. 1, No. 3 and No. 4 reactors using massive cranes mounted on metal framing to be erected around each site, the *Asahi Shimbun* reported, referring to company records.

Company sources expressed uncertainty, though, that the cranes would be capable of moving 100-ton fuel storage casks without posing a hazard. Another technique under consideration involved transferring spent fuel to a newly built cooling pond before moving it into casks.

"It will be impossible to conduct the work now because of the high radiation levels," one company leader warned. In addition, the process could require years to complete, plant operator sources said (Asahi Shimbun II).

Toshiba and Hitachi have both drafted proposals for shuttering the facility, the *Wall Street Journal* reported on Wednesday. Each company produced original equipment used at the plant.

Hitachi's plan -- prepared with support from General Electric, Exelon and Bechtel -- could take roughly three decades to fully execute, spokesman Masanano Sato said. Toshiba's proposal -- developed with assistance from the Shaw Group and Babcock & Wilcox -- is based on a 10-year time line.

A Tokyo Electric Power representative declined to specify whether the operator would follow one of the plans or request that the firms collaborate.

"We are not at a stage yet where we can discuss the proposals," Masataka Shimizu, the company's president, said on Wednesday (Juro Osawa, *Wall Street Journal*, April 13).

Meanwhile, authorities on Thursday began searching the exclusion zone extending six miles from the plant for people missing since last month's earthquake and tsunami, AP reported. Ruins in the area could contain the remains of as many as 1,000 people (Yamaguchi/Yuasa, Associated Press).

Trace levels of iodine 131 and cesium 137 is turning up in water supplies in only a small number of prefectures, the International Atomic Energy Agency said on Wednesday. The governments was advising residents of just one Fukushima village to avoid giving tap water to small children (International Atomic Energy Agency [release](#), April 14).

Radioactive cesium concentrations 25 times in excess of lawful levels were found in fish pulled on Wednesday from ocean water near Fukushima, Kyodo News quoted the government as saying ([Kyodo News II](#), April 13). Separately, Tokyo dropped a prohibition on transporting "kakina" vegetables from Tochigi prefecture when radioactive contaminants in the food returned to allowable levels, Japanese Chief Cabinet Secretary Yukio Edano said on Thursday ([Kyodo News III](#), April 14).

The World Health Organization on Tuesday said there was "very little public health risk" beyond an area extending 18.6 miles from the facility, Reuters reported (Nebehay/Westall, [Reuters II](#), April 12).

Japan might have overstated the Fukushima disaster's magnitude to reduce the expense to insurance firms, a top Russian atomic official said on Wednesday. Tokyo on Tuesday upgraded the plant's incident level from 5 to 7, a classification reserved for the most severe nuclear crises.

"It is hard for me to assess why the Japanese colleagues have taken this decision. I suspect, this is more of a financial issue, than a nuclear one," said Sergei Kiriyenko, who heads the Russian state-owned nuclear firm Rosatom.

"It could be linked to the definition of force-majeure with regard to insurance. I would pay attention to that. It is a bit strange," Kiriyenko said (Alexei Anishchuk, [Reuters III](#), April 13).

Russian customs officials in recent weeks halted deliveries of 49 vehicles from Japan found to have unacceptable radioactive contamination, ITAR-Tass reported on Thursday. The vehicles were placed in containers pending a decision on their use ([ITAR-Tass](#), April 14).

South Korea on Thursday indicated it would require Japan to officially vouch for the safety of food produced in 13 jurisdictions near the Fukushima facility, the *Korea Herald* reported (Bae Ji-sook, [Korea Herald](#), April 14).

In the United States, drinking water in Chattanooga, Tenn., contained the second-greatest iodine 131 concentration of any water supply in the country, the *Chattanooga Times-Free Press* reported.

"The results being reported are well under the levels of health concerns," said Tennessee American Water spokeswoman Kim Dalton said. "We will continue to follow the situation closely."

Elevated levels of radioactive contaminants are unlikely to persist if the Fukushima plant is brought under control, said Mike Stafford, head of the nuclear and radiological protection office at the Oak Ridge National Laboratory in Tennessee.

"You'll see patterns that will be linked to the jet stream and where there was a rain right before (the sample was taken)," he added (Pam Sohn, [Chattanooga Times-Free Press](#), April 14).

State signatories to the Convention on Nuclear Safety agreed to address the Japanese atomic crisis in a special weeklong conference next year, Kyodo News reported. The governments wrapped up a 10-day meeting on Thursday (Kyodo News IV, April 14).

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: Hoc, PMT12
Sent: Friday, April 15, 2011 2:46 AM
To: OST01 HOC
Subject: RE: MEXT Radiation data...

We get the MEXT data directly from MEXT. Thanks for checking though.

From: OST01 HOC
Sent: Friday, April 15, 2011 2:43 AM
To: Hoc, PMT12
Subject: MEXT Radiation data...

Jessica,

Every once in a while I get emails titled "Radiation data by MEXT" (just got one). It looks like they're going to the LT as well. Are they getting forwarded to you by the LT, or would you like me to forward them to you and/or the RST?

Thanks,
-Nick

853 / NML

From: Hoc, PMT12
Sent: Friday, April 15, 2011 3:09 AM
To: OST01 HOC
Subject: RE: MEXT Radiation data...

Thanks.

From: OST01 HOC
Sent: Friday, April 15, 2011 3:08 AM
To: Hoc, PMT12
Subject: RE: MEXT Radiation data...

OK I'll forward the two recent ones.

From: Hoc, PMT12
Sent: Friday, April 15, 2011 2:46 AM
To: OST01 HOC
Subject: RE: MEXT Radiation data...

Although... I didn't receive any recently, so maybe it would not hurt for you to forward it.

From: OST01 HOC
Sent: Friday, April 15, 2011 2:43 AM
To: Hoc, PMT12
Subject: MEXT Radiation data...

Jessica,

Every once in a while I get emails titled "Radiation data by MEXT" (just got one). It looks like they're going to the LT as well. Are they getting forwarded to you by the LT, or would you like me to forward them to you and/or the RST?

Thanks,
-Nick

h53/NT

From: OST01 HOC
Sent: Friday, April 15, 2011 3:51 AM
To: LIA08 Hoc
Subject: RE:

Thanks.

From: LIA08 Hoc
Sent: Friday, April 15, 2011 3:46 AM
To: OST01 HOC
Subject:

093/1111

From: OST01 HOC
Sent: Friday, April 15, 2011 9:02 PM
To: Ruland, William; Collins, Timothy
Subject: FW: New Tasker

NRR to refine the interim comprehensive assessment document per the discussions held on the afternoon and evening of 4/15. Bill Ruland has details. It will include a higher-level paper that references a number of attachments. High priority. Send the tasker to NRR POC Pat Hiland, Bill Ruland, and Tim Collins. Due date 4/22. Thanks.

VVV / 361

From: OST01.HOC
Sent: Friday, April 15, 2011 9:30 PM
To: Boger, Bruce
Subject: RE: New Tasker

The tasker has been added and the email has been sent to Bill Ruland and Tim Collins

From: Boger, Bruce
Sent: Friday, April 15, 2011 8:39 PM
To: OST01.HOC
Subject: New Tasker

Please create a new tasker to NRR to refine the interim comprehensive assessment document per the discussions held on the afternoon and evening of 4/15. Bill Ruland has details. It will include a higher-level paper that references a number of attachments. High priority. Send the tasker to NRR POC Pat Hiland, Bill Ruland, and Tim Collins. Due date 4/22. Thanks.

VVV/362

From: OST01 HOC
Sent: Friday, April 15, 2011 11:20 PM
To: Johnson, Michael; Hoc, PMT12; RST01 Hoc; LIA08 Hoc
Subject: Last Shift's One-Pager
Attachments: Japan One Pager 2300 EDT 4-15-11.docx

Please see attached copy of last shift's one-pager.

Please update this through the night and send it back to OST01 by 5:30 a.m. for compilation and vetting. There were several new entries last night and we are out of space, so please remove any items that you feel should be removed to help keep it to one page in length.

Thanks!

-Nick Ballam
ET Support

393 | NNT

From: RST01 Hoc
Sent: Friday, April 15, 2011 10:16 PM
To: OST01 HOC
Cc: Hoc, PMT12; LIA08 Hoc; Boger, Bruce
Subject: FW: RST Team Shift Check-off Listc.docx
Attachments: RST Team Shift Check-off Listc.docx

Please close task 4772 and attached associated document. The checklist is for RST specific but other teams (PMT, LI, ET) should consider modifying for their use.

The checklist was reviewed by Mr. Boger and found acceptable.

RST

From: RST09 Hoc
Sent: Friday, April 15, 2011 9:45 PM
To: RST01 Hoc
Subject: RST Team Shift Check-off Listc.docx

Attached is an RST checklist to be used by the RST shifts.

VVV/364

Reactor Safety Team Checklist

Day Shift

Date: _____

Tasks	Notes
Turnover	(Check when completed)
Login in to WebEOC	<input type="checkbox"/>
Review Log Entries	<input type="checkbox"/>
Log any actions taken or response in the RST Log. Attach pertinent documents as necessary.	<input type="checkbox"/>
Review Task Tracker and update as appropriate	<input type="checkbox"/>
08:30 ET briefing held in the ET room.	<input type="checkbox"/>
Teleconferences	
11:00 Call with Technical Consortium	<input type="checkbox"/>
Log any pertinent information from call. Create Task if information or action is required. Forward request or action to NRC Point of Contact – Pat Hiland and Bill Ruland	<input type="checkbox"/>
Routine Activities	
Log any actions taken or responses in the RST Log. Attach pertinent documents as necessary.	<input type="checkbox"/>
14:00 Update One-pager for Chairman and provide to ET or OST	<input type="checkbox"/>
Correspondence	
Document any significant correspondence in the RST log such as email, phone calls, etc.	<input type="checkbox"/>
	<input type="checkbox"/>

From: OST01 HOC
Sent: Friday, April 15, 2011 3:29 AM
To: Hoc, PMT12
Subject: RE: MEXT reports

Will do.

From: Hoc, PMT12
Sent: Friday, April 15, 2011 3:28 AM
To: OST01 HOC
Subject: RE: MEXT reports

It looks like we got some yesterday from OST01, but you can forward and I will look to see if they are the same. Thanks!

From: OST01 HOC
Sent: Friday, April 15, 2011 3:26 AM
To: Hoc, PMT12
Subject: MEXT reports

I noticed there were two more MEXT reports that came in before my shift started at 10:17 and 10:23. Do you want me to forward those as well?

VVV/365

Bureau of Meteorology
National Meteorological and Oceanographic Centre
Melbourne Australia

RSMC for Environmental Emergency Response

FAX: 61 3 9662 1222 or 61 3 9662 1223
Telephone (24 hours) Shift Supervisor 61 3 9669 4035
Email: rto@bom.gov.au

EMERGENCY EMERGENCY

RSMC Melbourne EER Products

Issued at : 0155 UTC 15:Apr:2011

The following charts will follow:

- trajectory map
- several time-integrated concentration map
- total (dry + wet) deposition map

Please contact us if any problems arise with these products.

Source term and dispersion model details

Location name: Fukushima Daiichi Japan
Release Location(decimal degrees): 37.4206 N 141.0329 E
Release Time/Date: 0100 UTC 15 APR 2011
Emission duration: 72
Emission (per hour): 1.39E-02
Substance released: I131 (Half-life: 8.04398E+0)
Vertical distribution: UNIFORM
Meteorological Model: Access G (~80km/29 sigma lvs)
Dispersion Model: HYSPLIT 4.9

Number of Pages (incl cover sheet) = 6

VVV/366

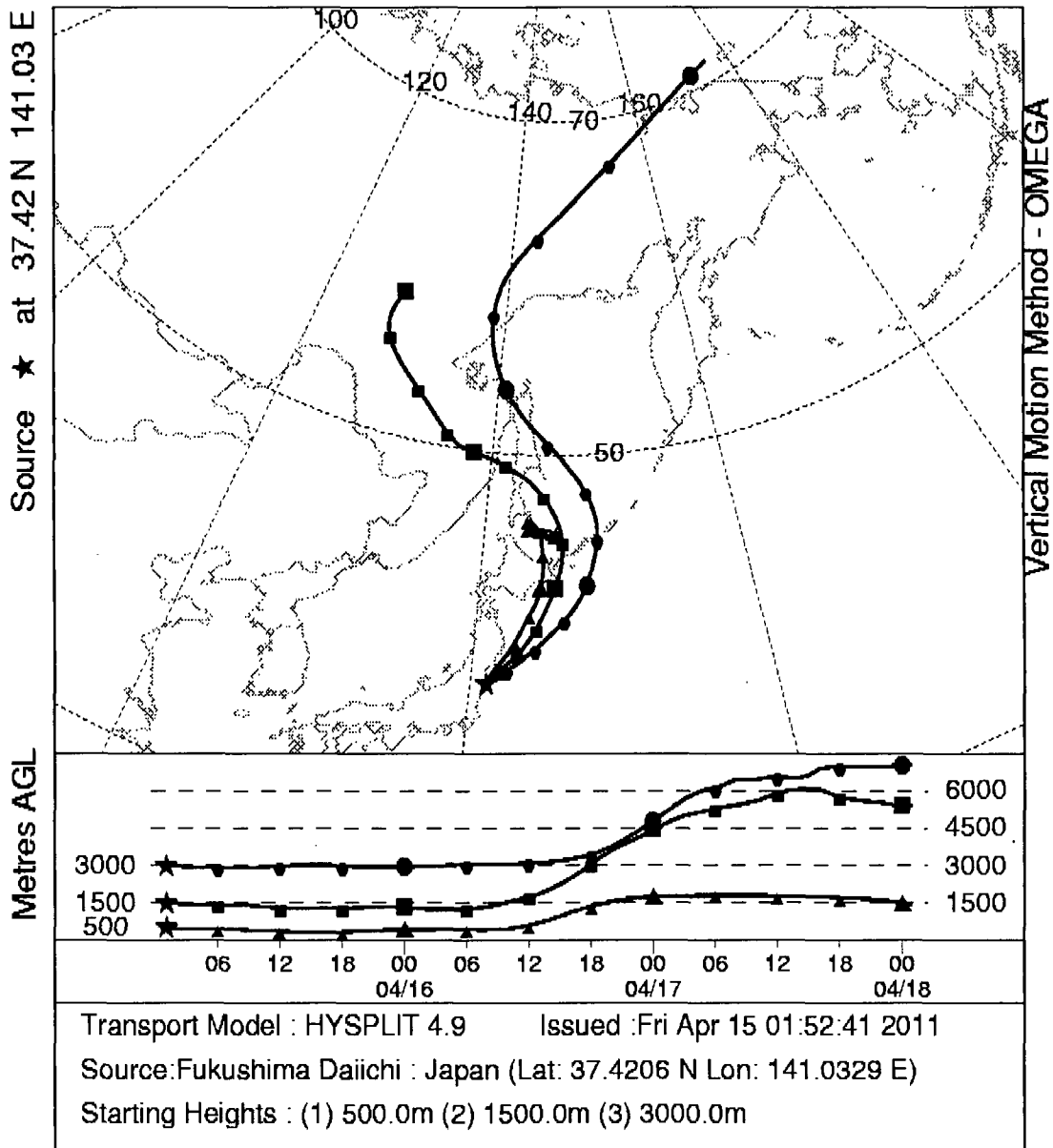
RSMC Melbourne : Environmental Emergency Response Centre

Forward trajectories starting at 0100 UTC 15 Apr 2011

Meteorological Data : ACCESS-G : base time 1200 UTC 14 Apr

OPERATIONAL EVENT

OPERATIONAL EVENT

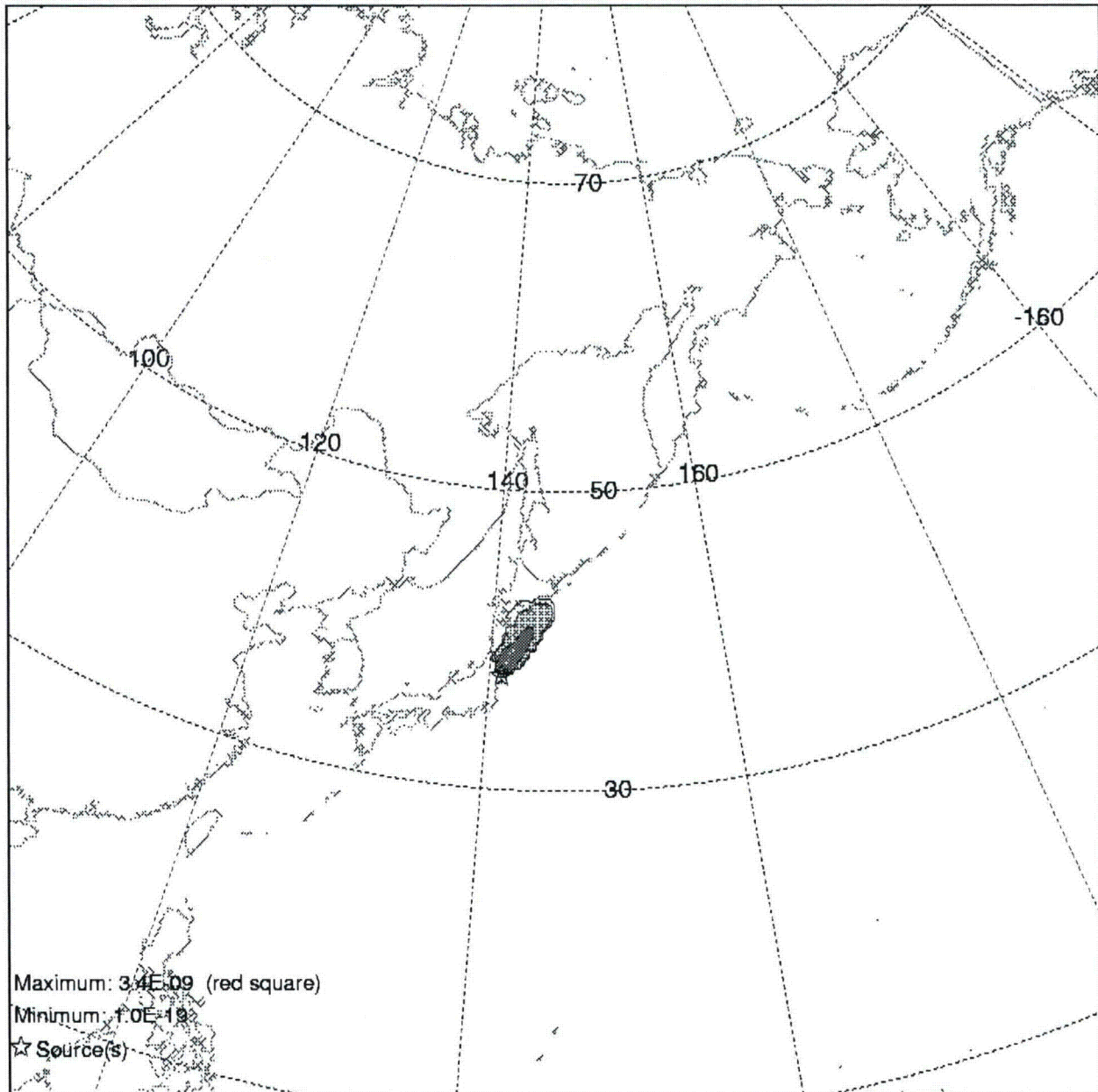
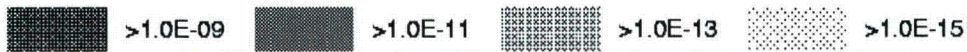


RSMC Melbourne : Environmental Emergency Response Centre

OPERATIONAL EVENT

Integrated from 0000 15 Apr to 0000 16 Apr 11 (UTC)

Exposure (Bq-s/m3) averaged between 0 m and 500 m



Maximum: $3.4E-09$ (red square)

Minimum: $1.0E-15$

☆ Source(s)

Source: Fukushima Daiichi : Japan (Lat: 37.4206 N Lon: 141.0329 E)

Isotope : I131 (Halflife: 8.04398E+00 days) Rate: $1.39E-02$ Bq/hr

Duration: 72 hrs Particles: 500

DryDep Rate 0.001 WetRem (in/below-cloud) $3.20E+05$ $5.0E-05$

Distribution: UNIFORM between 20.0m and 500.0m

Meteorological Data : ACCESS-G : base time 1200 UTC 14 Apr

Note: "Contours may change from Chart to Chart"

Issued : Fri Apr 15 01:52:41 2011

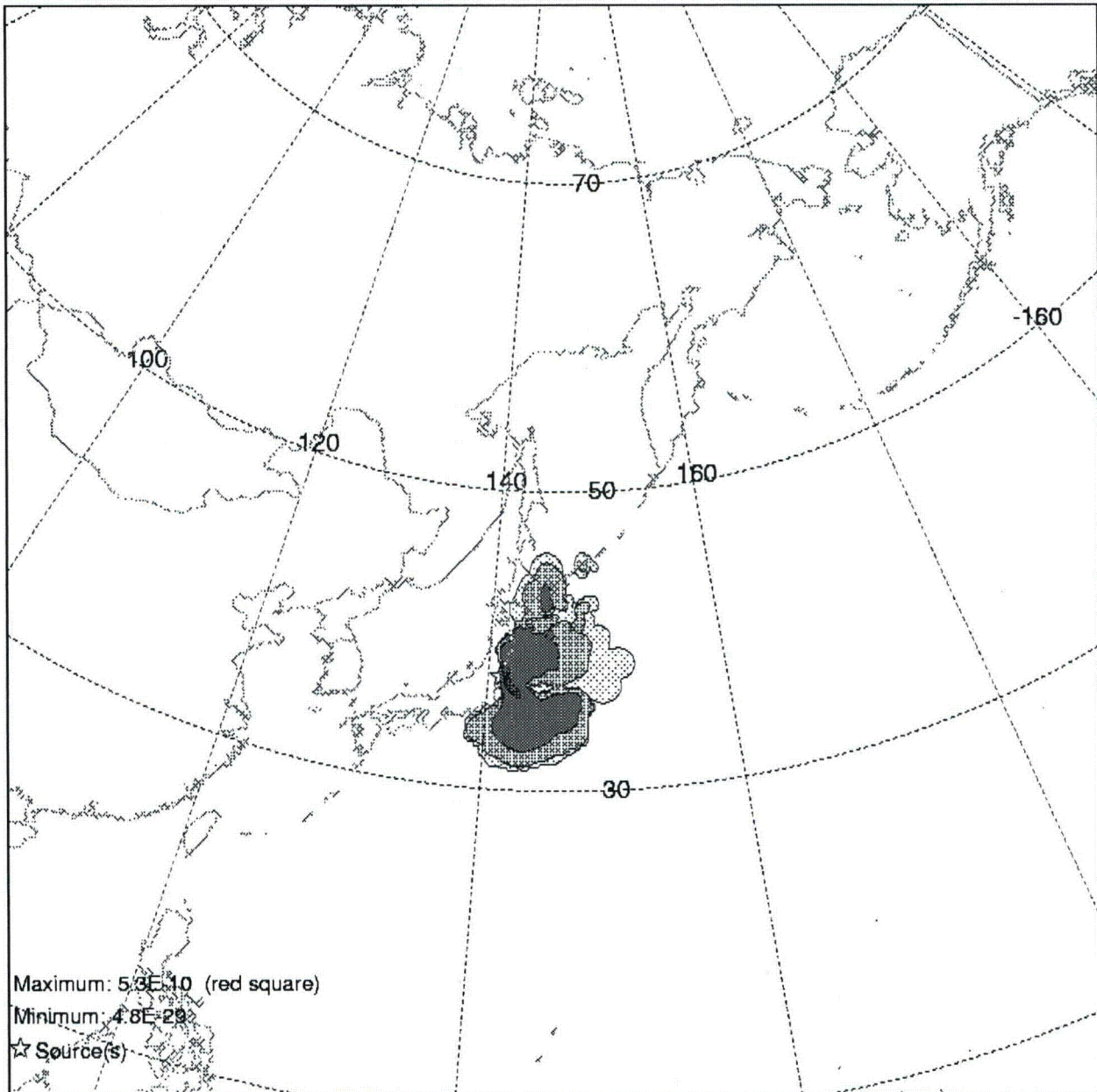
NRAD RELEASE STARTED AT 0100 UTC 15 APR 2011

RSMC Melbourne : Environmental Emergency Response Centre

OPERATIONAL EVENT

Integrated from 0000 16 Apr to 0000 17 Apr 11 (UTC)

Exposure (Bq-s/m3) averaged between 0 m and 500 m



Maximum: $5.3E-10$ (red square)

Minimum: $4.8E-23$

☆ Source(s)

Source: Fukushima Daiichi : Japan (Lat: 37.4206 N Lon: 141.0329 E)

Isotope : I131 (Half-life: 8.04398E+00 days) Rate: $1.39E-02$ Bq/hr

Duration: 72 hrs Particles: 500

DryDep Rate 0.001 WetRem (in/below-cloud) $3.20E+05$ $5.0E-05$

Distribution: UNIFORM between 20.0m and 500.0m

Meteorological Data : ACCESS-G : base time 1200 UTC 14 Apr

Note: "Contours may change from Chart to Chart"

Issued : Fri Apr 15 01:52:41 2011

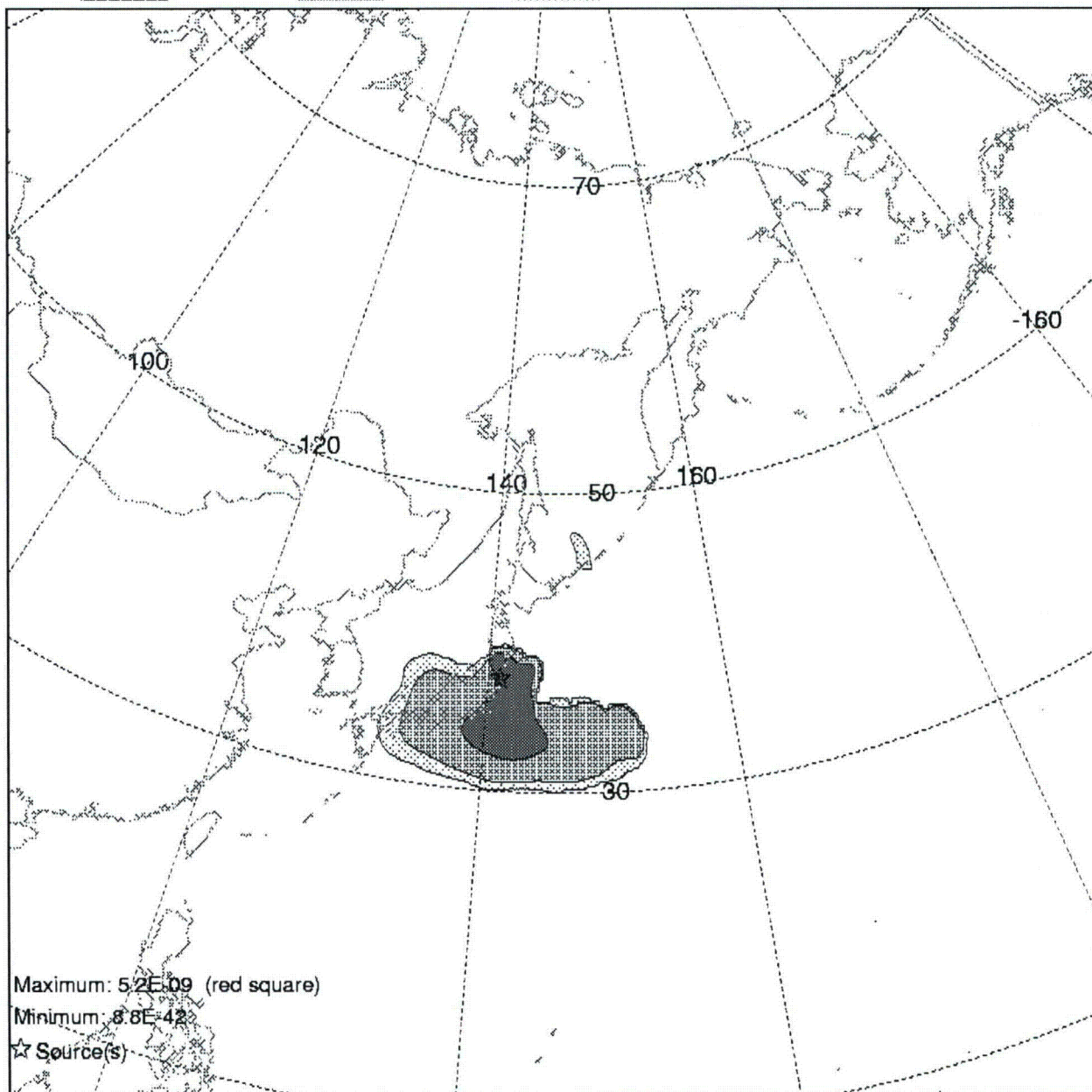
NRAD RELEASE STARTED AT 0100 UTC 15 APR 2011

RSMC Melbourne : Environmental Emergency Response Centre

OPERATIONAL EVENT

Integrated from 0000 17 Apr to 0000 18 Apr 11 (UTC)

Exposure (Bq-s/m³) averaged between 0 m and 500 m



Maximum: 5.2E-09 (red square)

Minimum: 8.6E-42

☆ Source(s)

Source: Fukushima Daiichi : Japan (Lat: 37.4206 N Lon: 141.0329 E)

Isotope : I131 (Half-life: 8.04398E+00 days) Rate: 1.39E-02 Bq/hr

Duration: 72 hrs Particles: 500

DryDep Rate 0.001 WetRem (in/below-cloud) 3.20E+05 5.0E-05

Distribution: UNIFORM between 20.0m and 500.0m

Meteorological Data : ACCESS-G : base time 1200 UTC 14 Apr

Note: "Contours may change from Chart to Chart"

Issued : Fri Apr 15 01:52:41 2011

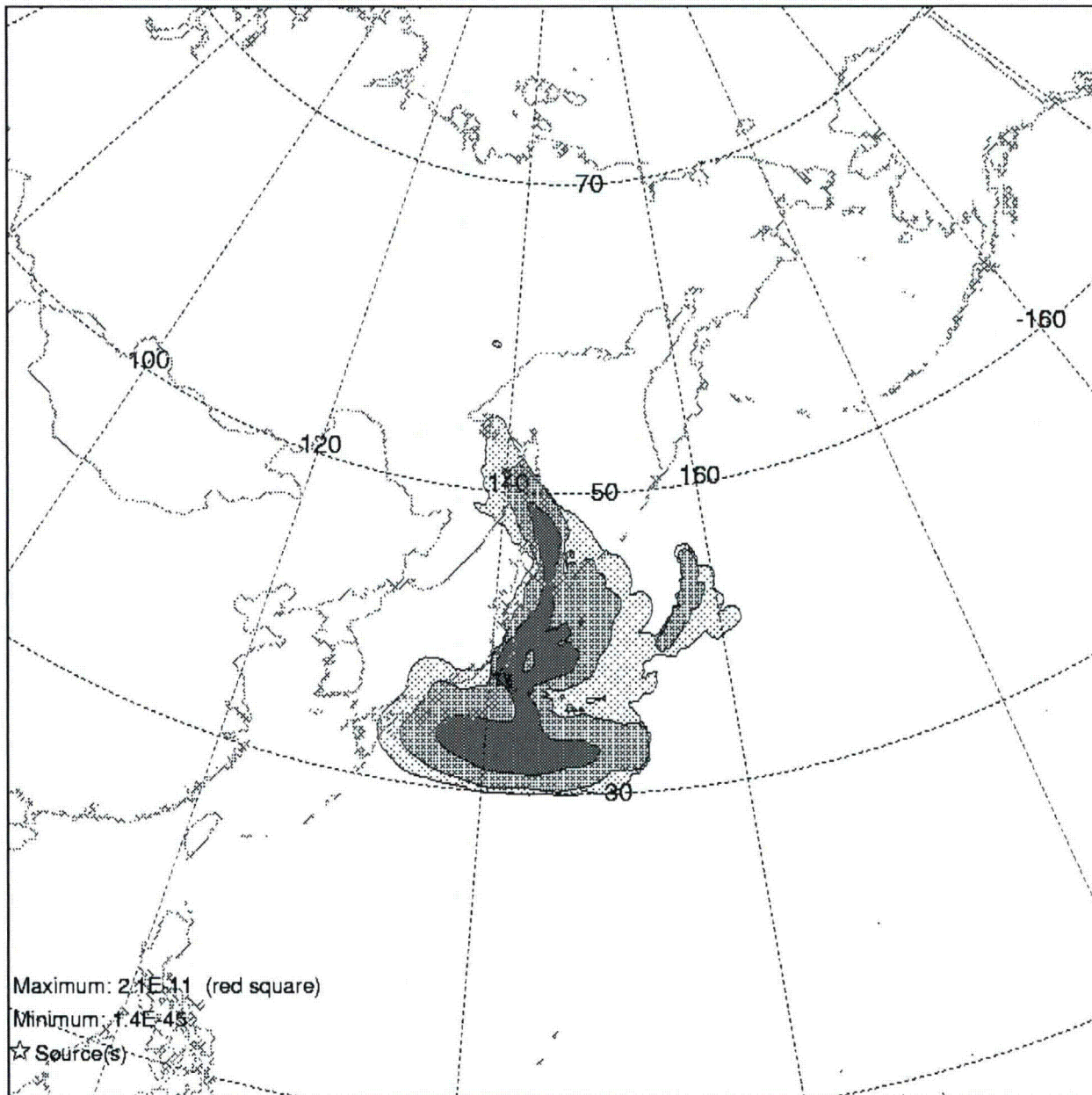
NRAD RELEASE STARTED AT 0100 UTC 15 APR 2011

RSMC Melbourne : Environmental Emergency Response Centre

OPERATIONAL EVENT

Integrated from 0000 15 Apr to 0000 18 Apr 11 (UTC)

Deposition (Bq/m2) at ground-level



Maximum: 2.1E-11 (red square)

Minimum: 1.4E-15

☆ Source(s)

Source: Fukushima Daiichi : Japan (Lat: 37.4206 N Lon: 141.0329 E)

Isotope : I131 (Half-life: 8.04398E+00 days) Rate: 1.39E-02 Bq/hr

Duration: 72 hrs Particles: 500

DryDep Rate 0.001 WetRem (in/below-cloud) 3.20E+05 5.0E-05

Distribution: UNIFORM between 20.0m and 500.0m

Meteorological Data : ACCESS-G : base time 1200 UTC 14 Apr

Note: "Contours may change from Chart to Chart"

Issued : Fri Apr 15 01:52:41 2011

NRAD RELEASE STARTED AT 0100 UTC 15 APR 2011

From: LIA08 Hoc
Sent: Friday, April 15, 2011 9:27 PM
To: RST01 Hoc; Hoc, PMT12; OST01 HOC; Boger, Bruce; Zimmerman, Roy
Subject: FW: Supplemental measures to enhance outside power supply credibility

V/R,

Clyde

Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: LIA02 Hoc
Sent: Friday, April 15, 2011 9:26 PM
To: LIA08 Hoc
Subject: FW: Supplemental measures to enhance outside power supply credibility

From: Hidehiko Yamachika [mailto:yamachika-hidehiko@jnes-usa.org]
Sent: Friday, April 15, 2011 9:25 PM
To: LIA02 Hoc
Cc: aono-kenjiro@jnes-usa.org; Michael W. Chinworth
Subject: Supplemental measures to enhance outside power supply credibility

On top of the following measures announced the other day in order to enhance power supply credibility;

- i) Ensuring multiple DGs' utilization while a reactor shuts down
- ii) Ensuring multiple utilization of DGs to other units in the multiple units site
- iii) Deploying electric vehicle

NISA issued additional following measures on April 15;

- iv) Connecting outside power lines to any units in the multiple units site
- v) Enhancing transmission towers
- vi) Water resistance of the high - low voltage power switch

*Official translation will be notified when it will be ready.

5/15/11 367

From: Dyer, Jim
Sent: Friday, April 15, 2011 11:27 AM
To: Casto, Chuck; Virgilio, Martin; ET02 Hoc; Wiggins, Jim; OST01 HOC
Subject: RE: global assessment presentation

Here's my comments on the presentation as input to the discussion. I'll be out of the office this PM so consider them for what they are worth. I'm sure OCFO won't have the lead for this item. Jim

Slide 2: Is this assessment "completed"? The Global Assessment is still a work in progress; so are we discussing the earlier stability assessments? Probably needs to be cleared up that it may be ongoing.

Slide 4: Agree with earlier comment on probabilities; I'm not sure of the basis and it may cause confusion to someone who is not familiar with "risk speak" and become a point of argument for someone who is conversant. Suggest we take the numbers out and try to relate qualitatively.

Slide 5: "Feed and Bleed" is nuclear slang that hasn't been defined earlier. We should keep to the same terminology between slides 4 (steam cooling) and slide 5 (Feed and bleed). Similarly, we haven't defined phase 1 and 2 stability, so I'm not sure it adds much to the slide than what's already described in the first section.

Jim

From: Casto, Chuck
Sent: Friday, April 15, 2011 6:11 AM
To: Virgilio, Martin; Dyer, Jim; ET02 Hoc
Subject: global assessment presentation

Attached is the draft presentation

222 | 368

From: OST01 HOC
Sent: Friday, April 15, 2011 10:32 PM
To: RST01 Hoc; Hoc, PMT12; LIA08 Hoc; Boger, Bruce
Subject: Japan One Pager 2100 EDT 4-15-11
Attachments: Japan One Pager 2100 EDT 4-15-11.docx

Disregard that last message, this machine does not like to save current documents, but, this one will be sent for distribution.

Thanks for your assistance and patience (machine) ugh...

VVV/369

From: OST01 HOC
Sent: Friday, April 15, 2011 9:17 AM
To: Zimmerman, Roy
Subject: FW: global assessment presentation
Attachments: JapenGlobalAssessmentFinalApril15.pptx

In case you don't already have this. I have a printed copy as well.

From: ET02 Hoc
Sent: Friday, April 15, 2011 9:14 AM
To: OST01 HOC
Subject: FW: global assessment presentation

From: Casto, Chuck
Sent: Friday, April 15, 2011 6:11 AM
To: Virgilio, Martin; Dyer, Jim; ET02 Hoc
Subject: global assessment presentation

Attached is the draft presentation

VNV/370

NRC INTERIM COMPREHENSIVE ASSESSMENT of FUKUSHIMA EVENT

4/15/2011

Official Use Only - Sensitive Internal
Information

Background

- Consortium of U.S. nuclear organizations completed assessment
 - NRC; Department of Energy; Naval Reactors; Institute of Nuclear Power Operations; Electric Power Research Institute; General Electric
- Collaborated to complete technical assessments for safety issues for reactors and spent fuel pools
- All major technical assessments completed
- Provided results to TEPCO and NISA

Assessment Conclusions

- U.S. Protective Action decisions remain conservative through all scenarios
 - Tokyo is not seriously threatened
- Unknown Ocean impacts
- Active radiation releases ongoing
- Accident conditions static but fragile
- Mitigating features temporary and highly unconventional

Assessment of Conditions

- Fuel Damage estimates: U-1 67%; U-2 44%; U-3 30% (est.)
- Reliance on steam cooling for reactors
- Time to react on a loss of injection is short – less than 10 hours for Unit 1
- Current situation results in a 1-10 to 1-100 probability of release
- Probability driven by seismic events without diversity or redundancy of injection system
- Can get 1-100,000 probability with training & preplanning of fire equipment and diverse & redundant injection system
- Containment flooding remains primary suggestion – especially for Units 1 & 3
- Flooding reduces consequences by one-to-two orders of magnitude

Next Steps

- Feed and bleed assessment recommends more actions to mitigate additional events
 - Diversity and redundancy in feeding system
 - Automation of Giraffes and feeding systems
 - Additional feeding system injection points
 - Additional venting system
- Stability requires more actions
 - Completing actions to Phase 1 and Phase 2 stability
 - For example - decay heat removal system

From: Virgilio, Martin
Sent: Friday, April 15, 2011 8:30 AM
To: Wiggins, Jim; Casto, Chuck; Dyer, Jim; ET02 Hoc; Evans, Michele; Holahan, Patricia; Zimmerman, Roy; OST01 HOC
Cc: Merzke, Daniel; Leeds, Eric
Subject: RE: global assessment presentation

Follow Up Flag: Follow up
Flag Status: Completed

Jim

We took the lead for this yesterday on day shift to ensure consistency with other credible sources of information (or acknowledge lack of certainty) and quality of the document. Roy has in the process of determining the HQ owner when we last spoke.

Marty

From: Wiggins, Jim
Sent: Friday, April 15, 2011 8:11 AM
To: Casto, Chuck; Dyer, Jim; ET02 Hoc; Evans, Michele; Holahan, Patricia; Zimmerman, Roy; OST01 HOC
Cc: Merzke, Daniel; Virgilio, Martin; Leeds, Eric
Subject: Re: global assessment presentation

OST01- Did we assign this in the Tasker? I thought Chuck's team had the lead for the report and a number of us had been providing comments.

Might be difficult to cold-start staff in a line office at this point.

From: Virgilio, Martin
To: Casto, Chuck; Dyer, Jim; ET02 Hoc; Wiggins, Jim; Evans, Michele; Holahan, Patricia; Zimmerman, Roy
Cc: Merzke, Daniel
Sent: Fri Apr 15 07:48:57 2011
Subject: global assessment presentation

Jim/Michele/Roy

Please ensure this is assigned to whoever has the lead for reviewing the Global Assessment. Who has the lead for that review? We need to confirm with Chuck the timeline for the review of this presentation material. I believe he is looking to use the slides to brief the SoS.

Marty

From: Casto, Chuck
Sent: Friday, April 15, 2011 6:11 AM
To: Virgilio, Martin; Dyer, Jim; ET02 Hoc
Subject: global assessment presentation

Attached is the draft presentation

153/11/11

From: OST01 HOC
Sent: Friday, April 15, 2011 7:00 AM
To: Jaczko, Gregory; Virgilio, Martin; Weber, Michael; Boger, Bruce; Johnson, Michael; Zimmerman, Roy; Uhle, Jennifer; Tracy, Glenn; Wiggins, Jim; Carpenter, Cynthia; Moore, Scott
Cc: Pace, Patti; Batkin, Joshua; Gibbs, Catina; Speiser, Herald; Hipschman, Thomas; Marshall, Michael; Castleman, Patrick; Snodderly, Michael; Franovich, Mike
Subject: April 15 - 0700EDT One-Pager - Fukushima Daiichi
Attachments: Japan One Pager 0700 EDT 4-15-11.pdf

Attached, please find the 0700 EDT, April 15, 2011, Briefing Sheet (One Pager).

Please note that this information is "Official Use Only."

RES/ANN

From: OST01 HOC
Sent: Saturday, April 16, 2011 9:05 PM
To: Hoc, PMT12; LIA08 Hoc; RST01 Hoc
Subject: FW: NRR's Q&A data base

From: Weber, Michael
Sent: Saturday, April 16, 2011 7:11 PM
To: OST01 HOC; Moore, Scott; Tracy, Glenn
Subject: FYI - NRR's Q&A data base

From: Virgilio, Martin
To: Leeds, Eric
Cc: Boger, Bruce; Nelson, Robert; Oesterle, Eric; Weber, Michael; Muesle, Mary; Landau, Mindy; Andersen, James; Markley, Michael
Sent: Sat Apr 16 17:11:58 2011
Subject: NRR's Q&A data base

Eric

My thanks to NRR for the sharepoint site with the Q&A data base. I would not have survived the Congressional hearing had it not been for my review of that information. I believe it should be required reading for anyone who is going to be participating in a public interaction on the events in Japan.

That said, could you please have the staff review and consider expanding the Q&As in the following areas:

- Why license renewal reviews do not include a review of the plant's response to external events
- Why we should not establish a 50 mile EPZ in the US if this was NRC's recommendation for the accident in Japan
- Why NRC does not order licensees to move fuel stored in pools to dry casks
- Why NRC should not require the more sophisticated (3D) seismic studies being voluntarily conducted by licensees in California
- How the designs of Mark 1 containment plants have improved over time
- How EPA is monitoring, collecting and posting information related to the impacts in the US of the accident in Japan
- What process we followed in making the 50 mile recommendation in Japan and what influenced our decision making
- How the process for taking protective measures following an accident (evacuation, sheltering, KI) works in the US including the roles and responsibilities of the Federal Government Agencies, States and locals .

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N/V

From: OST01 HOC
Sent: Saturday, April 16, 2011 9:28 PM
To: RST09 Hoc
Subject: RE: One Pager: Swing Shift.

Thanks.

From: RST09 Hoc
Sent: Saturday, April 16, 2011 9:24 PM
To: OST01 HOC
Subject: One Pager: Swing Shift.

vuv / 374

From: LIA08 Hoc
Sent: Saturday, April 16, 2011 5:30 PM
To: OST01 HOC
Subject: RE: doc status

Thanks...will update and send it back to you and the other teams. Jeff Temple

Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: OST01 HOC
Sent: Saturday, April 16, 2011 4:13 PM
To: LIA08 Hoc
Subject: doc status

SLC/ANN

From: Hiland, Patrick
Sent: Saturday, April 16, 2011 2:20 PM
To: OST01 HOC
Subject: Out of Office: ACTION - New Ticket for Japanese Event Task Tracking (JETT) Process

I'm out of the office until Monday, April 18, 2011. For IRC POC, contact Bill Ruland at 415-1270. For NRR/DE please contact Marty Murphy at 301-415-3969 during my absence.

vvv/376

From: Zimmerman, Roy
Sent: Saturday, April 16, 2011 1:23 PM
To: Weber, Michael
Cc: LIA08 Hoc; OST01 HOC; Hoc, PMT12
Subject: RE: Response - OUO -- 1200 EDT (April 16, 2011) USNRC Earthquake-Tsunami Update

I mentioned the erroneous reading during an RST call today that had DOE on the line. I haven't had a chance to get to the DOE Sitrep report unfortunately; otherwise, I could have mentioned it. I'll ask our shift to request DOE revise in their next issuance, thx

From: Weber, Michael
Sent: Saturday, April 16, 2011 1:08 PM
To: LIA07 Hoc
Cc: OST01 HOC; Zimmerman, Roy; Moore, Scott
Subject: Response - OUO -- 1200 EDT (April 16, 2011) USNRC Earthquake-Tsunami Update

Thanks. Contrary to our SitRep, I did not see that DOE's 0600 SitRep corrected the Cs-134 groundlevel measurements from AMS for the mountainous topography at 80 km SW of the site. I presume there was a delay.

From: LIA07 Hoc
To: LIA08 Hoc
Sent: Sat Apr 16 13:00:47 2011
Subject: OUO -- 1200 EDT (April 16, 2011) USNRC Earthquake-Tsunami Update

Attached, please find the 1200 EDT, April 16, 2011 status update from the US Nuclear Regulatory Commission's Emergency Operations Center regarding the impacts of the earthquake/tsunami in Japan.

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.

Clyde Ragland
Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

3/16/11

From: OST01 HOC
Sent: Saturday, April 16, 2011 6:30 AM
To: Johnson, Michael
Subject: FW: For Awareness: New Process for Assistance Requests from NRC Operations Center to the Line Organization
Attachments: RE: Change on EOC staffing; Transition Plan 4.16.11_0615.docx

Mike,

Please see attached documents for distribution concerning the Ops Center ticketing process to the NRC Offices.

-Nick

From: LIA08 Hoc
Sent: Saturday, April 16, 2011 6:25 AM
To: OST01 HOC
Cc: Johnson, Michael
Subject: For Awareness: New Process for Assistance Requests from NRC Operations Center to the Line Organization

Hey Nick,

Here is an email message that is a good start. Please attach the transition plan and forward to Mike so the email can be sent from the ET Director (guy with the capital)... ☺

Thanks,
Rani

To All,

Please see the attached email from Jim Andersen; it defines a process for tracking requests for information and work products that come through the NRC Operation center for action by the line organization. We have incorporated this simple process into our "Operations Center Transition Plan to Reduced Staffing for Fukushima Dai-ichi Event" (also attached, see page 8). This email is being sent to you for your awareness because you have been identified as a POC for your office.

8/3/11

April 16, 2011

0615 EDT

Operations Center Transition Plan to Reduced Staffing for Fukushima Dai-ichi Event

Based on the Chairman's April 8, 2011 memorandum to the EDO with approval of Operations Center staffing for the Japan event, staff is beginning to transition current staffing levels to a six-person team as described in the memorandum:

The intent of this document is to detail the actions taken and planned for an orderly transition to the six-person agency watch staff, the associated actions to transfer incoming requests to NRC line organizations, and the subsequent reduction of products delivered by the agency watch team and/or participation in conferences or calls regarding the event. It is expected that each NRC Office will have a central point of contact and a distribution network to properly process and distribute to key available staff members the requests sent by the agency watch team as it continues to support the needs of the Site Team in Japan. The principal roles of the team in the Operations Center are to provide a point of contact for the site team and to ensure that site team needs are met with a similar response time as a fully-staffed Operations Center. The change is that the Operations Center team is not expected to provide support directly, but rather to manage that support from the line organizations. The Operations Center team will provide direct support consistent with the limited resources and available skill sets of the new team size.

Messaging on Transition

NRC is realigning the functions for the Japan Earthquake and Tsunami response to better serve the changing information needs for stakeholders. The following realignment will occur, beginning Monday April 11, 2011:

1. The NRC Site Team in Japan will continue to be staffed at the current level. Additional NRC staff have departed the U.S. for Japan for turnover to allow some of the current staff to return to the U.S.
2. NRC's line organizations will be leveraged to perform detailed technical analyses previously performed by the full Reactor Support and Protective Measures Teams in the NRC HQ Operations Center.
3. The Headquarters Operations Center will continue to have enhanced staffing around the clock dedicated to this response, but will have fewer individuals per shift in the Operations Center. Their focus will be coordination and communications while shifting most of the technical work associated with this response to NRC's regular line organizations.

The following pages will define actions by team:

Executive Team

1. Define roles and skills needed for each position.
2. Determine when and if temporary augmentation of the Ops Center staff is needed (when tasks cannot be efficiently or effectively worked through the line organization), which skill sets are needed, and the duration of the augmentation.
3. Conduct Commissioners' Assistants (CA) briefings as described in Recurring Daily Actions and Calls List (See WebEOC – ET Misc. Document Collection).
4. Ensure that the Ops Center Status Update is revised once per day at 1200 EDT.
5. Ensure consistency in document nomenclature for various documents and responses to information requests. Identify reports/documents to be sunsetted, as more global documents are created and kept up-to-date.
6. Oversee the management and closeout of tasks in the Task Tracker.

ET Support Team

1. Manage updates to the One-Pager - Fukushima Daiichi.
 - a. Receive updates from each team and vet them through ET Director before end of each shift.
 - b. Distribute via email to Chairman and other individuals (See EST Instructions).
 - c. Post to SharePoint & WebEOC
2. Manage WebEOC Logins.
3. Coordinate email forwarding as needed for IAEA, DOE SitReps, faxes, and other documents (See EST Instructions).
 - a. DOE SitReps need to be reviewed by PMT before being forwarded to CA's.
4. Ensure that the SharePoint site is updated with relevant documents.
5. Ensure that ET Log Book is updated before the end of each shift.

NSIR Incident Response Staff (weekday dayshift; as part of the line organization)

1. Implement a process for capturing relevant items from various workstations and emails (an auto-forward or bounce-back message may help for emails).
2. Provide SharePoint and WebEOC access and instruction to support staff so that SharePoint can be utilized once the briefing products are consolidated/discontinued.
3. Determine an effective method to track actions, information, and decisions if Chronology is to be discontinued.
4. Address Ops Center operational issues (facility and Ops Center computer system issues).

Protective Measures Team

Protective Measures Team (PMT) will be staffed with a single individual/shift from the following qualified emergency response organization (ERO) roster positions:

- a. PMT Director
- b. PMT Deputy Director
- c. Protective Action Asst. Director
- d. Radiological Assessment Asst. Director
- e. Dose Assessors

Responsibilities of the PMT include:

1. Lead the overall PMT activities for the Japan Event.
2. Lead periodic calls with Japan site team PMT counterparts, PACOM counterpart, and other contacts as specified in Recurring Daily Actions and Calls List (See WebEOC – HOC Menu >> ET Misc. Document Collection).
3. Develop assessments on PMT activities for Japan site team and appropriate stakeholders.
4. Provide recommendation on release of PMT assessments to the ET director.
5. Monitor and update tasks assigned to the PMT in the Task Tracker.
 1. Add additional tasks as needed.
 2. Coordinate with Line Organizations as needed.
6. Provide updates to One-Pager to ET Support (OST01) one hour before end of shift.
7. Review DOE SitReps, provide feedback to ET Support (OST01) to share them with CA's.
8. Provide recommendations / assessment of protective actions, and radiological assessments for American citizens in Japan upon request.
9. Provide Liaison Team with updates to Daily NRC EOC Status Update (1200 EDT).

Reactor Safety Team

The **BWR Expert Position** is staffed with a person with the following skills: Strong BWR experience and continuity in the Japan event in RST area.

Responsibilities include:

1. Lead the overall RST activities for the Japan Event
2. Lead periodic calls with the consortium and Japan site team as specified in Recurring Daily Actions and Calls List (See WebEOC – HOC Menu >> ET Misc. Document Collection).
3. Develop assessments on RST activities for Japan site team and appropriate stakeholders.
4. Provide recommendation on release of RST assessments to the ET director.
5. Monitor and update tasks assigned to the RST in the Task Tracker.
 - a. Add additional tasks as needed.
 - b. Coordinate with Line Organizations as needed.
6. Provide updates to One-Pager to ET Support (OST01) one hour before end of shift.\
7. Provide Liaison Team with updates to Daily NRC EOC Status Update (1200 EDT).

The **Severe Accident/BWR Analyst Position** is staffed with a person with the following skills in priority order: (1) severe accident/PRA, (2) BWR experience, and (3) Ops center function and equipment experience.

Responsibilities include:

1. Provide support to the BWR expert on RST assessments
2. Provide updates to Fukushima status update chart
3. Monitor and update tasks assigned to the RST in the Task Tracker.
 - a. Add additional tasks as needed.
 - b. Coordinate with Line Organizations as needed.
4. Provide updates to One-Pager to ET Support (OST01) one hour before end of shift.
5. Provide Liaison Team with updates to Daily NRC EOC Status Update (1200 EDT).

Liaison Team

The LT Coordinator is responsible for providing liaison support to the Operations Center team consistent with normal Liaison Team responsibilities. The LT coordinator will work with the POCs identified in each supporting office (principally OIP, FSME, OPA, and OCA) to ensure that tasks, deliverables, and schedules are understood by the appropriate line organization.

Responsibilities of the LT include:

1. Conduct and participate in calls as specified in Recurring Daily Actions and Calls List.
2. Maintain the Recurring Actions and Calls List.
3. Monitor and update tasks assigned to the LT in the Task Tracker.
 - a. Add additional tasks as needed.
 - b. Coordinate with Line Organizations as needed.
4. Revise and distribute the NRC EOC Status Update at 1200 EDT Daily. Obtain input from PMT/RST.
5. Provide updates to One-Pager to ET Support (OST01) one hour before end of shift.

Line Organization POCs:

- FSME – FSME Rids box, George Deegan, and Robert Lewis
- NMSS – Doug Weaver
- NRO – Jeff Ciocco (backup: Tom Kevern)
- NRR – Pat Hiland (backup: Dave Skeen)
- NSIR – Michael Dudek
- OCA - normal process
- OCFO – Jim Dyer (backup: Milton Brown)
- OIP – Steve Bloom (backup: Danielle Emche)
- OPA – normal process
- RES – Kathy Gibson (backup : Mike Case)

Process for handling tasks that fall outside of the purview of the Operations Center:

1. The assigned Ops. Center team will forward the action to the appropriate program office POC, with cc to Jim Andersen (OEDO).
2. Ops. Center team will request the program office to confirm receipt and provide an office ticket number to acknowledge acceptance of the action.
 - a. If the program office does not think the tasking is appropriate, or wants to discuss with OEDO, they will contact Jim Andersen.
 - b. OEDO will reassign to another program office, if appropriate.
3. The Ops. Center task will be closed upon receipt of the ticket number from the assigned program office or OEDO.

From: OST01 HOC
Sent: Saturday, April 16, 2011 2:38 PM
To: Skeen, David; Brown, Frederick; Ruland, William
Subject: FW: ACTION - New Ticket for Japanese Event Task Tracking (JETT) Process

Gentlemen,

The below email was sent to Pat Hiland since he was listed as the NRR POC for tasking items from the Ops Center. This is being sent to you for your information. Thank you,

Executive Team Support

From: OST01 HOC
Sent: Saturday, April 16, 2011 2:20 PM
To: Hiland, Patrick
Cc: Andersen, James; Zimmerman, Roy
Subject: ACTION - New Ticket for Japanese Event Task Tracking (JETT) Process

The Operations Center has identified a task that falls in the purview of the Line Organization. You were provided as a POC for NRR.

Please provide a primary and backup representative at the appropriate level for daily calls in call list attachment. Specifically, they will be the senior NRC representative for the RST call at 0930 EDT for the 'UK/Canada/France call' and the 1100 EDT 'Technical Industry Consortium Call.' The assigned representative should be on the call to maintain continued situational awareness and provide external stakeholders with more static POCs for the respective calls. The on-shift RST members will still call into these calls to provide additional support. (It was recommended to discuss with previous RST Directors, such as Bill Ruland, Fred Brown and yourself, to determine the appropriate level of the individual.) Once the representative is assigned, specific call information (numbers and passcodes) will be provided to them.

This ticket is being tracked in the Japan SharePoint page (<http://nsir-ops.nrc.gov/Lists/HOC%20Red%20Tickets/AllItems.aspx>) under ticket number **4805**.

Please provide a response to this email to confirm receipt. Thank you,

Executive Support Team

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BLE/NVV

From: HOO Hoc
Sent: Sunday, April 17, 2011 10:25 PM
To: HOO Hoc
Attachments: FW: Urgent: Roadmap towards Restoration; FW: Urgent:Correction on statement by Mr. Kaieda; FW: Official Notice:Data sheets concerned on the status of NPP (17th April 2011); image001.gif

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



4/17/11 380

From: OST01 HOC
Sent: Sunday, April 17, 2011 1:44 AM
To: Tracy, Glenn
Subject: FW: NRC's Daily Assessment of Conditions at Fukushima Daiichi
Attachments: NRC Daily Assessment of Daiichi - 4-17-11.pdf

From: Moore, Carl
Sent: Sunday, April 17, 2011 1:41 AM
To: Jaczko, Gregory
Cc: Borchardt, Bill; Weber, Michael; Virgilio, Martin; Casto, Chuck; Leeds, Eric; RST01 Hoc; OST01 HOC
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 are no changes today.

If you have any questions, please don't hesitate to ask.

Best regards,
Carl Moore
NRC Japan Team

183/1117

~~Official Use Only~~

NRC's Daily Assessment of Conditions at Fukushima Daiichi Nuclear Power Plant

<u>Unit 1</u>		Today	Yesterday	<u>Unit 3</u>		Today	Yesterday
Vessel	Cooling	Challenged	Challenged	Vessel	Cooling	Adequate	Adequate
		↔	↔			↔	↔
	Integrity	Intact	Intact		Integrity	Failed	Failed
		↔	↔			↔	↔
Containment	Flooding	Inc./Needed	Inc./Needed	Containment	Flooding	Challenged	Challenged
		↔	↔			↔	↔
	Integrity	Challenged	Challenged		Integrity	Failed	Failed
		↔	↔			↓	↓
Spent Fuel Pool	Cooling/Level	Adequate	Adequate	Spent Fuel Pool	Cooling/Level	Challenged	Challenged
		↔	↔			↔	↔
	Integrity	Intact	Intact		Integrity	Challenged	Challenged
		↔	↔			↔	↔
<u>Unit 2</u>		Today	Yesterday	<u>Unit 4</u>		Today	Yesterday
Vessel	Cooling	Challenged	Challenged	Spent Fuel Pool	Cooling/Level	Challenged	Challenged
		↔	↔			↔	↔
	Integrity	Failed	Failed		Integrity	Challenged	Challenged
		↔	↔			↑	↑
Containment	Flooding	Inc./Needed	Inc./Needed	Protective Measures	Exposure Risk	Today	Yesterday
		↔	↔			Low	Low
	Integrity	Failed	Failed		↔	↔	
		↔	↔				
Spent Fuel Pool	Cooling/Level	Adequate	Adequate				
		↔	↔				
	Integrity	Intact	Intact				
		↔	↔				

~~Official Use Only~~

April 17, 2011

Methodology for Developing the Fukushima Daiichi Daily Assessment Report

PURPOSE: The report is prepared to provide a qualitative high level assessment of daily conditions at Fukushima Daiichi that the U.S. Ambassador can use to assess the safety of American citizens in Japan.

DISCLAIMER: The development of the daily assessment report includes a number of inputs. Some of these are objective, such as plant data provided by TEPCO, while others are subjective, such as engineering insights from the NRC's reactor and protective measures specialists in Japan. It should be recognized that there are many unknowns and uncertainties associated with having a complete understanding of conditions in each of the Daiichi reactors and spent fuel pools. As such, this tool represents the collective judgment of the NRC staff in Japan based on all available data.

For each of the major plant parameters listed below, the NRC staff assesses its status daily and bins it into one of the three categories listed. The staff uses the listed plant information and conditions in making its assessment. The arrows on the report indicate the relative trend in plant conditions from the previous day.

1. Reactor Pressure Vessel
 - a. Cooling – Adequate, Challenged, or Inadequate.
 - i. Flow or Injection Rate
 - ii. Reliability of Injection
 - iii. Source of Water
 - b. Integrity – Intact, Challenged, or Failed.
 - i. Temperature indications
 - ii. Pressure readings
2. Primary Containment
 - a. Flooding Status – Complete/Not needed, Challenged, or Incomplete/Needed.
 - i. Water Level
 - ii. Sources
 - iii. Injection capacity/rate
 - b. Integrity - Intact, Challenged, or Failed.
 - i. Pressure readings
 - ii. Bypass evaluations
 - iii. Temperature indications
3. Spent Fuel Pools
 - a. Cooling/Level – Adequate, Challenged, or Inadequate.
 - i. Flow or Injection Rate
 - ii. Reliability of Injection
 - iii. Source of Water
 - b. Integrity – Intact, Challenged, or Failed. Due to limited available data, this assessment relies strongly on the NRC team's engineering judgment.
4. Protective Measures – Exposure Risk to American citizens in Japan outside the U.S. government's recommended 50-mile evacuation zone.
 - a. Low – 50-mile recommendation remains sufficient
 - b. Medium – New information has raised questions regarding the sufficiency of the 50-mile recommendation.
 - c. High – 50-mile recommendation is no longer sufficient due to changing plant condition

From: Weaver, Doug
Sent: Sunday, April 17, 2011 8:41 AM
To: OST01 HOC; Deegan, George; Lewis, Robert; Hiland, Patrick; Skeen, David; Dudek, Michael; Milligan, Patricia; Gibson, Kathy; Case, Michael; Anderson, James; Tracy, Glenn
Subject: RE: ACTION - New Ticket for Japanese Event Task Tracking (JETT) Process

Got it.

*****Please note: All attachments are Official Use Only*****

283 / 1111

From: OST01 HOC
Sent: Sunday, April 17, 2011 10:44 PM
To: LIA08 Hoc; Hoc, PMT12; RST01 Hoc
Subject: FW:
Attachments: FW: Urgent: Roadmap towards Restoration; FW: Urgent:Correction on statement by Mr. Kaieda; FW: Official Notice:Data sheets concerned on the status of NPP (17th April 2011); image001.gif

From: HOO Hoc
Sent: Sunday, April 17, 2011 10:25 PM
To: HOO Hoc
Subject:

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



383 / NNV

From: Tracy, Glenn
Sent: Sunday, April 17, 2011 4:53 AM
To: RST01 Hoc; Hoc, PMT12; LIA08 Hoc; OST01 HOC
Cc: Weber, Michael; Virgilio, Martin; Zimmerman, Roy; Boger, Bruce; Wiggins, Jim; Doane, Margaret; Moore, Scott
Subject: FW: Urgent: Roadmap towards Restoration
Attachments: TEPCO.zip; kaieda.zip

TEPCO just released its roadmap towards restoration. The METI statement that followed is also attached, and then corrected/updated METI statement will follow in another e-mail.

SoS/DOS/Embassy have requested talking points for SoS to use upon arrival to US on these plans. Chuck is working with his team and we will work in parallel. Will be seeking guidance regarding final approval of the bullets and how best transmitted. Bullets should be brief, high level, start positive and then move to more pointed perspectives. Ops team will initiate action and then send to office POCs. Noon timeframe to DOS.

From: Casto, Chuck
Sent: Sunday, April 17, 2011 4:23 AM
To: Tracy, Glenn
Subject: FW: Urgent: Roadmap towards Restoration

From: PROTOCOLOFFICE-EM [mailto:protocoloffice-em@mofa.go.jp]
Sent: Sunday, April 17, 2011 4:43 PM
To: PROTOCOLOFFICE-EM
Subject: Urgent: Roadmap towards Restoration

URGENT (15:50) Sunday 17 April 2011

To All Missions (Embassies, Consular posts and International Organizations in Japan)

Please find attached the "Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station", that was made public at the press conference by Mr. Tsunehisa Katsumata, Chairman of the Tokyo Electric Power Company (TEPCO) at TEPCO headquarters at 3 pm today.

Please also find attached the statement by Mr. Banri Kaieda, Minister of Economy, Trade and Industry at the press conference at METI following the announcement of the Roadmap by TEPCO.

The Missions are kindly requested to forward this message to their headquarters as soon as possible.

Contact: International Nuclear Energy Cooperation Division, Tel 03-5501-8227

483/ANN

Attachment TEPCO.zip(1255903 bytes) cannot be converted to PDF format.

Attachment kaieda.zip(44197 bytes) cannot be converted to PDF format.

From: OST01 HOC
Sent: Sunday, April 17, 2011 11:17 AM
To: Hoc, PMT12
Subject: FW: TEPCO "Roadmap towards Restoration"

Will you be consolidating comments on this document?

From: Castleman, Patrick
Sent: Sunday, April 17, 2011 11:14 AM
To: OST01 HOC
Subject: RE: TEPCO "Roadmap towards Restoration"

Earlier this morning, I was contacted by the operations center and advised that this is a quick turnaround. I have no comments on this document. I want to emphasize that I am speaking only for myself and not for my Commissioner or her office. Thanks.

From: OST01 HOC
Sent: Sunday, April 17, 2011 5:37 AM
To: Castleman, Patrick; Orders, William; Franovich, Mike; Hipschman, Thomas; Snodderly, Michael
Cc: Hoc, PMT12; RST01 Hoc; LIA08 Hoc; Tracy, Glenn; Zimmerman, Roy
Subject: TEPCO "Roadmap towards Restoration"

On April 17, TEPCO presented the attached Roadmap to Restoration, and METI provided a subsequent statement. DOS has requested NRC's thoughts on the plan through brief, high-level bullets to be used by the SoS upon her return to the US. The HOC Team and Japan Team are drafting points at this time. Requested by noon, Sunday 4/17 to DOS Embassy.

From: PROTOCOLOFFICE-EM [mailto:protocoloffice-em@mofa.go.jp]
Sent: Sunday, April 17, 2011 4:43 PM
To: PROTOCOLOFFICE-EM
Subject: Urgent: Roadmap towards Restoration

URGENT (15:50) Sunday 17 April 2011

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The Missions are kindly requested to forward this message to their headquarters as soon as possible.

585/ANN

Contact: International Nuclear Energy Cooperation Division, Tel 03-5501-8227

From: Hipschman, Thomas
Sent: Sunday, April 17, 2011 10:23 AM
To: OST01 HOC
Cc: Hoc, PMT12; RST01 Hoc; LIA08 Hoc; Tracy, Glenn; Zimmerman, Roy; Batkin, Joshua
Subject: RE: TEPCO "Roadmap towards Restoration"

Overall, I think it looks good. I don't have any specific comments, but these are some thoughts you might consider.

Consider risk of increased doses due to encountering sources of radiation during debris removal.
Risk assessment of debris removal on structures.
Doing an overall damage assessment of structures, and systems.
Ensure criticality is prevented.
Ensure security of site and materials.
Assess impact on industry material resources - Fukushima will need lots of lead shielding and other materials. Overall demand for materials and workers due to rebuilding in Japan may be high.
Effect on operating plants - RP's and others will head to Fukushima for work - will potentially impact other plant operations.

From: OST01 HOC
Sent: Sunday, April 17, 2011 5:37 AM
To: Castleman, Patrick; Orders, William; Franovich, Mike; Hipschman, Thomas; Snodderly, Michael
Cc: Hoc, PMT12; RST01 Hoc; LIA08 Hoc; Tracy, Glenn; Zimmerman, Roy
Subject: TEPCO "Roadmap towards Restoration"

On April 17, TEPCO presented the attached Roadmap to Restoration, and METI provided a subsequent statement. DOS has requested NRC's thoughts on the plan through brief, high-level bullets to be used by the SoS upon her return to the US. The HOC Team and Japan Team are drafting points at this time. Requested by noon, Sunday 4/17 to DOS Embassy.

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To: PROTOCOLOFFICE-EM
Subject: Urgent: Roadmap towards Restoration

URGENT (15:50) Sunday 17 April 2011

To All Missions (Embassies, Consular posts and International Organizations in Japan)

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VVV/386

Please also find attached the statement by Mr. Banri Kaieda, Minister of Economy, Trade and Industry at the press conference at METI following the announcement of the Roadmap by TEPCO.

The Missions are kindly requested to forward this message to their headquarters as soon as possible.

Contact: International Nuclear Energy Cooperation Division, Tel 03-5501-8227

From: OST01 HOC
Sent: Sunday, April 17, 2011 8:31 PM
To: Boger, Bruce
Subject: RE: TEPCO "Roadmap towards Restoration"

Has been added to the task tracker

From: Boger, Bruce
Sent: Sunday, April 17, 2011 6:11 PM
To: OST01 HOC
Cc: RST01 Hoc; Hoc, PMT12; LIA08 Hoc; Zimmerman, Roy; Uhle, Jennifer; Tracy, Glenn; Andersen, James; Reynolds, Steven
Subject: FW: TEPCO "Roadmap towards Restoration"

Please create a new tasker for NRR to provide comments on the attached TEPCO roadmap. Quick look comments provided to the Ambassador and Secretary Clinton were quickly coordinated this morning and are also attached. Deeper consideration is desired. High priority for now, subject to the determination of a due date by the Japan Team. Send to NRR POC Pat Hiland and Bill Ruland. Thanks.

From: Zimmerman, Roy
Sent: Sunday, April 17, 2011 9:01 AM
To: Virgilio, Martin; Weber, Michael; Boger, Bruce; Wiggins, Jim
Subject: FW: TEPCO "Roadmap towards Restoration"

From: OST01 HOC
Sent: Sunday, April 17, 2011 5:37 AM
To: Castleman, Patrick; Orders, William; Franovich, Mike; Hipschman, Thomas; Snodderly, Michael
Cc: Hoc, PMT12; RST01 Hoc; LIA08 Hoc; Tracy, Glenn; Zimmerman, Roy
Subject: TEPCO "Roadmap towards Restoration"

On April 17, TEPCO presented the attached Roadmap to Restoration, and METI provided a subsequent statement. DOS has requested NRC's thoughts on the plan through brief, high-level bullets to be used by the SoS upon her return to the US. The HOC Team and Japan Team are drafting points at this time. Requested by noon, Sunday 4/17 to DOS Embassy.

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Sent: Sunday, April 17, 2011 4:43 PM
To: PROTOCOLOFFICE-EM
Subject: Urgent: Roadmap towards Restoration

URGENT (15:50) Sunday 17 April 2011

To All Missions (Embassies, Consular posts and International Organizations in Japan)

USC/NW

Please find attached the “Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station”, that was made public at the press conference by Mr. Tsunehisa Katsumata, Chairman of the Tokyo Electric Power Company (TEPCO) at TEPCO headquarters at 3 pm today.

Please also find attached the statement by Mr. Banri Kaieda, Minister of Economy, Trade and Industry at the press conference at METI following the announcement of the Roadmap by TEPCO.

The Missions are kindly requested to forward this message to their headquarters as soon as possible.

Contact: International Nuclear Energy Cooperation Division, Tel 03-5501-8227

From: OST01 HOC
Sent: Sunday, April 17, 2011 5:37 AM
To: Castleman, Patrick; Orders, William; Franovich, Mike; Hipschman, Thomas; Snodderly, Michael
Cc: Hoc, PMT12; RST01 Hoc; LIA08 Hoc; Tracy, Glenn; Zimmerman, Roy
Subject: TEPCO "Roadmap towards Restoration"
Attachments: TEPCO.zip; kaieda.zip; Kaieda(correction).pdf

On April 17, TEPCO presented the attached Roadmap to Restoration, and METI provided a subsequent statement. DOS has requested NRC's thoughts on the plan through brief, high-level bullets to be used by the SoS upon her return to the US. The HOC Team and Japan Team are drafting points at this time. Requested by noon, Sunday 4/17 to DOS Embassy.

From: PROTOCOLOFFICE-EM [mailto:protocoloffice-em@mofa.go.jp]
Sent: Sunday, April 17, 2011 4:43 PM
To: PROTOCOLOFFICE-EM
Subject: Urgent: Roadmap towards Restoration

URGENT (15:50) Sunday 17 April 2011

To All Missions (Embassies, Consular posts and International Organizations in Japan)

Please find attached the "Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station", that was made public at the press conference by Mr. Tsunehisa Katsumata, Chairman of the Tokyo Electric Power Company (TEPCO) at TEPCO headquarters at 3 pm today.

Please also find attached the statement by Mr. Banri Kaieda, Minister of Economy, Trade and Industry at the press conference at METI following the announcement of the Roadmap by TEPCO.

The Missions are kindly requested to forward this message to their headquarters as soon as possible.

Contact: International Nuclear Energy Cooperation Division, Tel 03-5501-8227

BBE / NNN

Attachment TEPCO.zip(1255903 bytes) cannot be converted to PDF format.

Statement of Mr. Banri Kaieda, Minister of Economy, Trade and Industry at the press conference following the announcement of Roadmap by Tokyo Electric Power Company (TEPCO).

1. Presentation at the earliest possible date of a roadmap towards settling the situation at Fukushima Daiichi Nuclear Power Station has been requested by people home and abroad, especially the residents around Fukushima Daiichi Nuclear Power Station.

TEPCO has just released this roadmap, which is an important step forward. Taking this opportunity, we would like to move from the "emergency response phase" up until now to the "planned & stabilizing action phase" in which the settlement of the situation will be aimed under the solid roadmap.

2. In response to the release of the roadmap.

- (1) The Government will request TEPCO to ensure the implementation of this roadmap steadily and as early as possible. To this end, the Nuclear and Industrial Safety Agency and others will make regular follow-up, monitoring of the progress of the works and necessary safety checks;

- (2) The Government will request TEPCO to ensure the mobilization and deployment of workers, the procurement and preparation of equipment and materials, and the arrangement of accommodation and other facilities, which are necessary to ensure implementation of the roadmap;

- (3) At the end of Step 2, the release of radioactive materials will be under control. At this stage, the Government will, following advices of the Nuclear Safety Commission of Japan, review the "Deliberate Evacuation Area" and the "Evacuation Prepared Area". Up until that time, we will consider the details of review criteria, and will decontaminate the widest possible area.

By implementing this, we would like to announce, within 6 to 9 months as our target, to the residents of some of the areas whether they will be able to come home.

(Division in Charge)

Nuclear and Industrial Safety Agency
Nuclear Safety Public Relations and Training Division

Attachment kaieda.zip(44197 bytes) cannot be converted to PDF format.

From: OST01 HOC
Sent: Sunday, April 17, 2011 8:02 PM
To: Hiland, Patrick; Ruland, William
Cc: Boger, Bruce
Subject: FW: TEPCO "Roadmap towards Restoration"
Attachments: TEPCO.zip; NRC Site Team Quick Look Assessment of TEPCO Roadmap.docx

New Task created for NRR, see message below;

From: Boger, Bruce
Sent: Sunday, April 17, 2011 6:11 PM
To: OST01 HOC
Cc: RST01 Hoc; Hoc, PMT12; LIA08 Hoc; Zimmerman, Roy; Uhle, Jennifer; Tracy, Glenn; Andersen, James; Reynolds, Steven
Subject: FW: TEPCO "Roadmap towards Restoration"

Please create a new tasker for NRR to provide comments on the attached TEPCO roadmap. Quick look comments provided to the Ambassador and Secretary Clinton were quickly coordinated this morning and are also attached. Deeper consideration is desired. High priority for now, subject to the determination of a due date by the Japan Team. Send to NRR POC Pat Hiland and Bill Ruland. Thanks.

From: Zimmerman, Roy
Sent: Sunday, April 17, 2011 9:01 AM
To: Virgilio, Martin; Weber, Michael; Boger, Bruce; Wiggins, Jim
Subject: FW: TEPCO "Roadmap towards Restoration"

From: OST01 HOC
Sent: Sunday, April 17, 2011 5:37 AM
To: Castleman, Patrick; Orders, William; Franovich, Mike; Hipschman, Thomas; Snodderly, Michael
Cc: Hoc, PMT12; RST01 Hoc; LIA08 Hoc; Tracy, Glenn; Zimmerman, Roy
Subject: TEPCO "Roadmap towards Restoration"

On April 17, TEPCO presented the attached Roadmap to Restoration, and METI provided a subsequent statement. DOS has requested NRC's thoughts on the plan through brief, high-level bullets to be used by the SoS upon her return to the US. The HOC Team and Japan Team are drafting points at this time. Requested by noon, Sunday 4/17 to DOS Embassy.

From: PROTOCOLOFFICE-EM [mailto:protocoloffice-em@mofa.go.jp]
Sent: Sunday, April 17, 2011 4:43 PM
To: PROTOCOLOFFICE-EM
Subject: Urgent: Roadmap towards Restoration

URGENT (15:50) Sunday 17 April 2011

bbs/ANN

To All Missions (Embassies, Consular posts and International Organizations in Japan)

Please find attached the “Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station”, that was made public at the press conference by Mr. Tsunehisa Katsumata, Chairman of the Tokyo Electric Power Company (TEPCO) at TEPCO headquarters at 3 pm today.

Please also find attached the statement by Mr. Banri Kaieda, Minister of Economy, Trade and Industry at the press conference at METI following the announcement of the Roadmap by TEPCO.

The Missions are kindly requested to forward this message to their headquarters as soon as possible.

Contact: International Nuclear Energy Cooperation Division, Tel 03-5501-8227

Attachment TEPCO.zip(1255903 bytes) cannot be converted to PDF format.

Attachment TEPCO.zip(1255903 bytes) cannot be converted to PDF format.

NRC SITE TEAM QUICK-LOOK REVIEW OF THE TEPCO “ROADMAP TO RESTORATION”

April 17, 2011

This document is a Quick-Look review by the NRC Site Team of the TEPCO Roadmap Plan released today. In the near term a more comprehensive assessment of the Roadmap will be conducted by the NRC staff. On April 17, 2011, TEPCO announced publically their “Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station.” The Roadmap has a basic policy of “bringing the reactors and spent fuel pools to a stable cooling condition and mitigating the release of radioactive materials.” It is a Two-Step Plan. Step 1 is a three-month plan to reduce radiation levels at the site. Step 2 is aimed at controlling radiation releases and radiation doses so that they are “significantly held down.” Step 2, is set for about three to six months after completing Step 1.

Coincident with the release of the TEPCO document, Minister of Economy, Trade and Industry (METI), Mr. Banri Kaideia, released a statement. That statement suggests that TEPCO “ensure early implementation of the Roadmap.” Also, that after Step 2, the government will review the “deliberate evacuation area” (evacuation) and the “evacuation prepared area” (sheltering) to determine whether residents can return to the evacuated areas.

The TEPCO Roadmap consists of three immediate action targets. They include actions to: 1. Cool the reactors and spent fuel pools, 2. Contain, process contaminated water and mitigate the release of radioactive material, and 3. Monitor and decontaminate the nuclear site and the surrounding areas.

The NRC Site Team quick-look review of the Roadmap concludes the following:

- It is encouraging that the Roadmap lays out a strategy
- Public disclosure of the Roadmap is very positive

- Actions and countermeasures are necessary for any plan to succeed. The TEPCO Roadmap contains such actions and countermeasures that could lead to achieving the Roadmap goals
- The NRC Site Team has identified areas of enhancements for consideration by the Government of Japan and TEPCO that may improve the effectiveness of the Roadmap. Those areas included the timing for certain activities and stabilizing actions relating to improved reactor and spent fuel pool safety
- The NRC and its partners will continue to provide their assistance and support to the resolution of the incident. We believe an enhanced Roadmap should provide a path forward to reach stable plant conditions, significantly reduce radiation levels, and provide proper controls for ingestion pathway activities, e.g., agricultural, fishing and habitation

From: OST01 HOC
Sent: Sunday, April 17, 2011 9:39 PM
To: RST01 Hoc
Subject: RE: Japan One Pager 2300 EDT 4-17-11-RST revision.docx

Thanks completed

From: RST01 Hoc
Sent: Sunday, April 17, 2011 9:29 PM
To: OST01 HOC
Subject: FW: Japan One Pager 2300 EDT 4-17-11-RST revision.docx

Here are the RST changes to the one pager.

Chuck Norton

From: RST08 Hoc
Sent: Sunday, April 17, 2011 9:27 PM
To: RST01 Hoc
Subject: Japan One Pager 2300 EDT 4-17-11-RST revision.docx

Changes from RST.

VUV/390

From: OST01 HOC
Sent: Sunday, April 17, 2011 9:58 PM
To: LIA08 Hoc; RST01 Hoc; Hoc, PMT12
Subject: FW: Japan One Pager 2200 EDT 4-17-11

Bruce has given the ok, I will now send out

From: Boger, Bruce
Sent: Sunday, April 17, 2011 9:57 PM
To: OST01 HOC
Subject: RE: Japan One Pager 2200 EDT 4-17-11

OK to distribute. Thank you.

From: OST01 HOC
Sent: Sunday, April 17, 2011 9:51 PM
To: Boger, Bruce; RST01 Hoc; LIA08 Hoc; Hoc, PMT12
Subject: Japan One Pager 2200 EDT 4-17-11

Please review the final version for distribution. Let me know if there are any changes.

Thanks

✓✓✓✓/391

From: Tracy, Glenn
Sent: Sunday, April 17, 2011 4:55 AM
To: LIA08 Hoc; OST01 HOC; RST01 Hoc; Hoc, PMT12
Cc: Weber, Michael; Virgilio, Martin; Zimmerman, Roy; Boger, Bruce; Moore, Scott; Doane, Margaret; Wiggins, Jim
Subject: FW: Urgent:Correction on statement by Mr. Kaieda
Attachments: Kaieda(correction).pdf

Corrected statement. See prior email.

From: Casto, Chuck
Sent: Sunday, April 17, 2011 4:23 AM
To: Tracy, Glenn
Subject: FW: Urgent:Correction on statement by Mr. Kaieda

From: PROTOCOLOFFICE-EM [mailto:protocoloffice-em@mofa.go.jp]
Sent: Sunday, April 17, 2011 5:06 PM
To: PROTOCOLOFFICE-EM
Subject: Urgent:Correction on statement by Mr. Kaieda

URGENT (17:00) Sunday 17 April 2011

To All Missions (Embassies, Consular posts and International Organizations in Japan)

Correction: Statement by Mr. Banri Kaieda

Please find attached the final version of the statement by Mr. Banri Kaieda, Minister of Economy, Trade and Industry at the press conference at METI following the announcement of the Roadmap by TEPCO.

Please disregard the statement attached in the previous communication on this matter.

Contact: International Nuclear Energy Cooperation Division, Tel 03-5501-8227

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Statement of Mr. Banri Kaieda, Minister of Economy, Trade and Industry at the press conference following the announcement of Roadmap by Tokyo Electric Power Company (TEPCO)

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(Division in Charge)

Nuclear and Industrial Safety Agency
Nuclear Safety Public Relations and Training Division

From: OST01 HOC
Sent: Sunday, April 17, 2011 8:14 PM
To: Hiland, Patrick; Ruland, William
Cc: Boger, Bruce; Hoc, PMT12; RST01 Hoc; LIA08 Hoc
Subject: FW: New Tasker on Consortium Call Coverage

Task Tracker added for NRR POC's

From: Boger, Bruce
Sent: Sunday, April 17, 2011 6:46 PM
To: OST01 HOC
Cc: RST01 Hoc; Zimmerman, Roy; Uhle, Jennifer; Andersen, James; Hiland, Patrick; Ruland, William
Subject: New Tasker on Consortium Call Coverage

Please create a new tasker for NRR to identify a person to serve as the principle participant (i.e., lead role with RST support) in the 11:00 daily phone calls with the technical consortium. Two backups should be identified. The intent is to provide continuity in NRC participation. A system to capture call notes should be established. Send to NRR POC Pat Hiland and Bill Ruland. High priority. Due date 1700 on Monday, 4/18, to allow time to prepare for the 4/19 call. Suggest that RST Directors who spent recent time on shift would have the best historical perspective. Thanks.

VVV / 393

From: OST01 HOC
Sent: Sunday, April 17, 2011 8:13 PM
To: RST01 Hoc

Task trackers from Boger has now been added.

VVV / 394

From: HOO Hoc
Sent: Sunday, April 17, 2011 8:00 AM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC
Subject: FW: [METI Japan](Apr_17)Update on Seismic and Tsunami Damage Information
Attachments: Statement of Mr Banri Kaieda, Minister of Economy, Trade and Industry at the press conference following the announcement Electric Power Company (TEPCO) .pdf; 1_Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station.pdf; 2_Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station.pdf; 3_Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station.pdf; 4_Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station.pdf

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

From: meti-info@meti.go.jp [mailto:meti-info@meti.go.jp]
Sent: Sunday, April 17, 2011 7:58 AM
To: meti-info@meti.go.jp
Subject: [METI Japan](Apr_17)Update on Seismic and Tsunami Damage Information

For your reference, Ministry of Economy, Trade and Industry of Japan (METI) is providing latest information on the seismic and tsunami damages to the nuclear power stations (NPSs) in Japan, including those caused to Fukushima Dai-ichi NPS.

This weekend, the following information has been updated.

---- Today's news ----

1. Mr Bannri Kaieda, Minister of Economy, Trade and Industry made a statement about the announcement of roadmap by Tokyo Electric Power Company (TEPCO) [Please refer to the attached file]
2. Japanese prime minister Naoto Kan received a courtesy call from the honorable Hillary Rodham Clinton, secretary of state of the United States of America. [Please refer to 7]

---- Updates from NISA ----

3. [NISA] Apr 17 1500_Current Situation of Onagawa, Fukushima Dai-ichi, Fukushima Dai-ni, Tokai Dai-ni NPSs (only Japanese version is now available. English version will be uploaded.)
<http://www.meti.go.jp/press/2011/04/20110417002/20110417002-1.pdf>

[NISA] Apr 12 1530_Current Situation of Onagawa, Fukushima Dai-ichi, Fukushima Dai-ni, Tokai Dai-ni NPSs (English version) <http://www.nisa.meti.go.jp/english/files/en20110416-4-2.pdf>

4. [NISA] Apr 12 1300_Fukushima Dai-ichi Major Parameters of the Plant (English version)
<http://www.nisa.meti.go.jp/english/files/en20110416-4-4.pdf>

565/395
NNN

---- Major Updates from other agencies of Japanese Government --- 5. [MLIT] Apr 17 AM_Measurement of Radiation Doses in the Ports around Tokyo Bay http://www.mlit.go.jp/kowan/kowan_fr1_000041.html
Currently, the level of radiation in Tokyo City, Yokohama City, Kawasaki City and Ichikawa City (Chiba) were as shown in the attachment at very safe level to health.

6. [MLIT] Apr 17 AM_Measurement of radiation doses around the Metropolitan Airports
http://www.mlit.go.jp/koku/koku_tk7_000003.html
The current level of radiation does not have any effects on human health.

7. [MOFA] Apr 17 Japanese prime minister Naoto Kan received a courtesy call from the honorable Hillary Rodham Clinton, secretary of state of the United States of America. (only Japanese version is now available. English version will be uploaded.) http://www.mofa.go.jp/mofaj/kinkyu/2/20110417_192627.html

8. [NSC] Apr 17 1645_Assessment of the result of environment monitoring (Only Japanese version is available)
http://www.nsc.go.jp/nsc_mnt/110417_1.pdf

If you need to add other e-mail address to this mailing list or do not need our information mail any more, please contact at meti-info@meti.go.jp

=====
International Public Relations Team
Ministry of Economy, Trade and Industry (METI)
1-3-1 Kasumigaseki, Chiyoda-ku, Tokyo 100-8901, Japan E-mail : meti-info@meti.go.jp
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(See attached file: Statement of Mr Banri Kaieda, Minister of Economy, Trade and Industry at the press conference following the announcement Electric Power Company (TEPCO) .pdf)

(See attached file: 1_Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station.pdf)

(See attached file: 2_Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station.pdf)

(See attached file: 3_Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station.pdf)

(See attached file: 4_Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station.pdf)

Statement of Mr. Banri Kaieda, Minister of Economy, Trade and Industry at the press conference following the announcement of Roadmap by Tokyo Electric Power Company (TEPCO)

- 1. Presentation at the earliest possible date of a roadmap towards settling the situation at Fukushima Daiichi Nuclear Power Station has been requested by people home and abroad, especially the residents around Fukushima Daiichi Nuclear Power Station.**

TEPCO has just released this roadmap, which is an important step forward. Taking this opportunity, we would like to move from the "emergency response phase" up until now to the "planned & stabilizing action phase" in which the settlement of the situation will be aimed under the solid roadmap.

- 2. In response to the release of the roadmap,**

- (1) The Government will request TEPCO to ensure the implementation of this roadmap steadily and as early as possible. To this end, the Nuclear and Industrial Safety Agency and others will make regular follow-up, monitoring of the progress of the works and necessary safety checks;**

- (2) The Government will request TEPCO to ensure the mobilization and deployment of workers, the procurement and preparation of equipment and materials, and the arrangement of accommodation and other facilities, which are necessary to ensure implementation of the roadmap;**

- (3) At the end of Step 2, the release of radioactive materials will be under control. At this stage, the Government will, following advices of the Nuclear Safety Commission of Japan, review the "Deliberate Evacuation Area" and the "Evacuation Prepared Area". Up until that time, we will consider the details of review criteria, and will decontaminate the widest possible area.**

By implementing this, we would like to announce, within 6 to 9 months as our target, to the residents of some of the areas whether they will be able to come home.

(Division in Charge)

**Nuclear and Industrial Safety Agency
Nuclear Safety Public Relations and Training Division**

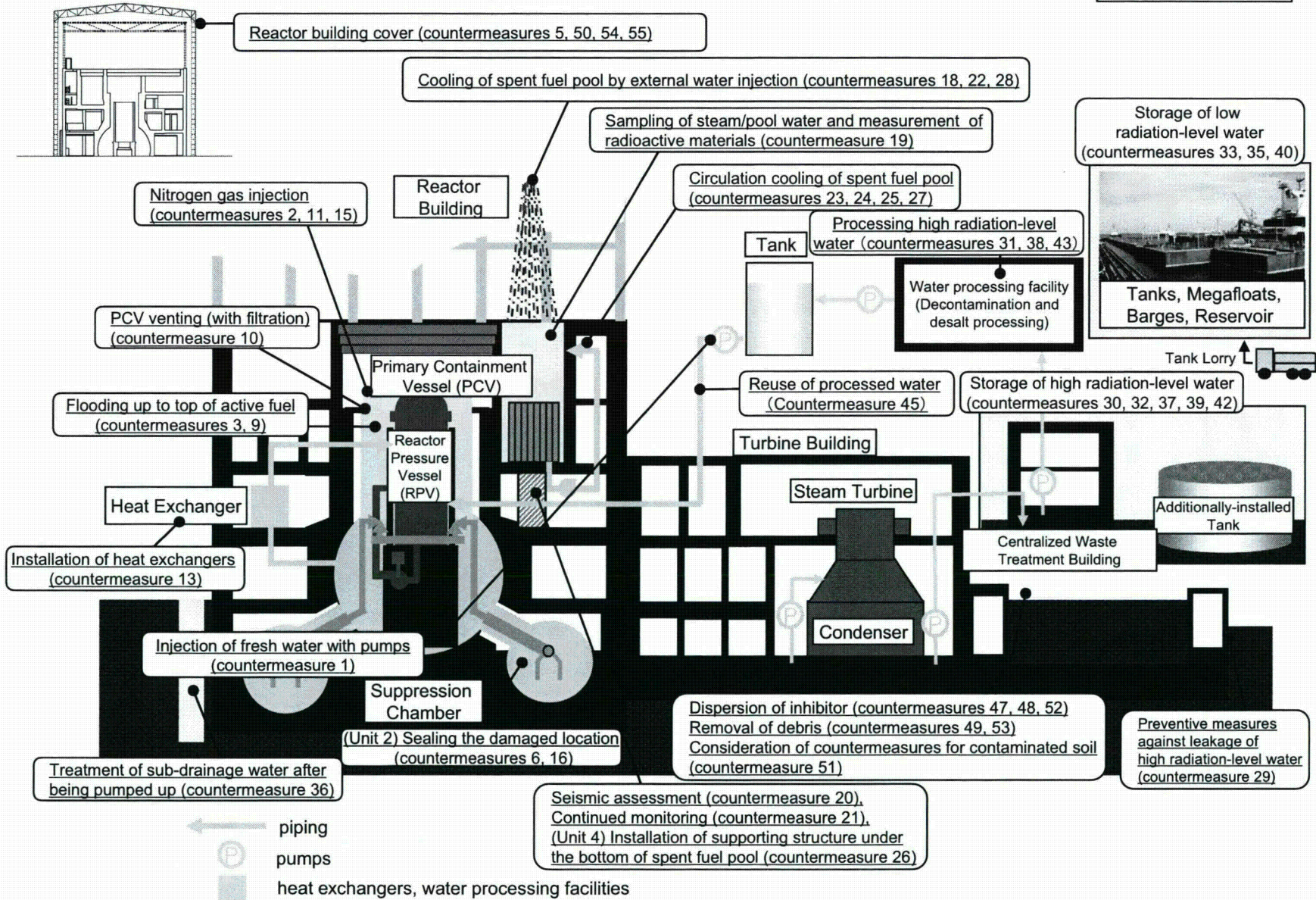
Roadmap for Immediate Actions (Issues / Targets / Major Countermeasures)

Reference 1

	Current Status	STEP1	STEP2	Mid-term Issues
I. Cooling	(1) Reactors	<p>Injecting fresh water</p> <p>Nitrogen gas injection</p> <p>(Unit 1·3) Flooding up to top of active fuel</p> <p>Examination and implementation of heat exchange function</p> <p>(Unit 2) Sealing the damaged location</p> <p>Stable cooling</p>	<p>Cold shutdown condition</p> <p>Flooding up to top of active fuel</p>	<p>Prevention of breakage of structural materials, etc.</p>
	(2) Spent Fuel Pools	<p>Injecting fresh water</p> <p>Enhance reliability of water injection</p> <p>Restore coolant circulation system</p> <p>(Unit 4) Install supporting structure</p> <p>Stable cooling</p>	<p>Remote control of water injection</p> <p>Examination and implementation of heat exchange function</p> <p>More stable cooling</p>	<p>Removal of fuels</p>
II. Mitigation	(3) Accumulated Water	<p>Transferring water with high radiation level</p> <p>Installation of storage / processing facilities</p> <p>Storing water with low radiation level</p> <p>Installation of storage facilities / decontamination processing</p> <p>Secure storage place</p>	<p>Expansion of storage / processing facilities</p> <p>Decontamination / Desalt processing (reuse), etc</p> <p>Decrease contaminated water</p>	<p>Installation of full-fledged water treatment facilities</p>
	(4) Atmosphere / Soil	<p>Dispersion of inhibitor</p> <p>Removal of debris</p>	<p>Installing reactor building cover</p>	<p>Installation of reactor building cover (container with concrete)</p> <p>Solidification of contaminated soil, etc</p>
III. Monitoring/Decontamination	<p>(5) Measurement, Reduction and Announcement</p> <p>Monitoring of radiation dose in and out of the power station</p>	<p>Expand/enhance monitoring and inform of results fast and accurately</p>	<p>Sufficiently reduce radiation dose in evacuation order / planned evacuation / emergency evacuation preparation areas</p>	<p>Continue monitoring and informing environmental safety</p>

Overview of Major Countermeasures in the Power Station

Reference 2



Roadmap towards Restoration from the Accident
at Fukushima Daiichi Nuclear Power Station

April 17th, 2011
Tokyo Electric Power Company

With regard to the accident at Fukushima Daiichi Nuclear Power Station due to the Tohoku-Chihou-Taiheiyu-Oki Earthquake occurred on Friday, March 11th, 2011, we are currently making our utmost effort to bring the situation under control. This announcement is to notify the roadmap that we have put together towards restoration from the accident.

1. Basic Policy

By bringing the reactors and spent fuel pools to a stable cooling condition and mitigating the release of radioactive materials, we will make every effort to enable evacuees to return to their homes and for all citizens to be able to secure a sound life.

2. Targets

Based on the basic policy, the following two steps are set as targets: "Radiation dose is in steady decline" as "Step 1" and "Release of radioactive materials is under control and radiation dose is being significantly held down" as "Step 2." Target achievement dates are tentatively set as follows: "Step 1" is set at around 3 months and "Step 2" is set at around 3 to 6 months after achieving Step 1.

3. Immediate Actions

Immediate actions were divided into three groups, namely, "I. Cooling", "II. Mitigation", "III. Monitoring and Decontamination." For the following five issues—"Cooling the Reactors," "Cooling the Spent Fuel Pools," "Containment, Storage, Processing, and Reuse of Water Contaminated by Radioactive Materials (Accumulated Water)," "Mitigation of Release of Radioactive Materials to Atmosphere and from Soil," and "Measurement, Reduction and Announcement of Radiation Dose in Evacuation Order/Planned Evacuation/ Emergency Evacuation Preparation Areas"—targets are set for each of the five issues and various countermeasures will be implemented simultaneously.

Please see the attachment for detailed actions.

We would like to deeply apologize again for the grave inconvenience and anxiety that the broad public has been suffering due to the accident at the Fukushima Daiichi Nuclear Power Station. We will continue to make every endeavor to bring the situation under control.

Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station

1. Basic Policy

By bringing the reactors and spent fuel pools to a stable cooling condition and mitigating the release of radioactive materials, we will make every effort to enable evacuees to return to their homes and for all citizens to be able to secure a sound life.

2. Targets

- Based on the basic policy, the following two steps are set as targets:
 - Step 1: Radiation dose is in steady decline.
 - Step 2: Release of radioactive materials is under control and radiation dose is being significantly held down.

(Note) Issues after Step 2 will be categorized as "Mid-term Issues"
- Target achievement dates are tentatively set as follows, although there will still be various uncertainties and risks:
 - Step 1: around 3 months
 - Step 2: around 3 to 6 months (after achieving Step 1)

(Note) Announcements will be made as soon as timing of step-wise target achievement or quantitative prospects are determined, as well as if revisions to the targets or achievement dates become necessary.

3. Immediate Actions

- In order to achieve the above targets, immediate actions were divided into 3 groups with targets set for each of the 5 issues. Various countermeasures will be implemented simultaneously (see the table in right.)
- In order to achieve Step 1, overcoming the following two issues that are currently being addressed will be critical:
 - Prevention of hydrogen explosion inside the primary containment vessel (hereafter, PCV) (Units 1 to 3.)
 - Cooling the reactor by injecting fresh water into the reactor increases the chance of steam condensation, leading to a concern of potentially triggering a hydrogen explosion.

→Nitrogen gas will be injected into the PCV of each unit to keep the concentration of hydrogen and oxygen below flammability limit.
 - Prevention of release of contaminated water with high radiation level outside of the site boundary (Unit 2.)
 - While cooling the reactor by injecting fresh water, accumulation of contaminated water with high radiation level in the turbine building is increasing (possible release to outside of the site boundary.)

→Actions will be taken against accumulated water to (1) secure several storage places and (2) install facilities to process the contaminated water and reduce the radiation dose, among others.

Roadmap for Immediate Actions

Areas	Issues	Targets and Countermeasures	
		Step 1	Step 2
I. Cooling	(1) Cooling the Reactors	① Maintain stable cooling <ul style="list-style-type: none"> Nitrogen gas injection Flooding up to top of active fuel Examination and implementation of heat exchange function ② (Unit 2) Cool the reactor while controlling the increase of accumulated water until the PCV is sealed	③ Achieve cold shutdown condition (sufficient cooling is achieved depending on the status of each unit.) <ul style="list-style-type: none"> Maintain and reinforce various countermeasures in Step 1.
	(2) Cooling the Spent Fuel Pools	④ Maintain stable cooling <ul style="list-style-type: none"> Enhance reliability of water injection Restore coolant circulation system (Unit 4) Install supporting structure 	⑤ Maintain more stable cooling function by keeping a certain level of water. <ul style="list-style-type: none"> Remote control of coolant injection operation Examination and implementation of heat exchange function
II. Mitigation	(3) Containment, Storage, Processing, and Reuse of Water Contaminated by Radioactive Materials (Accumulated Water)	⑥ Secure sufficient storage place to prevent water with high radiation level from being released out of the site boundary. <ul style="list-style-type: none"> Installation of storage / processing facilities. ⑦ Store and process water with low radiation level <ul style="list-style-type: none"> Installation of storage facilities/decontamination processing. 	⑧ Decrease the total amount of contaminated water. <ul style="list-style-type: none"> Expansion of storage/processing facilities. Decontamination/Desalt processing (reuse), etc.
	(4) Mitigation of Release of Radioactive Materials to Atmosphere and from Soil	⑨ Prevent scattering of radioactive materials on buildings and ground <ul style="list-style-type: none"> Dispersion of inhibitor Removal of debris Installing reactor building cover 	⑩ Cover the entire buildings (as temporary measure).
III. Monitoring/Decontamination	(5) Measurement, Reduction and Announcement of Radiation Dose in Evacuation Order/Planned Evacuation/Emergency Evacuation Preparation Areas	⑪ Expand/enhance monitoring and inform of results fast and accurately <ul style="list-style-type: none"> Examination and implementation of monitoring methods. 	⑫ Sufficiently reduce radiation dose in evacuation order / planned evacuation / emergency evacuation preparation areas <ul style="list-style-type: none"> Decontamination/monitoring of homecoming residences.
	(Note) With regard to radiation dose monitoring and reduction measures in evacuation order/planned evacuation/emergency evacuation preparation areas, we will take every measure through thorough coordination with the national government and by consultation with the prefectural and municipal governments.		

Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station

Basic Policy: By bringing the reactors and spent fuel pools to a stable cooling condition and mitigating the release of radioactive materials, we will make every effort to enable evacuees to return to their homes and for all citizens to be able to secure a sound life.

Areas	Issues	Current Status (as of April 16 th)	Targets, Countermeasures and Risks		Mid-term Issues
			<Step 1 (around 3 months)> Radiation dose is in steady decline.	<Step 2 (around 3 to 6 months*)> Release of radioactive materials is under control and radiation dose is being significantly held down. * After achieving Step 1	
I. Cooling	(1) Cooling the Reactors	<p>Current Status [1] (Units 1 to 3) Cooling achieved by water injection while there is partial damage to fuel pellets. ⇒Continued injection of fresh water and further cooling measures are required. Countermeasure [1]: Injecting fresh water into the RPV by pumps. Risk [1]: Possibility of hydrogen explosion due to condensation of steam in the PCV when cooled, leading to increased hydrogen concentration. Countermeasure [2]: Injecting nitrogen gas into the PCV (start from Unit 1.) Countermeasure [3]: Consideration of flooding the PCV up to the top of active fuel.</p> <p>Current Status [2] (Units 1 to 3) High likelihood of small leakage of steam containing radioactive materials through the gap of PCV caused by high temperature. ⇒Lowering the amount of steam through cooling and implementation of leakage prevention are required. Countermeasure [4]: Lower the amount of steam generated by sufficiently cooling the reactor (to be achieved by measures in Steps 1 and 2.) Countermeasure [5]: Consideration of shielding the leakage by covering the reactor building (coordinate with issue [4].)</p> <p>Current Status [3] (Unit 2) Large amount of water leakage, indicating high likelihood of PCV damage. ⇒Repairing the damaged location is required. ⇒Need to control the amount of water injection since leakage increases as injection increases. Countermeasure [6]: Consideration of sealing the damaged location (e.g., filling with grout (glutinous cement)) Countermeasure [7]: Cooling at minimum water injection rate (control the leakage of contaminated water.) Risk[2]: Possibility of prolonged work of sealing the damaged location (→countermeasures [12] and [14])</p> <p>Current Status [4] Secured multiple off-site power (1 system each from TEPCO and Tohoku EPCO) and deployed backup power (generator cars / emergency generators) Risk [3]: Possibility of (partial) loss of power from the grid caused by ensuring aftershocks and lightning in summer. Countermeasure [8]: Install interconnecting lines of offsite power soon.</p>	<p>Target [1] (Unit 1 to 3) Maintain stable cooling. Countermeasure [9]: Flood the PCV up to the top of active fuel. Countermeasure [10]: Reduce the amount of radioactive materials (utilization of standby gas treatment system (filter), etc.) when PCV venting (release of steam containing radioactive materials into the atmosphere). Countermeasure [11]: Continue preventing hydrogen explosion by injecting nitrogen into the PCV. Risk [4]: Increase in water leakage into the turbine building in the process of flooding the PCV. Countermeasure [12]: Consideration and implementation of measures to hold down water inflow (e.g., circulating the water back into the RPV by storing and processing the accumulated water in the turbine building.) Countermeasure [13]: Consideration of recovering heat exchange function for the reactor (installing heat exchangers). Risk [5]: Possibility of prolonged work in high dose level area (→keep countermeasures [9] and [12])</p> <p>Target [2] (Unit 2) Cool the reactor while controlling the increase of accumulated water until PCV is sealed. Countermeasure [14]: Continue cooling by current minimum injection rate. Countermeasure [15]: Continue prevention of hydrogen explosion by nitrogen injection into the PCV. Countermeasure [16]: Continue consideration and implementation of sealing measure at damaged location. Implement cooling measures similar to those for Units 1 and 3 once the damaged location is sealed. Risk[2]: Possibility of prolonged work of sealing the damaged location (→continue countermeasures [12] and [14])</p>	<p>Target [3] Achieve cold shutdown condition (sufficient cooling is achieved depending on the status of each unit.) Countermeasure [17]: Maintain and enhance countermeasures in Step 1 if needed.</p>	<p>Issue [1] Prevention of breakage, clogging and water leakage of structural materials (reactor and pipes, etc.) due to corrosion caused by salt.</p>

Note: Reactor pressure vessel is denoted as "RPV" and primary containment vessel is denoted as "PCV."

Areas	Issues	Current Status (as of April 16 th)	Targets, Countermeasures and Risks		Mid-term Issues
			<Step 1 (around 3 months)> Radiation dose is in steady decline.	<Step 2 (around 3 to 6 months*)> Release of radioactive materials is under control and radiation dose is being significantly held down. * After achieving Step 1	
I. Cooling	(2) Cooling the Spent Fuel Pools	<p>Current Status [5]: Fresh water is injected from outside for Units 1, 3, 4 and through normal cooling line for Unit 2. ⇒Reduction of worker exposure and countermeasures for aftershocks are required. Countermeasure [18]: Consideration/implementation of improving reliability of external water injection by concrete pumpers ("Giraffe", etc.)/switch to remote-controlled operation.</p> <p>Current Status [6]: Confirmation of release of radioactive materials from the pool Countermeasure [19]: Sampling and measurement of steam/pool water by "Giraffe", etc. ⇒Most fuels in Unit 4 have been confirmed intact according to the result of pool water analysis.</p> <p>Current Status [7]: Walls of the building supporting the pool have been damaged. ⇒Tolerance evaluation is especially needed for Unit 4. Countermeasure [20]: Seismic tolerance assessment of Unit 4. ⇒A certain level of seismic tolerance has been confirmed. Countermeasure [21]: Continue monitoring and examine necessary countermeasures (→ countermeasure [26].)</p>	<p>Target [4]: Maintain stable cooling. Countermeasure [22]: Continuation of water injection by "Giraffe", etc (reliability improvement (enhanced durability of hoses)/switch to remote-controlled operation.) Countermeasure [23]: Add cooling function to normal Fuel Pool Cooling system and continue injecting water for Unit 2. Countermeasure [24]: Examination and implementation of restoration of normal cooling system for Units 1, 3, and 4. Risk [6]: Possibility of inability to restore normal cooling line due to damages to the building. Countermeasure [25]: Examination and implementation of installing heat exchangers. Countermeasure [26]: (Unit 4) Installation of supporting structure under the bottom of the pool.</p>	<p>Target [5]: Maintain more stable cooling function by keeping a certain level of water. Countermeasure [27]: Cooling by installation of heat exchangers. Countermeasure [28]: Expansion of remote-controlled operation areas of "Giraffe", etc.</p>	<p>Issue [2]: Removal of fuels (including Units 5 & 6.)</p>
II. Mitigation	(3) Containment, Storage, Processing, and Reuse of Water Contaminated by Radioactive Materials (Accumulated Water)	<p>Current Status [8]: Leakage of high radiation-level contaminated water assumed to have originated from Unit 2 reactor occurred, but was subsequently stopped. Countermeasure [29]: Identify leakage path and examine and implement preventive measures. • Placing sandbags with radioactive-material adsorption material (zeolite) in the bay. • Installing fences in the bay to prevent contamination from spreading (silt fence.) • Blockage between trenches and buildings, etc</p> <p>Current Status [9]: Leakage and accumulation of high radiation level contaminated water at Unit 2's turbine building, vertical shafts and trenches. Countermeasure [30]: Transferring accumulated water to facilities that can store it (condenser and Centralized Waste Treatment Facility). Countermeasure [31]: Preparing decontamination and desalt of transferred accumulated water. (→Countermeasure [38]) Countermeasure [32]: Preparing to install tanks.</p> <p>Current Status [10]: Increase of storage volume of water with low radiation level. Countermeasure [33]: Preparing to store with tanks and barges. Countermeasure [34]: Preparing for decontamination and desalt of contaminated water (→Countermeasure [41]) Countermeasure [35]: Preparing to install a reservoir.</p> <p>Current Status [11]: High likelihood of underground water around the building (sub-drainage water) to be contaminated. Countermeasure [36]: Preparing to decontaminate sub-drainage water after being pumped up.</p>	<p>Target [6]: Secure sufficient storage place to prevent water with high radiation level from being released out of the site boundary. Countermeasure [37]: Utilization of "Centralized Waste Treatment Facility", etc. to store water. Countermeasure [38]: Install water processing facilities; decontaminate and desalt highly-contaminated water and store in tanks. Risk [7]: Possibility of delay in installing water processing facilities or poor operating performance of the facilities. Countermeasure [39]: Examination and implementation of backup measures (installment of additional tanks or pools or leakage prevention by coagulator, etc.)</p> <p>Target [7]: Store and process water with low radiation level. Countermeasure [40]: Increase storage capacity by adding tanks, barges, Megafloat, etc. Countermeasure [41]: Decontaminating contaminated water using decontaminants to below acceptable criteria.</p>	<p>Target [8]: Decrease the total amount of contaminated water. Countermeasure [42]: Expansion of additional tanks to store high radiation-level contaminated water. Countermeasure [43]: Continuation and reinforcement of decontamination and desalt of high radiation-level water. Countermeasure [44]: Continuation and reinforcement of decontamination and desalt of low radiation-level water. Countermeasure [45]: Reuse of processed water as reactor coolant. Countermeasure [46]: Decontamination to the level below criteria level.</p>	<p>Issue [3]: Installation of full-fledged water treatment facilities.</p>

Areas	Issues	Current Status (as of April 16 th)	Targets, Countermeasures and Risks		Mid-term Issues
			<Step 1 (around 3 months)> Radiation dose is in steady decline.	<Step 2 (around 3 to 6 months*)> Release of radioactive materials is under control and radiation dose is being significantly held down. * After achieving Step 1.	
II. Mitigation	(4) Mitigation of Release of Radioactive Materials to Atmosphere and from Soil	<p>Current Status [12]: Debris are scattered outside the buildings and radioactive materials are being scattered.</p> <p>Countermeasure [47]: Inhibit scattering of radioactive materials by full-scale dispersion of inhibitor after confirming its performance by test.</p> <p>Countermeasure [48]: Prevent rain water contamination by dispersion of inhibitor.</p> <p>Countermeasure [49]: Removal of debris.</p> <p>Countermeasure [50]: Examination and implementation of basic design for reactor building cover and full-fledged measure (container with concrete roof and wall, etc.)</p> <p>Countermeasure [51]: Consideration of solidification, substitution and cleansing of contaminated soil (med-term issues.)</p>	<p>Target [9]: Prevent scattering of radioactive materials on buildings and ground.</p> <p>Countermeasure [52]: Improvement of work condition by expanding application and dispersion of inhibitors to the ground and buildings.</p> <p>Countermeasure [53]: Continue removal of debris.</p> <p>Countermeasure [54]: Begin installing reactor building cover (with ventilator and filter.)</p> <p>Risk [8]: Considerable reduction of radiation dose is a prerequisite to launch construction (→continue countermeasure [52] and [53].)</p>	<p>Target [10]: Cover the entire buildings (as temporary measure).</p> <p>Countermeasure [55]: Complete installing reactor building covers (Units 1, 3, 4.)</p> <p>Risk [9]: Possibility of cover being damaged by a huge typhoon.</p> <p>Countermeasure [56]: Begin detailed design of full-fledged measure (container with concrete roof and wall, etc.)</p>	<p>Issue [4]: Cover the entire building (as full-fledged measure)</p> <p>Issue [5]: Solidification, substitution and cleansing of contaminated soil.</p>
		<p>Current status [13]: Monitoring of radiation dose in and out of the power station is carried out.</p> <p>Countermeasure [57]: Monitoring sea water, soil and atmosphere within the site boundary (25 locations.)</p> <p>Countermeasure [58]: Monitoring radiation dose at the site boundary (12 locations.)</p> <p>Countermeasure [59]: Consideration of monitoring methods in evacuation order/planned evacuation/emergency evacuation preparation areas. (→countermeasure [60] to [63])</p>	<p>Target [11]: Expand/enhance monitoring and inform of results fast and accurately.</p> <p>Countermeasure [60]: Consideration and implementation of monitoring methods in evacuation order / planned evacuation / emergency evacuation preparation areas (in cooperation and consultation with national/prefectural/municipal governments.)</p> <p>Countermeasure [61]: Announce accurately monitoring results of long half-life residue radioactive materials such as cesium 137.</p>	<p>Target [12]: Sufficiently reduce radiation dose in evacuation order / planned evacuation / emergency evacuation preparation areas.</p> <p>Countermeasure [62]: Monitoring of homecoming residences <in cooperation and consultation with national / prefectural / municipal governments.></p> <p>Countermeasure [63]: Examination and implementation of necessary measures to reduce radiation dose (decontamination of homecoming residences and soil surface) <in cooperation and consultation with national/prefectural/municipal governments.></p>	<p>Issue [6]: Continue monitoring and informing environmental safety.</p>
III. Monitoring/ Decontamination	(5) Measurement, Reduction and Announcement of Radiation Dose in Evacuation Order/Planned Evacuation/Emergency Evacuation Preparation Areas	<p>(Note) With regard to radiation dose monitoring and reduction measures in evacuation order/planned evacuation/emergency evacuation preparation areas, we will take every measure through thorough cooperation with the national government and by consultation with the prefectural and municipal governments.</p>			

From: Tracy, Glenn
Sent: Sunday, April 17, 2011 7:23 AM
To: Reynolds, Steven; Casto, Chuck
Cc: OST01 HOC
Subject: RE: TEPCO road map
Attachments: NRC Site Team Quick Look Assessment of TEPCO Roadmap Rev 1.docx

We discussed with Marty and would prefer this tone if you can support. Thank you.

From: Reynolds, Steven
Sent: Sunday, April 17, 2011 7:05 AM
To: Tracy, Glenn
Subject: RE: TEPCO road map

thanks

From: Tracy, Glenn
Sent: Sunday, April 17, 2011 8:03 PM
To: Reynolds, Steven
Subject: RE: TEPCO road map

I respect that viewpoint Steve. Just trying to strike the tone desired by agency. Be back with you soon...

From: Reynolds, Steven
Sent: Sunday, April 17, 2011 7:00 AM
To: Tracy, Glenn
Subject: TEPCO road map

Let's make sure we don't over sell the road map. There are some significant enhancements that are needed.

VVV/396

NRC SITE TEAM QUICK-LOOK REVIEW OF THE TEPCO “ROADMAP TO RESTORATION”

April 17, 2011

On April 17, 2011, TEPCO announced publically their “Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station.” The Roadmap has a basic policy of “bringing the reactors and spent fuel pools to a stable cooling condition and mitigating the release of radioactive materials.” It is a Two-Step Plan. Step 1 is a three-month plan to reduce radiation levels at the site. Step 2 is aimed at controlling radiation releases and radiation doses so that they are “significantly held down.” Step 2, is set for about three to six months after completing Step 1.

Coincident with the release of the TEPCO document, Minister of Economy, Trade and Industry (METI), Mr. Banri Kaidea, released a statement. That statement suggests that TEPCO “ensure early implementation of the Roadmap.” Also, that after Step 2, the government will review the “deliberate evacuation area” (evacuation) and the “evacuation prepared area” (sheltering) to determine whether residents can return to the evacuated areas.

The TEPCO Roadmap consists of three immediate action targets. They include actions to: 1. Cool the reactors and spent fuel pools, 2. Contain, process contaminated water and mitigate the release of radioactive material, and 3. Monitor and decontaminate the nuclear site and the surrounding areas.

The Nuclear Regulatory Commission (NRC) site team quick-look review of the Roadmap concludes the following:

- It is encouraging that the Roadmap lays out a strategy
- Public disclosure of the Roadmap is very positive
- Actions and countermeasures are necessary for any plan to succeed. The TEPCO Roadmap contains such actions

and countermeasures that could lead to achieving the Roadmap goals

- The NRC staff has identified areas of enhancement for consideration by the Government of Japan that could assist in the effectiveness of the Roadmap. Those areas include the timing for certain activities and actions relating to plant stabilization.
- NRC and its partners will continue to provide their assistance and support to the Government of Japan. We believe an enhanced roadmap should provide a path forward to reach stable plant conditions, significantly reduce radiation levels, and provide proper controls for ingestion pathway activities, e.g., agricultural, fishing and habitation.

From: Weber, Michael
Sent: Monday, April 18, 2011 6:31 PM
To: LIA08 Hoc
Cc: OST01 HOC; Hoc, PMT12; Burnell, Scott; Nelson, Robert
Subject: RESPONSE - question about remote helicopter pictures

Thanks

From: LIA08 Hoc
Sent: Monday, April 18, 2011 5:34 PM
To: Boger, Bruce; Weber, Michael; RST01 Hoc
Subject: FW: question about remote helicopter pictures

See website below provided by the Japan Site Team for remotely piloted helicopter videos from Fukushima. Jeff Temple

From: Salay, Michael
Sent: Monday, April 18, 2011 5:29 PM
To: LIA08 Hoc
Subject: RE: question about remote helicopter pictures

There are about a dozen T-Hawk videos on this Tepco web page:

<http://www.tepco.co.jp/en/news/110311/>

I came back from Japan on Saturday but personally didn't see any T-Hawk footage other than that available from public sources. Others may have seen T-Hawk footage that I did not see.

-Mike

From: LIA08 Hoc
Sent: Monday, April 18, 2011 5:12 PM
To: Liaison Japan
Subject: question about remote helicopter pictures

Mike Weber asked if anyone has seen still photos or videos taken by a remotely operated helicopter at Fukushima. I think you guys have seen some video and still photos, but the images are too large to email back to us, so someone is going to hand carry when they return. Is this correct?

Thanks for any info you can provide.

Jeff Temple
Liaison Team Coordinator
301-816-5800

NVV/397

From: Kowalczyk, Jeffrey
Sent: Monday, April 18, 2011 10:40 AM
To: OST01 HOC
Subject: settings

USER MUST connect the new resource to Outlook please execute the below steps:

1. Open Control Panel (click on start, click on 'setting', click on control panel)
2. Open 'Mail'
3. Open 'Show Profile'
4. Click bullet to turn on 'Prompt for a profile to be used'
5. Click on 'Add'
6. Type in (**Resource name only** => NLE.resource and click on 'OK')
7. Type in email address (**Resource email address** => NLE.resource@nrc.gov) and click on 'next' (ignore password prompt)
8. Click on 'Finish'
9. Close and Open Outlook
10. Select the mail profile NLE.resource to open

VVV/298

From: OST01 HOC
Sent: Monday, April 18, 2011 1:19 PM
To: Hiland, Patrick; Andersen, James; Skeen, David
Cc: RST01 Hoc; Zimmerman, Roy
Subject: RE: Tasker # 4862 for NRR: Response to Comments on TEPCO "Roadmap towards Restoration"

It is now closed. Thanks.

Clyde Ragland
Executive Support Team
US Nuclear Regulatory Commission
email: ost01hoc@nrc.gov
Ph: 301-816-5100

From: Hiland, Patrick
Sent: Monday, April 18, 2011 1:01 PM
To: OST01 HOC; Andersen, James; Skeen, David
Cc: RST01 Hoc; Zimmerman, Roy
Subject: RE: Tasker # 4862 for NRR: Response to Comments on TEPCO "Roadmap towards Restoration"

Tasker #4862 should be closed based on withdrawal of questions by Bill Orders.

From: OST01 HOC
Sent: Monday, April 18, 2011 12:21 PM
To: Hiland, Patrick; Andersen, James; Skeen, David
Cc: RST01 Hoc; Zimmerman, Roy
Subject: RE: Tasker # 4862 for NRR: Response to Comments on TEPCO "Roadmap towards Restoration"

Please propose a date based on your other priorities, and we will update the Task Tracker to reflect it. Thanks.

R. Clyde Ragland
Executive Support Team

From: Hiland, Patrick
Sent: Monday, April 18, 2011 12:19 PM
To: OST01 HOC; Andersen, James; Skeen, David
Cc: RST01 Hoc; Zimmerman, Roy
Subject: RE: Tasker # 4862 for NRR: Response to Comments on TEPCO "Roadmap towards Restoration"

What is the due date?

From: OST01 HOC
Sent: Monday, April 18, 2011 11:41 AM
To: OST01 HOC; Andersen, James; Hiland, Patrick; Skeen, David
Cc: RST01 Hoc; Zimmerman, Roy
Subject: RE: Tasker # 4862 for NRR: Response to Comments on TEPCO "Roadmap towards Restoration"

VVV/399

Please note Tasker number created for this task and reference it in the Subject: line in any subsequent emails concerning this task. Thanks.

R. Clyde Ragland
Executive Support Team
US Nuclear Regulatory Commission
email: ost01hoc@nrc.gov
Desk Ph: 301-816-5111

From: OST01 HOC
Sent: Monday, April 18, 2011 11:25 AM
To: Andersen, James; Hiland, Patrick; Skeen, David
Cc: RST01 Hoc; Zimmerman, Roy
Subject: Tasker for NRR: Response to Comments on TEPCO "Roadmap towards Restoration"

New tasker for NRR. Thanks.

R. Clyde Ragland
Executive Support Team
US Nuclear Regulatory Commission
email: ost01hoc@nrc.gov
Desk Ph: 301-816-5111

From: Zimmerman, Roy
Sent: Monday, April 18, 2011 10:18 AM
To: OST01 HOC
Cc: RST01 Hoc; Skeen, David
Subject: FW: Comments of TEPCO "Roadmap towards Restoration"

Pls develop a tasker to nrr to answer bill orders questions, thx

From: Orders, William
Sent: Monday, April 18, 2011 9:33 AM
To: OST01 HOC; Castleman, Patrick; Franovich, Mike; Hipschman, Thomas; Snodderly, Michael
Cc: Hoc, PMT12; RST01 Hoc; LIA08 Hoc; Tracy, Glenn; Zimmerman, Roy
Subject: Comments of TEPCO "Roadmap towards Restoration"

More questions than comments:

- 1) How do they plan to cover the entire building? They appear to have both temporary and "full-fledged" measures in mind. Also, is this how they intend to implement "countermeasure 47" which anticipates inhibiting the scattering of rad materials?
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- 4) Note the comment made with countermeasure 19 that "most fuels in unit 4 have been confirmed intact." If true, that's rather big news.
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Thanks

Bill

From: OST01 HOC
Sent: Sunday, April 17, 2011 5:37 AM
To: Castleman, Patrick; Orders, William; Franovich, Mike; Hipschman, Thomas; Snodderly, Michael
Cc: Hoc, PMT12; RST01 Hoc; LIA08 Hoc; Tracy, Glenn; Zimmerman, Roy
Subject: TEPCO "Roadmap towards Restoration"

On April 17, TEPCO presented the attached Roadmap to Restoration, and METI provided a subsequent statement. DOS has requested NRC's thoughts on the plan through brief, high-level bullets to be used by the SoS upon her return to the US. The HOC Team and Japan Team are drafting points at this time. Requested by noon, Sunday 4/17 to DOS Embassy.

From: PROTOCOLOFFICE-EM [mailto:protocoloffice-em@mofa.go.jp]
Sent: Sunday, April 17, 2011 4:43 PM
To: PROTOCOLOFFICE-EM
Subject: Urgent: Roadmap towards Restoration

URGENT (15:50) Sunday 17 April 2011

To All Missions (Embassies, Consular posts and International Organizations in Japan)

Please find attached the "Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station", that was made public at the press conference by Mr. Tsunehisa Katsumata, Chairman of the Tokyo Electric Power Company (TEPCO) at TEPCO headquarters at 3 pm today.

Please also find attached the statement by Mr. Banri Kaieda, Minister of Economy, Trade and Industry at the press conference at METI following the announcement of the Roadmap by TEPCO.

The Missions are kindly requested to forward this message to their headquarters as soon as possible.

Contact: International Nuclear Energy Cooperation Division, Tel 03-5501-8227

From: Hiland, Patrick
Sent: Monday, April 18, 2011 12:25 PM
To: OST01 HOC; Andersen, James; Skeen, David
Cc: RST01 Hoc; Zimmerman, Roy
Subject: RE: Tasker # 4862 for NRR: Response to Comments on TEPCO "Roadmap towards Restoration"

Thanks, will do.

From: OST01 HOC
Sent: Monday, April 18, 2011 12:21 PM
To: Hiland, Patrick; Andersen, James; Skeen, David
Cc: RST01 Hoc; Zimmerman, Roy
Subject: RE: Tasker # 4862 for NRR: Response to Comments on TEPCO "Roadmap towards Restoration"

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R. Clyde Ragland
Executive Support Team

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Cc: RST01 Hoc; Zimmerman, Roy
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Please note Tasker number created for this task and reference it in the Subject: line in any subsequent emails concerning this task. Thanks.

R. Clyde Ragland
Executive Support Team
US Nuclear Regulatory Commission
email: ost01hoc@nrc.gov
Desk Ph: 301-816-5111

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Cc: RST01 Hoc; Zimmerman, Roy
Subject: Tasker for NRR: Response to Comments on TEPCO "Roadmap towards Restoration"

VVV/400

New tasker for NRR. Thanks.

R. Clyde Ragland
Executive Support Team
US Nuclear Regulatory Commission
email: ost01hoc@nrc.gov
Desk Ph: 301-816-5111

From: Zimmerman, Roy
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To: OST01 HOC
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The Missions are kindly requested to forward this message to their headquarters as soon as possible.

Contact: International Nuclear Energy Cooperation Division, Tel 03-5501-8227

From: OST01 HOC
Sent: Monday, April 18, 2011 10:16 AM
To: Pace, Patti; Batkin, Joshua; Gibbs, Catina; Speiser, Herald; Hipschman, Thomas; Marshall, Michael; Castleman, Patrick; Snodderly, Michael; Franovich, Mike
Subject: FW: Japan One Pager 0700 EDT 4-18-11
Attachments: Japan One Pager 0700 EDT 4-18-11.pdf

Attached, please find the April 18 - 0700 EDT One-Pager - Fukushima Daiichi

Please note that this information is "Official Use Only."

R. Clyde Ragland
Executive Support Team
US Nuclear Regulatory Commission
email: ost01hoc@nrc.gov
Desk Ph: 301-816-5111

VVV/h01

From: Thompson, Matt
Sent: Monday, April 18, 2011 5:53 PM
To: ET04 Hoc
Subject: FW: TEPCO : News | Photos For Press

link

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

From: LIA08 Hoc
Sent: Monday, April 18, 2011 5:48 PM
To: Thompson, Matt
Subject: TEPCO : News | Photos For Press

<http://www.tepco.co.jp/en/news/110311/>

204/1111

From: Hasselberg, Rick
Sent: Monday, April 18, 2011 9:07 AM
To: King, Mark
Cc: RST01 Hoc; RST01B Hoc
Subject: RE: OOU -- 1200 EDT (April 15, 2011) USNRC Earthquake-Tsunami Update and addition of temperature conversion to the back page

Thanks, Mark!

From: King, Mark
Sent: Friday, April 15, 2011 1:27 PM
To: LIA07 Hoc
Cc: Hasselberg, Rick
Subject: RE: OOU -- 1200 EDT (April 15, 2011) USNRC Earthquake-Tsunami Update and addition of temperature conversion to the back page

Suggest adding to your update report the following link for easy conversion of temperature data (or any other metric units) to the last page.

<http://www.worldwidemetric.com/measurements.html>

Also seems since like most US folks / NRC personnel are use to using °F, so we would give the data in °F... or at least both units i.e. 119.3 °C [246.74 °F]

From: LIA07 Hoc
Sent: Friday, April 15, 2011 12:20 PM
To: LIA07 Hoc
Subject: OOU -- 1200 EDT (April 15, 2011) USNRC Earthquake-Tsunami Update

Attached, please find a 1200 EDT, April 15, 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 not intended to be shared outside of the Federal government without NRC approval.

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

Thank you,
Jim

Jim Anderson
US Nuclear Regulatory Commission
LIA07.HOC@nrc.gov (Operations Center)

WVV/403

From: OST01 HOC
Sent: Tuesday, April 19, 2011 7:14 AM
To: RST01 Hoc; Hoc, PMT12; LIA08 Hoc
Subject: Group meeting in ET room at 7:45. Thanks <EOM>
Importance: High

VVV/404

From: OST01 HOC
Sent: Tuesday, April 19, 2011 9:18 PM
To: RST01 Hoc
Subject: RE: Japan One Pager 1500 EDT 4-19-11 (3).doc

thanks

From: RST01 Hoc
Sent: Tuesday, April 19, 2011 9:08 PM
To: OST01 HOC
Subject: Japan One Pager 1500 EDT 4-19-11 (3).doc

Cynthia,

Just cut and paste our section.

Thanks,
RST

www/405

From: OST01 HOC
Sent: Tuesday, April 19, 2011 5:13 PM
To: Boger, Bruce
Subject: FW: Japan One Pager 1500 EDT 4-19-11 (3).doc
Attachments: Japan One Pager 1500 EDT 4-19-11 (3).doc

This has been sent to the Team

From: OST01 HOC
Sent: Tuesday, April 19, 2011 4:16 PM
To: LIA08 Hoc; RST01 Hoc; Hoc, PMT12; Layton, Michael
Subject: Japan One Pager 1500 EDT 4-19-11 (3).doc

Here is a copy of the One-Pager will need to be completed later tonight.

904/1111

From: HOO Hoc
Sent: Tuesday, April 19, 2011 11:02 AM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC
Subject: FW: [METI Japan](Apr_19)Update on Seismic and Tsunami Damage Information
Attachments: [METI] Apr 19_0800_Seismic Damages to the NPSs.pdf; Apr_19 Radioactivity Level Map Chart.pdf

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

From: meti-info@meti.go.jp [mailto:meti-info@meti.go.jp]
Sent: Tuesday, April 19, 2011 10:59 AM
To: meti-info@meti.go.jp
Subject: [METI Japan](Apr_19)Update on Seismic and Tsunami Damage Information

For your reference, Ministry of Economy, Trade and Industry of Japan (METI) is providing latest information on the seismic and tsunami damages to the nuclear power stations (NPSs) in Japan, including those caused to Fukushima Dai-ichi NPS.

This Tuesday, the following information has been updated.

---- Today's news ----

1. Tokyo Electric Power Company (TEPCO) announced that it started transfer of high level radioactive wastewater to the Centralized Radiation Waste Treatment Facility.

---- Updates from METI ----

2. [METI] Apr 19_0800_Seismic Damages to the NPSs [Please refer to the attached file]
3. [METI] Apr 19_Radioactivity Level Map Chart [Please refer to the attached file]

---- Updates from NISA ----

4. [NISA] Apr 19 1500_Current Situation of Onagawa, Fukushima Dai-ichi, Fukushima Dai-ni, Tokai Dai-ni NPSs (only Japanese version is now available. English version will be uploaded.)
<http://www.meti.go.jp/press/2011/04/20110419007/20110419007-1.pdf>

[NISA] Apr 14 1500_Current Situation of Onagawa, Fukushima Dai-ichi, Fukushima Dai-ni, Tokai Dai-ni NPSs (English version) <http://www.nisa.meti.go.jp/english/files/en20110416-8-1.pdf>

5. [NISA] Apr 18 0600_Fukushima Dai-ichi Major Parameters of the Plant (English version)
<http://www.nisa.meti.go.jp/english/files/en20110418-1-3.pdf>

---- Major Updates from other agencies of Japanese Government --- 6. [MLIT] Apr 19 PM_Measurement of Radiation Doses in the Ports around Tokyo Bay http://www.mlit.go.jp/kowan/kowan_fr1_000041.html

WVV/407

Currently, the level of radiation in Tokyo City, Yokohama City, Kawaski City and Ichikawa City (Chiba) were as shown in the attachment at very safe level to health.

7. [MLIT] Apr 19 PM_Measurement of radiation doses around the Metropolitan Airports

<http://www.mlit.go.jp/koku/koku tk7 000003.html>

The current level of radiation does not have any effects on human health.

---- Other Updates ----

8. [TEPCO] Apr 19 Transfer of high level radioactive wastewater to the Centralized Radiation Waste Treatment Facility

<http://www.tepco.co.jp/en/press/corp-com/release/11041903-e.html>

If you need to add other e-mail address to this mailing list or do not need our information mail any more, please contact at meti-info@meti.go.jp

=====
International Public Relations Team
Ministry of Economy, Trade and Industry (METI)
1-3-1 Kasumigaseki, Chiyoda-ku, Tokyo 100-8901, Japan E-mail : meti-info@meti.go.jp
=====

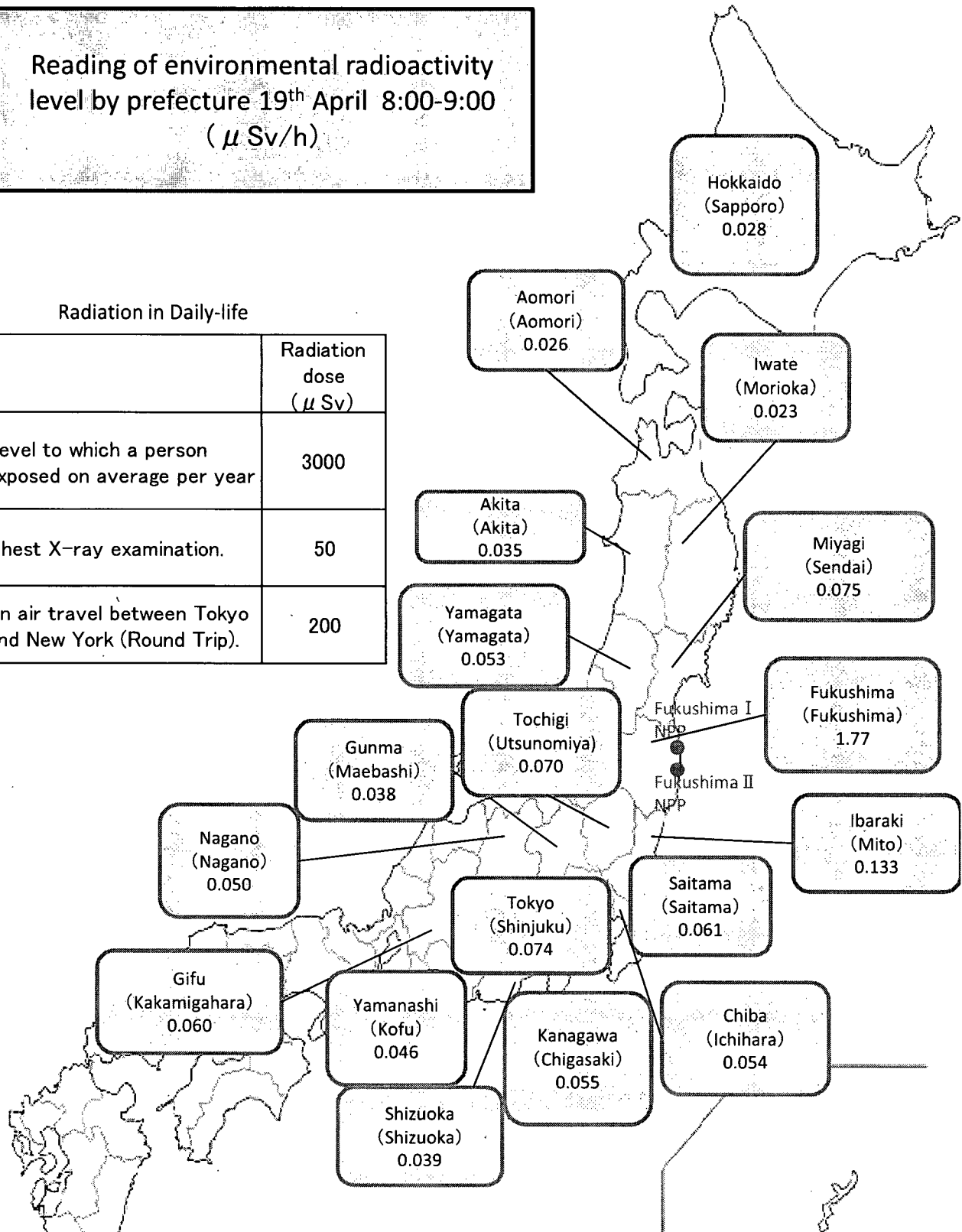
(See attached file: [METI] Apr 19_0800_Seismic Damages to the NPSs.pdf)

(See attached file: Apr_19 Radioactivity Level Map Chart.pdf)

Reading of environmental radioactivity level by prefecture 19th April 8:00-9:00 (μ Sv/h)

Radiation in Daily-life

	Radiation dose (μ Sv)
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 and Technology HP
Fukushima prefecture HP

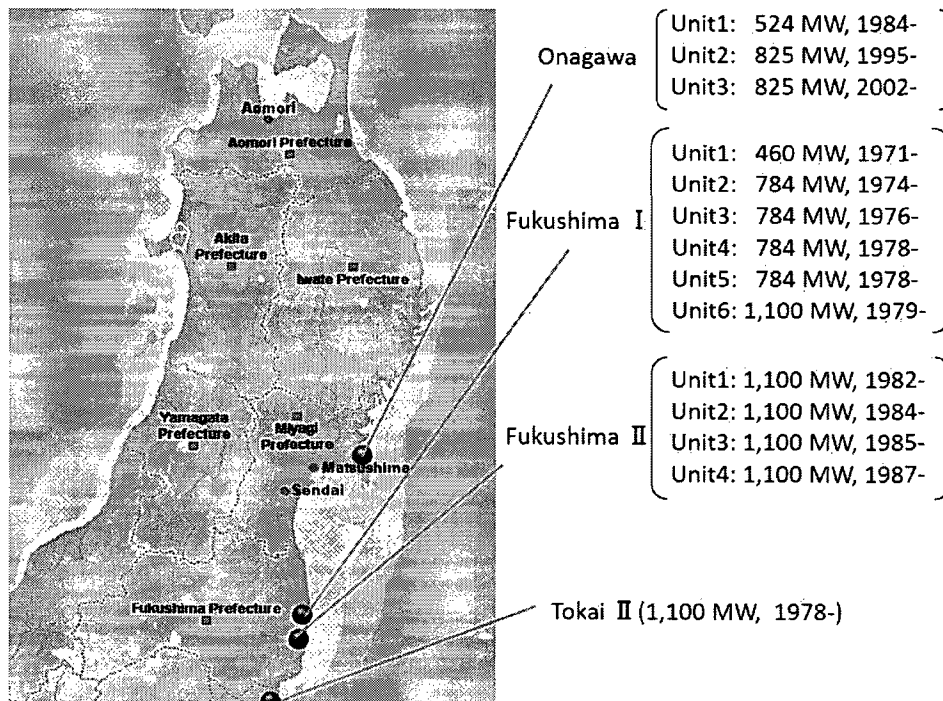
Tohoku Pacific Earthquake and the seismic damage to the NPSs

As of 8:00am April 19th, 2011 (JST)
Ministry of Economy, Trade and Industry

Earthquake and automatic shut-down of nuclear reactors

The Tohoku Pacific Earthquake of historic magnitude 9.0 struck the northeastern part of Japan at 14:46 on March 11th, 2011.

At the time of the earthquake occurrence, 3 reactors (Units 4, 5 and 6 at Fukushima Dai-ichi (I) Nuclear Power Station (NPS)) were under periodic inspection outage, and 11 reactors (Units 1, 2 and 3 at Onagawa NPS; Units 1, 2 and 3 at Fukushima I NPS; Units 1, 2, 3 and 4 of Fukushima Dai-ichi (II) NPS; and an unit of Tokai Dai-ichi (II) NPS) were automatically shut-down.



Tsunami damaged the emergency generators and the cooling systems at the Fukushima Dai-ichi (I)

Since the external power supply was cut off upon the earthquake occurrence, the emergency diesel power generators at Fukushima I automatically started generating electricity and the cooling systems began their operation.

Then, the massive earthquake triggered the devastating Tsunami wiping away houses, buildings, cars along the widespread areas of the northeast coast. The emergency diesel power generators and the pumps supplying seawater to the cooling system were halted at 15:41 on March 11th due to the Tsunami estimated more than 14 meters high from the seawater level.

Report concerning incidents at the Fukushima Dai-ichi (I)

Unit 1 Fresh water is being injected to the spent fuel pool and the reactor.

After the reactor was automatically shut-down and the Tsunami disabled the equipments. The pressure of containment vessel unusually increased and the water level inside the reactor pressure vessel dropped. Vent of the primary containment vessel was operated at 10:17am on March 12th; thereafter, hydrogen explosion occurred at the upper-part of the reactor building at 15:36.

Water injection to the reactor pressure vessel

- Seawater had been injected into the reactor pressure vessel since March 12th; thereafter, fresh water has been injected since March 25th, instead of seawater.

Water injection to the spent fuel pool

- On March 31st, spray of fresh water over the spent fuel pool of Unit 1 using the concrete pump truck was carried out.

Power supply

- Lighting in the main control room was recovered on March 24th. And the power supply for the fresh water injection to the reactor pressure vessel was switched to the external power supply on April 3rd.

Stagnant water

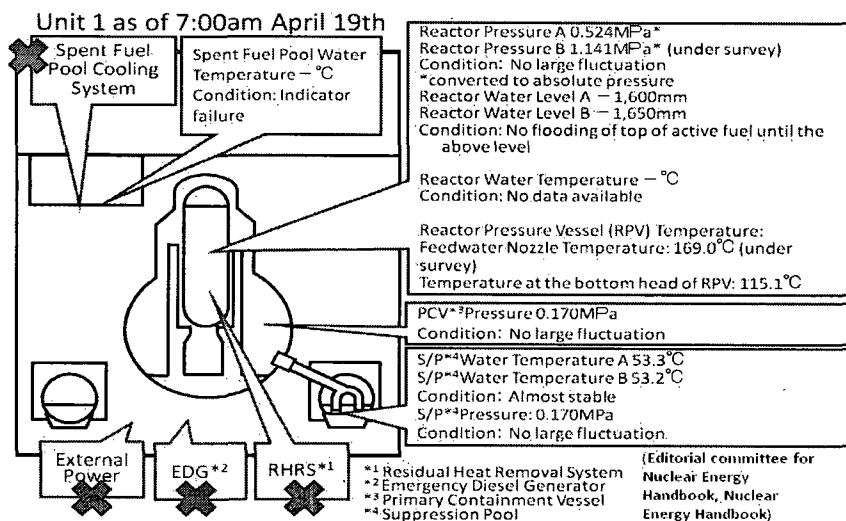
- As the result of concentration measurement in the stagnant water on the basement floor of the turbine building, $2.1 \times 10^5 \text{Bq/cm}^3$ of ^{131}I (Iodine) and $1.8 \times 10^6 \text{Bq/cm}^3$ of ^{137}Cs (Caesium) were detected as major radioactive nuclides. Since March 24th, the stagnant water has been transferred to the condenser until it was fulfilled.
- In order to prepare to transfer the stagnant water in the turbine building to the condenser, the water in the condensate storage tank was transferred to the surge tank of suppression pool water and finished on April 2nd. The transfer of the water in the condenser to the condensate storage tank was completed on April 10th.

Nitrogen injection

- Aiming at reducing the possibility of hydrogen combustion in the primary containment vessel of Unit 1, the operations for the injection of nitrogen to the vessel were started at 22:30 on April 6th. The start of nitrogen injection to the primary containment vessel of Unit 1 was confirmed. (1:31am April 7th)

Confirmation by unmanned robots

- Confirmation of situation, etc. was carried out by unmanned robots at the reactor building for Unit 1 on April 17th.



Unit 2 Fresh water is being injected to the spent fuel pool and the reactor.

After the automatic shut-down of the reactor, the water injection function was sustained. And vent of the primary containment vessel was operated at 11:00am on March 13th and at 0:02am on March 15th. But the reactor water level tended to decrease. At 6:10am on March 15th, there was an explosion sound at Unit 2. Given the fact that the pressure in the suppression chamber decreased, it is presumed that there is possibility of certain damage on the suppression chamber.

Water injection to the reactor pressure vessel

- Seawater had been injected into the reactor pressure vessel since March 14th; thereafter, fresh water has been injected since March 26th, instead of seawater.

Water injection to the spent fuel pool

- The seawater injection to the spent fuel pool using the fire pump truck started on March 20th. On March 29th, the injection was switched to the fresh water injection using the temporary motor-driven pump.

Power supply

- On March 26th, lighting of the main control room was recovered. And the power supply for the fresh water injection to the reactor pressure vessel was switched to the external power supply on April 3rd.

Stagnant water

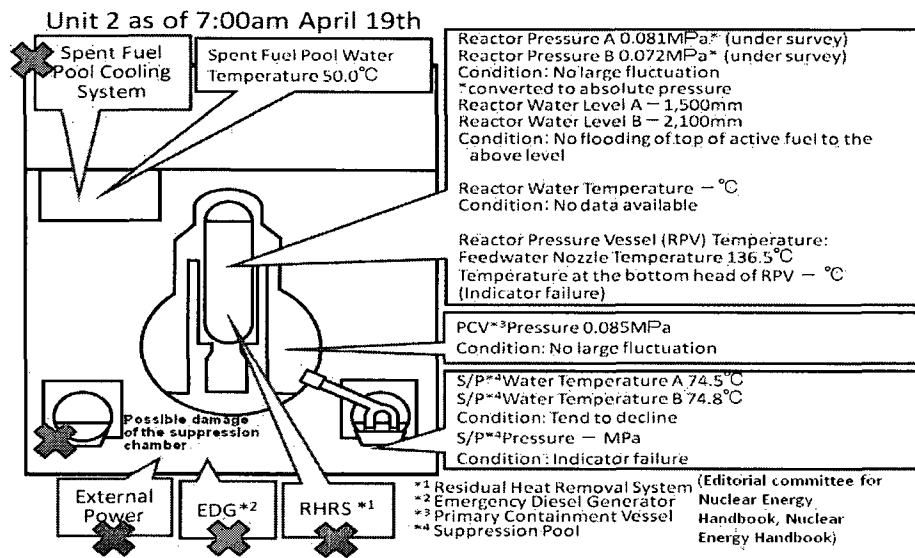
- In order to prepare for transferring the stagnant water on the basement floor of turbine building to the condenser, the water in the condensate storage tank was transferred to the surge tank of suppression pool water from March 29th till April 1st. Thereafter, the water in the condenser was transferred to the condensate storage tank and completed on April 9th. The stagnant water in the trench of the turbine building was transferred to the condenser from April 12th till 13th.

Water in the pit

- The water, of which the dose rate was at the level of more than 1,000 mSv/h, was confirmed to be collected in the pit (a vertical portion of an underground structure) located near the intake channel of Unit 2. In addition, the outflow from the crack with a length of around 20 cm in the concrete portion of the lateral surface of the pit into the sea was confirmed on April 2nd. In order to stop the outflow, concrete was put inside, then high polymer absorbent etc. was used, but the outflow did not stop.
- After the coagulant (soluble glass) started to be injected from the holes around the pit on April 5th, the outflow of the water was confirmed to stop on April 6th. Furthermore, the measures to stop water by means of rubber board and jig (prop) were implemented at the outflowing point. (Finished on April 6th)

Confirmation by unmanned robots

- Confirmation of situation, etc. was carried out by unmanned robots at the reactor building for Unit 2 on April 18th.



Unit 3 Fresh water is being injected to the spent fuel pool and the reactor.

After the automatic shut-down of the reactor, fresh water and subsequently seawater were injected into the reactor pressure vessel. And vent of the primary containment vessel was operated on March 13th and 14th. However, the pressure in the primary containment vessel rose up unusually and the explosion took place around the reactor building at 11:01am on March 14th.

Water injection to the reactor pressure vessel

- The seawater had been injected into the reactor pressure vessel since March 13th, thereafter; fresh water has been injected since March 25th, instead of seawater. On March 28th, the pump for the fresh water injection was switched from the fire pump truck to the temporary motor-driven pump.

Water injection to the spent fuel pool

- In order to pour water into the spent fuel pool, helicopters, water cannon trucks, fire engines and concrete pump trucks discharged water to the spent fuel pool of Unit 3 from sky and ground. Since March 29th till April 18th, fresh water spray over the spent fuel pool using the concrete pump truck had been carried out.

Power supply

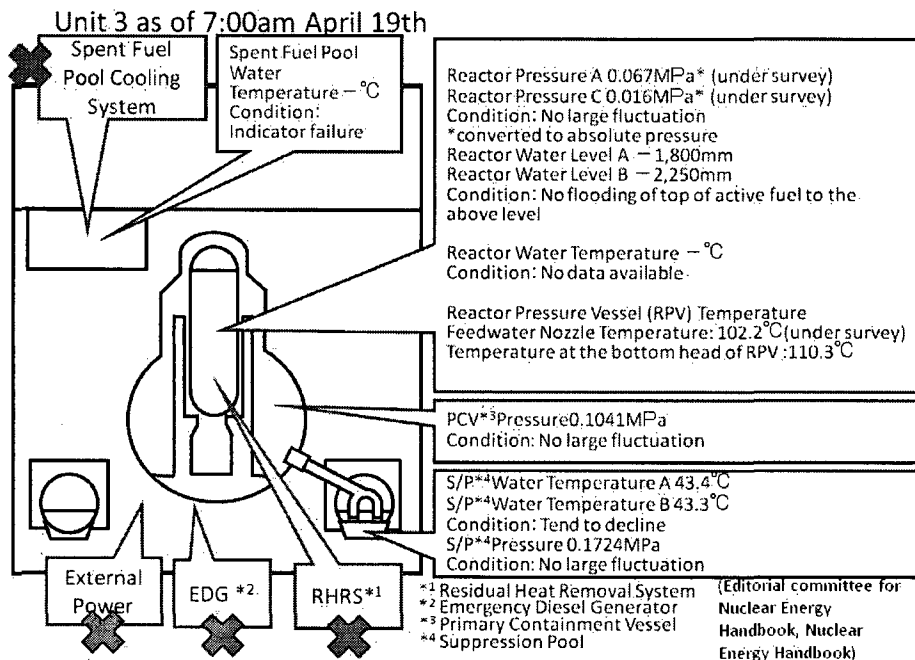
- On March 22nd, lighting in the main control room was recovered. And the power supply for the fresh water injection to the reactor pressure vessel was switched to the external power supply on April 3rd.

Stagnant water

- In order to prepare for transferring the stagnant water on the basement floor of turbine building to the condenser, the water in the condensate storage tank is being transferred to the surge tank of suppression pool water from March 28th till March 31st.

Confirmation by unmanned robots

- Confirmation of situation, etc. was carried out by unmanned robots at the reactor building for Unit 3 on April 17th.



Unit 4 No fuel is in the reactor. Fresh water is being injected to the spent fuel pool.

There is no fuel in the reactor pressure vessel due to replacement of the shroud. It was confirmed that a part of wall of the operation floor of the reactor building of Unit 4 was damaged at 6:14am on March 15th. A fire took place at Unit 4 at 9:38am March 15th, but the fire was extinguished spontaneously as of 11:00am. Another fire took place on March 16th, but no fire could be confirmed from the ground.

Water injection to spent fuel pool

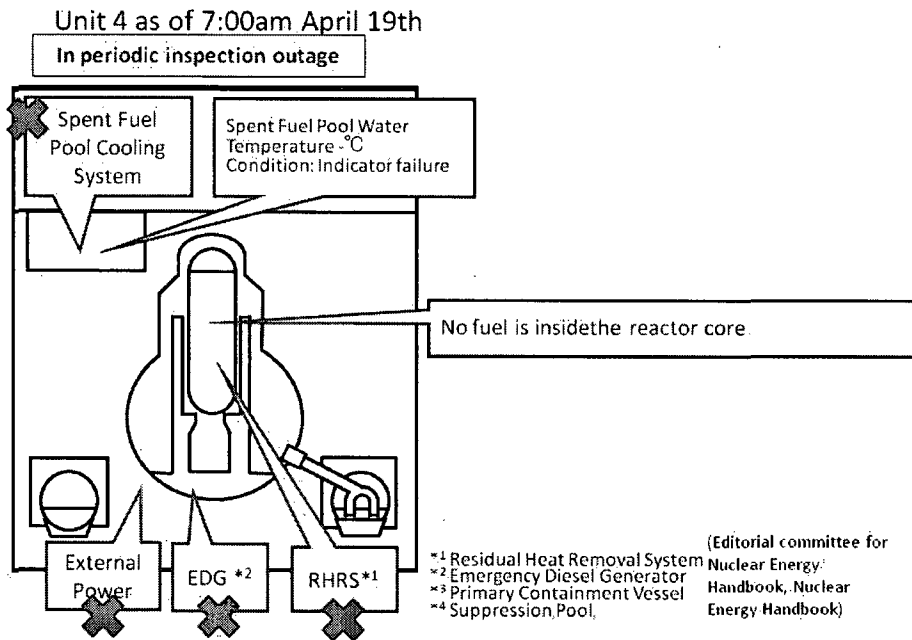
- Water spray using fire engine with seawater over the spent fuel pool of Unit 4 was carried out from March 20th till March 21st. And water spray using a concrete pump truck had been carried out five times with seawater from March 22nd till March 27th and nine times with fresh water from March 30th till April 17th.

Power supply

- On March 29th, lighting in the main control room was recovered.

Stagnant water

- From April 2nd, the stagnant water in the main building of radioactive waste treatment facilities was being transferred to the turbine building of Unit 4. As the water level in the vertical portion of the trench for Unit 3 rose from April 3rd, by way of precaution, the transfer was suspended notwithstanding that the path of the water was not clear.(9:22am April 4th)



Unit 5&6 Unit 5 & 6 is under cold shut down.

One of the emergency generators for Unit 6 was operating and supplying electricity to Unit 5 and Unit 6. Fresh water was being injected into the reactor pressure vessels and the spent fuel pools by make-up water condensate system.

Cold shut down

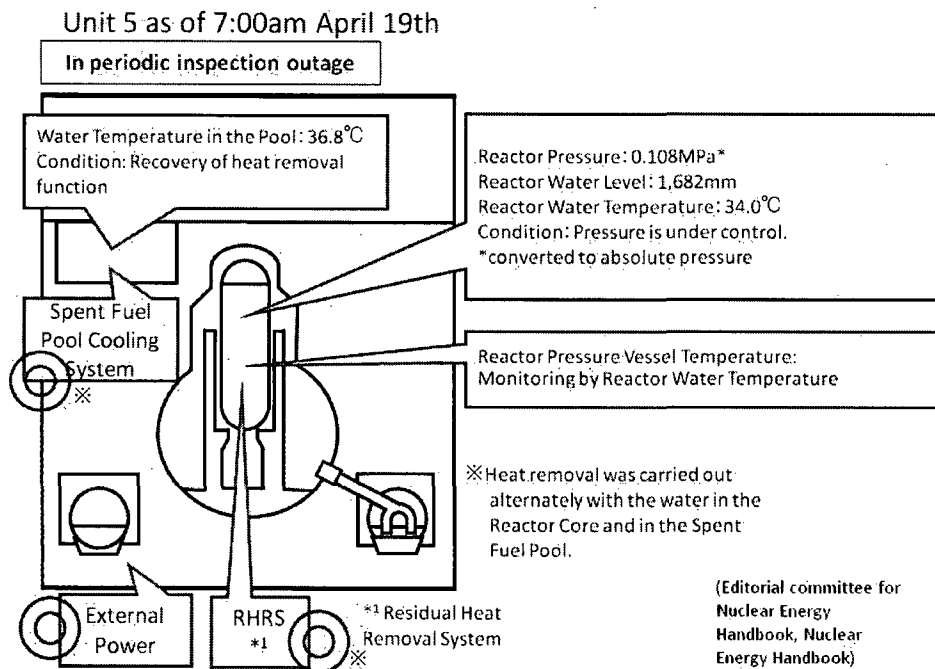
- The pump for residual heat removal system (RHR) for Unit 5 and the pump for RHR for Unit 6 started up on March 19th and recovered heat removal function.
- Unit 5 was under cold shut down at 14:30 on March 20th and Unit 6 was under cold shut down at 19:27 on the same day.

Power supply

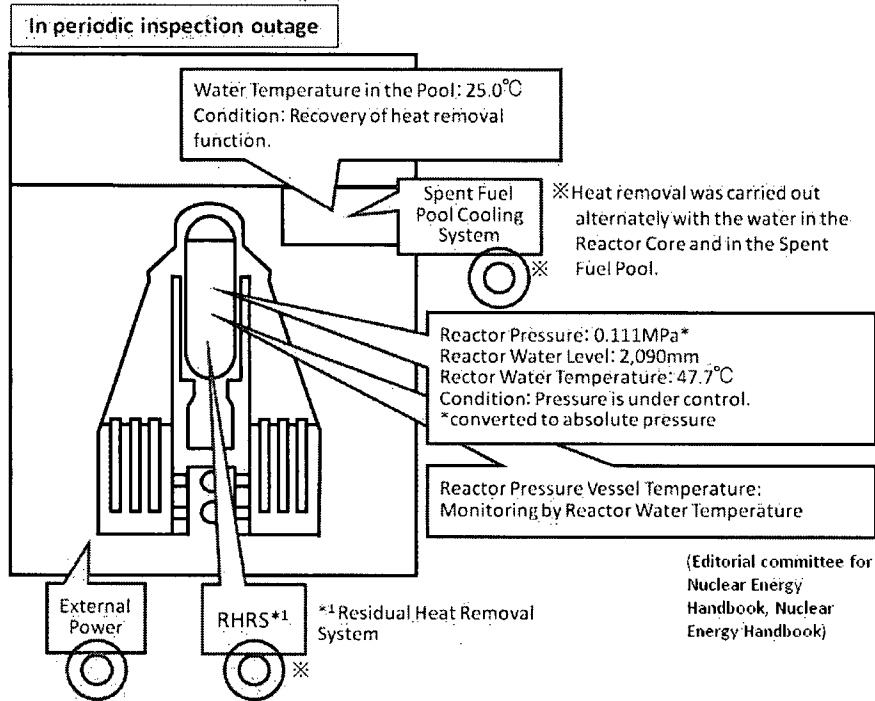
- Unit 5 and 6 received electricity reached to the starting transformer on March 20th. The power supply of Unit 5 and 6 was switched from the emergency diesel generators to the external power supply on March 21st and March 22nd.
- Power supply for the temporary pumps for RHR seawater system of Unit 5 and 6 were switched from the temporary to the permanent on March 24th and 25th.

Low-level radioactivity water discharge

- The groundwater with low-level radioactivity in the sub drain pits of Units 5 and 6 (around 1,300t) was discharged through the water discharge canal to the sea from April 4th till 9th in order to protect the critical safety facilities of the reactors. The water was beginning to leak out to the reactor building and other buildings of Unit 6 and there was no further capacity to accommodate it.



Unit 6 as of 7:00am April 19th



Common Spent Fuel Pool

- The power supply was started at 15:37 on March 24th and cooling was also started at 18:05 on the same day.
- The power supply was stopped due to short-circuiting of the end of the power supply circuit. (14:34 April 17th) Thereafter the facility inspection was carried out and the power supply was recovered. (17:30 April 17th)

Other

Nuclide analysis at water discharge canal

- As the result of nuclide analysis at around the southern water discharge canal, $7.4 \times 10^1 \text{ Bq/cm}^3$ of ^{131}I (1850.5 times higher than the limit of concentration of water outside the Environmental Monitoring Area) was detected on March 26th. (As the result of measurement on March 29th, it was detected as 3355.0 times higher than the limit in water.)
As the result of the analysis at the northern water discharge canal, $4.6 \times 10^1 \text{ Bq/cm}^3$ of ^{131}I (1262.5 times higher) was detected on March 29th.

Water in the trenches

- The water was confirmed to be collected in the vertical parts of the trenches (an underground structure for laying pipes, shaped like a tunnel) outside of the turbine building of Units 1 to 3. The dose rates on the water surface were 0.4 mSv/h of the Unit 1's trench and 1,000 mSv/h of the Unit 2's trench on March 27th. The rate of the Unit 3's trench could not measure because of the rubble.

Nuclide analysis of soil

- In the samples of soil collected on March 21st, 22nd, 25th, 28th, 31st and April 4th on the site of Fukushima I, ^{238}Pu (Plutonium), ^{239}Pu and ^{240}Pu were detected. The concentration of the detected plutonium was at the equivalent level of the fallout

that was observed in Japan concerning the past atmospheric nuclear testing, i.e. at the equivalent level of the normal condition of environment, and was not at the level of having harmful influence on human body.

Stagnant water

- On March 28th, the stagnant water was confirmed in the main building of radioactive waste treatment facilities. As the result of analysis of radioactivity, the total amount of the radioactivity 1.2×10^1 Bq/cm³ in the controlled area and that of 2.2×10^1 Bq/cm³ in the non-controlled area were detected in March 29th.

Barges loading fresh water

- Two barges of the US armed forces carrying fresh water for cooling reactors, etc. landed in the exclusive port of the power station, being towed by the ships of Japan Maritime Self-Defense Force on March 31st and April 2nd. The transfer of fresh water from the barges to the filtrate tank was started.

Low-level radioactive water discharge

- The wastewater with high concentration of radioactive materials was trapped on the basement floor of the turbine building of Unit2 and it was necessary to immediately be transferred to another location as it was leaking out to the surrounding environment. But there was no further capacity to accommodate it.
- In order to use the main building of radioactive waste treatment facilities for accommodating the wastewater of the turbine building of Unit2, the stagnant water with low-level radioactivity in the radioactive waste treatment facilities was started to be discharged from the southern side of the water discharge canal to the sea from April 4th till 10th. Confirmation of the remaining water is being carried out. (Total amount of discharged water is around 9,070t.)
- The stagnant water with low-level radioactivity in the building of miscellaneous solid waste volume reduction processing was discharged from the southern side of the water discharge canal to the sea using 5 pumps. (From April 6th till 7th)
- The watertight measures in the buildings of the radioactive waste treatment facilities were completed. (April 18th)

Other

- In order to prevent the contaminated water from outflowing from the exclusive port, the work for stopping water by means of large-sized sandbags was implemented around the seawall on the south side of the NPS on April 5th.
- 3 sandbags filled with Zeolite were placed between the inlet screen pump room of Unit 3 and that of Unit 4 on April 15th. Thereafter, 2 sandbags were placed between the inlet screen pump room of Unit 1 and that of Unit 2, and 5 sandbags were placed between that of Unit 2 and that of Unit 3 on April 17th.
- The silt fences to prevent the contaminated water from being scattered were completed to be doubly installed at the appropriate part of the seawall on the south side of the NPS on April 11th. Other silt fences were installed in front of the screen of Units 3 and 4 on April 13th, and at the curtain wall and in front of the screen of Unit 1 and 2 on April 14th.
- The test scattering of anti-scattering agent to prevent the radioactive materials on the ground surface from being scattered was carried out on the mountain-side of the Common Pool and other areas from April 1st till 18th.
- Removal of the rubble using remote-control heavy machineries was carried out from April 10th till 18th.
- On the ocean-side of the inlet bar screen of Unit 2, temporary boards to stop water were installed on April 12th, 13th and 15th.

Countermeasures for Tsunami

- The distribution boards, etc. for the pumps injecting water to the reactors of Units 1 to 3 were transferred to a hill on April 15th.

Current Situation

- Evacuation as far as 20 kilometers from Fukushima I NPS and 10 kilometers from Fukushima II NPS was almost completed (see the diagram “Fukushima prefecture”). The residents in the areas from 20 kilometers to 30 kilometers radius from Fukushima I NPS are directed to stay in-house.
- On March 16th, the Local Emergency Response Headquarter issued “the direction to administer the stable Iodine during evacuation from the evacuation area (20 km radius)” to the Prefecture Governors and the heads of cities, towns and villages.

Monitoring Data

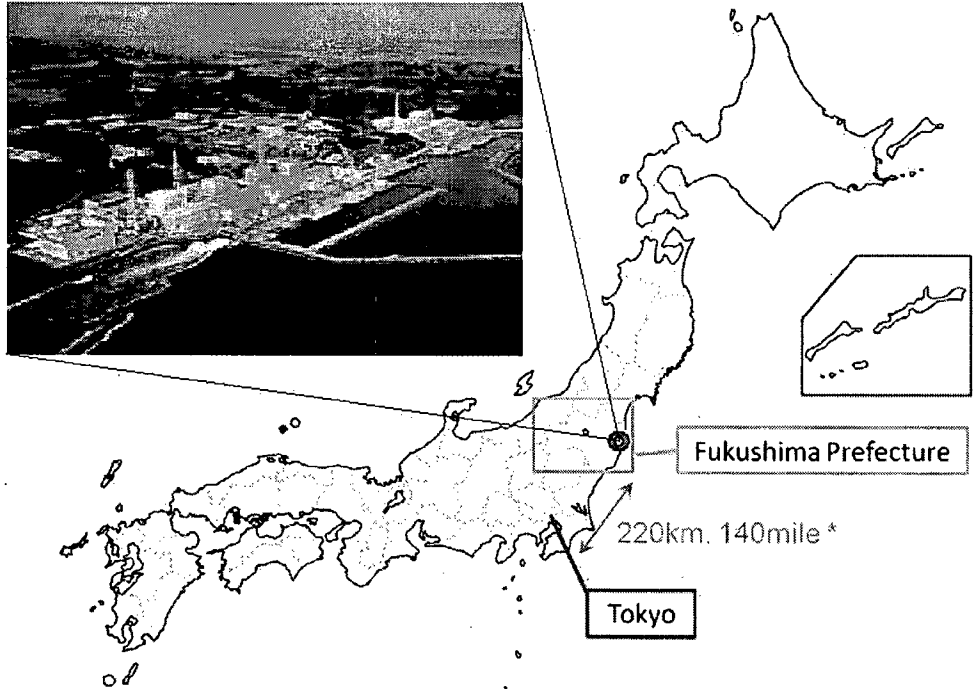
1) The data of Monitoring Post out of 20 kilometers zone of Fukushima I NPS is available on the following website:

http://www.mext.go.jp/a_menu/saigaijohou/syousai/1303726.htm

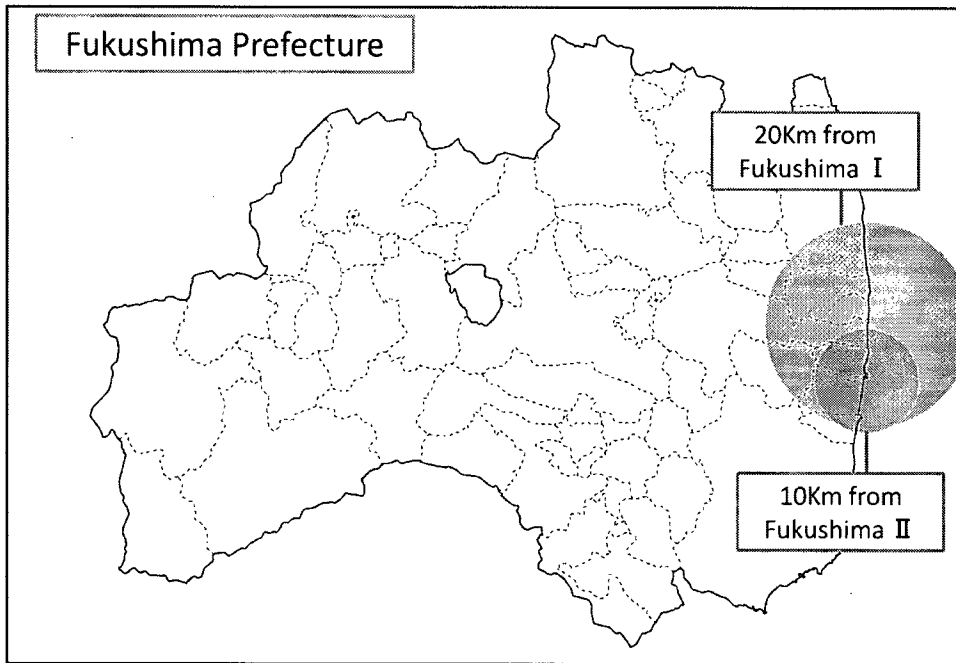
2) The real-time radiation data collected via the System for Prediction of Environment Emergency Dose Information (SPEEDI) is available on the following website:

<http://www.bousai.ne.jp/eng/>

Location of Fukushima I and II in Japan



*Distance between Three Mile Island and Washington D.C. : 140km, 88mile



From: Weber, Michael
Sent: Tuesday, April 19, 2011 9:29 PM
To: LIA08 Hoc
Cc: OST01 HOC
Subject: Response - No deputies or IPC meeting tomorrow

Thanks, Jeff

From: LIA08 Hoc
To: Boger, Bruce; Weber, Michael; Virgilio, Martin
Sent: Tue Apr 19 18:31:54 2011
Subject: No deputies or IPC meeting tomorrow

I talked to Richard Reed at the WH this afternoon. There may be a meeting to review and have internal WH discussions about reentry and return criteria, but there is NO deputies meeting or IPC meeting tomorrow.

Jeff Temple
Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

VVV/408

From: Hiland, Patrick
Sent: Tuesday, April 19, 2011 1:46 PM
To: OST01 HOC; RST01 Hoc
Cc: Bahadur, Sher; Skeen, David
Subject: RE: ACTION - New Ticket for Japanese Event Task Tracking (JETT) Process

NRR accepts Task # 4899 with a 4/26 due date.

From: OST01 HOC
Sent: Tuesday, April 19, 2011 1:26 PM
To: Hiland, Patrick; RST01 Hoc; Skeen, David
Subject: ACTION - New Ticket for Japanese Event Task Tracking (JETT) Process

The Operations Center has identified a task that falls in the purview of the Line Organization. You were provided as a POC for NRR

Question to be answered by NRR:

TEPCO is concerned that water leaking into the Unit 2 turbine building could be coming from Unit 1 or Unit 3 via cross-connects in the rad waste system (possibly via open primary containment isolation valves). If so, what are potential ways to identify the leak path and stop the leak. Provide answer to RST by 4/26.

This ticket is being tracked in the Japan SharePoint page (<http://nsir-ops.nrc.gov/Lists/HOC%20Red%20Tickets/AllItems.aspx>) under ticket number **4899**.

Please provide a response to this email to confirm receipt. Thank you,

Executive Support Team

*****Please note: All attachments are Official Use Only*****

VVV/409

From: Dudek, Michael
Sent: Tuesday, April 19, 2011 4:22 PM
To: OST01 HOC
Cc: Williams, Kevin; Holahan, Patricia; McDermott, Brian
Subject: CLOSURE OF ACTION #4847 - NSIR/NRR Review of TEPCO Roadmap to Recovery
Attachments: TEPCO.pdf; Kaieda(correction).pdf; NRC Site Team Quick Look Assessment of TEPCO Roadmap.pdf; RE: ACTION: Tasker 4847: NSIR/NRR review of TEPCO Roadmap to Recovery

Operations Center,

Steve LaVie's review (attached), in accordance with Fred Brown's email yesterday, should provide the needed assessment of the TEPCO Roadmap vs. the composite review (re-entry).

Please close action #4847 for NSIR.

Thanks,
Michael I. Dudek

Michael Dudek | Technical Assistant | NSIR/Division of Preparedness & Response | U.S. NRC
11555 Rockville Pike, Rockville, MD 20852 | ☎ (301) 415-6500 | ✉ Michael.Dudek@nrc.gov

Michael Dudek | Technical Assistant | NSIR/Division of Preparedness & Response | U.S. NRC
11555 Rockville Pike, Rockville, MD 20852 | ☎ (301) 415-6500 | ✉ Michael.Dudek@nrc.gov

From: OST01 HOC
Sent: Monday, April 18, 2011 1:25 PM
To: Dudek, Michael
Subject: Tasker 4847: NSIR/NRR review of TEPCO Roadmap to Recovery

Record #: <u>4847</u> EST Coordinator <i>T Rowe</i>	Desc: NSIR and NRR will jointly review the TEPCO Roadmap against the composite review (re-entry). Since TEPCO is looking at 3-9 months to achieve its criteria for stability, it's schedule likely will impact when US personnel can re-enter the 50 mile-to-30km ring around the Fukushima plant. Are we will satisfied that the short-term re-entry criteria are appropriate or should they be altered to permit earlier than when TEPCO will complete its activities. Due 4/18.	RST (All) NSIR	04/18/2011 17:14:00	Jim Wiggins	2: Assigned
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Please note 4/18 due date. Essentially identical to NRR-assigned Record #4839

Clyde Ragland
Executive Support Team
US Nuclear Regulatory Commission
email: ost01hoc@nrc.gov
Ph: 301-816-5100

014/1110

Roadmap towards Restoration from the Accident
at Fukushima Daiichi Nuclear Power Station

April 17th, 2011
Tokyo Electric Power Company

With regard to the accident at Fukushima Daiichi Nuclear Power Station due to the Tohoku-Chihou-Taiheiyo-Oki Earthquake occurred on Friday, March 11th, 2011, we are currently making our utmost effort to bring the situation under control. This announcement is to notify the roadmap that we have put together towards restoration from the accident.

1. Basic Policy

By bringing the reactors and spent fuel pools to a stable cooling condition and mitigating the release of radioactive materials, we will make every effort to enable evacuees to return to their homes and for all citizens to be able to secure a sound life.

2. Targets

Based on the basic policy, the following two steps are set as targets: "Radiation dose is in steady decline" as "Step 1" and "Release of radioactive materials is under control and radiation dose is being significantly held down" as "Step 2." Target achievement dates are tentatively set as follows: "Step 1" is set at around 3 months and "Step 2" is set at around 3 to 6 months after achieving Step 1.

3. Immediate Actions

Immediate actions were divided into three groups, namely, "I. Cooling," "II. Mitigation," "III. Monitoring and Decontamination." For the following five issues—"Cooling the Reactors," "Cooling the Spent Fuel Pools," "Containment, Storage, Processing, and Reuse of Water Contaminated by Radioactive Materials (Accumulated Water)," "Mitigation of Release of Radioactive Materials to Atmosphere and from Soil," and "Measurement, Reduction and Announcement of Radiation Dose in Evacuation Order/Planned Evacuation/ Emergency Evacuation Preparation Areas"—targets are set for each of the five issues and various countermeasures will be implemented simultaneously.

Please see the attachment for detailed actions.

We would like to deeply apologize again for the grave inconvenience and anxiety that the broad public has been suffering due to the accident at the Fukushima Daiichi Nuclear Power Station. We will continue to make every endeavor to bring the situation under control.

Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station

1. Basic Policy

By bringing the reactors and spent fuel pools to a stable cooling condition and mitigating the release of radioactive materials, we will make every effort to enable evacuees to return to their homes and for all citizens to be able to secure a sound life.

2. Targets

- Based on the basic policy, the following two steps are set as targets:

Step 1: Radiation dose is in steady decline.

Step 2: Release of radioactive materials is under control and radiation dose is being significantly held down.

(Note) Issues after Step 2 will be categorized as "Mid-term issues"

- Target achievement dates are tentatively set as follows, although there will still be various uncertainties and risks:

Step 1: around 3 months

Step 2: around 3 to 6 months (after achieving Step 1)

(Note) Announcements will be made as soon as timing of step-wise target achievement or qualitative prospects are determined, as well as if revisions to the targets or achievement dates become necessary.

3. Immediate Actions

- In order to achieve the above targets, immediate actions were divided into 3 groups with targets set for each of the 5 issues. Various countermeasures will be implemented simultaneously. (see the table in right.)

- In order to achieve Step 1, overcoming the following two issues that are currently being addressed will be critical:

① Prevention of hydrogen explosion inside the primary containment vessel (hereafter, PCV) (Units 1 to 3.)

• Cooling the reactor by injecting fresh water into the reactor increases the chance of steam condensation, leading to a concern of potentially triggering a hydrogen explosion.

→ Nitrogen gas will be injected into the PCV of each unit to keep the concentration of hydrogen and oxygen below flammability limit.

② Prevention of release of contaminated water with high radiation level outside of the site boundary (Unit 2.)

• While cooling the reactor by injecting fresh water, accumulation of contaminated water with high radiation level in the turbine building is increasing (possible release to outside of the site boundary.)

→ Actions will be taken against accumulated water to (1) secure several storage places and (2) install facilities to process the contaminated water and reduce the radiation dose, among others.

Roadmap for Immediate Actions

Areas	Issues	Targets and Countermeasures	
		Step 1	Step 2
I. Cooling	(1) Cooling the Reactors	① Maintain stable cooling: <ul style="list-style-type: none"> Nitrogen gas injection Flooding up to top of active fuel Examination and implementation of heat exchange function ② Cool the reactor while controlling the increase of accumulated water until the PCV is sealed	③ Achieve cold shutdown condition (sufficient cooling is achieved depending on the status of each unit.) <ul style="list-style-type: none"> Maintain and reinforce various countermeasures in Step 1.
	(2) Cooling the Spent Fuel Pools	④ Maintain stable cooling: <ul style="list-style-type: none"> Enhance reliability of water injection Restore coolant circulation system (Unit 4) Install supporting structure 	⑤ Maintain more stable cooling function by keeping a certain level of water. <ul style="list-style-type: none"> Reinforce control of coolant injection operation Examination and implementation of heat exchange function
II. Mitigation	(3) Containment, Storage, Processing, and Reuse of Water Contaminated by Radioactive Materials (Accumulated Water)	⑥ Secure sufficient storage place to prevent water with high radiation level from being released out of the site boundary. <ul style="list-style-type: none"> Installation of storage / processing facilities ⑦ Store and process water with low radiation level <ul style="list-style-type: none"> Installation of storage facilities / decontamination processing 	⑧ Decrease the total amount of contaminated water. <ul style="list-style-type: none"> Expansion of storage / processing facilities Decontamination / Desalt processing (reuse), etc.
	(4) Mitigation of Release of Radioactive Materials to Atmosphere and from Soil	⑨ Prevent scattering of radioactive materials on buildings and ground <ul style="list-style-type: none"> Dispersion of inhibitor Removal of debris Installing reactor building cover 	⑩ Cover the entire buildings (as temporary measure).
III. Monitoring / Decontamination	(5) Measurement, Reduction and Announcement of Radiation Dose in Evacuation Order / Planned Evacuation / Emergency Evacuation Preparation Areas	⑪ Expand/enhance monitoring and inform of results fast and accurately <ul style="list-style-type: none"> Examination and implementation of monitoring methods. 	⑫ Sufficiently reduce radiation dose in evacuation order / planned evacuation / emergency evacuation preparation areas <ul style="list-style-type: none"> Decontamination / monitoring of homes of residents
<p>(Note) With regard to radiation dose monitoring and reduction measures in evacuation order / planned evacuation / emergency evacuation preparation areas, we will take every measure through thorough coordination with the national government and by consultation with the prefectural and municipal governments.</p>			

Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station

Basic Policy: By bringing the reactors and spent fuel pools to a stable cooling condition and mitigating the release of radioactive materials, we will make every effort to enable evacuees to return to their homes and for all citizens to be able to secure a sound life.

Areas	Issues	Current Status (as of April 16 th)	Targets, Countermeasures and Risks		Mid-term Issues
			<Step 1 (around 3 months)> Radiation dose is in steady decline	<Step 2 (around 3 to 6 months*)> Release of radioactive materials is under control and radiation dose is being significantly held down. * After achieving Step 1	
I. Cooling	(1) Cooling the Reactors	<p>Current Status [1] (Units 1 to 3) Cooling achieved by water injection while there is partial damage to fuel pellets.</p> <p>⇒ Continued injection of fresh water and further cooling measures are required.</p> <p>Countermeasure [1]: Injecting fresh water into the RPV by pumps.</p> <p>Risk [1]: Possibility of hydrogen explosion due to condensation of steam in the PCV when cooled, leading to increased hydrogen concentration.</p> <p>Countermeasure [2]: Injecting nitrogen gas into the PCV (start from Unit 1).</p> <p>Countermeasure [3]: Consideration of flooding the PCV up to the top of active fuel.</p> <p>Current Status [2] (Units 1 to 3) High likelihood of small leakage of steam containing radioactive materials through the gap of PCV caused by high temperature.</p> <p>⇒ Lowering the amount of steam through cooling and implementation of leakage prevention are required.</p> <p>Countermeasure [4]: Lower the amount of steam generated by sufficiently cooling the reactor (to be achieved by measures in Steps 1 and 2).</p> <p>Countermeasure [5]: Consideration of shielding the leakage by covering the reactor building (coordinate with issue [4]).</p> <p>Current Status [3] (Unit 2) Large amount of water leakage, indicating high likelihood of PCV damage.</p> <p>⇒ Repairing the damaged location is required.</p> <p>⇒ Need to control the amount of water injection since leakage increases as injection increases.</p> <p>Countermeasure [6]: Consideration of sealing the damaged location (e.g., filling with grout (glutinous cement)).</p> <p>Countermeasure [7]: Cooling at minimum water injection rate (control the leakage of contaminated water).</p> <p>Risk [2]: Possibility of prolonged work of sealing the damaged location (→ countermeasures [12] and [14]).</p> <p>Current Status [4] Secured multiple off-site power (1 system each from TEPCO and Tohoku EPCO) and deployed backup power (generator cars / emergency generators).</p> <p>Risk [3]: Possibility of (partial) loss of power from the grid caused by securing air switches and lightning in summer.</p> <p>Countermeasure [8]: Install interconnecting lines of offsite power soon.</p>	<p>Target [1] (Unit 1 to 3) Maintain stable cooling.</p> <p>Countermeasure [9]: Flood the PCV up to the top of active fuel.</p> <p>Countermeasure [10]: Reduce the amount of radioactive materials (utilization of standby gas treatment system (filter), etc.) when PCV venting (release of steam containing radioactive materials into the atmosphere).</p> <p>Countermeasure [11]: Continue preventing hydrogen explosion by injecting nitrogen into the PCV.</p> <p>Risk [4]: Increase in water leakage into the turbine building in the process of flooding the PCV.</p> <p>Countermeasure [12]: Consideration and implementation of measures to hold down water inflow (e.g., circulating the water back into the RPV by storing and processing the accumulated water in the turbine building).</p> <p>Countermeasure [13]: Consideration of recovering heat exchange function for the reactor (installing heat exchangers).</p> <p>Risk [5]: Possibility of prolonged work in high dose level area (→ keep countermeasures [9] and [12]).</p> <p>Target [2] (Unit 2) Cool the reactor while controlling the increase of accumulated water until PCV is sealed.</p> <p>Countermeasure [14]: Continue cooling by current minimum injection rate.</p> <p>Countermeasure [15]: Continue prevention of hydrogen explosion by nitrogen injection into the PCV.</p> <p>Countermeasure [16]: Continue consideration and implementation of sealing measure at damaged location. Implement cooling measures similar to those for Units 1 and 3 once the damaged location is sealed.</p> <p>Risk [2]: Possibility of prolonged work of sealing the damaged location (→ continue countermeasures [12] and [14]).</p>	<p>Target [3] Achieve cold shutdown condition (sufficient cooling is achieved depending on the status of each unit.)</p> <p>Countermeasure [17]: Maintain and enhance countermeasures in Step 1 if needed.</p>	<p>Issue [1] Prevention of breakage, clogging and water leakage of structural materials (reactor and pipes, etc.) due to corrosion caused by salt.</p>

Note: Reactor pressure vessel is denoted as "RPV" and primary containment vessel is denoted as "PCV."

Areas	Issues	Current Status (as of April 16 th)	Targets, Countermeasures and Risks		Mid-term Issues
			<Step 1 (around 3 months)> Radiation dose is in steady decline.	<Step 2 (around 3 to 6 months*)> Release of radioactive materials is under control and radiation dose is being significantly held down. * After achieving Step 1.	
I. Cooling	(2) Cooling the Spent Fuel Pools	<p>Current Status [5]: Fresh water is injected from outside for Units 1, 3, 4 and through normal cooling line for Unit 2. ⇒ Reduction of worker exposure and countermeasures for aftershocks are required. Countermeasure [18]: Consideration/implementation of improving reliability of external water injection by concrete pumps. ("Giraffe", etc.)/switch to remote-controlled operation.</p> <p>Current Status [6]: Confirmation of release of radioactive materials from the pool Countermeasure [19]: Sampling and measurement of steam/pool water by "Giraffe", etc. ⇒ Most fuels in Unit 4 have been confirmed intact according to the result of pool water analysis.</p> <p>Current Status [7]: Walls of the building supporting the pool have been damaged. ⇒ Tolerance evaluation is especially needed for Unit 4. Countermeasure [20]: Seismic tolerance assessment of Unit 4. ⇒ A certain level of seismic tolerance has been confirmed. Countermeasure [21]: Continue monitoring and examine necessary countermeasures (⇒ countermeasure [26]).</p>	<p>Target [4]: Maintain stable cooling. Countermeasure [22]: Continuation of water injection by "Giraffe", etc (reliability improvement (enhanced durability of hoses)/switch to remote-controlled operation). Countermeasure [23]: Add cooling function to normal Fuel Pool Cooling system and continue injecting water for Unit 2. Countermeasure [24]: Examination and implementation of restoration of normal cooling system for Units 1, 3, and 4. Risk [6]: Possibility of inability to restore normal cooling line due to damages to the building. Countermeasure [25]: Examination and implementation of installing heat exchangers. Countermeasure [26]: (Unit 4) Installation of supporting structure under the bottom of the pool.</p>	<p>Target [5]: Maintain more stable cooling function by keeping a certain level of water. Countermeasure [27]: Cooling by installation of heat exchangers. Countermeasure [28]: Expansion of remote-controlled operation areas of "Giraffe", etc.</p>	<p>Issue [2]: Removal of fuels (including Units 5 & 6.)</p>
		II. Mitigation	(3) Containment, Storage, Processing, and Reuse of Water Contaminated by Radioactive Materials (Accumulated Water)	<p>Current Status [8]: Leakage of high radiation-level contaminated water assumed to have originated from Unit 2 reactor occurred, but was subsequently stopped. Countermeasure [29]: Identify leakage path and examine and implement preventive measures. ⇒ Placing sandbags with radioactive material adsorption material (zeolite) in the bay. ⇒ Installing fence in the bay to prevent contamination from spreading (air fence). ⇒ Blockage between trenches and buildings, etc.</p> <p>Current Status [9]: Leakage and accumulation of high radiation level contaminated water at Unit 2's turbine building, vertical shafts and trenches. Countermeasure [30]: Transferring accumulated water to facilities that can store it (condenser and Centralized Waste Treatment Facility). Countermeasure [31]: Preparing decontamination and desalt of transferred accumulated water. (⇒ Countermeasure [38]) Countermeasure [32]: Preparing to install tanks.</p> <p>Current Status [10]: Increase of storage volume of water with low radiation level. Countermeasure [33]: Preparing to store with tanks and barges. Countermeasure [34]: Preparing for decontamination and desalt of contaminated water (⇒ Countermeasure [41]) Countermeasure [35]: Preparing to install a reservoir.</p> <p>Current Status [11]: High likelihood of underground water around the building (sub-drainage water) to be contaminated. Countermeasure [36]: Preparing to decontaminate sub-drainage water after being pumped up.</p>	<p>Target [6]: Secure sufficient storage place to prevent water with high radiation level from being released out of the site boundary. Countermeasure [37]: Utilization of "Centralized Waste Treatment Facility", etc. to store water. Countermeasure [38]: Install water processing facilities; decontaminate and desalt highly-contaminated water and store in tanks. Risk [7]: Possibility of delay in installing water processing facilities or poor operating performance of the facilities. Countermeasure [39]: Examination and implementation of backup measures (installation of additional tanks or pools or leakage prevention by coagulator, etc.)</p> <p>Target [7]: Store and process water with low radiation level. Countermeasure [40]: Increase storage capacity by adding tanks, barges, Megafloat, etc. Countermeasure [41]: Decontaminating contaminated water using decontaminants to below acceptable criteria.</p>

Areas	Issues	Current Status (as of April 16 th)	Targets, Countermeasures and Risks		Mid-term Issues
			<Step 1 (around 3 months)> Radiation dose is in steady decline	<Step 2 (around 3 to 6 months)> Release of radioactive materials is under control and radiation dose is being significantly held down. * After achieving Step 1	
II. Mitigation	(4) Mitigation of Release of Radioactive Materials to Atmosphere and from Soil	<p>Current Status [12]: Debris are scattered outside the buildings and radioactive materials are being scattered.</p> <p>Countermeasure [47]: Inhibit scattering of radioactive materials by full-scale dispersion of inhibitor after confirming its performance by test.</p> <p>Countermeasure [48]: Prevent rain water contamination by dispersion of inhibitor.</p> <p>Countermeasure [49]: Removal of debris.</p> <p>Countermeasure [50]: Examination and implementation of basic design for reactor building cover and full-fledged measure (container with concrete roof and wall, etc.)</p> <p>Countermeasure [51]: Consideration of solidification, substitution and cleansing of contaminated soil (mid-term issues.)</p>	<p>Target [9]: Prevent scattering of radioactive materials on buildings and ground.</p> <p>Countermeasure [52]: Improvement of work condition by expanding application and dispersion of inhibitors to the ground and buildings.</p> <p>Countermeasure [53]: Continue removal of debris.</p> <p>Countermeasure [54]: Begin installing reactor building cover (with ventilator and filter).</p> <p>Risk [8]: Considerable reduction of radiation dose is a prerequisite to launch construction (→ continue countermeasure [52] and [53].)</p>	<p>Target [10]: Cover the entire buildings (as temporary measure).</p> <p>Countermeasure [55]: Complete installing reactor building covers (Units 1, 3, 4)</p> <p>Risk [9]: Possibility of cover being damaged by a huge typhoon.</p> <p>Countermeasure [56]: Begin detailed design of full-fledged measure (container with concrete roof and wall, etc.)</p>	<p>Issue [4]: Cover the entire building (as full-fledged measure)</p> <p>Issue [5]: Solidification, substitution and cleansing of contaminated soil.</p>
		<p>Current status [13]: Monitoring of radiation dose in and out of the power station is carried out.</p> <p>Countermeasure [57]: Monitoring sea water, soil and atmosphere within the site boundary (25 locations.)</p> <p>Countermeasure [58]: Monitoring radiation dose at the site boundary (12 locations.)</p> <p>Countermeasure [59]: Consideration of monitoring methods in evacuation order/planned evacuation/emergency evacuation preparation areas. (→ countermeasure [60] to [63].)</p>	<p>Target [11]: Expand/enhance monitoring and inform of results fast and accurately.</p> <p>Countermeasure [60]: Consideration and implementation of monitoring methods in evacuation order / planned evacuation / emergency evacuation preparation areas (in cooperation and consultation with national/prefectural/municipal governments.)</p> <p>Countermeasure [61]: Announce accurately monitoring results of long half-life residue radioactive materials (such as cesium 137).</p>	<p>Target [12]: Sufficiently reduce radiation dose in evacuation order / planned evacuation / emergency evacuation preparation areas.</p> <p>Countermeasure [62]: Monitoring of homecoming residences (in cooperation and consultation with national / prefectural / municipal governments.)</p> <p>Countermeasure [63]: Examination and implementation of necessary measures to reduce radiation dose (decontamination of homecoming residences and soil surface) (in cooperation and consultation with national/prefectural/municipal governments.)</p>	<p>Issue [6]: Continue monitoring and informing environmental safety.</p>
III. Monitoring/ Decontamination	(5) Measurement, Reduction and Announcement of Radiation Dose in Evacuation Order/Planned Evacuation/Emergency Evacuation Preparation Areas	<p>(Note) With regard to radiation dose monitoring and reduction measures in evacuation order/planned evacuation/emergency evacuation preparation areas, we will take every measure through thorough cooperation with the national government and by consultation with the prefectural and municipal governments.</p>			

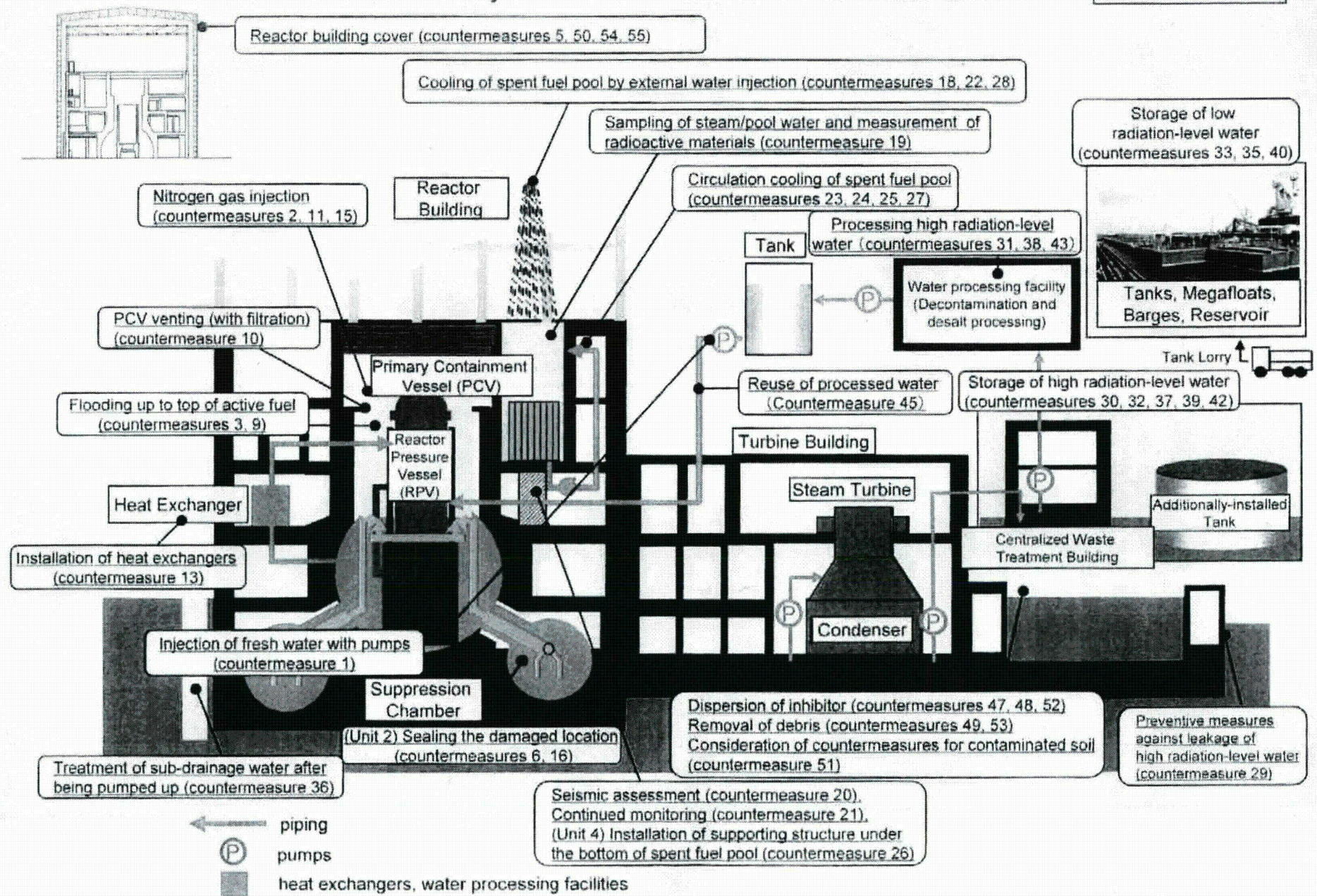
Roadmap for Immediate Actions (Issues / Targets / Major Countermeasures)

Reference 1

		Current Status	STEP1	STEP2	Mid-term Issues
I Cooling	(1) Reactors	Injecting fresh water	Nitrogen gas injection (Unit 1-3) Flooding up to top of active fuel Examination and implementation of heat exchange function (Unit 2) Sealing the damaged location	Stable cooling Flooding up to top of active fuel	Core shutdown condition Prevention of breakage of structural materials, etc.
	(2) Spent Fuel Pools	Injecting fresh water	Enhance reliability of water injection Restore coolant circulation system (Unit 4) Install supporting structure	Stable cooling Remote control of water injection Examination and implementation of heat exchange function	More stable cooling Removal of fuels
II Mitigation	(3) Accumulated Water	Transferring water with high radiation level Storing water with low radiation level	Secure storage place Installation of storage / processing facilities Installation of storage facilities / decontamination processing	Decrease contaminated water Expansion of storage / processing facilities Decontamination / Resalt processing (reuse), etc	Installation of full-fledged water treatment facilities
	(4) Atmosphere / Soil		Dispersion of inhibitor Removal of debris Installing reactor building cover		Installation of reactor building cover (container with concrete) Solidification of contaminated soil, etc
III Monitoring / Decontamination	(5) Measurement, Detection and Assessment	Monitoring of radiation dose in and out of the power station	Expand/enhance monitoring and inform of results fast and accurately	Sufficiently reduce radiation dose in evacuation order / planned evacuation / emergency evacuation preparation areas	Continue monitoring and informing environmental safety

Overview of Major Countermeasures in the Power Station

Reference 2



Statement of Mr. Banri Kaieda, Minister of Economy, Trade and Industry at the press conference following the announcement of Roadmap by Tokyo Electric Power Company (TEPCO)

1. Presentation at the earliest possible date of a roadmap towards settling the situation at Fukushima Daiichi Nuclear Power Station has been requested by people home and abroad, especially the residents around Fukushima Daiichi Nuclear Power Station.

TEPCO has just released this roadmap, which is an important step forward. Taking this opportunity, we would like to move from the "emergency response phase" up until now to the "planned & stabilizing action phase" in which the settlement of the situation will be aimed under the solid roadmap.

2. In response to the release of the roadmap.

- (1) The Government will request TEPCO to ensure the implementation of this roadmap steadily and as early as possible. To this end, the Nuclear and Industrial Safety Agency and others will make regular follow-up, monitoring of the progress of the works and necessary safety checks;

- (2) The Government will request TEPCO to ensure the mobilization and deployment of workers, the procurement and preparation of equipment and materials, and the arrangement of accommodation and other facilities, which are necessary to ensure implementation of the roadmap;

- (3) At the end of Step 2, the release of radioactive materials will be under control. At this stage, the Government will, following advices of the Nuclear Safety Commission of Japan, review the "Deliberate Evacuation Area" and the "Evacuation Prepared Area". Up until that time, we will consider the details of review criteria, and will decontaminate the widest possible area.

By implementing this, we would like to announce, within 6 to 9 months as our target, to the residents of some of the areas whether they will be able to come home.

(Division in Charge)

Nuclear and Industrial Safety Agency

Nuclear Safety Public Relations and Training Division

NRC SITE TEAM QUICK-LOOK REVIEW OF THE TEPCO “ROADMAP TO RESTORATION”

April 17, 2011

This document is a Quick-Look review by the NRC Site Team of the TEPCO Roadmap Plan released today. In the near term a more comprehensive assessment of the Roadmap will be conducted by the NRC staff. On April 17, 2011, TEPCO announced publically their “Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station.” The Roadmap has a basic policy of “bringing the reactors and spent fuel pools to a stable cooling condition and mitigating the release of radioactive materials.” It is a Two-Step Plan. Step 1 is a three-month plan to reduce radiation levels at the site. Step 2 is aimed at controlling radiation releases and radiation doses so that they are “significantly held down.” Step 2, is set for about three to six months after completing Step 1.

Coincident with the release of the TEPCO document, Minister of Economy, Trade and Industry (METI), Mr. Banri Kaidea, released a statement. That statement suggests that TEPCO “ensure early implementation of the Roadmap.” Also, that after Step 2, the government will review the “deliberate evacuation area” (evacuation) and the “evacuation prepared area” (sheltering) to determine whether residents can return to the evacuated areas.

The TEPCO Roadmap consists of three immediate action targets. They include actions to: 1. Cool the reactors and spent fuel pools, 2. Contain, process contaminated water and mitigate the release of radioactive material, and 3. Monitor and decontaminate the nuclear site and the surrounding areas.

The NRC Site Team quick-look review of the Roadmap concludes the following:

- It is encouraging that the Roadmap lays out a strategy
- Public disclosure of the Roadmap is very positive

- Actions and countermeasures are necessary for any plan to succeed. The TEPCO Roadmap contains such actions and countermeasures that could lead to achieving the Roadmap goals
- The NRC Site Team has identified areas of enhancements for consideration by the Government of Japan and TEPCO that may improve the effectiveness of the Roadmap. Those areas included the timing for certain activities and stabilizing actions relating to improved reactor and spent fuel pool safety
- The NRC and its partners will continue to provide their assistance and support to the resolution of the incident. We believe an enhanced Roadmap should provide a path forward to reach stable plant conditions, significantly reduce radiation levels, and provide proper controls for ingestion pathway activities, e.g., agricultural, fishing and habitation

From: Boger, Bruce
Sent: Tuesday, April 19, 2011 6:02 PM
To: OST01 HOC
Subject: FW: NRC's Daily Assessment of Conditions at Fukushima Daiichi
Attachments: NRC Daily Assessment of Daiichi - 4-19-11.pdf

Please print a copy of the attachment for the ET book. Also, please update the Support Team Process to establish the expectation that a hard copy will be provided for the ET book in addition to the electronic version already provided. Thank you.

From: OST01 HOC
Sent: Tuesday, April 19, 2011 6:32 AM
To: Batkin, Joshua; Boger, Bruce; Carpenter, Cynthia; Castleman, Patrick; Franovich, Mike; Gibbs, Catina; Hipschman, Thomas; Hoc, PMT12; Jaczko, Gregory; Johnson, Michael; LIA08 Hoc; Marshall, Michael; Moore, Scott; Pace, Patti; RST01 Hoc; Snodderly, Michael; Speiser, Herald; Tracy, Glenn; Uhle, Jennifer; Virgilio, Martin; Weber, Michael; Wiggins, Jim; Zimmerman, Roy
Subject: FW: NRC's Daily Assessment of Conditions at Fukushima Daiichi

*****Attachments are OUO*****

From: Moore, Carl
Sent: Tuesday, April 19, 2011 6:20 AM
To: Jaczko, Gregory
Cc: Borchardt, Bill; Weber, Michael; Virgilio, Martin; Casto, Chuck; Leeds, Eric; Reynolds, Steven; RST01 Hoc; OST01 HOC
Subject: NRC's Daily Assessment of Conditions at Fukushima Daiichi

Dear Chairman

The attached is the NRC Japan Team's Daily Assessment of conditions at the Fukushima Daiichi nuclear power plants and spent fuel pools. There are no changes to the daily assessment chart for today. It should be noted that the Unit 3 reactor pressure vessel flange temperature and upper drywell temperature indicators are continuing to trend down. Over the past 48 hours the reactor pressure vessel flange and upper drywell temperature has come down approximately 50 degrees C. The cause for the decrease is still unknown and is being evaluated. Unit 2 has experienced an approximate 50 degree C increase in the reactor pressure vessel lower head skirt temperatures. The cause for the increase is unknown and is being evaluated.

If you have any questions, please don't hesitate to ask.

Best regards,
Carl Moore
NRC Japan Team

WVV/4/11

~~Official Use Only~~

NRC's Daily Assessment of Conditions at Fukushima Daiichi Nuclear Power Plant

<u>Unit 1</u>		Today	Yesterday
Vessel	Cooling	Challenged	Challenged
		↔	↔
Integrity	Integrity	Intact	Intact
		↔	↔
Containment	Flooding	Inc./Needed	Inc./Needed
		↔	↔
Integrity	Integrity	Challenged	Challenged
		↔	↔
Spent Fuel Pool	Cooling/Level	Adequate	Adequate
		↔	↔
Integrity	Integrity	Intact	Intact
		↔	↔

<u>Unit 3</u>		Today	Yesterday
Vessel	Cooling	Adequate	Adequate
		↔	↔
Integrity	Integrity	Failed	Failed
		↔	↔
Containment	Flooding	Challenged	Challenged
		↔	↔
Integrity	Integrity	Failed	Failed
		↓	↓
Spent Fuel Pool	Cooling/Level	Challenged	Challenged
		↔	↔
Integrity	Integrity	Challenged	Challenged
		↔	↔

<u>Unit 2</u>		Today	Yesterday
Vessel	Cooling	Challenged	Challenged
		↔	↔
Integrity	Integrity	Failed	Failed
		↔	↔
Containment	Flooding	Inc./Needed	Inc./Needed
		↔	↔
Integrity	Integrity	Failed	Failed
		↔	↔
Spent Fuel Pool	Cooling/Level	Adequate	Adequate
		↔	↔
Integrity	Integrity	Intact	Intact
		↔	↔

<u>Unit 4</u>		Today	Yesterday
Spent Fuel Pool	Cooling/Level	Challenged	Challenged
		↔	↔
Integrity	Integrity	Challenged	Challenged
		↑	↑

		Today	Yesterday
Protective Measures	Exposure Risk	Low	Low
		↔	↔

~~Official Use Only~~

April 19, 2011

Methodology for Developing the Fukushima Daiichi Daily Assessment Report

PURPOSE: The report is prepared to provide a qualitative high level assessment of daily conditions at Fukushima Daiichi that the U.S. Ambassador can use to assess the safety of American citizens in Japan.

DISCLAIMER: The development of the daily assessment report includes a number of inputs. Some of these are objective, such as plant data provided by TEPCO, while others are subjective, such as engineering insights from the NRC's reactor and protective measures specialists in Japan. It should be recognized that there are many unknowns and uncertainties associated with having a complete understanding of conditions in each of the Daiichi reactors and spent fuel pools. As such, this tool represents the collective judgment of the NRC staff in Japan based on all available data.

For each of the major plant parameters listed below, the NRC staff assesses its status daily and bins it into one of the three categories listed. The staff uses the listed plant information and conditions in making its assessment. The arrows on the report indicate the relative trend in plant conditions from the previous day.

1. Reactor Pressure Vessel
 - a. Cooling – Adequate, Challenged, or Inadequate.
 - i. Flow or Injection Rate
 - ii. Reliability of Injection
 - iii. Source of Water
 - b. Integrity – Intact, Challenged, or Failed.
 - i. Temperature indications
 - ii. Pressure readings
2. Primary Containment
 - a. Flooding Status – Complete/Not needed, Challenged, or Incomplete/Needed.
 - i. Water Level
 - ii. Sources
 - iii. Injection capacity/rate
 - b. Integrity - Intact, Challenged, or Failed.
 - i. Pressure readings
 - ii. Bypass evaluations
 - iii. Temperature indications
3. Spent Fuel Pools
 - a. Cooling/Level – Adequate, Challenged, or Inadequate.
 - i. Flow or Injection Rate
 - ii. Reliability of Injection
 - iii. Source of Water
 - b. Integrity – Intact, Challenged, or Failed. Due to limited available data, this assessment relies strongly on the NRC team's engineering judgment.
4. Protective Measures – Exposure Risk to American citizens in Japan outside the U.S. government's recommended 50-mile evacuation zone.
 - a. Low – 50-mile recommendation remains sufficient
 - b. Medium – New information has raised questions regarding the sufficiency of the 50-mile recommendation.
 - c. High – 50-mile recommendation is no longer sufficient due to changing plant condition

From: Hiland, Patrick
Sent: Tuesday, April 19, 2011 1:57 PM
To: OST01 HOC; RST01 Hoc
Cc: Skeen, David
Subject: RE: ACTION - New Ticket for Japanese Event Task Tracking (JETT) Process

NRR accepts Task # 4896 with response due 4/26.

From: OST01 HOC
Sent: Tuesday, April 19, 2011 1:24 PM
To: Hiland, Patrick; RST01 Hoc; Skeen, David
Subject: ACTION - New Ticket for Japanese Event Task Tracking (JETT) Process

The Operations Center has identified a task that falls in the purview of the Line Organization. You were provided as a POC for NRR

Question to be answered by NRR:

TEPCO is interested in ideas for how to stop the leak from the Unit 2 Drywell. The NRC Japan Team suspects that the leak could be between the bellows in the downcomer and the torus. One idea discussed was to entomb the lower level of the reactor building in some way. However, there may be other creative ways to stop the leak. Please provide thoughts on how to stop the leak. Respond to RST with answers by 4/26

This ticket is being tracked in the Japan SharePoint page (<http://nsir-ops.nrc.gov/Lists/HOC%20Red%20Tickets/AllItems.aspx>) under ticket number **4896**.

Please provide a response to this email to confirm receipt. Thank you,

Executive Support Team

*****Please note: All attachments are Official Use Only*****

vrv/412

From: LIA08 Hoc
Sent: Tuesday, April 19, 2011 12:52 PM
Subject: USNRC Earthquake-Tsunami Update 041911 Revision 1, 1300 EDT
Attachments: USNRC Earthquake-Tsunami Update 041911 Revision 1, 1300 EDT.pdf

11/14/13

From: OST02 HOC
Sent: Wednesday, April 20, 2011 7:19 PM
To: OST01 HOC
Subject: FW: FYI - GLOBAL SECURITY NEWSWIRE ARTICLE ABOUT THE STATUS OF PROTECTIVE ACTIONS IN JAPAN
Attachments: image001.jpg

From: Weber, Michael
Sent: Wednesday, April 20, 2011 7:19:19 PM
To: Boger, Bruce; Zimmerman, Roy
Cc: Kokajko, Lawrence; Holonich, Joseph; Virgilio, Martin; Merzke, Daniel; OST02 HOC; OST01 HOC; Doane, Margaret; Mamish, Nader; Casto, Chuck; Reynolds, Steven
Subject: FYI - GLOBAL SECURITY NEWSWIRE ARTICLE ABOUT THE STATUS OF PROTECTIVE ACTIONS IN JAPAN
Auto forwarded by a Rule

Japan Weighs Restricting Access to Nuclear Exclusion Zone

Wednesday, April 20, 2011

Radioactive contaminants and other concerns might prompt Japan to tighten public access to the exclusion zone surrounding the Fukushima Daiichi nuclear power plant, the government indicated on Wednesday (see [GSN](#), April 19).



(Apr. 20) - *An abandoned dog stands in the exclusion zone surrounding Japan's Fukushima Daiichi nuclear power plant. Tokyo on Wednesday warned it could restrict access to the evacuation area (Athit Perawongmetha/Getty Images).*

An evacuation order issued one day after last month's 9.0-magnitude earthquake and tsunami prompted a near-total desertion of the area extending roughly 12 miles from the plant, the Associated Press reported. Between 70,000 and 80,000 people previously inhabited the zone. The six-reactor nuclear facility was crippled by the March 11 events, whose confirmed death toll now exceeds 13,000 people.

4/14/11

Authorities now cannot lawfully prevent individuals from entering the exclusion area. Law enforcement officers were recording license plate information from vehicles entering the zone through established checkpoints.

"We are considering setting up 'caution areas' as an option for effectively limiting entry" to the area, Japanese Chief Cabinet Secretary Yukio Edano said.

"There is a realization of a need to have a stronger enforcement of the area," said Noriyuki Shikata, an official under Edano. "Both the issue of ... strong enforcement of the area and a realization of temporarily going back home is something we have to closely coordinate with local municipalities."

"There are also issues surrounding nonresidents who are entering the area. There are people who may steal things," Shikata said. He did not elaborate on the timing or enforcement of the possible curb on access.

Representatives and former residents of the affected area are slated to address the potential restrictions during talks on Thursday with Prime Minister Naoto Kan (Yamaguchi/Kurtenbach, Associated Press I/Yahoo!News, April 20).

News findings indicate up to 200 residences in the exclusion area might still be inhabited, the *New York Times* reported. Law enforcement officers found 63 inhabited households in stops at 3,378 residences over the last three weeks.

Unnecessary exclusion zone occupants could contribute to the further spread of radioactive materials, possibly complicating future cleanup activities, said Michael Friedlander, a former U.S. nuclear power plant operator.

Still, those residents might make little difference in light of activities by crews working in the zone, said Michael Corradini, engineering physics chairman at the University of Wisconsin (Keith Bradsher, *New York Times I*, April 20).

Significantly contaminated water in a passage linked to the plant's No. 2 reactor turbine area has declined in depth by one centimeter since workers on Tuesday began transferring fluid to an improvised holding structure, plant operator Tokyo Electric Power said on Wednesday. The passage's water level had fallen to 81 centimeters from the surface as of Wednesday morning, Kyodo News reported.

Water in a separate passage linked to the No. 3 reactor turbine area increased in depth by three centimeters, though, narrowing its distance from the surface to 108 centimeters.

Personnel have so far been unable to remove fluid from a potential liquid collection site, preventing the transfer of water from the No. 3 reactor turbine area passage, Japanese Nuclear and Industrial Safety Agency Deputy Director General Hidehiko Nishiyama said.

"The condenser (where we want to store water) is already full and water appears to be flowing in. We don't know the reason," the official said (Kyodo News I/Mainichi Daily News, April 20).

Contaminated water has hindered efforts to restore cooling mechanisms needed to help prevent additional radioactive material from escaping the plant. Transferring the fluid elsewhere is one of 63 steps the plant's operator discussed on Sunday in its plan to stabilize the facility by around the end of 2011, the *Times* reported.

The French firm Areva intends by the end of next month to establish an on-site system capable of removing nearly all radioactive contaminants from 50 metric tons of water each hour, company chief executive Anne Lauvergeon said on Tuesday. Veolia Water, a British firm expected to provide the equipment, would also work

with Areva to supply three sets of machinery for converting ocean water into fresh water coolant for plant components (Bradsher/Tabuchi, *New York Times II*, April 19).

Meanwhile, white vapor was seen drifting from the No. 2, No. 3 and No. 4 reactors on Monday, the International Atomic Energy Agency said (International Atomic Energy Agency release I, April 19).

Two remote-controlled robotic vehicles on Sunday took radiation readings from the No. 1 and No. 3 reactors on Sunday. However, a Monday attempt to gather radiation readings at the No. 2 reactor proved unsuccessful, the *Times* reported; vapor at the site obstructed one robot's camera view of measuring instrument mounted on the other vehicle (Bradsher/Tabuchi, *New York Times II*).

Transfers of fresh water into reactors No. 1, No. 2 and No. 3 continued, and workers continued the insertion of nitrogen gas into the No. 1 reactor, the U.N. nuclear watchdog said on Tuesday, referring to Japanese government updates.

Conditions remained consistent at reactors No. 5 and No. 6 (International Atomic Energy Agency release I).

Tokyo Electric Power representatives admitted that intense radioactivity at the plant might interfere with the firm's time line for achieving the cold shutdown of all facility reactors, the *Asahi Shimbun* reported on Wednesday.

Nishiyama said: "The situation is very serious. It is desirable to lower the level of radiation workers are exposed to by using anything that will shield the radiation as well as by decontaminating the workers. We will have to think of ways to carry that out from now" (*Asahi Shimbun*, April 20).

Participants in the response to the 1979 Three Mile Island disaster in Pennsylvania said recovery from the Fukushima Daiichi crisis would prove more daunting, the *Times* reported.

"It was a walk in the park compared to what they've got," said Lake Barrett, the U.S. Nuclear Regulatory Commission's top engineer at the Pennsylvania plant during the initial recovery effort.

Barrett said the Fukushima plant's "cores are probably really similar, partially melted," but specialists said the damage sustained by multiple reactors at the Japanese complex would pose additional difficulties.

In addition, a seasonal increase in precipitation expected to hit Japan in several weeks might cause more radioactive material to flow out of the plant if workers fail to patch up ruptured reactor containers by that time, said experts who handled the Three Mile Island facility's 14-year recovery (Matthew Wald, *New York Times III*, April 19).

Elsewhere, elevated radioactive contaminant concentrations found in young sand lance from Fukushima prefecture prompted Japan on Wednesday to prohibit deliveries of the fish and to tighten rules on their use as food, Kyodo News reported (Kyodo News II/*Mainichi Daily News*, April 20).

In Ukraine, IAEA Director General Yukiya Amano on Tuesday discussed the Japanese nuclear crisis while addressing the Kiev Summit for Safe and Innovative Use of Nuclear Energy.

The IAEA Ministerial Conference on Nuclear Safety, slated to convene from June 20-24 in Vienna, Austria, would probably complete an initial evaluation of the Fukushima disaster, Amano said (International Atomic Energy Agency release II, April 19).

Speaking at the site of the 1986 Chernobyl disaster, Amano said neither that incident nor the Fukushima disaster undercuts the worth of atomic energy, AP reported ([Associated Press II/Yahoo!News](#), April 20).

U.N. Secretary General Ban Ki-moon on Tuesday said the two crises point to the importance of a "global rethink" on nuclear power, Reuters reported.

"How can we ensure the peaceful use of nuclear energy and maximum safety? We need a global rethink on this fundamental question," Ban said in Ukraine.

The world should carry out a "top-to-bottom" assessment of rules governing the use of atomic energy, and governments should establish stringent safety frameworks, he said. Countries should permit outside assessments of nuclear sites and increase public disclosures to bolster faith in safety procedures, he said.

"Nuclear power plants must be built to withstand everything from earthquakes to tsunamis, from fires to floods," Ban said ([Reuters](#), April 19).

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: Hoc, PMT12
Sent: Wednesday, April 20, 2011 11:06 AM
To: Dudek, Michael; OST01 HOC
Subject: RE: ACTION: SNL request for info regarding the evacuation

Michael,

This item is going to be redirected. Please disregard until further notice.

v/r,

Kimberly Gambone
PMT12

From: Dudek, Michael
Sent: Wednesday, April 20, 2011 7:20 AM
To: OST01 HOC
Cc: Hoc, PMT12
Subject: FW: ACTION: SNL request for info regarding the evacuation

Executive Support Team:

This action needs to go through the Japan Tasking Process. Is this a formal action assigned by the ET? Does it have a tracking number? When is it due by?

Who/ what is SNL?

Thanks!

Michael Dudek | Technical Assistant | NSIR/Division of Preparedness & Response | U.S. NRC
11555 Rockville Pike, Rockville, MD 20852 | ☎ (301) 415-6500 | ✉ Michael.Dudek@nrc.gov

From: Hoc, PMT12
Sent: Wednesday, April 20, 2011 4:53 AM
To: Dudek, Michael
Subject: FW: ACTION: SNL request for info regarding the evacuation

Michael,

I am forwarding this request for information from SNL regarding the evacuation around the Fukushima site.

1. How were people informed that they needed to evacuate?
2. How long did it take them to evacuate?
3. Did they drive, walk, or were they bussed to shelters?

PMT12 (John Parillo)

From: Huffert, Anthony
Sent: Tuesday, April 19, 2011 11:15 PM
To: Hoc, PMT12

SNL/415

Cc: Gepford, Heather; Meighan, Sean; Reynolds, Steven; PMT_japan Resource
Subject: ACTION: SNL request for info

PMT12:

Jeff Lachance is the SNL team member leaving the Japan Embassy today. He sent the email request (below) just before he left – it's from one of his colleagues at SNL who is specifically asking for information on how the evacuation was conducted.

Please advise on a response from SNL. I'm not aware that we have such information here.

PMT-Embassy

From: Lachance, Jeffrey Lynn [mailto:jllacha@sandia.gov]
Sent: Tuesday, April 19, 2011 9:54 PM
To: Huffert, Anthony
Cc: Gauntt, Randall O
Subject: FW: Update

Tony

Any information you can pass along to Joe would be appreciated.

Jeff LaChance

From: Jones, Joe A
Sent: Tuesday, April 19, 2011 8:19 AM
To: Lachance, Jeffrey Lynn
Subject: Update

Jeff,

If you have a few minutes, could you send some information regarding details you are finding with respect to the accident. Obviously just releasable information, but I am struggling to get the following types of information:

1. Dose rates outside the buildings
2. Dose rates at the plant boundary
3. Dose rates within the emergency planning zone and surrounding areas

Also, I am interested in how the initial evacuation was conducted. There is little information available, but I assume there was no power within 10 miles of the plant.

4. How were people informed that they needed to evacuate?
5. How long did it take them to evacuate?
6. Did they drive, walk, or were they bussed to shelters?

I read about the application of a sticky ground cover to minimize resuspension within the site boundary. Have you heard whether this worked or was just a mess? I would have used similar materials (mine dry on the surface) for decon projects.

Hope all is going well over there.

Joe

From: Marshall, Michael
Sent: Wednesday, April 20, 2011 10:58 PM
To: OST01 HOC
Subject: Out of Office: One Pager - April 20 - 2300 EDT - Fukushima Daiichi

Hello,

I will be out of the office until April 25, 2011. If you need immediate assistance, please, call 301-415-1750.

Best Regards,
Michael Marshall

VVV / 4/6

From: OST01 HOC
Sent: Wednesday, April 20, 2011 2:39 PM
To: RST01 Hoc
Subject: FW: Draft One Pager for 1500
Attachments: Japan One Pager 1500 EDT 4-20-11.doc

From: OST01 HOC
Sent: Wednesday, April 20, 2011 7:32 AM
To: Zimmerman, Roy; RST01 Hoc; Hoc, PMT12; LIA08 Hoc
Subject: Draft One Pager for 1500

All,

Here is a copy of the One-Pager that will need to be completed later this shift. Thank you!

EST

7/14/11

From: Hoc, PMT12
Sent: Wednesday, April 20, 2011 11:51 AM
To: OST01 HOC
Subject: one pager edits....
Attachments: Japan One Pager 1500 EDT 4-20-11__ PMT edits.doc

VVV/418

From: OST01 HOC
Sent: Wednesday, April 20, 2011 10:58 PM
To: Tracy, Glenn; Holonich, Joseph; Batkin, Joshua; Boger, Bruce; Carpenter, Cynthia; Castleman, Patrick; Franovich, Mike; Gibbs, Catina; Hipschman, Thomas; Hoc, PMT12; Jaczko, Gregory; Johnson, Michael; LIA08 Hoc; Marshall, Michael; Moore, Scott; Orders, William; Pace, Patti; RST01 Hoc; Snodderly, Michael; Speiser, Herald; Uhle, Jennifer; Virgilio, Martin; Weber, Michael; Wiggins, Jim; Zimmerman, Roy
Subject: One Pager - April 20 - 2300 EDT - Fukushima Daiichi
Attachments: Japan One Pager 2300 EDT 4-20-11.pdf

Please find attached the April 20, 2011 2300 EDT One-Pager for Fukushima Daiichi.

*****All documents attached are Official Use Only*****

617/NN

From: OST01 HOC
Sent: Thursday, April 21, 2011 9:51 PM
To: Dorsey, Cynthia
Subject: Book2.xlsx
Attachments: Book2.xlsx

VVV/420

Executive Support Team			
Sat-Sun	4/16-4/17	11pm - 7am	Emily Larson
Sun	4/17	7am - 3pm	Kelly Riner
Sun	4/17	3pm-11pm	Cynthia Dorsey
Sun-Mon	4/17-4/18	11pm - 7am	T. Rowe
Mon	4/18	7am - 3pm	Clyde Ragland
Mon	4/18	3pm-11pm	Mary Glenn Crutchley
Mon-Tue	4/18-4/19	11pm - 7am	T. Rowe
Tue	4/19	7am - 3pm	Emily Larson
Tue	4/19	3pm-11pm	Cynthia Dorsey
Tue-Wed	4/19-4/20	11pm - 7am	Tia Pope
Wed	4/20	7am - 3pm	Tabitha Howard
Wed	4/20	3pm-11pm	Emily Larson
Wed-Thur	4/20-4/21	11pm - 7am	T. Rowe
Thur	4/21	7am - 3pm	Christine Steger
Thur	4/21	3pm-11pm	Cynthia Dorsey
Thur-Fri	4/21-4/22	11pm - 7am	Tia Pope
Fri	4/22	7am - 3pm	Tabitha Howard
Fri	4/22	3pm-11pm	Cynthia Dorsey
Fri-Sat	4/22-4/23	11pm-7am	T. Rowe
Sat	4/23	7am - 3pm	Cynthia Dorsey
Sat	4/23	3pm-11pm	Clyde Ragland
Sat	4/23-4/24	11pm - 7am	T. Rowe
Executive Support Team			
Sat-Sun	4/23-4/24	11pm - 7am	T. Rowe
Sun	24-Apr	7am - 3pm	Kelly Riner
Sun	24-Apr	3pm-11pm	Dennis Andrukat
Sun-Mon	4/24-4/25	11pm - 7am	Rebecca Stone
Mon	25-Apr	7am - 3pm	Rebecca Clinton
Mon	25-Apr	3pm-11pm	Mary Glenn Crutchley
Mon-Tue	4/25-4/26	11pm - 7am	Rebecca Stone
Tue	26-Apr	7am - 3pm	
Tue	26-Apr	3pm-11pm	Cynthia Dorsey
Tue-Wed	4/26-4/27	11pm - 7am	Rebecca Stone
Wed	27-Apr	7am - 3pm	Tia Pope
Wed	27-Apr	3pm-11pm	Cynthia Dorsey
Wed-Thur	4/27-4/28	11pm - 7am	Dennis Andrukat
Thur	28-Apr	7am - 3pm	
Thur	28-Apr	3pm-11pm	Mary Glenn Crutchley
Thur-Fri	4/28-4/29	11pm - 7am	Nick Ballam
Fri	29-Apr	7am - 3pm	
Fri	29-Apr	3pm-11pm	Dennis Andrukat
Fri-Sat	4/29-4/30	11pm-7am	Nick Ballam
Sat	30-Apr	7am - 3pm	Cynthia Dorsey
Sat	30-Apr	3pm-11pm	
Sat-Sun	4/30-5/1	11pm - 7am	Emily Larson

Executive Support Team

Sat-Sun	4/30-5/1	11pm - 7am	Emily Larson
Sun	1-May	7am - 3pm	Kelly Riner
Sun	1-May	3pm-11pm	Cynthia Dorsey
Sun-Mon	5/1-5/2	11pm - 7am	Rebecca Stone
Mon	2-May	7am - 3pm	
Mon	2-May	3pm-11pm	Stacy Smith
Mon-Tue	5/2-5/3	11pm - 7am	Rebecca Stone
Tue	3-May	7am - 3pm	Rebecca Clinton
Tue	3-May	3pm-11pm	Cynthia Dorsey
Tue-Wed	5/3-5/4	11pm - 7am	Rebecca Stone
Wed	4-May	7am - 3pm	Tabitha Howard
Wed	4-May	3pm-11pm	Mary Glenn Crutchley
Wed-Thur	5/4-5/5	11pm - 7am	Rebecca Stone
Thur	5-May	7am - 3pm	Tia Pope
Thur	5-May	3pm-11pm	Dennis Andrukat
Thur-Fri	5/5-5/6	11pm - 7am	Stacy Smith
Fri	6-May	7am - 3pm	Tabitha Howard
Fri	6-May	3pm-11pm	Cynthia Dorsey
Fri-Sat	5/6-5/7	11pm-7am	Nick Ballam
Sat	7-May	7am - 3pm	Cynthia Dorsey
Sat	7-May	3pm-11pm	Emily Larson
Sat	5/7-5-8	11pm - 7am	Dennis Andrukat

From: Batkin, Joshua
Sent: Thursday, April 21, 2011 10:49 PM
To: OST01 HOC
Subject: Out of Office: One-Pager - April 21, 2011 - 2300 EDT One-Pager - Fukushima Daiichi

I am out of the office until April 26th. Please contact the Chairman's office at 301-415-1750 if you need assistance before I return. Thank you, Josh

VVV/421

From: OST01 HOC
Sent: Thursday, April 21, 2011 12:40 PM
To: Zimmerman, Roy
Subject: FYI: SharePoint Information and TA Call List
Attachments: SharePoint Information Japan.pdf

Roy,

Attached is the SharePoint Information for Japan. In addition, below is the list of participants on the TA call this morning.

Thanks,
Christine

TA Call Participants

Thomas Hipschman
Patrick Castleman
Michael Snodderly
William Orders
Mike Franovich
Jonathan Bartley
Michael Hay
William Ruland
Linda Howell
Ken Hart
Earl Easton
William Cook
Scott Burnell
Angela McIntosh
Lawrence Kokajko
Larry Camper

22h/422

Japan Earthquake/Tsunami Internal Information SharePoint Website

To access the Japan SharePoint page, please visit <http://nsir-ops.nrc.gov>. Documents in this page are stored in document libraries which can be accessed from the links on the left side of the page. Since the transition to the 6-person response team, the only documents that are continually being updated are the Japan One-Pager, NRC Status Updates, DOE SitReps, and Press Releases (IAEA). These 4 document libraries are at the top of the "Documents" list on the left.

Documents will be posted routinely throughout the day. If you wish to receive a notification when a new document has been posted to a library, click the link to the specific library (ie: Japan One-Pager), then click "Actions" at the top of the list, then click "Alert Me." You may choose the settings of the alerts, however, recommended settings would be to select the following 3 buttons:

Change Type:	"New Items are added"
Send Alerts for These Changes:	"Anything Changes"
When to Send Alerts:	"Send email immediately"

This process needs to be repeated for each document library you wish to receive alerts for. Please let us know if you have any questions. Thank you.

From: OST01 HOC
Sent: Thursday, April 21, 2011 2:25 AM
To: Batkin, Joshua; Boger, Bruce; Carpenter, Cynthia; Castleman, Patrick; Franovich, Mike; Gibbs, Catina; Hipschman, Thomas; Hoc, PMT12; Jaczko, Gregory; Johnson, Michael; LIA08 Hoc; Marshall, Michael; Moore, Scott; Orders, William; Pace, Patti; RST01 Hoc; Snodderly, Michael; Speiser, Herald; Tracy, Glenn; Uhle, Jennifer; Virgilio, Martin; Weber, Michael; Wiggins, Jim; Zimmerman, Roy; Holonich, Joseph
Subject: FW: NRC's Daily Assessment of Conditions at Fukushima Daiichi
Attachments: NRC Daily Assessment of Daiichi - 4-21-11.pdf

*Attachments are OOU***

From: Moore, Carl
Sent: Thursday, April 21, 2011 2:22 AM
To: Jaczko, Gregory
Cc: Borchardt, Bill; Weber, Michael; Virgilio, Martin; Casto, Chuck; Leeds, Eric; Reynolds, Steven; RST01 Hoc; OST01 HOC
Subject: NRC's Daily Assessment of Conditions at Fukushima Daiichi

Dear Chairman

The attached is the NRC Japan Team's Daily Assessment of conditions at the Fukushima Daiichi nuclear power plants and spent fuel pools. There are no changes to the daily assessment chart for today. The Unit 3 reactor pressure vessel upper vessel wall temperature has been steadily increasing over the past several days. This temperature has increased approximately 40 degrees since 4/18/11. The cause for the increase is not known and is being evaluated. The Unit 2 spent fuel pool was sampled and has high levels of cesium but not iodine. This is suspected to be from mechanical damage to the fuel. If you have any questions, please don't hesitate to ask.

Best regards,
Carl Moore
NRC Japan Team

5/24/11

~~Official Use Only~~

NRC's Daily Assessment of Conditions at Fukushima Daiichi Nuclear Power Plant

<u>Unit 1</u>		Today	Yesterday
Vessel	Cooling	Challenged	Challenged
		↔	↔
Integrity	Intact	Intact	
	↔	↔	
Containment	Flooding	Inc./Needed	Inc./Needed
		↔	↔
Integrity	Challenged	Challenged	
	↔	↔	
Spent Fuel Pool	Cooling/Level	Adequate	Adequate
		↔	↔
Integrity	Intact	Intact	
	↔	↔	

<u>Unit 3</u>		Today	Yesterday
Vessel	Cooling	Adequate	Adequate
		↔	↔
Integrity	Failed	Failed	
	↔	↔	
Containment	Flooding	Challenged	Challenged
		↔	↔
Integrity	Failed	Failed	
	↓	↓	
Spent Fuel Pool	Cooling/Level	Challenged	Challenged
		↔	↔
Integrity	Challenged	Challenged	
	↔	↔	

<u>Unit 2</u>		Today	Yesterday
Vessel	Cooling	Challenged	Challenged
		↔	↔
Integrity	Failed	Failed	
	↔	↔	
Containment	Flooding	Inc./Needed	Inc./Needed
		↔	↔
Integrity	Failed	Failed	
	↔	↔	
Spent Fuel Pool	Cooling/Level	Adequate	Adequate
		↔	↔
Integrity	Intact	Intact	
	↔	↔	

<u>Unit 4</u>		Today	Yesterday
Spent Fuel Pool	Cooling/Level	Challenged	Challenged
		↔	↔
Integrity	Challenged	Challenged	
	↑	↑	

		Today	Yesterday
Protective Measures	Exposure Risk	Low	Low
		↔	↔

Methodology for Developing the Fukushima Daiichi Daily Assessment Report

PURPOSE: The report is prepared to provide a qualitative high level assessment of daily conditions at Fukushima Daiichi that the U.S. Ambassador can use to assess the safety of American citizens in Japan.

DISCLAIMER: The development of the daily assessment report includes a number of inputs. Some of these are objective, such as plant data provided by TEPCO, while others are subjective, such as engineering insights from the NRC's reactor and protective measures specialists in Japan. It should be recognized that there are many unknowns and uncertainties associated with having a complete understanding of conditions in each of the Daiichi reactors and spent fuel pools. As such, this tool represents the collective judgment of the NRC staff in Japan based on all available data.

For each of the major plant parameters listed below, the NRC staff assesses its status daily and bins it into one of the three categories listed. The staff uses the listed plant information and conditions in making its assessment. The arrows on the report indicate the relative trend in plant conditions from the previous day.

1. Reactor Pressure Vessel
 - a. Cooling – Adequate, Challenged, or Inadequate.
 - i. Flow or Injection Rate
 - ii. Reliability of Injection
 - iii. Source of Water
 - b. Integrity – Intact, Challenged, or Failed.
 - i. Temperature indications
 - ii. Pressure readings
2. Primary Containment
 - a. Flooding Status – Complete/Not needed, Challenged, or Incomplete/Needed.
 - i. Water Level
 - ii. Sources
 - iii. Injection capacity/rate
 - b. Integrity - Intact, Challenged, or Failed.
 - i. Pressure readings
 - ii. Bypass evaluations
 - iii. Temperature indications
3. Spent Fuel Pools
 - a. Cooling/Level – Adequate, Challenged, or Inadequate.
 - i. Flow or Injection Rate
 - ii. Reliability of Injection
 - iii. Source of Water
 - b. Integrity – Intact, Challenged, or Failed. Due to limited available data, this assessment relies strongly on the NRC team's engineering judgment.
4. Protective Measures – Exposure Risk to American citizens in Japan outside the U.S. government's recommended 50-mile evacuation zone.
 - a. Low – 50-mile recommendation remains sufficient
 - b. Medium – New information has raised questions regarding the sufficiency of the 50-mile recommendation.
 - c. High – 50-mile recommendation is no longer sufficient due to changing plant condition

From: OST01 HOC
Sent: Thursday, April 21, 2011 1:06 PM
To: Zimmerman, Roy
Subject: RE: Japan sharepoint site

Just a couple suggestions below for consideration in blue.

Thanks,
Christine

From: Zimmerman, Roy
Sent: Thursday, April 21, 2011 12:42 PM
To: OST01 HOC; Jackson, Karen; Kowalczyk, Jeffrey
Subject: Japan sharepoint site

This is what I intend to send out.....but interested in your comments first

As we discussed during this morning's briefing, we would like to use a recently developed SharePoint site (site address and details in the attachment) to allow you to view the latest and prior updates of our regularly issued documents, as well as those of other organizations. Also, there will be access to videos and other information that we think you will find useful.

Our intention is put our updates on the SharePoint site now, but to continue to send you the routine updates through next Tuesday, 4/26, and then stop emailing those updates starting 4/27 after the transition period ends, unless we receive concerns. The attachment will allow you to set up alerts so you will get an email when the SharePoint site is updated.

Thank you for your willingness to give this approach a chance, we think it will provide for a more efficient process and you will find it useful.

424/ANN

Japan Earthquake/Tsunami Internal Information SharePoint Website

To access the Japan SharePoint page, please visit <http://nsir-ops.nrc.gov>. Documents in this page are stored in document libraries which can be accessed from the links on the left side of the page. Since the transition to the 6-person response team, the only documents that are continually being updated are the Japan One-Pager, NRC Status Updates, DOE SitReps, and Press Releases (IAEA). These 4 document libraries are at the top of the "Documents" list on the left.

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Change Type:	"New Items are added"
Send Alerts for These Changes:	"Anything Changes"
When to Send Alerts:	"Send email immediately"

This process needs to be repeated for each document library you wish to receive alerts for. Please let us know if you have any questions. Thank you.

From: Franovich, Mike
Sent: Thursday, April 21, 2011 3:33 PM
To: Zimmerman, Roy
Cc: Hipschman, Thomas; Castleman, Patrick; Snodderly, Michael; Orders, William; Bartley, Jonathan; Hay, Michael; Ruland, William; Howell, Linda; Hart, Ken; Easton, Earl; Cook, William; Cook, William; Burnell, Scott; McIntosh, Angela; Kokajko, Lawrence; Camper, Larry; Weber, Michael; OST01 HOC; Kowalczyk, Jeffrey; Jackson, Karen; LIA08 Hoc; Tracy, Glenn; Johnson, Michael; Uhle, Jennifer; Carpenter, Cynthia; Leeds, Eric
Subject: RE: SharePoint Information

Roy,

Thank you for advancing the communication stream and leveraging our IT capabilities. I'm looking forward to beta testing the new approach.

Mike

From: Zimmerman, Roy
Sent: Thursday, April 21, 2011 2:29 PM
To: Hipschman, Thomas; Castleman, Patrick; Snodderly, Michael; Orders, William; Franovich, Mike; Bartley, Jonathan; Hay, Michael; Ruland, William; Howell, Linda; Hart, Ken; Easton, Earl; Cook, William; Cook, William; Burnell, Scott; McIntosh, Angela; Kokajko, Lawrence; Camper, Larry
Cc: Virgilio, Martin; Weber, Michael; OST01 HOC; Kowalczyk, Jeffrey; Jackson, Karen; LIA08 Hoc; Tracy, Glenn; Johnson, Michael; Uhle, Jennifer; Carpenter, Cynthia; Leeds, Eric
Subject: SharePoint Information

As we discussed during this morning's briefing, we would like to use a recently developed SharePoint site (site address and details in the attachment) to allow you to view the latest and prior updates of our regularly issued documents, as well as those of other organizations. Also, there will be access to videos and other information that we think you will find useful.

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Thank you for your willingness to give this approach a chance, we think it will provide for a more efficient process and you will find it useful.

2/21/11

From: OST01 HOC
Sent: Thursday, April 21, 2011 2:57 PM
To: FOIA Response.hoc Resource
Subject: FW: Restricted area around Fukushima 1

From: LIA08 Hoc
Sent: Thursday, April 21, 2011 2:54 PM
To: RST01 Hoc; Hoc, PMT12; OST01 HOC; Zimmerman, Roy; Tracy, Glenn
Subject: FW: Restricted area around Fukushima 1

FYI.

V/R,

Clyde Ragland
Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: LIA02 Hoc
Sent: Thursday, April 21, 2011 2:52 PM
To: LIA08 Hoc
Subject: FW: Restricted area around Fukushima 1

From: Hidehiko Yamachika [mailto:yamachika-hidehiko@jnes-usa.org]
Sent: Thursday, April 21, 2011 2:52 PM
To: LIA02 Hoc
Cc: Aono, Kenjiro; Michael W. Chinworth
Subject: Restricted area around Fukushima 1

FYI

Japanese Government announced on March 21 that;

1. Area 20km from the Fukushima I are restricted for citizen to enter except for the people involved in emergency operation.

VVV/426

This measure would be put in force from 12am of March 22 (11pm of March 21 in Washington time).

2.
Evacuation area around the Fukushima II is reduced from the area 10km from the Fukushima II to 8km due to the stabilized situation.

@yamachika

From: LIA08 Hoc
Sent: Friday, April 22, 2011 7:43 AM
To: Hoc, PMT12; RST01 Hoc; OST01 HOC
Subject: Daily Status Update: Please send updates to LIA08 by 10:00AM
Attachments: USNRC Earthquake-Tsunami Update 042211, 1200 EDT.docx

Please make additions/changes/deletions/corrections to the attached and get back to me by 10:00AM. Thanks!

Clyde Ragland

Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

VVV/427

From: Weber, Michael
Sent: Friday, April 22, 2011 9:18 AM
To: Hoc, PMT12; OST01 HOC
Cc: Kokajko, Lawrence; Bonaccorso, Amy; Brock, Kathryn; Merzke, Daniel; Bush-Goddard, Stephanie
Subject: FYI - HSNW ARTICLE ON NO AFFECT OF CHERNOBYL ON AQUATIC BIOTA DIVERSITY AND ABUNDANCE

Follow Up Flag: Follow up
Flag Status: Completed

Good morning. Homeland Security Newswire distributed an article today about the lack of an affect of Chernobyl on aquatic biota diversity and abundance. This could be useful information in our ongoing response in Japan.

Chernobyl radiation did not damage abundance, diversity of aquatic life

Published 22 April 2011

A new study of the lakes in and around Chernobyl's fallout zone reveals that radiation from the nuclear accident appears to have had no long term effect on the abundance or diversity of aquatic animal life; no evidence was found that the abundance or diversity of the animal communities was influenced by direct contamination from the Chernobyl accident; indeed, the most contaminated lake, Glubokoye, 6.5 km north of the nuclear power plant, supported the most animal diversity of those lakes studied

A new study of the lakes in and around Chernobyl's fallout zone reveals that radiation from the nuclear accident appears to have had no long term effect on the abundance or diversity of aquatic animal life.

The study, which coincides with the twenty fifth anniversary of the Chernobyl disaster, examined invertebrate animals, such as insects, snails, and crustaceans, living along the shores of eight lakes. Levels of radiocaesium in the lakes ranged from near-background levels at 0.1 microGrays per hour, considered normal, to around 300 times higher. No evidence was found that the abundance or diversity of the animal communities was influenced by direct contamination from the Chernobyl accident. Indeed, the most contaminated lake, Glubokoye, 6.5 km north of the nuclear power plant, supported the most animal diversity of those lakes studied.

The findings are published in the *Journal of Environmental Radioactivity* by Dr. Jim Smith from the University of Portsmouth, Dr. John Murphy from Queen Mary, University London, and Dr. Liubov Nagorskaya of the National Academy of Sciences of Belarus. The results of the lake-based research are significant because they contrast with previous studies of the region's land-based and flying insects which reported a significant negative impact associated with radiation from Chernobyl.

A University of Portsmouth release quotes Murphy to say that:

Our study found no evidence that radioactive contamination from the Chernobyl accident has had a direct influence on the lakes' aquatic invertebrates. We discovered over 230 species some of which are rare and endangered and even species that are thought to be particularly susceptible to high levels of radioactive contamination, such as freshwater snails, showed no response.

824
/MNH

This indicates that, twenty five years on, the radiation has not had a perceptible affect on the diversity and abundance of the region's lake invertebrates.

The study may have significant implications for the long-term effects of the recent nuclear accident at the Fukushima power plant in Japan, where scientists are already monitoring levels of radiocaesium in a lake in the village of Iitate 40 km to the northwest. Smith suggests that long-term radiation dose rates to organisms there could be similar to those seen in some of the contaminated Chernobyl lakes.

Smith, from the School of Earth & Environmental Science, added: "Whilst recent estimates by the Japanese authorities show that the radioactive releases to the air at Fukushima were about ten times less than Chernobyl, there are high levels of radiocaesium fallout to land in some areas to the northwest of the power plant."

The University of Portsmouth release notes that the scientists examined samples from the lakes, situated in Belarus and the Ukraine, over a two year period and found that they contained a range of diversity typical for the region.

They documented 230 different species including water mites, beetles, freshwater shrimp, seed shrimps, true flies, mayflies, caddis flies, water bugs, leeches, snails, dragonflies, damselflies, and flatworms and even found three species new to Belarus and a number of threatened species.

Murphy said: "Studying aquatic invertebrates is a valuable and well-established method of measuring effects of pollution on freshwater environments because they generally complete their entire life cycle in or close to water and thus reflect conditions in the water body over the preceding months."

He added that "Estimating the radiation dose to organisms inevitably involves a degree of uncertainty since their exact habitat is imprecise and varies with their life cycle. However even taking this into consideration, the results suggest that natural environmental factors, such as lake size, and hydrochemical factors are the main drivers of biodiversity in the lakes."

The study did not examine possible genetic or physiological responses of organisms at the individual level, but the scientists said such effects could not be ruled out.

"Regular monitoring of the freshwater habitats in the affected regions around Chernobyl and Fukushima would greatly help our understanding of how nature responds to such radioactive contamination events," Smith said.

The study was carried out while both Drs. Smith and Murphy were based at the Natural Environment Research Council Centre for Ecology and Hydrology.

— Read more in T. W. Bowyer et al., "Elevated Radioxenon Detected Remotely Following the Fukushima Nuclear Accident," Journal of Environmental Radioactivity (in press) (doi:10.1016/j.jenvrad.2011.04.009)

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: Kokajko, Lawrence
Sent: Friday, April 22, 2011 2:58 PM
To: OST01 HOC
Subject: ok to release one pager (eom)

vuv/429

From: OST01 HOC
Sent: Friday, April 22, 2011 10:18 AM
To: RST01 Hoc; RST02 Hoc
Cc: Hoc, PMT12; Edward.Fuller@nrc.gov
Subject: GE Information Transfer Status?

Importance: High

Good morning,

Ed Fuller stopped by this morning because he has not yet received GE information on the three Fukushima Dai-ichi Nuclear Core Meltdown accidents. This information was supposed to come to him from the RST Team. Ed Fuller can be reached at 301-415-1975 or via his NRC email address.

Thanks

VV V/429

From: RST01 Hoc
Sent: Friday, April 22, 2011 4:20 AM
To: OST01 HOC
Subject: Japan One Pager 0700 EDT 4-22-11.doc
Attachments: Japan One Pager 0700 EDT 4-22-11.doc

VVV/430

From: OST01 HOC
Sent: Friday, April 22, 2011 3:24 PM
To: FOIA Response.hoc Resource
Subject: FW: [METI Japan](Apr_22)Update on Seismic and Tsunami Damage Information
Attachments: [METI] Apr 22_0800_Seismic Damages to the NPSs.pdf; Apr_22 Radioactivity Level Map Chart.pdf

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

From: HOO Hoc
Sent: Friday, April 22, 2011 3:05 PM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC
Subject: FW: [METI Japan](Apr_22)Update on Seismic and Tsunami Damage Information

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

From: meti-info@meti.go.jp [mailto:meti-info@meti.go.jp]
Sent: Friday, April 22, 2011 2:24 PM
To: meti-info@meti.go.jp
Subject: [METI Japan](Apr_22)Update on Seismic and Tsunami Damage Information

For your reference, Ministry of Economy, Trade and Industry of Japan (METI) is providing latest information on the seismic and tsunami damages to the nuclear power stations (NPSs) in Japan, including those caused to Fukushima Dai-ichi NPS.

This Friday, the following information has been updated.

---- Today's news ----

1. Australian Prime Minister Gillard had a talk with Japanese Prime Minister Kan in Tokyo. Tomorrow, Prime Minister Gillard will be visiting Fukushima Prefecture where Nuclear Power Station is located. [Please refer to 10.]
2. Japanese Prime Minister Kan issued the instruction to prohibit access to the 20km radius area from Fukushima Dai-ichi [Please refer to 11.]
3. Ministry of Land, Infrastructure, Transport, and Tourism released the guideline to measure the radiation level of containers and ships at ports in Japan [Please refer to 12.]
4. Ministry of Economy, Trade and Industry has uploaded a presentation on the current situation of Fukushima Dai-ichi Nuclear Power Station and Japanese Government's challenges and efforts toward it. [Please refer to 5.]

---- Updates from METI ----

5. [METI] Ministry of Economy, Trade and Industry has uploaded a presentation on the current situation of Fukushima Dai-ichi Nuclear Power Station and Japanese Government's challenges and efforts toward it.

vvv/431

<http://www.meti.go.jp/english/earthquake/nuclear/japan-challenges/index.html>

6. [METI] Apr 22_0800_Seismic Damages to the NPSs [Please refer to the attached file]

7. [METI] Apr 22_Radioactivity Level Map Chart [Please refer to the attached file]

---- Updates from NISA ----

8. [NISA] Apr 22 1530_Current Situation of Onagawa, Fukushima Dai-ichi, Fukushima Dai-ni, Tokai Dai-ni NPSs (only Japanese version is now available. English version will be uploaded.)

<http://www.meti.go.jp/press/2011/04/20110422008/20110422008-1.pdf>

[NISA] Apr 16 0800_Current Situation of Onagawa, Fukushima Dai-ichi, Fukushima Dai-ni, Tokai Dai-ni NPSs (English version) <http://www.nisa.meti.go.jp/english/files/en20110416-12-1.pdf>

9. [NISA] Apr 21 0700_Fukushima Dai-ichi Major Parameters of the Plant (English version)

<http://www.nisa.meti.go.jp/english/files/en20110421-5-3.pdf>

---- Major Updates from other agencies of Japanese Government --- 10. Australian Prime Minister Gillard had a talk with Japanese Prime Minister Kan in Tokyo. Tomorrow, Prime Minister Gillard will be visiting Fukushima Prefecture where Nuclear Power Station is located.

http://www.kantei.go.jp/foreign/kan/statement/201104/21australia_e.html

11. [PM] Japanese Prime Minister Kan issued the instruction to prohibit access to the 20km radius area from Fukushima Dai-ichi <http://www.nisa.meti.go.jp/english/files/en20110422-3-1.pdf>

12. [MLIT] Ministry of Land, Infrastructure, Transport, and Tourism released the guideline to measure the radiation level of containers and ships at ports in Japan (only Japanese version is now available. English version will be uploaded.)

http://www.mlit.go.jp/report/press/kaiji01_hh_000101.html

13. [MLIT] Apr 22 PM_Measurement of Radiation Doses in the Ports around Tokyo Bay

http://www.mlit.go.jp/kowan/kowan_fr1_000041.html

Currently, the level of radiation in Tokyo City, Yokohama City, Kawasaki City and Ichikawa City (Chiba) were as shown in the attachment at very safe level to health.

14. [MLIT] Apr 22 AM_Measurement of radiation doses around the Metropolitan Airports

http://www.mlit.go.jp/koku/koku_tk7_000003.html

The current level of radiation does not have any effects on human health.

15. [NSC] Apr 22 1645_Assessment of the result of environment monitoring (Only Japanese version is available)

http://www.nsc.go.jp/nsc_mnt/110422_1.pdf

If you need to add other e-mail address to this mailing list or do not need our information mail any more, please contact at meti-info@meti.go.jp

=====
International Public Relations Team

Ministry of Economy, Trade and Industry (METI)

1-3-1 Kasumigaseki, Chiyoda-ku, Tokyo 100-8901, Japan E-mail : meti-info@meti.go.jp

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(See attached file: [METI] Apr 22_0800_Seismic Damages to the NPSs.pdf) (See attached file: Apr_22 Radioactivity Level Map Chart.pdf)

Great East Japan Earthquake and the seismic damage to the NPSs

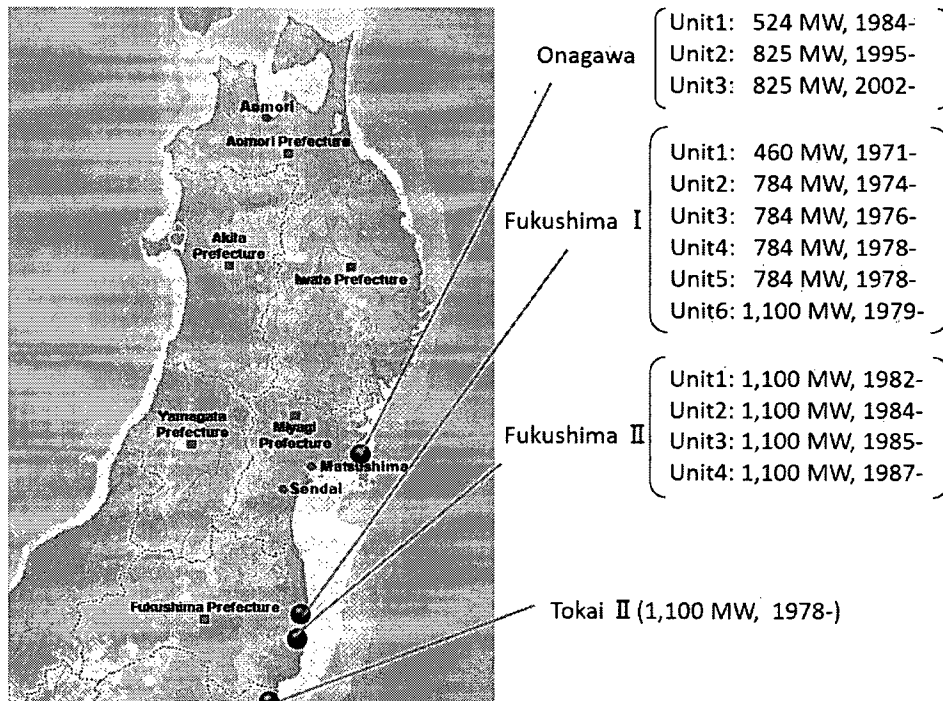
As of 8:00am April 22nd, 2011 (JST)

Ministry of Economy, Trade and Industry

Earthquake and automatic shut-down of nuclear reactors

The Great East Japan Earthquake of historic magnitude 9.0 struck the northeastern part of Japan at 14:46 on March 11th, 2011.

At the time of the earthquake occurrence, 3 reactors (Units 4, 5 and 6 at Fukushima Dai-ichi (I) Nuclear Power Station (NPS)) were under periodic inspection outage, and 11 reactors (Units 1, 2 and 3 at Onagawa NPS; Units 1, 2 and 3 at Fukushima I NPS; Units 1, 2, 3 and 4 of Fukushima Dai-ni (II) NPS; and an unit of Tokai Dai-ni (II) NPS) were automatically shut-down.



Tsunami damaged the emergency generators and the cooling systems at the Fukushima Dai-ichi (I)

Since the external power supply was cut off upon the earthquake occurrence, the emergency diesel power generators at Fukushima I automatically started generating electricity and the cooling systems began their operation.

Then, the massive earthquake triggered the devastating Tsunami wiping away houses, buildings, cars along the widespread areas of the northeast coast. The emergency diesel power generators and the pumps supplying seawater to the cooling system were halted at 15:41 on March 11th due to the Tsunami estimated more than 14 meters high from the seawater level.

Report concerning incidents at the Fukushima Dai-ichi (I)

Unit 1 Fresh water is being injected to the spent fuel pool and the reactor.

After the reactor was automatically shut-down and the Tsunami disabled the equipments. The pressure of containment vessel unusually increased and the water level inside the reactor pressure vessel dropped. Vent of the primary containment vessel was operated at 10:17am on March 12th; thereafter, hydrogen explosion occurred at the upper-part of the reactor building at 15:36.

Water injection to the reactor pressure vessel

- Seawater had been injected into the reactor pressure vessel since March 12th; thereafter, fresh water has been injected since March 25th, instead of seawater.

Water injection to the spent fuel pool

- On March 31st, spray of fresh water over the spent fuel pool of Unit 1 using the concrete pump truck was carried out.

Power supply

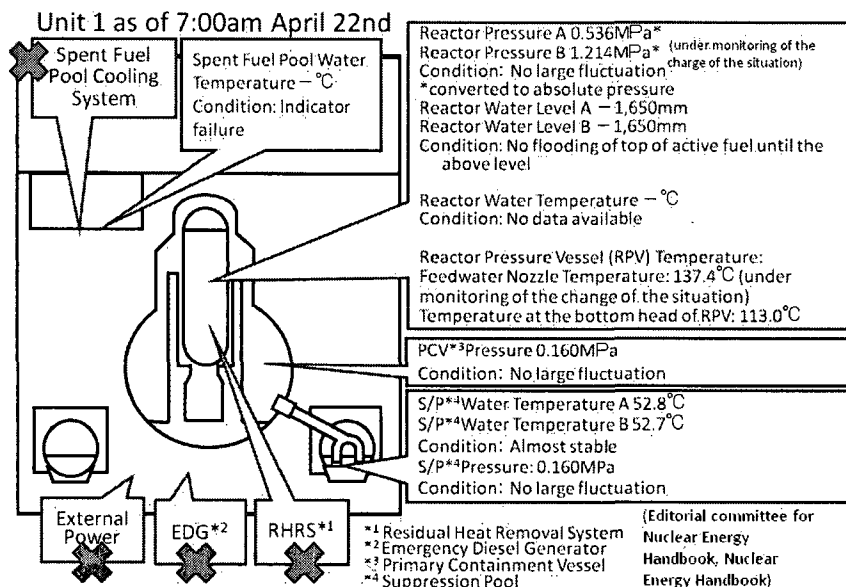
- Lighting in the main control room was recovered on March 24th. And the power supply for the fresh water injection to the reactor pressure vessel was switched to the external power supply on April 3rd.

Stagnant water

- As the result of concentration measurement in the stagnant water on the basement floor of the turbine building, $2.1 \times 10^5 \text{Bq/cm}^3$ of ^{131}I (Iodine) and $1.8 \times 10^6 \text{Bq/cm}^3$ of ^{137}Cs (Caesium) were detected as major radioactive nuclides. Since March 24th, the stagnant water has been transferred to the condenser until it was fulfilled.
- In order to prepare to transfer the stagnant water in the turbine building to the condenser, the water in the condensate storage tank was transferred to the surge tank of suppression pool water and finished on April 2nd. The transfer of the water in the condenser to the condensate storage tank was completed on April 10th.

Nitrogen injection

- Aiming at reducing the possibility of hydrogen combustion in the primary containment vessel of Unit 1, the operations for the injection of nitrogen to the vessel were started at 22:30 on April 6th. The start of nitrogen injection to the primary containment vessel of Unit 1 was confirmed. (1:31am April 7th)



Unit 2 Fresh water is being injected to the spent fuel pool and the reactor.

After the automatic shut-down of the reactor, the water injection function was sustained. And vent of the primary containment vessel was operated at 11:00am on March 13th and at 0:02am on March 15th. But the reactor water level tended to decrease. At 6:10am on March 15th, there was an explosion sound at Unit 2. Given the fact that the pressure in the suppression chamber decreased, it is presumed that there is possibility of certain damage on the suppression chamber.

Water injection to the reactor pressure vessel

- Seawater had been injected into the reactor pressure vessel since March 14th; thereafter, fresh water has been injected since March 26th, instead of seawater.

Water injection to the spent fuel pool

- The seawater injection to the spent fuel pool using the fire pump truck started on March 20th. On March 29th, the injection was switched to the fresh water injection using the temporary motor-driven pump.
- The work of sampling water that flowed out in the skimmer surge tank from the spent fuel pool of Unit 2 was carried out in order to grasp the condition of water in the pool. (April 16th) As a result of nuclide analysis of radioactive materials regarding the sampled water of the pool, $4.1 \times 10^3 \text{ Bq/cm}^3$ of ^{131}I (Iodine), $1.6 \times 10^3 \text{ Bq/cm}^3$ of ^{134}Cs (Cesium), $1.5 \times 10^3 \text{ Bq/cm}^3$ of ^{137}Cs (Cesium) were detected. (April 17th)

Power supply

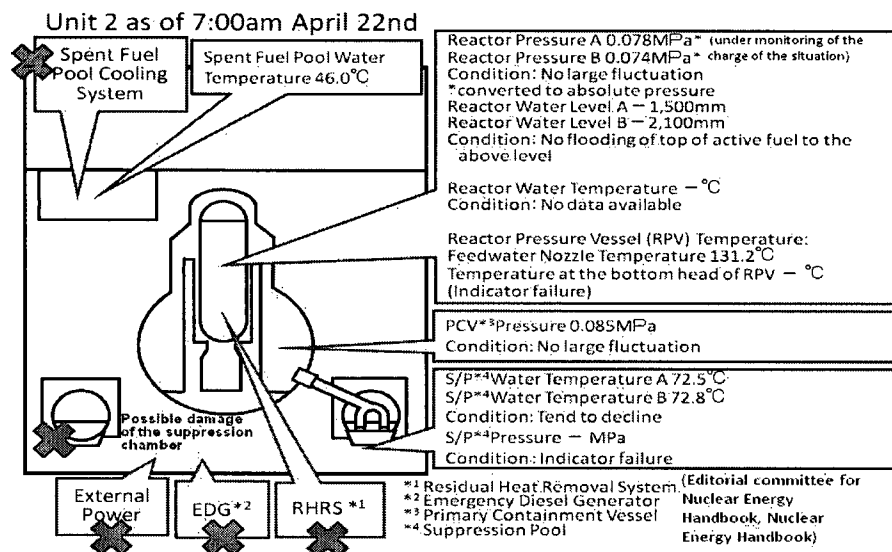
- On March 26th, lighting of the main control room was recovered. And the power supply for the fresh water injection to the reactor pressure vessel was switched to the external power supply on April 3rd.

Stagnant water

- After transferring the water in the condenser to the condensate storage tank, the stagnant water in the trench of the turbine building was transferred to the condenser from April 12th till 13th. Then, stagnant water (stagnant water with high-level radioactivity) in the turbine building of Unit 2 was started to be transferred to the radioactive waste treatment facilities at 10:08am on April 19th.

Water in the pit

- The water, of which the dose rate was at the level of more than 1,000 mSv/h, was confirmed to be collected in the pit (a vertical portion of an underground structure) located near the intake channel of Unit 2. In addition, the outflow from the crack(20cm) in the concrete portion of the lateral surface of the pit into the sea was confirmed on April 2nd. In order to stop the outflow the coagulant (soluble glass) was injected from the holes around the pit from April 5th, the outflow was confirmed to stop on 6th. Furthermore, the measures to stop water by means of rubber board and jig (prop) were implemented at the outflowing point. (April 6th)
- Injection of the coagulant to the power cable trench of Unit 2 was carried out on April 18th and 19th.



Unit 3 Fresh water is being injected to the spent fuel pool and the reactor.

After the automatic shut-down of the reactor, fresh water and subsequently seawater were injected into the reactor pressure vessel. And vent of the primary containment vessel was operated on March 13th and 14th. However, the pressure in the primary containment vessel rose up unusually and the explosion took place around the reactor building at 11:01am on March 14th.

Water injection to the reactor pressure vessel

- The seawater had been injected into the reactor pressure vessel since March 13th, thereafter; fresh water has been injected since March 25th, instead of seawater. On March 28th, the pump for the fresh water injection was switched from the fire pump truck to the temporary motor-driven pump.

Water injection to the spent fuel pool

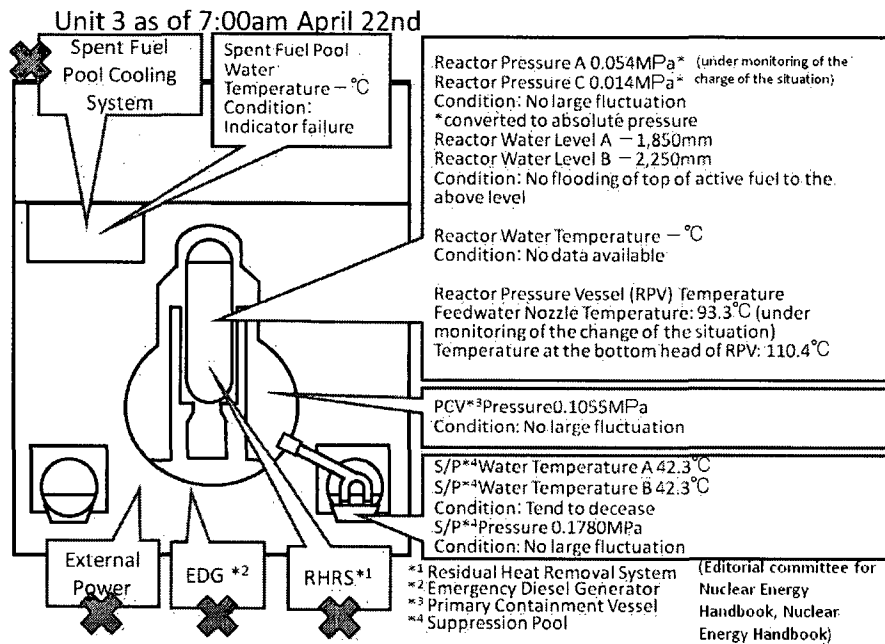
- In order to pour water into the spent fuel pool, helicopters, water cannon trucks, fire engines and concrete pump trucks discharged water to the spent fuel pool of Unit 3 from sky and ground. Since March 29th till April 18th, fresh water spray over the spent fuel pool using the concrete pump truck had been carried out.

Power supply

- On March 22nd, lighting in the main control room was recovered. And the power supply for the fresh water injection to the reactor pressure vessel was switched to the external power supply on April 3rd.

Stagnant water

- In order to prepare for transferring the stagnant water on the basement floor of turbine building to the condenser, the water in the condensate storage tank is being transferred to the surge tank of suppression pool water from March 28th till March 31st.



Unit 4 No fuel is in the reactor. Fresh water is being injected to the spent fuel pool.

There is no fuel in the reactor pressure vessel due to replacement of the shroud. It was confirmed that a part of wall of the operation floor of the reactor building of Unit 4 was damaged at 6:14am on March 15th. A fire took place at Unit 4 at 9:38am March 15th, but the fire was extinguished spontaneously as of 11:00am. Another fire took place on March 16th, but no fire could be confirmed from the ground.

Water injection to spent fuel pool

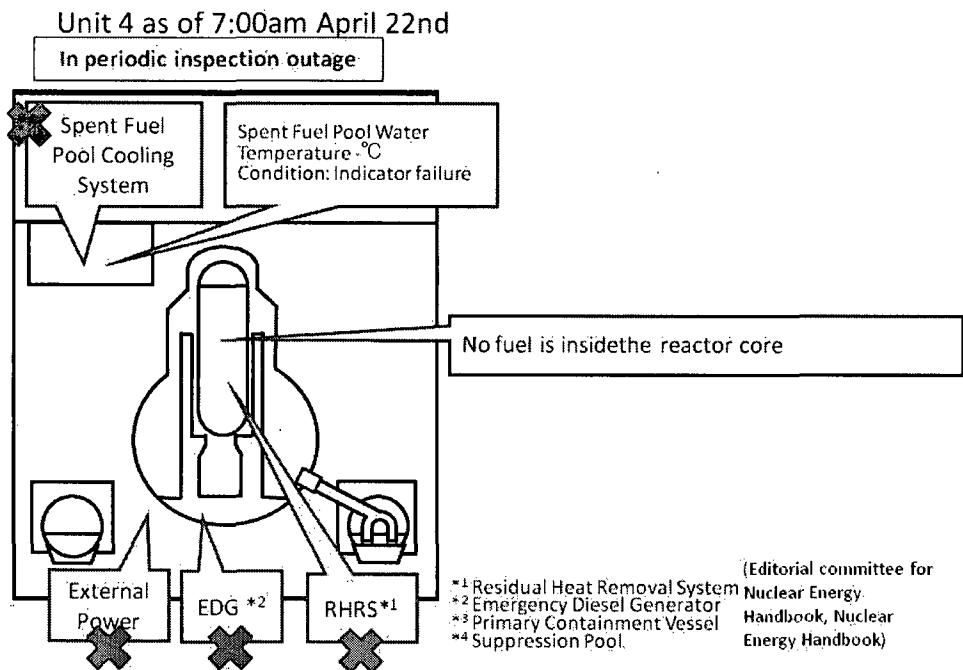
Water spray using fire engine with seawater over the spent fuel pool of Unit 4 was carried out from March 20th till March 21st. And water spray using a concrete pump truck had been carried out with seawater from March 22nd till March 27th and with fresh water from March 30th till April 21st.

Power supply

- On March 29th, lighting in the main control room was recovered.

Stagnant water

- From April 2nd, the stagnant water in the main building of radioactive waste treatment facilities was being transferred to the turbine building of Unit 4. As the water level in the vertical portion of the trench for Unit 3 rose from April 3rd, by way of precaution, the transfer was suspended notwithstanding that the path of the water was not clear.(9:22am April 4th)



Unit 5&6 Unit 5 & 6 is under cold shut down.

One of the emergency generators for Unit 6 was operating and supplying electricity to Unit 5 and Unit 6. Fresh water was being injected into the reactor pressure vessels and the spent fuel pools by make-up water condensate system.

Cold shut down

- The pump for residual heat removal system (RHR) for Unit 5 and the pump for RHR for Unit 6 started up on March 19th and recovered heat removal function.
- Unit 5 was under cold shut down at 14:30 on March 20th and Unit 6 was under cold shut down at 19:27 on the same day.

Power supply

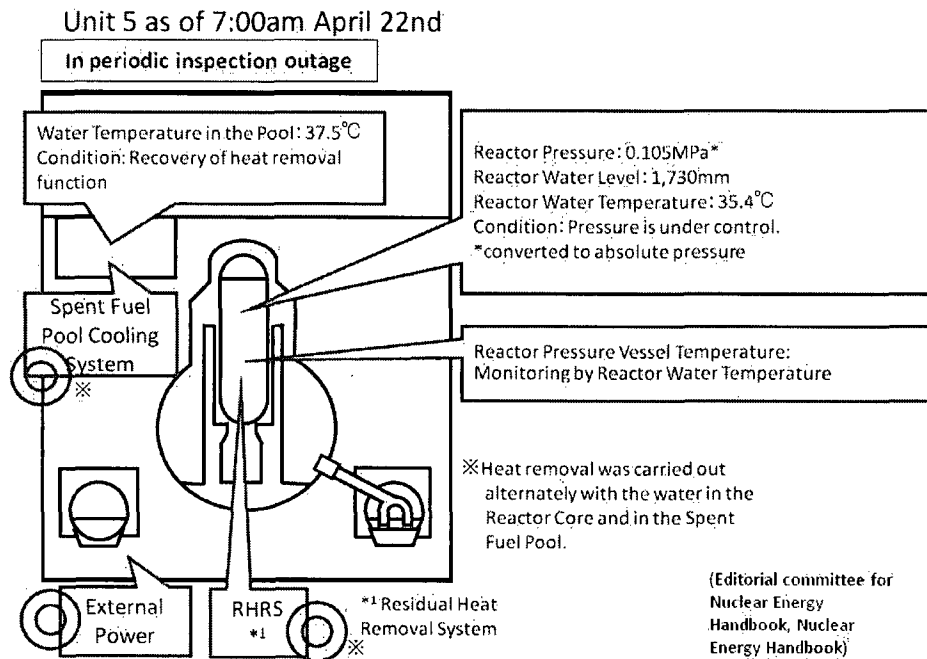
- Unit 5 and 6 received electricity reached to the starting transformer on March 20th. The power supply of Unit 5 and 6 was switched from the emergency diesel generators to the external power supply on March 21st and March 22nd.
- Power supply for the temporary pumps for RHR seawater system of Unit 5 and 6 were switched from the temporary to the permanent on March 24th and 25th.

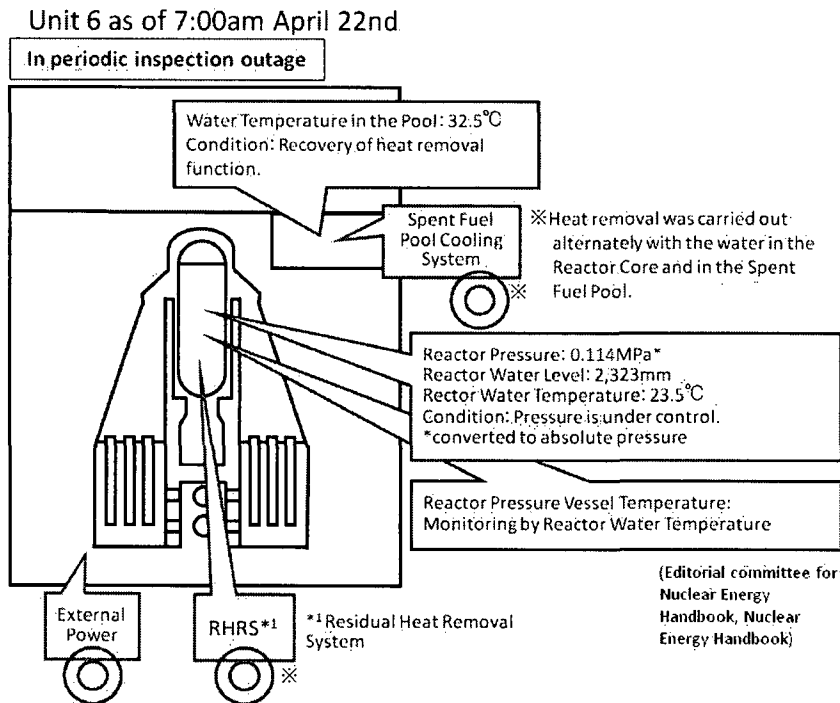
Low-level radioactivity water discharge

- The groundwater with low-level radioactivity in the sub drain pits of Units 5 and 6 (around 1,300t) was discharged through the water discharge canal to the sea from April 4th till 9th in order to protect the critical safety facilities of the reactors. The water was beginning to leak out to the reactor building and other buildings of Unit 6 and there was no further capacity to accommodate it.

Stagnant water

- The stagnant water in the basement floor of the turbine building of Unit 6 was transferred to the condenser. (From 11:00 till 15:00 April 19th)





Common Spent Fuel Pool

- The power supply was started at 15:37 on March 24th and cooling was also started at 18:05 on the same day.
- The power supply was stopped due to short-circuiting of the end of the power supply circuit. (14:34 April 17th) Thereafter the facility inspection was carried out and the power supply was recovered. (17:30 April 17th)

Other

Nuclide analysis at water discharge canal

- As the result of nuclide analysis at around the southern water discharge canal, $7.4 \times 10^1 \text{ Bq/cm}^3$ of ^{131}I (1850.5 times higher than the limit of concentration of water outside the Environmental Monitoring Area) was detected on March 26th. (As the result of measurement on March 29th, it was detected as 3355.0 times higher than the limit in water.)
As the result of the analysis at the northern water discharge canal, $4.6 \times 10^1 \text{ Bq/cm}^3$ of ^{131}I (1262.5 times higher) was detected on March 29th.

Water in the trenches

- The water was confirmed to be collected in the vertical parts of the trenches (an underground structure for laying pipes, shaped like a tunnel) outside of the turbine building of Units 1 to 3. The dose rates on the water surface were 0.4 mSv/h of the Unit 1's trench and 1,000 mSv/h of the Unit 2's trench on March 27th. The rate of the Unit 3's trench could not measure because of the rubble.

Nuclide analysis of soil

- In the samples of soil collected on March 21st, 22nd, 25th, 28th, 31nd and April 4th on the site of Fukushima I, ^{238}Pu (Plutonium), ^{239}Pu and ^{240}Pu were detected. The concentration of the detected plutonium was at the equivalent level of the fallout that was observed in Japan concerning the past atmospheric nuclear testing, i.e. at

the equivalent level of the normal condition of environment, and was not at the level of having harmful influence on human body.

Stagnant water

- On March 28th, the stagnant water was confirmed in the main building of radioactive waste treatment facilities. As the result of analysis of radioactivity, the total amount of the radioactivity 1.2×10^1 Bq/cm³ in the controlled area and that of 2.2×10^1 Bq/cm³ in the non-controlled area were detected in March 29th.

Barges loading fresh water

- Two barges of the US armed forces carrying fresh water for cooling reactors, etc. landed in the exclusive port of the power station, being towed by the ships of Japan Maritime Self-Defense Force on March 31st and April 2nd. The transfer of fresh water from the barges to the filtrate tank was started.

Low-level radioactive water discharge

- The wastewater with high concentration of radioactive materials was trapped on the basement floor of the turbine building of Unit2 and it was necessary to immediately be transferred to another location as it was leaking out to the surrounding environment. But there was no further capacity to accommodate it.
- In order to use the main building of radioactive waste treatment facilities for accommodating the wastewater of the turbine building of Unit2, the stagnant water with low-level radioactivity in the radioactive waste treatment facilities was started to be discharged from the southern side of the water discharge canal to the sea from April 4th till 10th. Confirmation of the remaining water is being carried out. (Total amount of discharged water is around 9,070t.)
- The stagnant water with low-level radioactivity in the building of miscellaneous solid waste volume reduction processing was discharged from the southern side of the water discharge canal to the sea using 5 pumps. (From April 6th till 7th)
- The watertight measures in the buildings of the radioactive waste treatment facilities were completed. (April 18th)

Countermeasures for Tsunami

- The distribution boards, etc. for the pumps injecting water to the reactors of Units 1 to 3 were transferred to a hill on April 15th.

Other

- In order to prevent the contaminated water from outflowing from the exclusive port, the work for stopping water by means of large-sized sandbags was implemented around the seawall on the south side of the NPS on April 5th.
- 3 sandbags filled with Zeolite were placed between the inlet screen pump room of Unit 3 and that of Unit 4 on April 15th. Thereafter, 2 sandbags were placed between the inlet screen pump room of Unit 1 and that of Unit 2, and 5 sandbags were placed between that of Unit 2 and that of Unit 3 on April 17th.
- The silt fences to prevent the contaminated water from being scattered were completed to be doubly installed at the appropriate part of the seawall on the south side of the NPS on April 11th. Other silt fences were installed in front of the screen of Units 3 and 4 on April 13th, and at the curtain wall and in front of the screen of Unit 1 and 2 on April 14th.
- ~~The test scattering of anti-scattering agent to prevent the radioactive materials on the ground surface from being scattered was carried out on the mountain-side of the Common Pool and other areas from April 1st till 21st.~~
- Removal of the rubble using remote-control heavy machineries was carried out from April 10th till 21st.
- On the ocean-side of the inlet bar screen of Unit 2, temporary boards to stop water were installed on April 12th, 13th and 15th.
- Work of strengthening connection of the power supplies between Units 1 and 2 and Units 3 and 4 was completed. (10:23 April 19th)
- Confirmation of situation, etc. was carried out by unmanned robots at the reactor building for Unit 1, 2 and 3 on April 17th and 18th.

Current Situation

- Evacuation as far as 20 kilometers from Fukushima I NPS and 10 kilometers from Fukushima II NPS was almost completed (see the diagram “Fukushima prefecture”). The residents in the areas from 20 kilometers to 30 kilometers radius from Fukushima I NPS are directed to stay in-house.

- On March 16th, the Local Emergency Response Headquarter issued “the direction to administer the stable Iodine during evacuation from the evacuation area (20 km radius)” to the Prefecture Governors and the heads of cities, towns and villages.

Monitoring Data

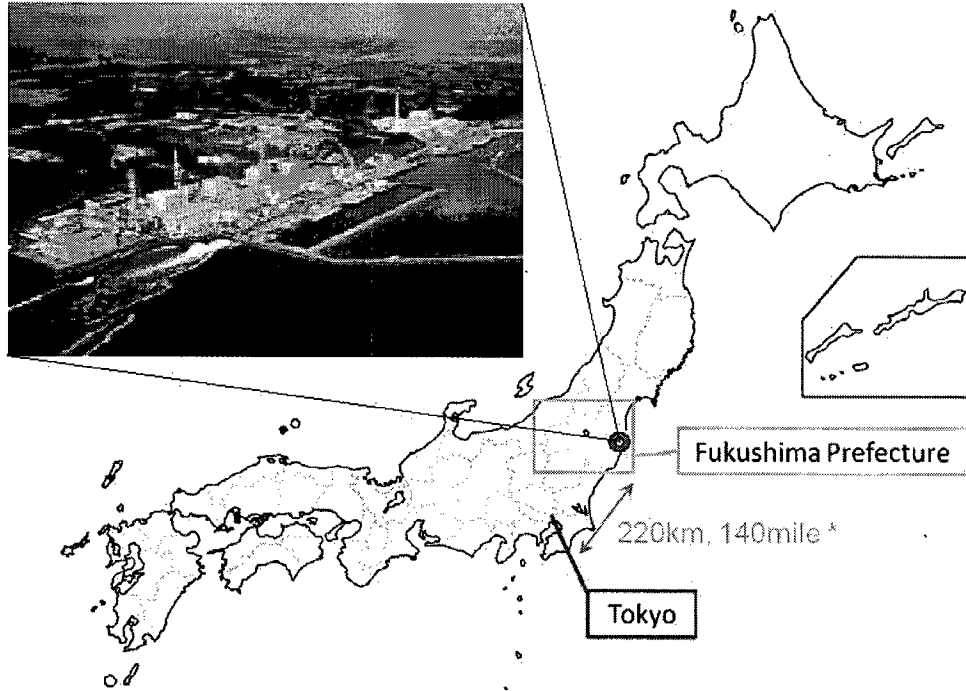
1) The data of Monitoring Post out of 20 kilometers zone of Fukushima I NPS is available on the following website:

http://www.mext.go.jp/a_menu/saigaijohou/syousai/1303726.htm

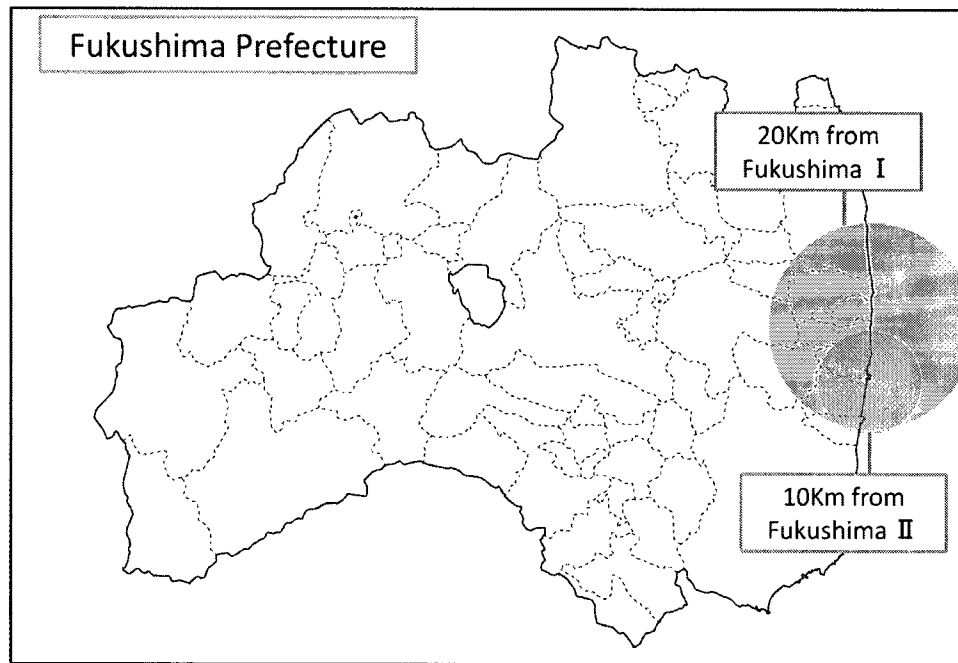
2) The real-time radiation data collected via the System for Prediction of Environment Emergency Dose Information (SPEEDI) is available on the following website:

<http://www.bousai.ne.jp/eng/>

Location of Fukushima I and II in Japan

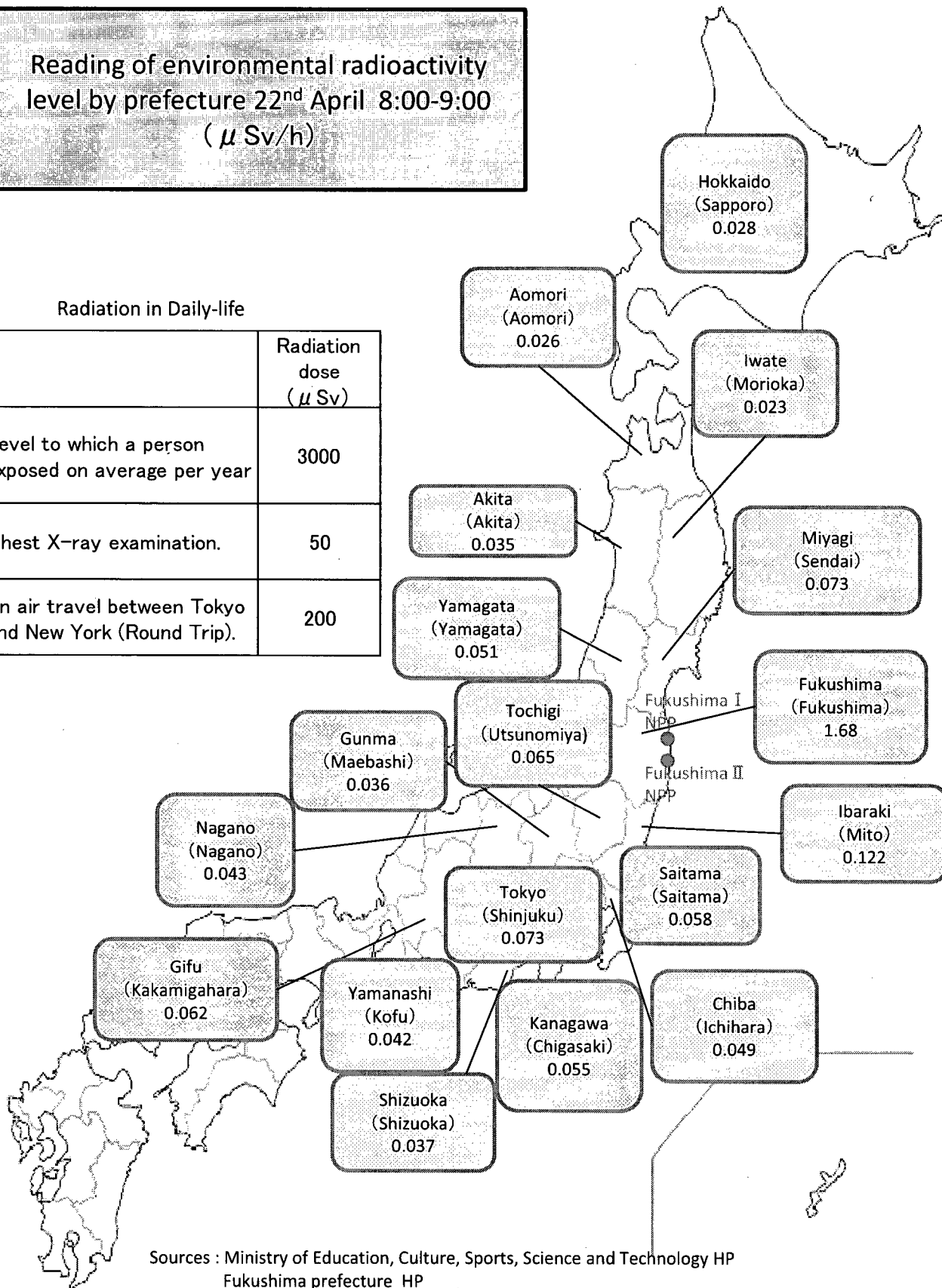


*Distance between Three Mile Island and Washington D.C : 140km, 88mile



Reading of environmental radioactivity level by prefecture 22nd April 8:00-9:00 (μ Sv/h)

Radiation in Daily-life	
	Radiation dose (μ Sv)
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 and Technology HP
Fukushima prefecture HP

From: OST01 HOC
Sent: Friday, April 22, 2011 1:58 PM
To: LIA08 Hoc
Subject: RE: USNRC Earthquake-Tsunami Update - 1200 EDT (April 22, 2011)

This action is complete

From: LIA08 Hoc
Sent: Friday, April 22, 2011 1:29 PM
To: OST01 HOC
Subject: RE: USNRC Earthquake-Tsunami Update - 1200 EDT (April 22, 2011)

Thanks Tabitha! Would you please also add the attached to SP, under "Congressional Notes"? I'm having trouble getting into the SP site.

Thanks again!

Clyde

Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: OST01 HOC
Sent: Friday, April 22, 2011 1:06 PM
To: LIA08 Hoc
Subject: RE: USNRC Earthquake-Tsunami Update - 1200 EDT (April 22, 2011)

This document has been added to SP.

Thanks

From: LIA08 Hoc
Sent: Friday, April 22, 2011 12:56 PM
To: LIA08 Hoc
Subject: USNRC Earthquake-Tsunami Update - 1200 EDT (April 22, 2011)

*****NOTE: THE ATTACHED IS FOR OFFICAL USE ONLY*****

The next NRC Update will be distributed at 1200 EDT on Monday, April 25, 2011

*****NOTE: THE ATTACHED IS FOR OFFICAL USE ONLY*****

Clyde Ragland

Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov

VVV/432

Desk Ph: 301-816-5185

From: LIA08 Hoc
Sent: Friday, April 22, 2011 1:53 PM
To: OST01 HOC
Subject: RE: USNRC Earthquake-Tsunami Update - 1200 EDT (April 22, 2011)

Never mind, I got in! Thanks anyways.

Clyde

Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: OST01 HOC
Sent: Friday, April 22, 2011 1:38 PM
To: LIA08 Hoc
Subject: RE: USNRC Earthquake-Tsunami Update - 1200 EDT (April 22, 2011)

No problem I will email you once this action is complete.

From: LIA08 Hoc
Sent: Friday, April 22, 2011 1:29 PM
To: OST01 HOC
Subject: RE: USNRC Earthquake-Tsunami Update - 1200 EDT (April 22, 2011)

Thanks Tabitha! Would you please also add the attached to SP, under "Congressional Notes"? I'm having trouble getting into the SP site.

Thanks again!

Clyde

Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: OST01 HOC
Sent: Friday, April 22, 2011 1:06 PM
To: LIA08 Hoc
Subject: RE: USNRC Earthquake-Tsunami Update - 1200 EDT (April 22, 2011)

This document has been added to SP.

Thanks

433/433

From: LIA08 Hoc
Sent: Friday, April 22, 2011 12:56 PM
To: LIA08 Hoc
Subject: USNRC Earthquake-Tsunami Update - 1200 EDT (April 22, 2011)

*****NOTE: THE ATTACHED IS FOR OFFICAL USE ONLY*****

The next NRC Update will be distributed at 1200 EDT on Monday, April 25, 2011

*****NOTE: THE ATTACHED IS FOR OFFICAL USE ONLY*****

Clyde Ragland

Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: OST01 HOC
Sent: Friday, April 22, 2011 1:46 AM
To: RST01 Hoc; Hoc, PMT12; Holonich, Joseph; LIA08 Hoc
Attachments: Japan One Pager 0700 EDT 4-22-11.doc

Please provide updates to the Japan One-Pager (0700 EDT 4-22-11) by 5:00 a.m. If you make changes electronically, please use highlight feature in Word to note the change. Pen and ink changes are also acceptable.

Thank You,
Tia Pope

Executive Support Team
US Nuclear Regulatory Commission
email: ost01hoc@nrc.gov
Ph: 301-816-5100

434/434

From: LIA08 Hoc
Sent: Friday, April 22, 2011 12:47 PM
To: Kokajko, Lawrence; Hayden, Elizabeth
Cc: HOO Hoc; RST01 Hoc; Hoc, PMT12; OST01 HOC
Subject: RE:
Attachments: image001.jpg

Sir,

I can find no mention of "static but fragile" in any of the daily NRC status updates that we have sent out, nor can I find, nor do I recall, a joint DOE/NRC report submitted on or near April 15th. The Chairman, however, is reported as to have said that the status is "static, but not stable", as early as April 11, 2011.

I will keep looking.

V/R,

Clyde Ragland

Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: HOO Hoc
Sent: Friday, April 22, 2011 12:25 PM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC
Subject: FW:

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: Hayden, Elizabeth
Sent: Friday, April 22, 2011 12:19 PM
To: HOO Hoc
Subject: FW:

Lawrence,

This is the news story from NHK that references the 4/15 report.

VVV/435

Beth Hayden

US NRC: Fukushima plant "static but fragile"

The US Nuclear Regulatory Commission says conditions at the Fukushima Daiichi nuclear plant are "static but fragile" in its latest assessment of the nuclear emergency.

The Commission compiled the report as of April 15th, along with the US Energy Department and other nuclear organizations.

The report suggests that ongoing operations to feed the reactors with water could be affected by the occurrence of more aftershocks.

It recommends a more diversified and redundant feeding system, along with the automation of operations involving large cranes and other equipment to douse the reactors with water.

The report estimates that 67 percent of nuclear fuel has been damaged at reactor No.1, 44 percent at reactor No.2 and 30 percent at reactor No.3.

It says these estimates do not differ greatly from those provided by the plant operator, Tokyo Electric Power Company.

TEPCO has estimated the rate of damage at 70 percent at reactor No.1, 30 percent at No.2, and 25 percent at No.3.

The US Nuclear Regulatory Commission is due to brief the Senate on the latest conditions at the plant on April 28th.

Friday, April 22, 2011 17:42 +0900 (JST)

Elizabeth M. Stuckle
Office of Public Affairs
U.S. Nuclear Regulatory Commission
301-415-2169
elizabeth.stuckle@nrc.gov

From: Kokajko, Lawrence
Sent: Friday, April 22, 2011 1:01 PM
To: OST01 HOC
Subject: Document1
Attachments: Doc1.docx

937 / ANN

From: Hoc, PMT12
Sent: Friday, April 22, 2011 1:01 PM
To: OST01 HOC
Subject: one pager PMT edits...
Attachments: Japan One Pager 1500 EDT 4-22-11 ---- PMT Edits .doc

PMT edits...

VVV/437

From: OST01 HOC
Sent: Monday, April 25, 2011 9:59 AM
To: FOIA Response.hoc Resource
Subject: FW: [METI Japan](Apr_25)Update on Seismic and Tsunami Damage Information
Attachments: Apr_25 Radioactivity Level Map Chart.pdf

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

From: HOO Hoc
Sent: Monday, April 25, 2011 9:45 AM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC
Subject: FW: [METI Japan](Apr_25)Update on Seismic and Tsunami Damage Information

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

From: meti-info@meti.go.jp [mailto:meti-info@meti.go.jp]
Sent: Monday, April 25, 2011 9:39 AM
To: meti-info@meti.go.jp
Subject: [METI Japan](Apr_25)Update on Seismic and Tsunami Damage Information

For your reference, Ministry of Economy, Trade and Industry of Japan (METI) is providing latest information on the seismic and tsunami damages to the nuclear power stations (NPSs) in Japan, including those caused to Fukushima Dai-ichi NPS.

This Monday, the following information has been updated.

---- Today's news ----

We have regular updates as follow.

---- Updates from METI ----

1. [METI] Apr 25_Radioactivity Level Map Chart [Please refer to the attached file]

---- Updates from NISA ----

2. [NISA] Apr 25 1130_Current Situation of Onagawa, Fukushima Dai-ichi, Fukushima Dai-ni, Tokai Dai-ni NPSs (only Japanese version is now available. English version will be uploaded.)

<http://www.meti.go.jp/press/2011/04/20110425006/20110425006-1.pdf>

[NISA] Apr 20 0800_Current Situation of Onagawa, Fukushima Dai-ichi, Fukushima Dai-ni, Tokai Dai-ni NPSs (English version) <http://www.nisa.meti.go.jp/english/files/en20110420-3-1.pdf>

3. [NISA] Apr 25 0800_Fukushima Dai-ichi Major Parameters of the Plant (only Japanese version is available. English version will be uploaded.) <http://www.meti.go.jp/press/2011/04/20110425006/20110425006-3.pdf>

VVV/438

[NISA] Apr 20 0600_Fukushima Dai-ichi Major Parameters of the Plant (English version)
<http://www.nisa.meti.go.jp/english/files/en20110420-3-2.pdf>

---- Major Updates from other agencies of Japanese Government --- 4. [MLIT] Apr 25 PM_Measurement of Radiation Doses in the Ports around Tokyo Bay http://www.mlit.go.jp/kowan/kowan_fr1_000041.html
Currently, the level of radiation in Tokyo City, Yokohama City, Kawasaki City and Ichikawa City (Chiba) were as shown in the attachment at very safe level to health.

5. [MLIT] Apr 25 PM_Measurement of radiation doses around the Metropolitan Airports
http://www.mlit.go.jp/koku/koku_tk7_000003.html
The current level of radiation does not have any effects on human health.

6. [NSC] Apr 24 1645_Assessment of the result of environment monitoring (only Japanese version is available)
http://www.nsc.go.jp/nsc_mnt/110424_1.pdf

If you need to add other e-mail address to this mailing list or do not need our information mail any more, please contact at meti-info@meti.go.jp

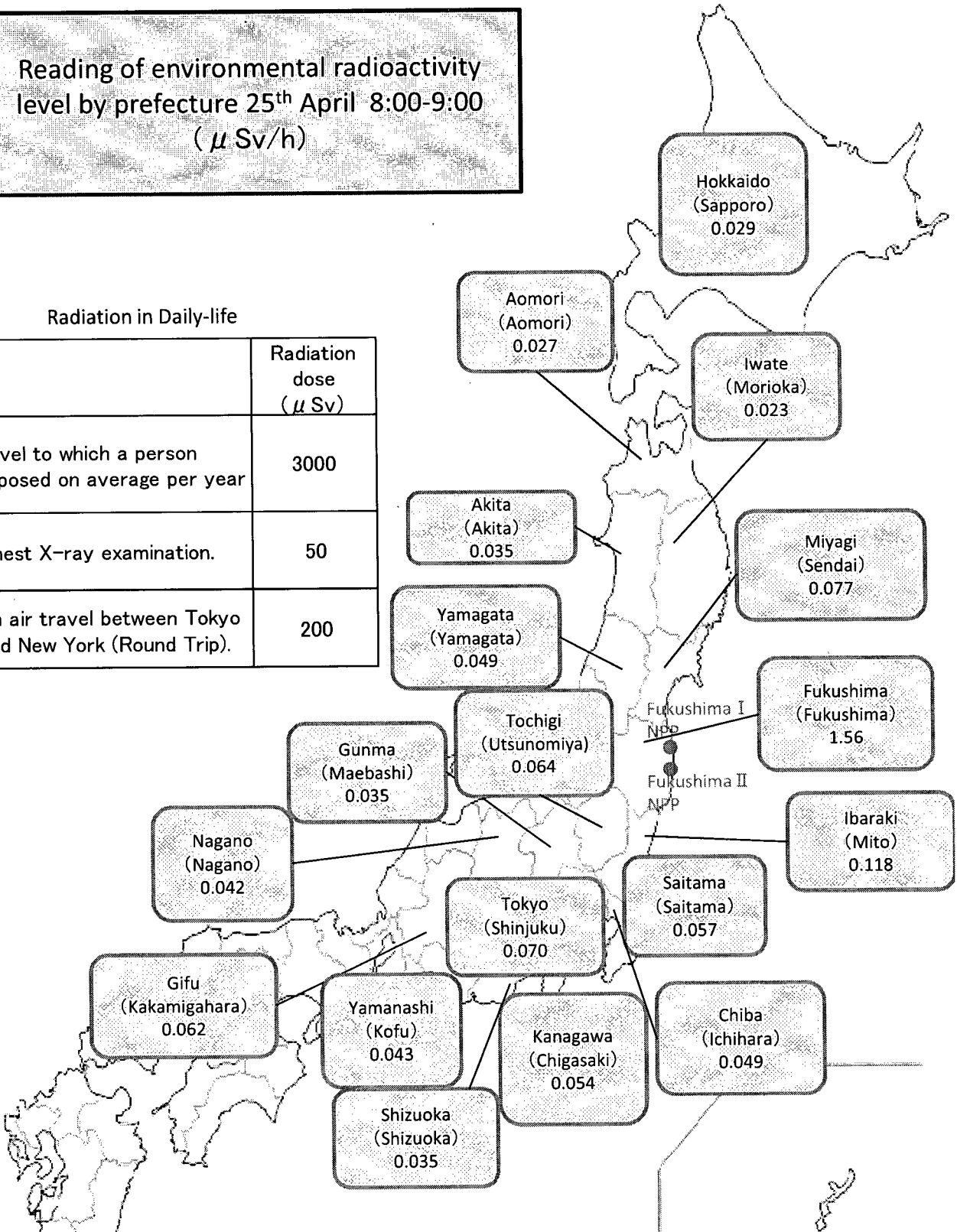
=====
International Public Relations Team
Ministry of Economy, Trade and Industry (METI)
1-3-1 Kasumigaseki, Chiyoda-ku, Tokyo 100-8901, Japan E-mail : meti-info@meti.go.jp
=====

(See attached file: Apr_25 Radioactivity Level Map Chart.pdf)

Reading of environmental radioactivity level by prefecture 25th April 8:00-9:00 (μ Sv/h)

Radiation in Daily-life

	Radiation dose (μ Sv)
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 and Technology HP
Fukushima prefecture HP

From: LIA08 Hoc
Sent: Monday, April 25, 2011 12:28 PM
To: OST01 HOC
Subject: USNRC Earthquake-Tsunami Update 042511 1200 EDT ---- pmt edits
Attachments: USNRC Earthquake-Tsunami Update 042511 1200 EDT ---- pmt edits .pdf

VVV/439

From: OST01 HOC
Sent: Monday, April 25, 2011 4:02 PM
To: FOIA Response.hoc Resource
Subject: FW: QUERY - POTENTIAL COMPLICATION OF CONTAMINATED DEBRIS

From: Uhle, Jennifer
Sent: Monday, April 25, 2011 10:59 AM
To: Kokajko, Lawrence; Weber, Michael; Virgilio, Martin
Cc: Wright, Ned; Merzke, Daniel; Brock, Kathryn; OST01 HOC
Subject: RE: QUERY - POTENTIAL COMPLICATION OF CONTAMINATED DEBRIS

Marty and Mike,

Ned Wright obtained information from a U.S. news report that the Navy is tracking the debris and he is going to follow up with Vince to determine if they will monitor for radioactivity. On another issue, there is information that NOAA was going to put the plume modeling on hold for 2 weeks. Ned contacted NOAA and NOAA said that it would take 2 weeks or more to do the analysis but that it was not on hold. The NOAA contact is going to get back to us. The Chairman said he will engage with NOAA if they are delaying with no justification.

On the call this morning with the Chairman (9:30 EST), he indicated that NRC may not be permitted by OMB to cover the NRC response/Japan support costs. The Chairman will interact with OEDO and Jim Dyer.

From: Kokajko, Lawrence
Sent: Monday, April 25, 2011 6:36 AM
To: Uhle, Jennifer
Subject: FW: QUERY - POTENTIAL COMPLICATION OF CONTAMINATED DEBRIS

fyi

From: Kokajko, Lawrence
Sent: Friday, April 22, 2011 10:23 AM
To: Weber, Michael
Cc: Hoc, PMT12; OST01 HOC; FOIA Response.hoc Resource; Merzke, Daniel; Brock, Kathryn; Virgilio, Martin
Subject: RE: QUERY - POTENTIAL COMPLICATION OF CONTAMINATED DEBRIS

Thank you, Mike. We have it. The report is being reviewed by PMT (Kimberly G. this shift) and in light of your comment/question we will discuss with EPA and others next week.

From: Weber, Michael
Sent: Friday, April 22, 2011 9:36 AM
To: Kokajko, Lawrence
Cc: Hoc, PMT12; OST01 HOC; FOIA Response.hoc Resource; Merzke, Daniel; Brock, Kathryn; Virgilio, Martin
Subject: QUERY - POTENTIAL COMPLICATION OF CONTAMINATED DEBRIS

Good morning, Lawrence. I expect to drop by the Ops Center later this morning.

I am referring a question to you that I suggest you ask you PMT rep to pursue with EPA and DOE representatives. This is not a priority and can be worked over the next week. Given the list of assessments that are currently in the queue, their

02/2/11

near-term schedules, and heavy reliance on radiation protection specialists, I expect that your PMT rep has higher priorities today.

Yesterday we received two new Congressional Research Service reports. One of them was titled *Effects of Radiation from Fukushima Daiichi on the U.S. Marine Environment*. The report notes that, based on computer modeling of ocean currents, debris from the tsunami caused by the Tohoku earthquake is projected to spread eastward from Japan in the North Pacific Subtropical Gyre. Consistent with these projections, the debris plume is expected to reach the U.S. West Coast in about 3 years, including beaches in California and Alaska. Because this debris was off the eastern coast of Japan at the time that the largest atmospheric releases occurred from the Fukushima-Daiichi nuclear power station in mid-March 2011, it is possible that this floating debris is contaminated with ^{131}I , ^{134}Cs , and ^{137}Cs from atmospheric fallout and rainout. The iodine should be long gone by the time that the debris begins washing up on the U.S. coast, but there could still be elevated concentrations of radioactive Cs on the debris (with half-lives of 2 and 30 years).

Is EPA assessing the potential for U.S. exposure to radiation from this vector? It may be prudent for DOE to conduct an AMS overflight of the debris field now, before it becomes more dispersed, to assess the potential extent of contamination of this debris. Such information could be used as the starting point for assessing the likelihood and public health and environmental significance of contaminated debris washing up on the U.S. coast. Based on the results of the assessment, the U.S. may need to plan precautions and protective measures.

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: OST01 HOC
Sent: Monday, April 25, 2011 8:57 PM
To: LIA08 Hoc
Subject: RE: ACTION: UPDATE -- One Pager for 4/25/11 - 2300 EDT

Jeff...

Stacy (PMT) is going to review your input and fold it into her input for PMT.

Thanks!

From: LIA08 Hoc
Sent: Monday, April 25, 2011 8:44 PM
To: OST01 HOC
Subject: FW: ACTION: UPDATE -- One Pager for 4/25/11 - 2300 EDT

Updated information from the Liaison Team Coordinator is highlighted in yellow.

Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: OST01 HOC
Sent: Monday, April 25, 2011 4:38 PM
To: Hoc, PMT12; RST01 Hoc; LIA08 Hoc; Carpenter, Cynthia
Subject: ACTION: UPDATE -- One Pager for 4/25/11 - 2300 EDT

*** Attachment is OUO ***

Attached is the 4/25/11 1500 EDT version.

Please update and return to me by 2100.

Thank you...

Mary Glenn Crutchley
EST Coordinator

*** Attachment is OUO ***

144/NNN

From: OST01 HOC
Sent: Monday, April 25, 2011 10:07 PM
To: FOIA Response.hoc Resource
Subject: FW: ACTION: UPDATE -- One Pager for 4/25/11 - 2300 EDT

From: LIA08 Hoc
Sent: Monday, April 25, 2011 8:56 PM
To: OST01 HOC
Subject: RE: ACTION: UPDATE -- One Pager for 4/25/11 - 2300 EDT

No updates for the Liaison Team.

Jeff Temple
Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: OST01 HOC
Sent: Monday, April 25, 2011 4:38 PM
To: Hoc, PMT12; RST01 Hoc; LIA08 Hoc; Carpenter, Cynthia
Subject: ACTION: UPDATE -- One Pager for 4/25/11 - 2300 EDT

~~*** Attachment is OJO ***~~

Attached is the 4/25/11 1500 EDT version.

Please update and return to me by 2100!

Thank you...

Mary Glenn Crutchley
EST Coordinator

~~*** Attachment is OJO ***~~

From: HOO Hoc
Sent: Tuesday, April 26, 2011 5:07 PM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC
Attachments: Fukushima forecast with attachments.; WRF Forecast for Fukushima Daiichi 1 26 April 2011; image001.gif

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



2442

From: OST01 HOC
Sent: Tuesday, April 26, 2011 5:05 AM
To: FOIA Response.hoc Resource
Subject: FW: Revision of RST Assessment Document to align w/ TEPCO Roadmap Document

From: RST01 Hoc
Sent: Tuesday, April 26, 2011 4:56 AM
To: Hiland, Patrick; Skeen, David
Cc: RST02 Hoc; OST01 HOC; Johnson, Michael; Uhle, Jennifer; Carpenter, Cynthia; Casto, Chuck; Reynolds, Steven; Kokajko, Lawrence; Correia, Richard; Tracy, Glenn; Dudes, Laura; RST01 Hoc
Subject: Revision of RST Assessment Document to align w/ TEPCO Roadmap Document

Pat & Dave,

Based on our conversation with the Japan Site Team members at 0300, April 26, 2011 teleconference call, there was a suggestion that we hold (or freeze) the continued revisions of the RST Assessment Revision 2 document. The current document portrays a snapshot of current conditions at the Fukushima Daiichi units. The Japan team believes that a number of recommendations proposed in the document may not be implementable due to the existing conditions. Furthermore, the Japan Site Team would like to understand the purpose of the document and who is the customer. The general consensus is that the focus of current efforts should be on improving the TEPCO Road Map document after receipt of comments.

RST01, See-Meng Wong, Kerby Scales.

SM/WNS

To: Batkin, Joshua; Boger, Bruce; Carpenter, Cynthia; Castleman, Patrick; Franovich, Mike; Gibbs, Catina; Hipschman, Thomas; Hoc, PMT12; Jaczko, Gregory; Johnson, Michael; LIA08 Hoc; Marshall, Michael; Moore, Scott; Orders, William; Pace, Patti; RST01 Hoc; Snodderly, Michael; Speiser, Herald; Tracy, Glenn; Uhle, Jennifer; Virgilio, Martin; Weber, Michael; Wiggins, Jim; Zimmerman, Roy

Subject: April 26 - 2300EDT One-Pager-Fukushima Daiichi

Attached, please find the April 26 – 2300 EDT One-Pager – Fukushima Daiichi.

Please note that this attachment is OOU

HHH/NNN

From: OST01 HOC
Sent: Tuesday, April 26, 2011 10:58 PM
To: FOIA Response.hoc Resource
Subject: FW: RESPONSE - USNRC Earthquake-Tsunami Update 042611 1200 EDT (Final email distribution)

From: Weber, Michael
Sent: Tuesday, April 26, 2011 6:55 PM
To: LIA08 Hoc
Cc: OST01 HOC; Virgilio, Martin; Evans, Michele
Subject: RESPONSE - USNRC Earthquake-Tsunami Update 042611 1200 EDT (Final email distribution)

Thanks. Are the access arrangements convenient for use with Blackberries, as is necessary for communications after hours and on weekends?

From: LIA08 Hoc
Sent: Tuesday, April 26, 2011 12:26 PM
To: Andersen, James; Anderson, Joseph; Ash, Darren; Baggett, Steven; Barker, Allan; Batkin, Joshua; Boger, Bruce; Borchardt, Bill; Bradford, Anna; Brenner, Eliot; Breskovic, Clarence; Smith, Brooke; Brown, Frederick; Brown, Milton; Bubar, Patrice; Burns, Stephen; Camper, Larry; Carpenter, Cynthia; Castleman, Patrick; Ader, Charles; Murray, Charles; Casto, Chuck; Coggins, Angela; Collins, Elmo; ConE_Resource; Copeland, Douglas; Correia, Richard; Craffey, Ryan; Dapas, Marc; Dean, Bill; Decker, David; Diaz-Sanabria, Yoira; Dickman-Disabled-11/14/2010, Paul; Dorman, Dan; Droggitis, Spiros; Dyer, Jim; English, Lance; ET02 Hoc; Evans, Michele; Franovich, Mike; Frye, Timothy; Garmon, David; Apostolakis, George; Gibbs, Catina; Giitter, Joseph; Gott, William; Grobe, Jack; Hahn, Matthew; Haney, Catherine; Harrington, Holly; Hipschman, Thomas; Hoc, PMT12; Holahan, Gary; Holahan, Patricia; Holahan, Vincent; HOO Hoc; Howe, Allen; Howell, Art; Howell, Linda; Issa, Alfred; Itzkowitz, Marvin; Foster, Jack; Jackson, Donald; Jaczko, Gregory; Johnson, Andrea; Johnson, Michael; Jones, Cynthia; Kahler, Robert; King, Mark; Foggie, Kirk; Kock, Andrea; Kozal, Jason; Leeds, Eric; LIA08 Hoc; Logaras, Herral; Loyd, Susan; Magwood, William; Maier, Bill; Marshall, Jane; Marshall, Michael; McCree, Victor; McDermott, Brian; McIntosh, Angela; McNamara, Nancy; Michalak, Paul; Miller, Charles; Miller, Chris; Monninger, John; Morris, Scott; Nease, Rebecca; Nieh, Ho; NRCHQ; NSIR_DDSP_ILTAB_Distribution; Ordaz, Vonna; Orders, William; OST05 Hoc; Ostendorff, William; Pace, Patti; Patel, Jay; Pearson, Laura; Pederson, Cynthia; Plisco, Loren; Powell, Amy; Quichocho, Jessie; R1 IRC; R2 IRC; R3 IRC; R4 IRC; Reddick, Darani; Reyes, Luis; Devercelly, Richard; Riley (OCA), Timothy; Nelson, Robert; ROO hoc; Rothschild, Trip; RST01 Hoc; Satorius, Mark; Schmidt, Rebecca; Sharkey, Jeffrey; Sheron, Brian; Sigmon, Rebecca; Snodderly, Michael; Sosa, Belkys; Speiser, Herald; Svinicki, Kristine; Tabatabai, Omid; Thoma, John; Thomas, Eric; Tiff, Doug; Kolb, Timothy; Ulses, Anthony; Nakanishi, Tony; Tracy, Glenn; Trapp; Trapp, James; Trojanowski, Robert; Turtill, Richard; Uhle, Jennifer; Virgilio, Martin; Warnick, Greg; Warren, Roberta; Weber, Michael; Westreich, Barry; Wiggins, Jim; Cook, William; Williams, Kevin; Wittick, Brian; Woodruff, Gena; Zimmerman, Roy; Zorn, Jason
Subject: USNRC Earthquake-Tsunami Update 042611 1200 EDT (Final email distribution)

~~*****NOTE: THE ATTACHED IS FOR OFFICAL USE ONLY*****~~

The next NRC Update will be distributed at 1200 EDT on Wednesday, April 27, 2011

~~*****NOTE: THE ATTACHED IS FOR OFFICAL USE ONLY*****~~

Per direction from the Executive Team, this will be the final USNRC Status Update sent via email to the internal distribution. Future updates will be loaded to the Japan SharePoint page at <http://nsir-ops.nrc.gov/>. You may subscribe

SHY/AM

to email alerts through the SharePoint page (instructions in 2nd attachment). Please let us know if you have any problems or questions. Thank you.

*** Attachments are OOU ***

Beth Reed
LT Coordinator

From: Kozal, Jason
Sent: Tuesday, April 26, 2011 1:26 PM
To: OST01 HOC
Subject: Out of Office: ACTION: FW: POTUS authorities

I am out of the office 04/26/2011. If you need to contact someone before I return please contact Jane Marshall, Chief, Coordination Branch 301-415-7854 or jane.marshall@nrc.gov. For NLE 2011 related issues please contact Sally Billings at sally.billings@nrc.gov.

From: Weber, Michael
Sent: Tuesday, April 26, 2011 7:00 PM
To: OST01 HOC; Carpenter, Cynthia
Cc: LIA08 Hoc; Merzke, Daniel; Virgilio, Martin; Casto, Chuck; Reynolds, Steven; Nelson, Robert; Burnell, Scott
Subject: FYI - GLOBAL SECURITY NEWSWIRE ARTICLE ON "GUSHING" REACTOR
Attachments: image001.jpg

Japan Suspects Nuclear Reactor is Gushing Water

Tuesday, April 26, 2011

Unmanned robotic equipment is due on Tuesday to confirm whether a suspected rupture is permitting water to gush from a containment vessel at the Fukushima Daiichi nuclear power plant's No. 1 reactor, the Japanese Nuclear and Industrial Safety Agency announced (see [GSN](#), April 26).



(Apr. 26) - A deserted street shown earlier this month in the exclusion zone around Japan's Fukushima Daiichi nuclear power plant. Japan on Tuesday suspected a reactor containment vessel was hemorrhaging water at the severely damaged facility (Athit Perawongmetha/Getty Images).

Escaping water would probably hinder efforts to restore cooling mechanisms needed to help prevent additional radioactive material from escaping the plant, Kyodo News reported. The six-reactor Fukushima facility was crippled by the 9.0-magnitude earthquake and devastating tsunami that hit Japan on March 11; the confirmed death toll from the events and aftershocks now exceeds 14,000 people, according to a previous report.

"We are currently examining data, but we think that there is water leakage to some extent," NISA Deputy Director General Hidehiko Nishiyama said.

The official said indications of the possible water flow emerged during efforts to insert nitrogen into the reactor container, a measure aimed at curbing the likelihood of new hydrogen blasts. Representatives of plant operator Tokyo Electric Power were unsure whether the robotic equipment had detected the possible escaping water during measuring of radiation intensity at the No. 1 reactor on April 17 (Kyodo News */Mainichi Daily News*, April 26).

The facility's operator has launched an effort to inundate the No. 1, No. 2 and No. 3 reactor containers with coolant, the *Asahi Shimbun* reported on Tuesday. The move marks the first-ever effort to fill an entire reactor container in an attempt to remove heat from its interior pressure vessel and finally its core, according to the newspaper.

944 / 446

The company is expected to transfer more water than before into the three reactors' pressure vessels, pushing liquid into their larger containers through fluid control structures and broken pipelines. The reactor pressure vessels would receive roughly 1 ton of water each hour beyond the fluid turned to steam by the hot nuclear fuel.

The water's depth is slated within three months to exceed the length of the fuel rods, Tokyo Electric Power's time line for stabilizing the plant indicated.

The No. 1 reactor's water surface has risen to around 20 feet from the floor of the outer container, a point roughly 10 feet from the lowest part of the pressure vessel. The water depth in the No. 2 and No. 3 reactors was uncertain, and liquid might be escaping from their containment vessels, Tokyo Electric Power indicated (*Asahi Shimbun I*, April 26).

Separately, the NISA official noted mounting fears that the No. 4 reactor's spent nuclear fuel cooling pond could also be hemorrhaging fluid, the *Wall Street Journal* reported. More nuclear fuel is stored in the pond than at any of the facility's other five reactors. Nuclear material without sufficient coolant could overheat and potentially release radioactive contaminants into the air (Mitsuru Obe, *Wall Street Journal*, April 26).

Airborne radioactivity reached significantly high levels at the No. 1 and No. 3 reactors one month after hydrogen blasts destroyed plant containment structures and allowed contaminants to escape, the *Asahi Shimbun* reported on Tuesday.

Radiation levels northwest of the No. 3 reactor reached 70 millisieverts per hour, according to a diagram released by the plant operator on Sunday. The diagram shows the geographic distribution of radioactivity around the site (*Asahi Shimbun II*, April 26).

Meanwhile, Japan was set to measure radioactive contaminant concentrations in grass across its eastern territory that is consumed by farm animals, Kyodo News reported on Tuesday. The effort is aimed at preventing unacceptable levels of contaminants from entering consumer meat and dairy products (Kyodo News II/Tradingcharts.com, April 26).

In light of the nuclear crisis, Tokyo is weighing the possibility of curbing initiatives to sell atomic energy components abroad, officials said on Tuesday (*Kyodo News III*, April 26).

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: OST01 HOC
Sent: Tuesday, April 26, 2011 12:42 PM
To: Hoc, PMT12
Subject: FW: SharePoint Information
Attachments: SharePoint Information Japan.pdf

vuv/447

Japan Earthquake/Tsunami Internal Information SharePoint Website

To access the Japan SharePoint page, please visit <http://nsir-ops.nrc.gov>. Documents in this page are stored in document libraries which can be accessed from the links on the left side of the page. Since the transition to the 6-person response team, the only documents that are continually being updated are the Japan One-Pager, NRC Status Updates, DOE SitReps, and Press Releases (IAEA). These 4 document libraries are at the top of the "Documents" list on the left.

Documents will be posted routinely throughout the day. If you wish to receive a notification when a new document has been posted to a library, click the link to the specific library (ie: Japan One-Pager), then click "Actions" at the top of the list, then click "Alert Me." You may choose the settings of the alerts, however, recommended settings would be to select the following 3 buttons:

Change Type:	"New Items are added"
Send Alerts for These Changes:	"Anything Changes"
When to Send Alerts:	"Send email immediately"

This process needs to be repeated for each document library you wish to receive alerts for. Please let us know if you have any questions. Thank you.

From: ET02 Hoc
Sent: Tuesday, April 26, 2011 4:21 PM
To: Patel, Bhavin
Cc: Graziose, Catherine; Reyes, Debra; Turner, Joseph; Rich, Thomas; Jackson, Karen; Khan, Omar; OST01 HOC
Subject: ACCESS TO JAPAN SHAREPOINT SITE
Importance: High

Managers using Blackberries want to be able to access the Japan SharePoint site (nsir-ops.nrc.gov) but when they try they are being prompted for a username and password. We tried using a blackberry and received an error message after several minutes of "requesting" . Can something be done to correct this situation asap? Please contact either Omar Khan or Karen Jackson if you have any questions. Please reply to this e-mail as well as Omar and Karen regarding the status of this request.

mmv/448

From: OST01 HOC
Sent: Tuesday, April 26, 2011 2:23 PM
To: Uhle, Jennifer
Subject: draft 1500 One pager
Attachments: Japan One Pager 1500 EDT 4-26-11.doc

For your edits/approval

www/449

From: Stransky, Robert
Sent: Tuesday, April 26, 2011 7:26 AM
To: ET04 Hoc
Subject: FW: RESPONSE - Lake Barrett's Presentation on Fukushima Today to the National Academy of Sciences
Attachments: Barrett NAS- Energy Air Water Earth-TURBINE BLDG WAVE.pptx; Barrett Academies Presentation 11-04-19FR[1].pdf
Signed By: robert.stransky@nrc.gov

From: Lyon, Fred
Sent: Tuesday, April 26, 2011 7:05 AM
To: Stransky, Robert
Subject: RE: RESPONSE - Lake Barrett's Presentation on Fukushima Today to the National Academy of Sciences

Bob, attached fyi - one file with the presentation, the other file with the video clip. Thanks, Fred

From: Stransky, Robert
Sent: Tuesday, April 26, 2011 6:56 AM
To: Lyon, Fred
Subject: FW: RESPONSE - Lake Barrett's Presentation on Fukushima Today to the National Academy of Sciences

Fred,

Could you send me a copy of the briefing? I've been asked to add it to the reference materials in the Operations Center. Thanks!

Bob

From: Zimmerman, Roy
Sent: Monday, April 25, 2011 4:59 PM
To: Stransky, Robert
Subject: FW: RESPONSE - Lake Barrett's Presentation on Fukushima Today to the National Academy of Sciences

From: Zimmerman, Roy
Sent: Monday, April 25, 2011 4:58 PM
To: Gott, William
Subject: FW: RESPONSE - Lake Barrett's Presentation on Fukushima Today to the National Academy of Sciences

Don't recall if I passed along Mike's request.....but just in case

From: Weber, Michael
Sent: Wednesday, April 20, 2011 7:27 PM

054/NNN

To: Zimmerman, Roy
Subject: RESPONSE - Lake Barrett's Presentation on Fukushima Today to the National Academy of Sciences

Good presentation by Lake. Quite informative and practical. Should be kept available in the ET room for ET Directors as background information.

From: Zimmerman, Roy
Sent: Wednesday, April 20, 2011 1:39 PM
To: Tracy, Glenn; Virgilio, Martin; Weber, Michael
Subject: FW: Lake Barrett's Presentation on Fukushima Today to the National Academy of Sciences

From: Boger, Bruce
Sent: Tuesday, April 19, 2011 9:54 PM
To: RST01 Hoc; LIA08 Hoc; Hoc, PMT12; Zimmerman, Roy; Holonich, Joseph
Subject: FW: Lake Barrett's Presentation on Fukushima Today to the National Academy of Sciences

FYI

From: Lyon, Fred
Sent: Tuesday, April 19, 2011 7:34 AM
To: Nelson, Robert; Markley, Michael
Cc: Howe, Allen; Giitter, Joseph; Chernoff, Harold; Boger, Bruce
Subject: Lake Barrett's Presentation on Fukushima Today to the National Academy of Sciences

For your information, attached is a copy of the presentation on TMI and Fukushima that Lake Barrett will present to the National Academies of Sciences today. The first part of the presentation is TMI; the Fukushima pictures start on slide 15. The video of the tsunami cresting the turbine building roof is not functional in the attachment, so I've sent it separately.

It is an update/refinement of what he did at the ANS IHLW meeting last week and the MIT seminar that he did three weeks ago. It has a lot of current photos from the plant and the TEPCO overall recovery roadmap that they released over the weekend. He tried to make it an overall status report on where they have been, are, and are going with Fukushima 1-4.

Lake's presentation is based on publicly available information and will be available to the public.

He also wanted everybody to know that INEL is putting all the old TMI reports on a special web site in pdf form. After fussing enough at them, they are now moving out smartly with this effort. The reports are being added everyday to this web site: <http://keros.inl.gov> .

From: OST01 HOC
Sent: Tuesday, April 26, 2011 11:27 PM
To: RST01 Hoc; Hoc, PMT12; LIA08 Hoc
Subject: One Pager 0700 EDT 4/27
Attachments: Japan One Pager 0700 EDT 4-27-11.doc

Once again, please have any updates to me by 0500. Thanks!

Rebecca Stone
EST Coordinator

157/NNN

From: OST01 HOC
Sent: Tuesday, April 26, 2011 2:20 PM
To: FOIA Response.hoc Resource
Subject: FW: Three Pager
Attachments: USNRC Japan Plant Condition Update April 26 1200EDT.pdf

From: LIA08 Hoc
Sent: Tuesday, April 26, 2011 2:17 PM
To: OST01 HOC
Subject: FW: Three Pager

Please upload to SharePoint, Congressional Notes.

Thanks!
Beth Reed
Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: LIA08 Hoc
Sent: Tuesday, April 26, 2011 1:40 PM
To: Droggitis, Spiros; Riley (OCA), Timothy
Subject: Three Pager

Please see attached.

Beth Reed
Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

NSH/NWL

From: Carpenter, Cynthia
Sent: Tuesday, April 26, 2011 9:31 PM
To: OST01 HOC
Subject: FW: U.S. Personnel in Exclusion Zone prior to Accident

This should be updated on the one pager

From: Uhle, Jennifer
Sent: Tuesday, April 26, 2011 9:04 PM
To: Carpenter, Cynthia
Subject: Fw: U.S. Personnel in Exclusion Zone prior to Accident

We should update the entry on the one pager. See below. Thx. J

From: Gepford, Heather
To: Wittick, Brian; Uhle, Jennifer
Cc: Casto, Chuck; Reynolds, Steven
Sent: Tue Apr 26 20:08:14 2011
Subject: RE: U.S. Personnel in Exclusion Zone prior to Accident

I'd like to add a minor clarification. According to the consulate, the handful that were inside the 20 km zone were the English language instructors. Those outside of the 20 km zone but within the 80 km zone included a significant number of U.S. citizens who have made Japan their home.

From: Wittick, Brian
Sent: Tuesday, April 26, 2011 7:57 PM
To: Uhle, Jennifer
Cc: Casto, Chuck; Reynolds, Steven; Gepford, Heather
Subject: U.S. Personnel in Exclusion Zone prior to Accident

Jennifer,

On Chuck's phone call yesterday the question was asked as to the number of AmCits in the 50 mile zone around Fukushima. Prior to the accident there were approximately 1200 people within 50 miles of Fukushima and outside the 20Km Japanese evacuation zone. Most were English language instructors there on temporary assignment. There were only a handful of people inside the 20Km zone. As an aside, there were two AmCits known to have died in the tsunami.

Thanks
Brian Wittick

SSM/NNL

From: OST01 HOC
Sent: Wednesday, April 27, 2011 10:28 PM
To: LIA08 Hoc
Subject: RE: Japan One Pager 2300 EDT 4-27-11.doc

thanks

From: LIA08 Hoc
Sent: Wednesday, April 27, 2011 10:19 PM
To: OST01 HOC
Subject: RE: Japan One Pager 2300 EDT 4-27-11.doc

No additional comments from LT. Looks good.

Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: OST01 HOC
Sent: Wednesday, April 27, 2011 10:07 PM
To: RST01 Hoc; LIA08 Hoc
Subject: Japan One Pager 2300 EDT 4-27-11.doc

Updates have been made, please review for final.

MSH / LIA

From: OST01 HOC
Sent: Wednesday, April 27, 2011 10:28 PM
To: RST01 Hoc
Subject: RE: Japan One Pager 2300 EDT 4-27-11.doc

great

From: RST01 Hoc
Sent: Wednesday, April 27, 2011 10:18 PM
To: OST01 HOC
Subject: RE: Japan One Pager 2300 EDT 4-27-11.doc

RST portion looks good.

From: OST01 HOC
Sent: Wednesday, April 27, 2011 10:07 PM
To: RST01 Hoc; LIA08 Hoc
Subject: Japan One Pager 2300 EDT 4-27-11.doc

Updates have been made, please review for final.

SSH/NTL

From: OST02 HOC
Sent: Wednesday, April 27, 2011 12:08 PM
To: OST01 HOC
Subject: FW: Change in NRR Point of Contact

Importance: High

From: Hiland, Patrick
Sent: Wednesday, April 27, 2011 12:08:13 PM
To: Evans, Michele; Dudek, Michael
Cc: Hasselberg, Rick; Dozier, Jerry; RST01 Hoc; RST08 Hoc; OST01 HOC;
OST02 HOC; Marshall, Jane; McDermott, Brian; Ruland, William;
Holian, Brian; Cheok, Michael; Skeen, David
Subject: Change in NRR Point of Contact
Importance: High
Auto forwarded by a Rule

Michele/Mike, your earlier email requested a primary POC (and alternate) to support the Ops Center. As you may be aware, Pat Hiland and David Skeen have been the POCs for the past couple of weeks. Effective Thursday April 28, **Brian Holian** will be NRR's primary POC, **Mike Cheok** will be the alternate POC, and **Pat Hiland** will be the person of last resort. Please pass along all requests to all three.

Thanks.

gsh/nrr

From: OST01 HOC
Sent: Wednesday, April 27, 2011 4:10 AM
To: Hoc, PMT12; RST01 Hoc; LIA08 Hoc
Subject: One-Pager

Just a reminder to have your One-Pager comments to me by 0500. Thanks!

Rebecca

ES4/ANN

From: OST01 HOC
Sent: Wednesday, April 27, 2011 4:33 AM
To: FOIA Response.hoc Resource
Subject: FW: One pager *ed*
Attachments: Japan One Pager 0700 EDT 4-27-11.doc
ed

From: Hoc, PMT12
Sent: Wednesday, April 27, 2011 4:30 AM
To: OST01 HOC
Subject: One pager *ed*

854/ANN

From: OST01 HOC
Sent: Wednesday, April 27, 2011 11:25 AM
To: Hoc, PMT12; RST01 Hoc; LIA08 Hoc; Kokajko, Lawrence
Subject: Japan One Pager for 1500 Updates
Attachments: Japan One Pager 1500 EDT 4-27-11.doc

Please have updates to me by 1330.

Thank You,

hsh/vvv

From: OST01 HOC
Sent: Wednesday, April 27, 2011 6:36 PM
To: Hoc, PMT12
Subject: FW: FYI - BLOOMBERG ARTICLE ON HIGHEST ELEVATED RADIATION READINGS AT FUKUSHIMA-DAIICHI

From: Weber, Michael
Sent: Wednesday, April 27, 2011 6:29 PM
To: Correia, Richard; OST01 HOC
Cc: Burnell, Scott; LIA08 Hoc; Merzke, Daniel; Virgilio, Martin; Casto, Chuck; Reynolds, Steven
Subject: FYI - BLOOMBERG ARTICLE ON HIGHEST ELEVATED RADIATION READINGS AT FUKUSHIMA-DAIICHI

Radiation Readings in Fukushima Reactor Rise to Highest Since Crisis Began

By Tsuyoshi Inajima and Michio Nakayama - Apr 27, 2011

Radiation readings at Japan's Fukushima Dai-Ichi station rose to the highest since an earthquake and tsunami knocked out cooling systems, impeding efforts to contain the worst nuclear crisis since Chernobyl.

Two robots sent into the reactor No. 1 building at the plant yesterday took readings as high as 1,120 millisierverts of radiation per hour, Junichi Matsumoto, a general manager at Tokyo Electric Power Co., said today. That's more than four times the annual dose permitted to nuclear workers at the stricken plant.

Radiation from the station, where four of six reactors have been damaged by explosions, has forced the evacuation of tens of thousands of people and contaminated farmland and drinking water. A plan to flood the containment vessel of reactor No. 1 with more water to speed up emergency cooling efforts announced yesterday by the utility known as Tepco may not be possible now.

"Tepco must figure out the source of high radiation," said Hironobu Unesaki, a nuclear engineering professor at Kyoto University. "If it's from contaminated water leaking from inside the reactor, Tepco's so-called water tomb may be jeopardized because flooding the containment vessel will result in more radiation in the building."

Decontaminating Robots

Tepco plans to decontaminate the two iRobot Corp. Packbot robots before sending them into a building tomorrow or later to further investigate the damage, spokesman Takeo Iwamoto said. High radiation in the reactor buildings prevents engineers from working inside them, Iwamoto said.

The cores in reactors 1, 2 and 3 and the spent fuels rods in reactor 4 have been damaged. Tepco has been using fire trucks, concrete pumps and other emergency measures for nearly seven weeks to pour millions of liters of water to cool the units after the accident.

222/460

Tepco started moving the radioactive water, which leaked to the basements and trenches, to a waste storage facility on April 19. Tepco transferred 1.89 million liters of the water from the trenches near reactor No. 2 as of 7 a.m. today, Iwamoto said. The utility plans to install a second pump after transferring 2.5 million liters.

Less Damage

Tepco shares fell 3.3 percent to 412 yen today in Tokyo. The shares are down about 80 percent since the quake and tsunami struck on March 11, leaving almost 26,000 people dead or missing.

Reactors 1 and 2 are less damaged than estimated, Tepco said in a statement today.

As much as 55 percent of the No. 1 reactor core at the Fukushima Dai-Ichi station was damaged, compared with its earlier estimate of 70 percent.

“We revised the core damage data because some readings on the containment vessel monitors were wrong,” Matsumoto said. “There was also a recording mistake. We are investigating why this happened.”

The assessment for the No. 2 reactor was cut to 25 percent from 35 percent, while that for the No. 3 unit was raised to 30 percent from 25 percent.

“It seems a reasonable estimate that three reactor cores may be damaged to a similar extent,” said Unesaki. The new estimate “doesn’t indicate lower or higher risks at the plant.”

Radiation in Tokyo’s water supply fell to undetectable levels for the first time since March 18, the capital’s public health institute said today.

The level of iodine-131 in tap water fell to zero yesterday, and cesium-134 and cesium-137 also weren’t detected, the Tokyo Metropolitan Institute of Public Health said today.

Tokyo residents were told on March 23 that the city’s water was unsafe for infants after iodine and cesium levels exceeded guidelines.

To contact the reporters on this story: Tsuyoshi Inajima in Tokyo at tinajima@bloomberg.net; Michio Nakayama in Tokyo at mnakayama4@bloomberg.net

To contact the editor responsible for this story: Amit Prakash at aprakash1@bloomberg.net

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: OST01 HOC
Sent: Wednesday, April 27, 2011 9:29 PM
To: Hoc, PMT12
Subject: Japan One Pager 2200 EDT 4-27-11.doc
Attachments: Japan One Pager 2200 EDT 4-27-11.doc

Review for final

194/2200

From: Correia, Richard
Sent: Wednesday, April 27, 2011 7:44 PM
To: OST01 HOC
Subject: tonight's one pager from the ET
Attachments: ET one pager for April 27 mid shift.docx

Plz see attached.

thx

294/ANR

April 27, 2011 20:00 EDT ~~OFFICIAL USE ONLY~~

One-Pager - Fukushima Daiichi

ET Overview and Priorities

- ET turnover: WebEOC turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are static.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.
- NRC reviewed and provided to Japan Site Team Lead the analysis of the adequacy of the TEPCO Roadmap on April 25. This document was also sent to the Consortium for comment. DOE and Naval Reactors provided comments on 4/27 (no one else had comments).
- Site Team priorities: (1) water management; (2) erratic instrumentation behavior; and (3) decay heat removal.

From: LIA08 Hoc
Sent: Wednesday, April 27, 2011 12:29 PM
To: OST01 HOC
Subject: RE: Japan One Pager for 1500 Updates

Liaison Team updated and distributed the NRC Daily Status Update at 1200 hrs EDT.

Upon request from Japan site team the travel itinerary for the next team was sent to the site team. LT coordinator worked with IP to supply the information.

On April 26, 2011, the Executive Team sent out a message stating future updates of the USNRC Status Update will be loaded to the Japan SharePoint page at <http://nsir-ops.nrc.gov/>. You may subscribe to email alerts through the SharePoint page (instructions in 2nd attachment). Several people responded stating they were unable to access SharePoint via their Blackberry. The computer folks were contacted and after investigating they said currently you cannot access the SharePoint site from your Blackberry.

Beth Reed
Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: OST01 HOC
Sent: Wednesday, April 27, 2011 11:25 AM
To: Hoc, PMT12; RST01 Hoc; LIA08 Hoc; Kokajko, Lawrence
Subject: Japan One Pager for 1500 Updates

Please have updates to me by 1330.

Thank You,

vvr/463

From: OST01 HOC
Sent: Wednesday, April 27, 2011 2:04 PM
To: LIA08 Hoc
Subject: RE: Japan One Pager for 1500 Updates

No, the document was attached to the previous e-mail. This was just to serve as a reminder to those who may not have sent me their changes yet.

From: LIA08 Hoc
Sent: Wednesday, April 27, 2011 2:02 PM
To: OST01 HOC
Subject: RE: Japan One Pager for 1500 Updates

???

Did you mean to attach a document?

Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: OST01 HOC
Sent: Wednesday, April 27, 2011 1:35 PM
To: OST01 HOC; RST01 Hoc; LIA08 Hoc; Kokajko, Lawrence
Subject: RE: Japan One Pager for 1500 Updates

From: OST01 HOC
Sent: Wednesday, April 27, 2011 11:25 AM
To: Hoc, PMT12; RST01 Hoc; LIA08 Hoc; Kokajko, Lawrence
Subject: Japan One Pager for 1500 Updates

Please have updates to me by 1330.

Thank You,

494/464

From: Hoc, PMT12
Sent: Wednesday, April 27, 2011 4:30 AM
To: OST01 HOC
Subject: One pager
Attachments: Japan One Pager 0700 EDT 4-27-11.doc

594/ANN

From: Hasselberg, Rick
Sent: Thursday, April 28, 2011 3:38 PM
To: Alter, Peter; Hiland, Patrick; Brown, Frederick; Skeen, David; Dudes, Laura; Ruland, William; Case, Michael; Uhle, Jennifer; Holian, Brian; Hackett, Edwin; Howe, Allen; Richards, Stuart; Kotzalas, Margie; Rini, Brett; Bukharin, Oleg; Thomas, Eric; Berry, Rollie; Belen, Aixa; Williams, Joseph; Boyce, Tom (RES); Flanagan, Michelle; Starefos, Joelle; Kavanagh, Kerri; Orr, Mark; Collins, Frank; Schoenebeck, Greg; Morlang, Gary; Dion, Jeanne; Sloan, Scott; McGovern, Denise; Circle, Jeff; Esmaili, Hossein; Cheok, Michael; Ward, Leonard; Laur, Steven; Salay, Michael; Schaperow, Jason; Fuller, Edward; Marksberry, Don; Lane, John; Gilmer, James; Dube, Donald; Miranda, Samuel; Arndt, Steven; Helton, Donald; Dozier, Jerry; Skarda, Raymond; Howe, Andrew; Mitman, Jeffrey; Harrison, Donnie; Chung, Donald; Koshy, Thomas; Zoulis, Antonios; Gavrilas, Mirela; Wong, See-Meng; Beasley, Benjamin; Marshall, Donald; Velazquez-Lozada, Alexander; Iyengar, Raj; Criscione, Lawrence; Caruso, John; Phan, Hanh; Brown, Eva; Brown, Michael; Norton, Charles; Cranston, Gregory; Kolb, Timothy; Vick, Lawrence; Shea, James; Summers, Robert; Gulla, Gerald; Kauffman, John; Hart, Ken; Bloom, Steven; Padovan, Mark; Williams, Donna; Isom, James; Thorp, John; Kugler, Andrew; Roggenbrodt, William; Gardocki, Stanley; Jervy, Richard; Horn, Brian; Ramadan, Liliana; Thompson, Jon; Solorio, Dave; Reeves, Rosemary; Ghosh, Tina; Arildsen, Jesse; Campbell, Stephen; Kauffman, John; Vick, Lawrence; Brown, Eva; Brown, Michael; Summers, Robert; Alter, Peter; Gulla, Gerald; Shea, James; Cranston, Gregory; Marksberry, Don; Scales, Kerby; Harrison, Donnie; Drozd, Andrzej; Karipineni, Nageswara; Cusumano, Victor; Panicker, Mathew; Karipineni, Nageswara; Arildsen, Jesse
Cc: Dozier, Jerry; Gray, Kathy; Grant, Jeffery; Thomas, Eric; RST01 Hoc; Ibarra, Jose; OST01 HOC
Subject: Updated Watchbill and Special Heads Up for this Weekend's Watch Standers
Attachments: RST Watch Bill as of 04-28-11 at 1530.pdf
Importance: High

All,

Starting tomorrow, we will drop one watch stander from the Swing (afternoon) and Mid (night) Shifts.

We will still maintain two RST members on day shift for the foreseeable future.

Possible exception --- The HQ ET will consult with the Japan Team and the Chairman on Friday to discuss the actual level of staffing needed over this weekend. So, those of you who are scheduled to stand swings or mids watches over this weekend and Day shift on Saturday or Sunday, MAY be put on an "On-call" status. Make sure that the OST (OST01.HOC) has your contact information so, if a decision is made Friday afternoon, we will know how to get a hold of you. We don't want you driving in if it's not necessary. So stand by for that. No decision has been made yet.

Thanks so much! Stand tall!!!

Rick

Rick Hasselberg
Sr. Emergency Response Coordinator

994/466
NR

NRC Reactor Safety Team
Office of Nuclear Security and Incident Response
M/S T-4A43
Office - 301-415-6417

Reactor Safety Team Watch Bill for Friday 04/29/11

<u>Date</u>	<u>Day</u>	<u>Time</u>	<u>Shift</u>	<u>Accident Analyst</u>	<u>BWR Expert</u>	<u>Comments</u>
04/28/2011	Thursday	0700 - 1500	Day	Donnie Harrison	Mike Brown	<----OK
04/28/2011	Thursday	1500 - 2300	Swing	Raj Iyengar	Andy Kugler	<----OK
04/28/2011	Thursday	2300- 0700	Midnight	Andrzej Drozd	Eva Brown	<----OK

NOTE - Starting Friday, 4/27 -- Switch to ONE Person for Swing Shift and Mid Shift
 Contact Rick Hasselberg regarding changes. File will be stored at S:HOC RST Staffing.

Reactor Safety Team Watch Bill Starting Friday 04/29/11

<u>Date</u>	<u>Day</u>	<u>Time</u>	<u>Shift</u>	<u>Watch Stander #1</u>	<u>Watch Stander #2 (Days only)</u>	<u>Comments</u>
04/29/2011	Friday	0700 - 1500	Day	Donnie Harrison	Larry Vick	<----OK
04/29/2011	Friday	1500 - 2300	Swing	Tom Koshy	N/A	<----OK
04/29/2011	Friday	2300- 0700	Midnight	Eva Brown	N/A	<----OK
04/30/2011	Saturday	0700 - 1500	Day	Raj Iyengar	Larry Vick	<----OK
04/30/2011	Saturday	1500 - 2300	Swing	See-Meng Wong	N/A	<----OK
04/30/2011	Saturday	2300- 0700	Midnight	Eva Brown	N/A	<----OK
05/01/2011	Sunday	0700 - 1500	Day	Raj Iyengar	Larry Vick	<----OK
05/01/2011	Sunday	1500 - 2300	Swing	Ray Skarda	N/A	<----OK
05/01/2011	Sunday	2300- 0700	Midnight	See-Meng Wong	N/A	<----OK
05/02/2011	Monday	0700 - 1500	Day	Don Algama	Tim Kolb	<----OK
05/02/2011	Monday	1500 - 2300	Swing	Ray Skarda	N/A	<----OK
05/02/2011	Monday	2300- 0700	Midnight	See-Meng Wong	Rao Karipineni	<----For training
05/03/2011	Tuesday	0700 - 1500	Day	Tim Kolb	Matt Panicker	<----OK
05/03/2011	Tuesday	1500 - 2300	Swing	Ray Skarda	Chuck Norton	<----Excess staff
05/03/2011	Tuesday	2300- 0700	Midnight	Rao Karipineni	N/A	<----OK
05/04/2011	Wednesday	0700 - 1500	Day	Mike Brown	Matt Panicker	<----OK
05/04/2011	Wednesday	1500 - 2300	Swing	Ray Skarda	Chuck Norton	<----Excess staff
05/04/2011	Wednesday	2300- 0700	Midnight	See-Meng Wong	N/A	<----OK
05/05/2011	Thursday	0700 - 1500	Day	Mike Brown	Matt Panicker	<----OK
05/05/2011	Thursday	1500 - 2300	Swing	Chuck Norton	N/A	<----OK
05/05/2011	Thursday	2300- 0700	Midnight	Rao Karipineni	N/A	<----OK

05/06/2011	Friday	0700 - 1500	Day	Larry Criscione	Tim Kolb	<----OK
05/06/2011	Friday	1500 - 2300	Swing	Hanh K Phan	Steven Campbell	<--Contact Steve Campbell
05/06/2011	Friday	2300-0700	Midnight	Eva Brown	N/A	<----OK
05/07/2011	Saturday	0700 - 1500	Day	Larry Criscione	Larry Vick	<----OK
05/07/2011	Saturday	1500 - 2300	Swing	Chuck Norton	Raj Iyengar & Steve Campbell	<--Contact Raj Iyengar and Steve C
05/07/2011	Saturday	2300-0700	Midnight	Eva Brown	N/A	<----OK
05/08/2011	Sunday	0700 - 1500	Day	Larry Criscione	Larry Vick	<----OK
05/08/2011	Sunday	1500 - 2300	Swing	Raj Iyengar	N/A	<----OK
05/08/2011	Sunday	2300-0700	Midnight	Eva Brown	N/A	<----OK
05/09/2011	Monday	0700 - 1500	Day	Tim Kolb	Andy Kugler	<----OK
05/09/2011	Monday	1500 - 2300	Swing	Antonios Zoulis	N/A	<----OK
05/09/2011	Monday	2300-0700	Midnight	See-Meng Wong	N/A	<----OK
05/10/2011	Tuesday	0700 - 1500	Day	Tim Kolb	Jesse Arildsen	<----OK
05/10/2011	Tuesday	1500 - 2300	Swing	Antonios Zoulis	N/A	<----OK
05/10/2011	Tuesday	2300-0700	Midnight	TBD	N/A	<----Need one
05/11/2011	Wednesday	0700 - 1500	Day	TBD	Jesse Arildsen	<----Need one more
05/11/2011	Wednesday	1500 - 2300	Swing	Antonios Zoulis	N/A	<----OK
05/11/2011	Wednesday	2300-0700	Midnight	See-Meng Wong	N/A	<----OK
05/12/2011	Thursday	0700 - 1500	Day	Peter Alter	Andy Kugler	<----OK
05/12/2011	Thursday	1500 - 2300	Swing	Antonios Zoulis	N/A	<----OK
05/12/2011	Thursday	2300-0700	Midnight	TBD	N/A	<----OK
05/13/2011	Friday	0700 - 1500	Day	Raj Iyengar	Tim Kolb	<----OK
05/13/2011	Friday	1500 - 2300	Swing	Antonios Zoulis	N/A	<----OK
05/13/2011	Friday	2300-0700	Midnight	Larry Criscione	N/A	<----OK
05/14/2011	Saturday	0700 - 1500	Day	Raj Iyengar	Larry Vick	<----OK
05/14/2011	Saturday	1500 - 2300	Swing	TBD	N/A	<----Need one
05/14/2011	Saturday	2300-0700	Midnight	Larry Criscione	N/A	<----OK
05/15/2011	Sunday	0700 - 1500	Day	See-Meng Wong	Larry Vick	<----OK
05/15/2011	Sunday	1500 - 2300	Swing	Raj Iyengar	N/A	<----OK
05/15/2011	Sunday	2300-0700	Midnight	Larry Criscione	N/A	<----OK

as of 4/28/11 1530

From: HOO Hoc
Sent: Thursday, April 28, 2011 11:17 AM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC
Subject: FW: Request
Attachments: image001.gif

From: Rakovan, Lance
Sent: Thursday, April 28, 2011 9:27 AM
To: HOO Hoc
Subject: FW: Request

I received the request below from a former NRC staffer who currently works at NIST and was hoping that someone knowledgeable could get back to him with some assistance.

Would it be possible for someone to get in touch with him?

Thanks,

Lance J Rakovan

Senior Communications Specialist
Office of the Executive Director for Operations
US Nuclear Regulatory Commission
Washington, DC 20555
(301) 415-2589
(301) 415-2700 fax
lance.rakovan@nrc.gov



please consider the environment before printing this email

From: O'Brien, Thomas [mailto:thomas.obrien@nist.gov]
Sent: Wednesday, April 20, 2011 7:35 AM
To: Rakovan, Lance
Subject: RE: Request

Hi Lance-

Can you connect me with anyone that could provide guidance (radiation safety wise) for deployment a NIST team of structural experts to look at earthquake damage in Japan.

What has NRC done briefing and otherwise for the NRC personnel sent there?

Thanks

VVV/467

Tom O'Brien M.S., CHP
Radiation Safety Officer
Chief, Radiation Safety Division
Office of Safety, Health and Environment
National Institute of Standards & Technology
100 Bureau Drive, Mail Stop 1731
Gaithersburg, MD 20899-8462

301-975-5800 Voice
301-975-4893 FAX

Radiation Safety Website: http://safety.nist.gov/radiation_safety/

From: OST01 HOC
Sent: Thursday, April 28, 2011 3:18 PM
To: Mroz (Sahm), Sara; Dudek, Michael
Cc: Foggie, Kirk
Subject: RE: Questions about Japanese

Sara,

Per below, this action needed to be done by noon today. Therefore, we will not be tasking this to anyone.

EST Coordinator

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

From: Mroz (Sahm), Sara
Sent: Thursday, April 28, 2011 2:28 PM
To: Dudek, Michael; OST01 HOC
Cc: Foggie, Kirk
Subject: FW: Questions about Japanese

Here's another tasking.

I've been trying to track down this info today. Kirk Foggie is helping me with it.

-Sara

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

From: Anderson, Joseph
Sent: Thursday, April 28, 2011 12:52 PM
To: Mroz (Sahm), Sara
Subject: Fw: Questions about Japanese

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

From: Greten, Timothy <Timothy.Greten@dhs.gov>
To: Anderson, Joseph
Cc: Kahler, Robert; Quinn, Vanessa <Vanessa.Quinn@fema.gov>; Sheffield, Bonnie <Bonnie.Sheffield@dhs.gov>; Wierman, Kenneth <kenneth.wierman@dhs.gov>
Sent: Thu Apr 28 11:53:24 2011
Subject: Questions about Japanese

Joe-

Good afternoon!

Ed Tanzman is getting ready to testify to the Illinois State legislature in the coming days about nuclear preparedness issues. He is working on turning this around soonest---are you the right person to help find these answers? I'm going to ask Bonnie to keep on top of this from our end, but please feel free to respond to Ed directly--thanks in advance for your help. It was good to see you yesterday!

894/NN

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

From: Tanzman, Edward A. [mailto:tanzman@anl.gov]
Sent: Wednesday, April 27, 2011 11:22 PM
To: Greten, Timothy (Timothy.Greten@dhs.gov)
Subject: Questions

Thanks for taking the time to help me with my testimony. I have a couple of questions whose answers might help. Unfortunately, I need them by about noon CDT tomorrow (Thursday) because my statement has to be transmitted in mid-afternoon. Here are the questions:

1) Can I get confirmation that radiological emergency planning zone size in Japan is from 8-10 km from reactor sites and that only a single zone exists there? Here are links to a Japanese government publication (Government of Japan, Convention on Nuclear Safety National Report of Japan for the Third Review Meeting (provisional translation), Table 1, p. A3-89 (2004) (available at http://www-ns.iaea.org/downloads/ni/safety_convention/japan_report_041227.PDF) and an independent article (Organisation for Economic Co-operation and Development Nuclear Energy Agency, Short-Term Countermeasures in Case of a Nuclear or Radiological Emergency (ISBN 92-64-02140-X), p. 19 (2003) (available at <http://www.oecd-nea.org/rp/reports/2003/nea3600-short-term.pdf>)) that both report this zone definition. However, the distance is so much smaller than the zone sizes in the United States that it seems wrong. The United States zones are 314 square miles for plume EPZs and 7,850 miles for ingestion EPZs, whereas the Japanese EPZ is 121 square miles, and no ingestion zone pathway EPZ appears to exist at all.

2) Can I get confirmation that the nuclear utilities in Japan write the offsite radiological emergency preparedness plans, rather than the prefecture and municipal governments (analogous to state and local governments in the United States)? Article 7(1) on p. 5 of the attached Japanese Act on Special Measures Concerning Nuclear Emergency Preparedness states that:
"A nuclear operator shall, pursuant to the provisions of an ordinance of the competent ministry, prepare a nuclear operator emergency action plan with regard to its measures to prevent nuclear emergency, emergency response measures, and measures for restoration from nuclear emergency and other duties that are necessary for preventing the occurrence and progression (expansion) of a nuclear disaster and for promoting nuclear disaster recovery efforts, with respect to each of its nuclear sites, and review its nuclear operator emergency action plan every year and revise it if revision is found to be necessary."
This Act refers extensively to the Basic Act on Disaster Control Measures, but that one does not seem to be available in English. If confirmation is not possible, an English translation of the Basic Act, if available, would allow me to draw my own conclusions.

Thanks in advance for whatever you can do. If anybody wants to call me, I will be available on Thursday at (773) 348-3257.

Edward Tanzman
Argonne National Laboratory
9700 South Cass Avenue
DIS-221
Lemont, IL 60439-4844
(630) 252-3263 (voice)
(630) 252-5327 (fax)
tanzman@anl.gov (e-mail)

From: OST01 HOC
Sent: Thursday, April 28, 2011 2:45 PM
To: Mroz (Sahm), Sara
Subject: RE: Questions about Japanese

What is your phone number?

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

From: Mroz (Sahm), Sara
Sent: Thursday, April 28, 2011 2:28 PM
To: Dudek, Michael; OST01 HOC
Cc: Foggie, Kirk
Subject: FW: Questions about Japanese

Here's another tasking.

I've been trying to track down this info today. Kirk Foggie is helping me with it.

-Sara

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

From: Anderson, Joseph
Sent: Thursday, April 28, 2011 12:52 PM
To: Mroz (Sahm), Sara
Subject: Fw: Questions about Japanese

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

From: Greten, Timothy <Timothy.Greten@dhs.gov>
To: Anderson, Joseph
Cc: Kahler, Robert; Quinn, Vanessa <Vanessa.Quinn@fema.gov>; Sheffield, Bonnie <Bonnie.Sheffield@dhs.gov>; Wierman, Kenneth <kenneth.wierman@dhs.gov>
Sent: Thu Apr 28 11:53:24 2011
Subject: Questions about Japanese

Joe-

Good afternoon!

Ed Tanzman is getting ready to testify to the Illinois State legislature in the coming days about nuclear preparedness issues. He is working on turning this around soonest---are you the right person to help find these answers? I'm going to ask Bonnie to keep on top of this from our end, but please feel free to respond to Ed directly--thanks in advance for your help. It was good to see you yesterday!

VV V/469

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

From: Tanzman, Edward A. [mailto:tanzman@anl.gov]
Sent: Wednesday, April 27, 2011 11:22 PM

To: Greten, Timothy (Timothy.Greten@dhs.gov)
Subject: Questions

Thanks for taking the time to help me with my testimony. I have a couple of questions whose answers might help. Unfortunately, I need them by about noon CDT tomorrow (Thursday) because my statement has to be transmitted in mid-afternoon. Here are the questions:

1) Can I get confirmation that radiological emergency planning zone size in Japan is from 8-10 km from reactor sites and that only a single zone exists there? Here are links to a Japanese government publication (Government of Japan, Convention on Nuclear Safety National Report of Japan for the Third Review Meeting (provisional translation), Table 1, p. A3-89 (2004) (available at http://www-ns.iaea.org/downloads/ni/safety_convention/japan_report_041227.PDF)) and an independent article (Organisation for Economic Co-operation and Development Nuclear Energy Agency, Short-Term Countermeasures in Case of a Nuclear or Radiological Emergency (ISBN 92-64-02140-X), p. 19 (2003) (available at <http://www.oecd-nea.org/rp/reports/2003/nea3600-short-term.pdf>)) that both report this zone definition. However, the distance is so much smaller than the zone sizes in the United States that it seems wrong. The United States zones are 314 square miles for plume EPZs and 7,850 miles for ingestion EPZs, whereas the Japanese EPZ is 121 square miles, and no ingestion zone pathway EPZ appears to exist at all.

2) Can I get confirmation that the nuclear utilities in Japan write the offsite radiological emergency preparedness plans, rather than the prefecture and municipal governments (analogous to state and local governments in the United States)? Article 7(1) on p. 5 of the attached Japanese Act on Special Measures Concerning Nuclear Emergency Preparedness states that:
"A nuclear operator shall, pursuant to the provisions of an ordinance of the competent ministry, prepare a nuclear operator emergency action plan with regard to its measures to prevent nuclear emergency, emergency response measures, and measures for restoration from nuclear emergency and other duties that are necessary for preventing the occurrence and progression (expansion) of a nuclear disaster and for promoting nuclear disaster recovery efforts, with respect to each of its nuclear sites, and review its nuclear operator emergency action plan every year and revise it if revision is found to be necessary."
This Act refers extensively to the Basic Act on Disaster Control Measures, but that one does not seem to be available in English. If confirmation is not possible, an English translation of the Basic Act, if available, would allow me to draw my own conclusions.

Thanks in advance for whatever you can do. If anybody wants to call me, I will be available on Thursday at (773) 348-3257.

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From: Tracy, Glenn
Sent: Thursday, April 28, 2011 6:26 AM
To: OST01 HOC
Subject: draft Japan One Pager 0700 EDT 4-28-11.docx
Attachments: draft Japan One Pager 0700 EDT 4-28-11.docx

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