Wagner, Katie

From: Wagner, Katie
Sent: Tuesday, March 22, 2011 4:04 PM
To: Santiago, Patricia
Subject: RE: House E&C request

Who is the staff contact for this? R. Chang?

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 3:21 PM
To: Santiago, Patricia; Chang, Richard
Cc: Wagner, Katie
Subject: Fw: House E&C request

I suggest we send the one we sent to GRS.

From: Sheron, Brian
To: Dacus, Eugene
Cc: Gibson, Kathy; Uhle, Jennifer; Weber, Michael
Sent: Tue Mar 22 15:17:21 2011
Subject: RE: House E&C request

Probably not. We need to mark it "DRAFT." Call Kathy Gibson. Her staff can get it to you.

From: Dacus, Eugene
Sent: Tuesday, March 22, 2011 3:09 PM
To: Sheron, Brian
Cc: Powell, Amy; Lund, Louise
Subject: RE: House E&C request

Thanks Brian. Is there a reason we cannot provide the information to Congress?

From: Sheron, Brian
Sent: Tuesday, March 22, 2011 2:58 PM
To: Dacus, Eugene
Cc: Powell, Amy; Lund, Louise
Subject: RE: House E&C request

During the briefing I gave to House staffers last week, I referred to the SOARCA analysis of Peach Bottom. I did not mention relicensing or license renewal.

The SOARCA results are not yet publicly available.

From: Dacus, Eugene
Sent: Tuesday, March 22, 2011 2:48 PM
To: Sheron, Brian
Cc: Powell, Amy; Lund, Louise
Subject: FW: House E&C request

Brian,

nnn/190

Help. One of the staffers you briefed last week has asked for some documentation. See trail below.

Grnr

From: Lund, Louise
Sent: Tuesday, March 22, 2011 10:14 AM
To: Dacus, Eugene
Cc: Galloway, Melanie; Holian, Brian
Subject: RE: House E&C request

Gene,

Brian H. brings up a good point. You may want to close the loop with Brian Sheron to see if he was referring to the SAMA reviews or the SORCA.

Louise

From: Holian, Brian
Sent: Tuesday, March 22, 2011 9:59 AM
To: Dacus, Eugene; Lund, Louise
Cc: Galloway, Melanie
Subject: Re: House E&C request

I believe sheron is talking about SORCA reviews. These were done independent of license renewal. PB was one plant looked at in depth

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From: Dacus, Eugene
To: Lund, Louise
Cc: Holian, Brian
Sent: Mon Mar 21 16:49:47 2011
Subject: RE: House E&C request

Thanks Louise. Really appreciate your help on this. You always come through for us.

From: Lund, Louise
Sent: Monday, March 21, 2011 4:47 PM
To: Dacus, Eugene
Cc: Holian, Brian
Subject: RE: House E&C request

Gene,

I talked with Sam Lee (DRA), and we both think Brian was referring to the SAMA (Severe Accident Mitigation Alternatives) analysis in the plant-specific supplement to the Environmental Impact Statement that DLR issues as part of the license renewal process. It is publicly available, and contained in Section 5 of the following link on our web page to the Supplemental EIS:

http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1437/supplement10/

Louise

From: Dacus, Eugene
Sent: Monday, March 21, 2011 4:17 PM

To: Lund, Louise
Subject: FW: House E&C request

Louise,

I hate to bug you, but I don't have a contact for PB. The e-mail below is from a staffer on the House Energy and Commerce Committee. He's asking for data relating to the Peach Bottom relicensing.

From: Baran, Jeff [mailto:Jeff.Baran@mail.house.gov]
Sent: Friday, March 18, 2011 4:56 PM
To: Powell, Amy
Cc: Dotson, Greg; Cassady, Alison
Subject: Follow-up

Hi Amy,

We had a very informative discussion with Brian Sheron earlier. Thanks for helping to set that up. He mentioned that, for the Peach Bottom license renewals, NRC ran several scenarios as part of a risk assessment to calculate the consequences of certain severe events. We're interested in reviewing the documentation regarding these scenarios. If the document(s) is/are on ADAMS and you can point me in the right direction, that'd be great. If it's not publicly available, we'd still be very interested in getting copies of the documents next week.

Feel free to call if you have any questions.

Thanks,

Jeff

From:	Sheron, Brian
To:	Rini, Brett; Case, Michael; Coe, Doug; Correia, Richard; Gibson, Kathy; Richards, Stuart; Scott, Michael; Uhle, Jennifer; Valentin, Andrea
Subject:	FW: SRM - COMGBJ-11-0002 - NRC Actions Following the Events in Japan
Date:	Wednesday, March 23, 2011 4:57:37 PM
Attachments:	SRM-CmGBJ11-0002.docx

From: Flory, Shirley
Sent: Wednesday, March 23, 2011 4:44 PM
To: Sheron, Brian; Uhle, Jennifer
Subject: FW: SRM - COMGBJ-11-0002 - NRC Actions Following the Events in Japan

From: RidsEdoDraftSrmVote Resource
Sent: Wednesday, March 23, 2011 4:41 PM
To: Ash, Darren; Borchardt, Bill; Boyd, Lena; Buckley, Patricia; Clarke, Deanna; Cohen, Miriam; EDO_Staff_Assistants; Flory, Shirley; Fry, Jeannie; Garland, Stephanie; Johnson, Michael; Mamish, Nader; Matakas, Gina; Miles, Patricia; Miller, Charles; Owen, Lucy; Riddick, Nicole; RidsAdmMailCenter Resource; RidsCsoMailCenter Resource; RidsFsmeOd Resource; RidsHrMailCenter Resource; RidsNmssOd Resource; RidsNroMailCenter Resource; RidsNrrOd Resource; RidsNsirMailCenter Resource; RidsOeMailCenter Resource; RidsOiMailCenter Resource; RidsOIS Resource; RidsResOd Resource; RidsRgn1MailCenter Resource; RidsRgn2MailCenter Resource; RidsRgn3MailCenter Resource; RidsRgn4MailCenter Resource; RidsSbcrMailCenter Resource; Thomas, Loretta; Virgilio, Martin; Walker, Dwight; Weber, Michael
Subject: FW: SRM - COMGBJ-11-0002 - NRC Actions Following the Events in Japan

From: Lewis, Antoinette
Sent: Wednesday, March 23, 2011 4:34 PM
To: Vietti-Cook, Annette; Baggett, Steven; Bates, Andrew; Batkin, Joshua; Blake, Kathleen; Bollwerk, Paul; Bozin, Sunny; Bradford, Anna; Brown, Theron; Bubar, Patrice; Bupp, Margaret; Burns, Stephen; Chairman Temp; Clark, Lisa; Coggins, Angela; Cordes, John; Crawford, Carrie; Cutchin, James; Davis, Roger; Fopma, Melody; Franovich, Mike; Gibbs, Catina; Hackett, Edwin; Hart, Ken; Harves, Carolyn; Hawkens, Roy; Hayden, Elizabeth; Henderson, Karen; Herr, Linda; Hipschman, Thomas; Hudson, Sharon; KLS Temp; Kock, Andrea; Lepre, Janet; Loyd, Susan; Mamish, Nader; Marshall, Michael; Mitchell, Reggie; Monninger, John; Moore, Scott; OCA Distribution; OPA Resource; Orders, William; Pace, Patti; Poole, Brooke; Rabideau, Peter; Reddick, Darani; Laufer, Richard; RidsEdoDraftSrmVote Resource; RidsOcaaMailCenter Resource; RidsOcfoMailCenter Resource; RidsOgcMailCenter Resource; RidsOigMailCenter Resource; RidsOipMailCenter Resource; Bavol, Rochelle; Rothschild, Trip; Joosten, Sandy; Savoy, Carmel; Sharkey, Jeffry; Shea, Pamela; Snodderly, Michael; Sosa, Belkys; Speiser, Herald; Svinicki, Kristine; Temp, WCO; Temp, WDM; Thoma, John; Warren, Roberta; Zorn, Jason; Temp, GEA; Apostolakis, George; Tadesse, Rebecca; Butler, Gail; Perry, Jamila; Doane, Margaret; Castleman, Patrick; Montes, David; Dhir, Neha; Adler, James; Jimenez, Patricia; Muessle, Mary; Nieh, Ho; Ostendorff, William; Warnick, Greg; Pearson, Laura; Lui, Christiana; Lisann, Elizabeth
Cc: Wright, Darlene; Lewis, Antoinette
Subject: SRM - COMGBJ-11-0002 - NRC Actions Following the Events in Japan

(ML110820875)

In an effort to keep the NRC staff informed of Commission decisions in a timely manner, attached for your information are the Staff Requirements Memoranda (SRMs) signed by the Secretary on March 23, 2011. Please make additional distribution to interested staff members in your office.

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If you have any questions, please give me a call on 415-1969.

Attachment SRM-CmGBJ11-0002.docx (21118 Bytes) cannot be converted to PDF format.

From: OST01 HOC
Sent: Thursday, April 21, 2011 1:34 PM
To: FOIA Response.hoc Resource
Subject: FW: Japan sharepoint site

From: Zimmerman, Roy
Sent: Thursday, April 21, 2011 12:42 PM
To: OST01 HOC; Jackson, Karen; Kowalczik, Jeffrey
Subject: Japan sharepoint site

This is what I intend to send out.....but interested in your comments first

As we discussed briefly during this morning's briefing, we would like to use a recently developed sharepoint 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 you will find it useful.

NRR/192

From: OST01 HOC
Sent: Wednesday, March 23, 2011 5:30 PM
To: RST01 Hoc; RST01B Hoc; Hasselberg, Rick
Subject: FW: NRC Operations Center Watchbill for Japan Event

FYI and consideration as you fill in next week's watchbill.

Clyde Ragland
EST Coordinator

From: Velazquez-Lozada, Alexander
Sent: Wednesday, March 23, 2011 4:34 PM
To: OST02 HOC
Cc: Gibson, Kathy; Hoxie, Chris
Subject: RE: NRC Operations Center Watchbill for Japan Event

Good morning,

I volunteer to fill any of the positions from 3pm to 11pm or 11pm to 7am from March-25 to April-1 as a BWR ECCS expert. If it is already filled you can put as a back-up.

-Alex

Alexander Velazquez-Lozada, MSME, P.E.
Reactor Systems Engineer, RES/DSA/CDB
United States Nuclear Regulatory Commission
Location: CSB 3-A09
Phone: 301-251-7509
M/S: CSB 03A07M
alexander.velazquez-lozada@nrc.gov
Share Point

From: Gibson, Kathy
Sent: Saturday, March 19, 2011 4:18 PM
To: Gavrilas, Mirela; RES_DSA
Subject: Fw: NRC Operations Center Watchbill for Japan Event

Operations Center is looking for support. Please see the attached watchbill and if there is a position you can fill, let the ops center (and your supervisor) know.

Thanks!

From: OST02 HOC
To: Abrams, Charlotte; Adams, John; Afshar-Tous, Mugeh; Alemu, Bezakulu; Alter, Peter; Anderson, James; Ashkeboussi, Nima; Athey, George <george.athey@nrc.gov>; Baker, Stephen; Bergman, Thomas; Berry, Rollie; Bhachu, Ujagar; Bloom, Steven; Blount, Tom; Boger, Bruce; Borchardt, Bill; Bower, Anthony; Bowman, Gregory; Brandon, Lou; Brandt, Philip; Brock, Kathryn; Brown, Cris; Brown, David; Brown, Eva; Brown, Frederick; Brown, Michael; Bukharin, Oleg; Camper, Larry; Carpenter, Cynthia; Carter, Mary; Case, Michael; Casto, Greg; Cecere, Bethany; Cervera, Margaret;

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Chazell, Russell; Chen, Yen-Ju; Cheok, Michael; Chokshi, Nilesh; Chowdhury, Prosanta; Circle, Jeff; Clement, Richard; Clinton, Rebecca; Coggins, Anita <anita.coggins@nrc.gov>; Collins, Frank; Cool, Donald; Costa, Richard; Crutchley, Mary Glenn; Cruz, Zahira; Cutaiar, Robert <robert.cutaiar@nrc.gov>; Dacus, Eugene; DeCicco, Joseph; Decker, David; Dembek, Stephen; Devlin, Stephanie; Doane, Margaret; Dorman, Dan; Dorsey, Cynthia; Dozier, Jerry; Droggitis, Spiros; Dube, Donald; Dudes, Laura; Eads, Johnny; Emche, Danielle; English, Lance; Erlanger, Craig; Esmaili, Hossein; Figueroa, Roberto; Fiske, Jonathan; Floyd, Daphene; Foggie, Kirk; Foster, Jack; Fragoyannis, Nancy; Franovich, Rani; Frazier, Alan; Freshwater, David <david.freshwater@nrc.gov>; Fuller, Edward; Galletta, Thomas; Gambone, Kimberly; Gibson, Kathy; Giitter, Joseph; Gilmer, James; Gordon, Dennis; Gott, William; Grant, Jeffery; Grimes, Kelly; Grobe, Jack; Gulla, Gerald; Hale, Jerry; Hardesty, Duane; Harris, Tim; Hart, Ken; Hart, Michelle; Harvey, Brad; Hasselberg, Rick; Henderson, Karen; Hiland, Patrick; Holahan, Patricia; Holahan, Vincent; Holian, Brian; Howard, Tabitha; Huffert, Anthony; Hurd, Sapna; Huyck, Doug; Isom, James; Jackson, Karen; Jacobson, Jeffrey; Jessie, Janelle; Johnson, Michael; Jolicoeur, John; Jones, Andrea; Jones, Cynthia; Kahler, Carolyn; Kammerer, Annie; Karas, Rebecca; Khan, Omar; Kolb, Timothy; Kotzalas, Margie; Kowalczik, Jeffrey; Kratchman, Jessica; Kugler, Andrew; Lamb, Christopher; Lane, John; Larson, Emily; Laur, Steven; LaVie, Steve; Lewis, Robert; Li, Yong; Lising, Jason; Lombard, Mark; Lubinski, John; Lui, Christiana; Lynch, Jeffery; Mamish, Nader; Manahan, Michelle; Marksberry, Don; Marshall, Jane; Masao, Nagai <nagai.masao@nrc.gov>; Maupin, Cardilia <cardilia.maupin@nrc.gov>; Mayros, Lauren; Mazaika, Michael; McConnell, Keith; McCoppin, Michael; McDermott, Brian; McGinty, Tim; McGovern, Denise; McMurtray, Anthony; Merritt, Christina; Meyer, Karen; Miller, Charles; Miller, Chris; Milligan, Patricia; Mohseni, Aby; Moore, Scott; Morlang, Gary; Morris, Scott; Mroz (Sahm), Sara; Munson, Clifford; Murray, Charles; Nerret, Amanda; Nguyen, Carolyn <carolyn.nguyen@nrc.gov>; Norris, Michael; Norton, Charles; Ordaz, Vonna; Owens, Janice; Padovan, Mark; Parillo, John; Patel, Jay; Perin, Vanice; Pope, Tia; Powell, Amy; Purdy, Gary; Quinlan, Kevin; Ragland, Robert; Ragland, Randolph; Ralph, Melissa; Ramsey, Jack; Reed, Elizabeth; Reed, Sara <sara.reed@nrc.gov>; Reed, Wendy; Reis, Terrence; Resner, Mark; Riley (OCA), Timothy; Riner, Kelly; Rini, Brett; Robinson, Edward; Rodriguez-Luccioni, Hector; Rosenberg, Stacey; Ross-Lee, MaryJane; Roundtree, Amy; Ruland, William; Salay, Michael; Salter, Susan; Salus, Amy; Sanfilippo, Nathan; 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; Skeen, David; Sloan, Scott; Smiroldo, Elizabeth; Smith, Brooke; Smith, Theodore; Stahl, Eric; Stang, Annette; Steger (Tucci), Christine; Stieve, Alice; Stone, Rebecca; Stransky, Robert; Sturz, Fritz; Sullivan, Randy; Sun, Casper; Tappert, John; Temple, Jeffrey; Thaggard, Mark; Thomas, Eric; Thorp, John; Tobin, Jennifer; Trefethan, Jean <jean.trefethan@nrc.gov>; Tschiltz, Michael; Turtil, Richard; Uhle, Jennifer; Valencia, Sandra; Vaughn, James; Vick, Lawrence; Virgilio, Martin; Virgilio, Rosetta; Ward, Leonard; 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, Roy
Sent: Sat Mar 19 06:23:06 2011
Subject: NRC Operations Center Watchbill for Japan Event

Good morning,

Attached is the schedule for Ops Center Watchbill March 18-26 and March 26 – April 1. You will be receiving updated copies as the schedule continues to change. We do recognize that some positions do not have full staffing. We are looking to fill those. If you know anyone who would want to fill them, have them contact OPS Center at 816-5100.

Thanks

From: Evans, Michele
To: Holahan, Patricia; Correia, Richard; Rheaume, Cynthia; McDermott, Brian
Subject: FW: Near Term Review
Date: Wednesday, March 23, 2011 8:20:50 AM

For information. Doesn't impact NSIR directly but taking people off of shift has a trickledown effect.

From: Virgilio, Martin
Sent: Wednesday, March 23, 2011 3:05 AM
To: nucfed@aol.com; Miller, Charles; Holahan, Gary; Grobe, Jack; Sanfilippo, Nathan
Cc: Borchardt, Bill; Weber, Michael; Muessle, Mary; Andersen, James; Ash, Darren
Subject: Near Term Review

All

Let me start by thanking you for agreeing to participate on the Task Group that will be chartered to identify near term actions in response to the ongoing accident at Fukushima Diiachi reactors.

Yesterday, I spoke with Bill Borchardt and Charlie Miller about this assignment. Bill expects that you will be working on this project full time at least until the 30 day quick look report is developed and the Commission is briefed on its contents.

While the specifics of the actions are still being finalized through the SRM development, it is likely that we will be asked to consider whether NRC should take actions to improve NRC and licensee programs to enhance safety; and, identify specific topics/areas for longer term assessment.

I have suggested to Charlie that we have a kick off meeting on Thursday morning. This would be an opportunity to align on the charter of the group, expected products and methods for conducting the review and developing recommendations.

One item that I would like to see us address on Thursday is internal stakeholder involvement. We may want to have a session early next week with the folks who have been serving on the site team and in the ops center to gather their insights.

I have periodically pulsed Chuck Casto about areas that we should consider as part of our near term lessons learned. Chuck has suggested we look at B5b and in particular the location of the equipment, environmental conditions where actions will have be taken, and whether in there will be sufficient number of licensee staff needed to execute the recovery strategies. He also suggested we consider multiple simultaneous accidents at a single site, NPPs where fire coping strategies include an induced SBO, and that we look at our SBO requirements.

Marty

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From: Temple, Jeffrey
To: Correia, Richard
Subject: RE: Heads up: Japan evacuations
Date: Thursday, March 24, 2011 1:13:09 PM

Thanks Rich. I circulated this around yesterday to the teams....Jeff

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From: Correia, Richard
Sent: Wednesday, March 23, 2011 4:38 PM
To: Temple, Jeffrey
Subject: FW: Heads up: Japan evacuations

FYI

From: Sheron, Brian
Sent: Wednesday, March 23, 2011 2:32 PM
To: Case, Michael; Coe, Doug; Correia, Richard; Gibson, Kathy; Richards, Stuart; Scott, Michael; Uhle, Jennifer; Valentin, Andrea
Subject: FW: Heads up: Japan evacuations

From: Leeds, Eric
Sent: Wednesday, March 23, 2011 2:24 PM
To: Brenner, Eliot; Hayden, Elizabeth
Cc: Borchardt, Bill; Virgilio, Martin; Weber, Michael; Johnson, Michael; Holahan, Gary; Wiggins, Jim; Evans, Michele; Miller, Charles; Sheron, Brian; Uhle, Jennifer; Doane, Margaret; Mamish, Nader; Grobe, Jack; Boger, Bruce; Ruland, William; Dean, Bill; McCree, Victor; Pederson, Cynthia; Howell, Art; Batkin, Joshua
Subject: Heads up: Japan evacuations

FYI - I asked our contact at the NEA for info on other countries evacuating around Fukushima. Some other members of the international community followed the US recommendation. Some did other things See below and attached.

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

From: Diane.JACKSON@oecd.org [mailto:Diane.JACKSON@oecd.org]
Sent: Wednesday, March 23, 2011 1:22 PM
To: Leeds, Eric
Subject: Your question about Japan evacuations

Eric –

I did some web searching. Canada, South Korea, UK and Australia stated an evacuation distance of 80 km/ 50 miles.

nnn/195

Many countries, such as France, urged their citizens in the north-east Japan and Tokyo to evacuate. In most reports, most countries do not state the reason is nuclear and they do not give a defined distance.

Attached are excerpts from reports with web sources.

Hope that helps,
Diane

From:	RidsNsirMailCenter Resource
To:	Abraham, Susan; Albert, Ronald; Anderson, Joseph; Barss, Dan; Biddison, John; Brown, Cris; Buckley, Michael; Caldwell, Robert; Correia, Richard; Costello, Ralph; Cubellis, Louis; Diec, David; Dodmead, James; Erlanger, Craig; Evans, Michele; Giantelli, Adelaide; Gott, William; Grant, Jeffery; Harris, Tim; Holahan, Patricia; Howell, Art; Huyck, Doug; Jones, Cynthia; Kahler, Robert; Kohen, Marshall; Layton, Michael; Masse, Todd; McDermott, Brian; Miller, Chris; Milligan, Patricia; Morey, Dennis; Morris, Scott; Norris, Michael; Peduzzi, Francis; Rayland, Andrew; Rheaume, Cynthia; Stapleton, Bernard; Stransky, Robert; VandenBerghe, John; Wastler, Sandra; Way, Ralph; Wiggins, Jim; Williams, Evelyn; Williams, Kevin; Wray, Roxanne; Young, Francis
Subject:	FW: SRM - COMGBJ-11-0002 - NRC Actions Following the Events in Japan
Date:	Thursday, March 24, 2011 8:53:43 AM
Attachments:	SRM-CmGBJ11-0002.docx

Subject: SRM - COMGBJ-11-0002 - NRC Actions Following the Events in Japan

(ML110820875)

In an effort to keep the NRC staff informed of Commission decisions in a timely manner, attached for your information are the Staff Requirements Memoranda (SRMs) signed by the Secretary on March 23, 2011. Please make additional distribution to interested staff members in your office.

If you have any questions, please give me a call on 415-1969.

nnn/196

Attachment SRM-CmGBJ11-0002_1.docx (21118 Bytes) cannot be converted to PDF format.

From: OST01 HOC
Sent: Thursday, March 24, 2011 8:10 PM
To: Hoc, PMT12
Subject: FW: Update of forecast wind conditions for Fukushima Daiichi 1
Attachments: WRF_Fukushima_NPP_Forecast_2011-03-24_18Z (5km).xlsx

-----Original Message-----
From: HOO Hoc
Sent: Thursday, March 24, 2011 8:06 PM
To: LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Subject: FW: Update of forecast wind conditions for Fukushima Daiichi 1

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@llnl.gov]
Sent: Thursday, March 24, 2011 8:03 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
Cc: narac@llnl.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: Period of onshore wind during forecast period.

Fukushima Power Plant Forecast Summary:

25 March 00:00 Z to 25 March 14:00 Z: Southeasterly (onshore) to Southerly winds at 4 to 7 m/s. Periods of light precipitation possible.

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25 March 14:00 Z to end of forecast period: Northwesterly winds between 3 and 15 m/s. Strongest winds will occur between 00:00 and 09:00 Z on 25 March.

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	3	25	0	3	89	C	4	0
2011	3	25	1	2.9	112	C	4	0
2011	3	25	2	3.8	127	C	5	0
2011	3	25	3	5.2	139	C	5	0
2011	3	25	4	6.4	146	C	6	0
2011	3	25	5	7.1	158	C	6	0
2011	3	25	6	7.6	157	C	6	0
2011	3	25	7	6.4	152	C	6	0
2011	3	25	8	5.4	153	D	4	0
2011	3	25	9	8.4	164	D	5	0.01
2011	3	25	10	5.9	152	D	4	0
2011	3	25	11	4.2	162	D	4	0.02
2011	3	25	12	3.5	176	D	4	0.02
2011	3	25	13	1.7	216	E	4	0.05
2011	3	25	14	1.9	150	D	4	0.05
2011	3	25	15	1.6	24	D	3	0.04
2011	3	25	16	4.5	345	C	2	0.04
2011	3	25	17	4.8	343	D	1	0
2011	3	25	18	5.2	340	D	1	0
2011	3	25	19	5.6	314	D	1	0
2011	3	25	20	5.2	318	D	1	0
2011	3	25	21	7	311	D	1	0
2011	3	25	22	12.1	307	D	2	0
2011	3	25	23	13.4	308	D	2	0
2011	3	26	0	15.2	313	D	4	0
2011	3	26	1	13.8	310	C	4	0
2011	3	26	2	13.5	315	C	5	0
2011	3	26	3	12.2	320	C	5	0
2011	3	26	4	12.2	327	C	5	0
2011	3	26	5	13.6	322	C	5	0
2011	3	26	6	14.2	322	C	4	0
2011	3	26	7	14.1	316	D	2	0
2011	3	26	8	12.3	311	D	1	0
2011	3	26	9	10.9	319	D	0	0
2011	3	26	10	7.5	318	D	0	0
2011	3	26	11	5.3	300	D	-1	0
2011	3	26	12	3.9	289	D	-1	0
2011	3	26	13	3.6	295	D	-1	0

2011	3	26	14	3.4	283	E	-1	0
2011	3	26	15	3.3	299	E	-2	0
2011	3	26	16	2.1	307	F	-2	0
2011	3	26	17	2.4	314	E	-2	0
2011	3	26	18	2	297	F	-2	0

Kauffman, John

From: Anderson, Brian
Sent: Thursday, March 24, 2011 11:05 AM
To: Hiland, Patrick
Cc: Kauffman, John; Skeen, David; Manoly, Kamal
Subject: RE: REQUEST for review of draft talking points on GI-199

Thank you. My apologies for any overlaps with questions that Scott had already asked. I understand that a generic letter is the next step. I think that with you sent to Scott last night, I now have everything I need.

Thanks again,
Brian

From: Hiland, Patrick
Sent: Thursday, March 24, 2011 10:59 AM
To: Anderson, Brian
Cc: Kauffman, John; Skeen, David; Manoly, Kamal
Subject: RE: REQUEST for review of draft talking points on GI-199

Brian, not sure what you are looking for. GI 199 is a work "in process. " While the 3rd phase is complete with issuance of the safety/risk assessment report, the issue is in the regulatory response phase. We have concluded that a generic letter is an appropriate vehicle and are crafting the questions we would like affected plants to answer. Our communication plan is in ADAMS at ML081850477. Also, I'll forward you what I sent to Scott Burnell last night.

From: Anderson, Brian
Sent: Thursday, March 24, 2011 8:17 AM
To: Hiland, Patrick; Skeen, David; Manoly, Kamal
Cc: Kauffman, John
Subject: RE: REQUEST for review of draft talking points on GI-199
Importance: High

Kamal, Pat, Dave –

I'm helping OPA develop a set of talking points for GI-199. I was hoping you could tell me about any related TIs – have they been issued? If not, is there an estimated date? What's the TI scope?

I'm only developing a high-level summary, so whatever you can share would be very helpful.

Thanks,
Brian

From: Kauffman, John
Sent: Thursday, March 24, 2011 7:46 AM
To: Anderson, Brian
Cc: Beasley, Benjamin
Subject: RE: REQUEST for review of draft talking points on GI-199

Brian,

7th bullet: May also want to note that we had a public meeting to communicate the issue and solicit industry cooperation.

nnn/198

Kauffman, John

From: Kauffman, John
Sent: Thursday, March 24, 2011 10:54 AM
To: Anderson, Brian
Cc: Beasley, Benjamin
Subject: RE: REQUEST for review of draft talking points on GI-199

Brian,

I will try to address the comments in red.

In December 2007, NRC staff completed a limited scope screening analysis [explain what this analysis was and the reason for doing it] .
Background--The Generic Issues Program underwent significant changes in the 2007-2009 time (see SECY 07-022). The purpose of the screening assessment was to determine if the issue was a bona fide GI under the concepts of the revised program. The revised program includes provisions for the trying to identify existing programs that can work the issue or to engage industry to see if industry will volunteer an initiative to address the issue. The GI Program uses a graded-approach (more resources, more effort, more stakeholder interactions as the issue and information on it is developed and proceeds through the program.

So the purpose of the screening analysis and panel was decide if the issue warranted further pursuit and identify the best way to go forward.

-The limited scope screening analysis concluded that seismic designs of plants in the CEUS continue to provide adequate safety margins. But because the screening analysis did not include a detailed examination of the safety response? at each individual plant, NRC staff recommended further analysis.

A better way to say this might be that the screening panel recommended that the issue proceed to the Safety/Risk Assessment stage of the Generic Issues Program to quantify the risk/safety significance to determine if it was likely that cost-beneficial backfits could be identified, i.e. should the issue proceed to the Regulatory Assessment Stage, or whether it could be dropped due to low risk. In most cases, the Safety/Risk Assessment is done by selecting representative plants and doing a small number of (generic) analyses. For GI-199, all plants was evaluated during the Safety/Risk Assessment.

-In February 2008, NRC staff began the Safety and Risk Assessment Stage of examining GI-199. This stage assesses the risk impact at specific plants [the same 29 plants identified in bullet #1?]where the estimated increase in seismic hazard might challenge available seismic margins.

See above...all plants were assessed during the S/RA Stage.

-In September 2010, NRC completed the Safety and Risk Assessment of GI-199. This assessment indicated that no concern exists regarding the current seismic design of operating reactors [and that the overall seismic risk remains low at the 29 plants?]. The design of [all] current operating reactors continues to provide safety margin to withstand potential earthquakes that exceed the original design basis.

See above...all plants were assessed. These conclusions are for all plants.

-NRC assessment of GI-199 is currently in the Regulatory Assessment Stage. This stage of the GI-199 review will determine whether additional requirements are needed for [all? 29? 27?] operating plants. The NRC does not have all of the information needed to perform the regulatory assessment. Therefore, the NRC will ~~follow the appropriate regulatory process to~~ request operating plants to provide specific information relating to their

Kauffman, John

From: Anderson, Brian
Sent: Thursday, March 24, 2011 8:10 AM
To: Kauffman, John
Cc: Beasley, Benjamin
Subject: RE: REQUEST for review of draft talking points on GI-199
Attachments: image001.gif

Many thanks for the quick turnaround, John! This definitely clears up several items.

Thanks again,
Brian

From: Kauffman, John
Sent: Thursday, March 24, 2011 7:46 AM
To: Anderson, Brian
Cc: Beasley, Benjamin
Subject: RE: REQUEST for review of draft talking points on GI-199

Brian,

7th bullet: May also want to note that we had a public meeting to communicate the issue and solicit industry cooperation.

Next to last timeline bullet: (nit) The GI-199 Safety/Risk Assessment (S/RA) was completed in August 2010. The S/RA panel memo and enclosure (the S/RA report) were issued in September 2010.

Last bullet: GI-199 is in "Regulatory Office Implementation." [This means that it has exited the agency-wide Generic Issues Program and been transferred to NRR for action. It retains the GI designation and is tracked and reported in routine quarterly reports and semi-annually to Congress. As a practical matter, it means that NRR, not RES "owns" the issue. The agency does not have the information to go to regulatory assessment. NRR is going out to get the information needed. RES will support review/analysis of the information (likely under a User Need Request (normal process, not Generic Issues process). Also, as discussed in the S/RA panel memo, the issue/topic now is plant-specific in nature (not amenable to generic fixes).]

May want to add a bullet that we had a public meeting in October 2010 to communicate the issue and again solicit industry's cooperation.

Regarding the last three items
Pat Hiland prepared some talking points.

- NRC is working on developing a Generic Letter (GL) to request information from all affected plants (96 plants east of the Rockies).
- The GL is scheduled to be issued for public comment in the late spring 2011.
- Processes for review of the GL include a review by the NRC's Committee to Review Generic Requirements, and a review by the Advisory Committee on Reactor Safeguards (ACRS) both before and after the public comment period.
- GL should be issued by end of 2011, near the time the new consensus seismic hazard models become available.
- Consensus hazard models are being developed by NRC, DOE, and EPRI. In addition the USGS will review the model.

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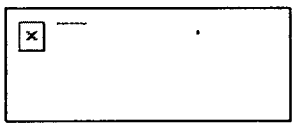
- GL should be issued by end of 2011, near the time the new consensus seismic hazard models become available.
- Consensus hazard models are being developed by NRC, DOE, and EPRI. In addition the USGS will review the model.
- Information requested from licensees will likely require 3 to 6 months to prepare. NRC's review will be on-going as information is collected.
- Based on NRC's review, a determination will be made regarding beneficial back-fits.

Regarding the consensus standards curves, they are now expected at the end of 2011. Cliff Munson, Jon Ake, or Ann Kammerer are knowledgeable on this topic if you need more detail.

I have heard some rumors of a TI, but I suggest contacting Kamal Manoly, Pat Hiland, or Dave Skeen (all from NRR) for info.



John V. Kauffman
Senior Reactor Systems Engineer
US NRC/RES/DRA/OEGIB
Washington, DC 20555 Mail Stop: C-2A07M
Phone: 301-251-7465
Fax: 301-251-7410

Please visit the internal GIP web page or external GIP web page.

facilities [is this the Generic Letter?]. Approximately when will the request be issued? And what are we doing in the interim--waiting for something/information?

My understanding is that NRR intends to send the GL to all central and eastern U.S. plants. Suggest talking to or using NRR information provided here.

Selected "other" questions

Q So all our reviews/analyses are based on 2004 seismic data from USGS? Is there other updated earthquake information and modeling? Is this data updated every 6 years—2010?

USGS came out with updated data in 2008. That is what was used in the GI-199 S/RA. Perhaps one of the seismologists can talk to how often USGS does their updates.

Q Our GSI-199 seismic reviews have not included assessments of spent fuel storage on site, but we they are designed to same requirements as the plant and we believe they remain safe--correct ? How does this apply to the 29 plants?

Spent fuel pools were outside the scope of GI-199. NRR is aware of the GI-199 results and presumably would take action if they thought the pools were unsafe. The GI-199 Comm. Plan contains a Q&A (#6) on this topic that explains why the agency thinks SFPs are safe.

Q We've said we are looking at 27 plants in our GSI-199 communication plan. Recent e-mails indicate we are looking at all plants. What is correct?
I think "all plants" is correct, but this is a question for NRR. Some clarification--The communication plan indicates there are 27 plants in the continue region. The fact that there are 27 plants in the continue region provided the basis for the conclusion that the issue should continue to regulatory assessment (and since we do not have the info to do a regulatory assessment, go get the information). Because of the simplifying methods and assumptions used in the S/RA to boil down the all of the seismic and PRA information for each plant to a single number there is uncertainty in these numbers. The results are also based on old 1980-1990 era IPEEE data. The results are also probably very conservative...all of these considerations make getting information from all central and eastern U.S. plants a prudent course of action. I think NRR's view is that reviews we be prioritized and focus on the plants with the highest risk first.

QWhere will Japan information be factored into the GSI-199 program?

The effect of a single earthquake is small on the estimated *seismic hazard* and hence on Generic Issue 199, unless it occurs in an area not previously
recognized as being capable of producing earthquakes, or is larger than previously believed possible in a region. In a seismic hazard study, the seismic source zones are specifically delineated to include a sufficient number of earthquakes to provide a stable estimate of the seismicity rate and are thus relatively insensitive to the addition of a single earthquake. If an earthquake does occur in an area not previously recognized as being capable of producing earthquakes or if an earthquake occurs that is larger than previously believed possible in a region, changes to the seismic hazard model used to develop seismic hazard estimates would be required.

This Japanese earthquake occurred on a "subduction zone", which is the type of tectonic region that produces earthquakes of the largest magnitude. A subduction zone is a tectonic plate boundary where one tectonic plate is pushed under another plate. Subduction zone earthquakes are also required to produce the kind of massive tsunami seen in Japan. In the continental US, the only subduction zone is the Cascadia subduction zone which lies off the coast of northern California, Oregon and Washington. So, a continental earthquake and tsunami as large as in Japan could only happen there.

Based on the above, the GI-199 work to date does not need to be updated to consider the Japanese earthquake. Nevertheless, the NRC will be conducting an extensive lessons learned on the Japanese earthquake, and will factor such information into resolution of GI-199 as appropriate.

From: Hayden, Elizabeth
Sent: Thursday, March 24, 2011 9:57 AM
To: Anderson, Brian; Kauffman, John
Cc: Beasley, Benjamin; Burnell, Scott; Harrington, Holly
Subject: RE: REQUEST for review of draft talking points on GI-199

Great start, Brian. See a few general questions that follow and specific comments in red below. I look forward to the rest.

Q So all our reviews/analyses are based on 2004 seismic data from USGS? Is there other updated earthquake information and modeling? Is this data updated every 6 years—2010?

Q Where does the TI inspection fit in and what will be inspected?

Q Should we include a bullet about B5B upgrades to plant equipment/structures to deal with fires and explosions on site?

Q Our GSI-199 seismic reviews have not included assessments of spent fuel storage on site, but we they are designed to same requirements as the plant and we believe they remain safe--correct ? How does this apply to the 29 plants?

Q We talk about "preliminary screening reviews" in our Qs and As—where do they fit in here?

Q We've said we are looking at 27 plants in our GSI-199 communication plan. Recent e-mails indicate we are looking at all plants. What is correct?

QWhere will Japan information be factored into the GSI-199 program?

Beth Hayden

From: Anderson, Brian
Sent: Thursday, March 24, 2011 7:12 AM
To: Kauffman, John
Cc: Hayden, Elizabeth; Beasley, Benjamin; Burnell, Scott; Harrington, Holly
Subject: REQUEST for review of draft talking points on GI-199
Importance: High

John –

I'm working on a set of OPA talking points for GI-199. Ben Beasley suggested that I contact you for help. Below, I've developed a rough timeline of GI-199; some items include talking points.

Would you mind double-checking this? Can you point me in the right direction for help with "next steps" information (issuance of a TI; new seismic hazards data) highlighted below?

Thank you,
Brian

GI-199:
-In 2004, preliminary results from United States Geological Survey (USGS) work indicated an increase in the probability of exceeding the Safe Shutdown Earthquake (SSE) for 29 nuclear power sites in the Central and Eastern United States (CEUS).

-The probability increases identified by USGS were primarily due to recent developments in the modeling of earthquake ground motion in the CEUS.

-In May, 2005, NRC recommended a re-examination of generic seismic issues that had been closed in September 2003.

-In June 2005, GI-199, "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States," was added to NRC's Generic Issues.

-In December 2007, NRC staff completed a limited scope screening analysis [explain what this analysis was and the reason for doing it] .

-The limited scope screening analysis concluded that seismic designs of plants in the CEUS continue to provide adequate safety margins. But because the screening analysis did not include a detailed examination of the safety response? at each individual plant, NRC staff recommended further analysis.

-In February 2008, NRC staff began the Safety and Risk Assessment Stage of examining GI-199. This stage assesses the risk impact at specific plants [the same 29 plants identified in bullet #1?]where the estimated increase in seismic hazard might challenge available seismic margins.

-In September 2010, NRC completed the Safety and Risk Assessment of GI-199. This assessment indicated that no concern exists regarding the current seismic design of operating reactors [and that the overall seismic risk remains low at the 29 plants?]. The design of [all] current operating reactors continues to provide safety margin to withstand potential earthquakes that exceed the original design basis.

-NRC assessment of GI-199 is currently in the Regulatory Assessment Stage. This stage of the GI-199 review will determine whether additional requirements are needed for [all? 29? 27?] operating plants. The NRC does not have all of the information needed to perform the regulatory assessment. Therefore, the NRC will ~~follow the appropriate regulatory process to~~ request operating plants to provide specific information relating to their facilities [is this the Generic Letter?]. Approximately when will the request be issued? And what are we doing in the interim--waiting for something/information?

-Next steps
-Issuance of Temporary Instruction?
-Completion of New consensus seismic hazard estimates for the CEUS (these are a product of a joint NRC, U.S. Department of Energy, USGS, and EPRI project) - available in early 2011?

From: Beasley, Benjamin
Sent: Wednesday, March 23, 2011 1:57 PM
To: Hayden, Elizabeth; Anderson, Brian
Cc: Burnell, Scott
Subject: RE: Need talking points on GSI-199

Beth and Brian,

Annie Kammerer is not the best resource for GI-199. She is able to speak to it from a general seismology perspective, but Dr. Jon Ake was the seismologist supporting the GI-199 Safety / Risk Assessment.

You are also welcome to contact John Kauffman who was the GI-199 project manager for the safety / risk assessment. He can coordinate with Dr. Ake and Marty Stutzke, who wrote the safety / risk assessment report.

Ben Beasley

From: Hayden, Elizabeth
Sent: Wednesday, March 23, 2011 1:51 PM
To: Anderson, Brian
Cc: Burnell, Scott; Sheehan, Neil; Screnci, Diane; Leeds, Eric; Beasley, Benjamin
Subject: FW: Need talking points on GSI-199

Brian,

Scott's plate is overflowing, so could you please take on this task (see below) that explains what the agency has done and is planning to do with respect to GSI-199 (including GL, planned inspections, analysis) with an approximate timeline? NRR contacts would be Pat Hiland and David Skein and in RES it would be Annie Kammerer. FYI—we put out a press release Sept. 8 about the seismic research. There was also a communication plan developed with a list of 27 plants (which may now be expanded). If you could pull a very rough set of bullets together by COB today or early tomorrow morning, that would help immensely.

Also, check the NRR Sharepoint site and Bob Nelson, NRR, about communications regarding the Temporary Instruction that Eric Leeds said will go out today—we need to find out more on what that is about.

Thanks,

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

From: Hayden, Elizabeth
Sent: Wednesday, March 23, 2011 12:30 PM
To: Burnell, Scott
Cc: Screnci, Diane; Sheehan, Neil
Subject: Need talking points on GSI-199

Scott, Neil

I need you to draft some talking points on GSI-199 that summarizes briefly what has happened between the USGS data in 2008 to what we did with that information and what we are doing now and plan to do in the future (GL, analysis, inspections per what timeline?) We also need to clarify what the list of 27 plants means, whether it has expanded to include all plants, etc.

A specific question from Hannah Northey, Greenwire, is when did NRC start looking at plants with regard to the 2008 data from USGS? Please call her at 202-446-0468 to clarify specifics on GSI-199.

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: PMTERDS Hoc
Sent: Friday, March 25, 2011 3:49 AM
To: PMT01 Hoc; FOIA Response.hoc Resource
Subject: http://www.mext.go.jp/english/radioactivity_level/detail/1304080.htm

fyi

nnn/199

From: OST01 HOC
Sent: Friday, March 25, 2011 1:12 PM
To: PMT02 Hoc; PMT11 Hoc; Hoc, PMT12
Cc: FOIA Response.hoc Resource
Subject: FW: Fukushima Hysplit Output - 03/25/2011 12Z Model Run
Attachments: 2011032512.FUKUSHIMA-DAIICHI-1.rsmc14.pdf

-----Original Message-----
From: HOO Hoc [mailto:HOO.Hoc@nrc.gov]
Sent: Friday, March 25, 2011 1:11 PM
To: LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Subject: FW: Fukushima Hysplit Output - 03/25/2011 12Z Model Run

---
From: NITOPS[SMTP:NITOPS@NNSA.DOE.GOV]
Sent: Friday, March 25, 2011 1:11:07 PM
To: CMHT; HOO Hoc; NARAC; PMT01 Hoc; PMT02 Hoc; Hoc, PMT12
Subject: FW: Fukushima Hysplit Output - 03/25/2011 12Z Model Run Auto forwarded by a Rule

-----Original Message-----
From: Rob Handel [mailto:robert.handel@noaa.gov]
Sent: Friday, March 25, 2011 1:06 PM
To: oar.jp.iaea.results@noaa.gov
Subject: Fukushima Hysplit Output - 03/25/2011 12Z Model Run

Results for official use only--not to be distributed outside your organization without prior authorization from NOAA.

Attached is the latest NOAA Hysplit dispersion model run with a simulated release time of 03/25/2011 1645Z, release duration of 72 hours, and model run duration of 72 hours using the 12Z NCEP GFS.

This simulation was not an official request from the IAEA. This output reflects trajectories and dispersion of simulated current and future releases and does not reflect potential previous releases.

SDM Rob Handel

NNR/200

U.S. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

RSMC Washington (NOAA ARL, NOAA NCEP)

Room 410 - W/NMC33
World Weather Building
5200 Auth Road
Camp Springs, Maryland USA

Tel (24 hrs - NCEP): 301-763-8298
Tel (Backup - ARL): 301-713-2614

Fax (24 hrs - NCEP): 301-763-8592
Fax (Backup - ARL): 301-713-4592

RSMC products created Fri Mar 25 16:46 UTC 2011

The following charts will follow:
- trajectory map
- several time-itegrated concentration maps
- total (dry + wet) deposition map

Please contact us if any problems arise with these products.

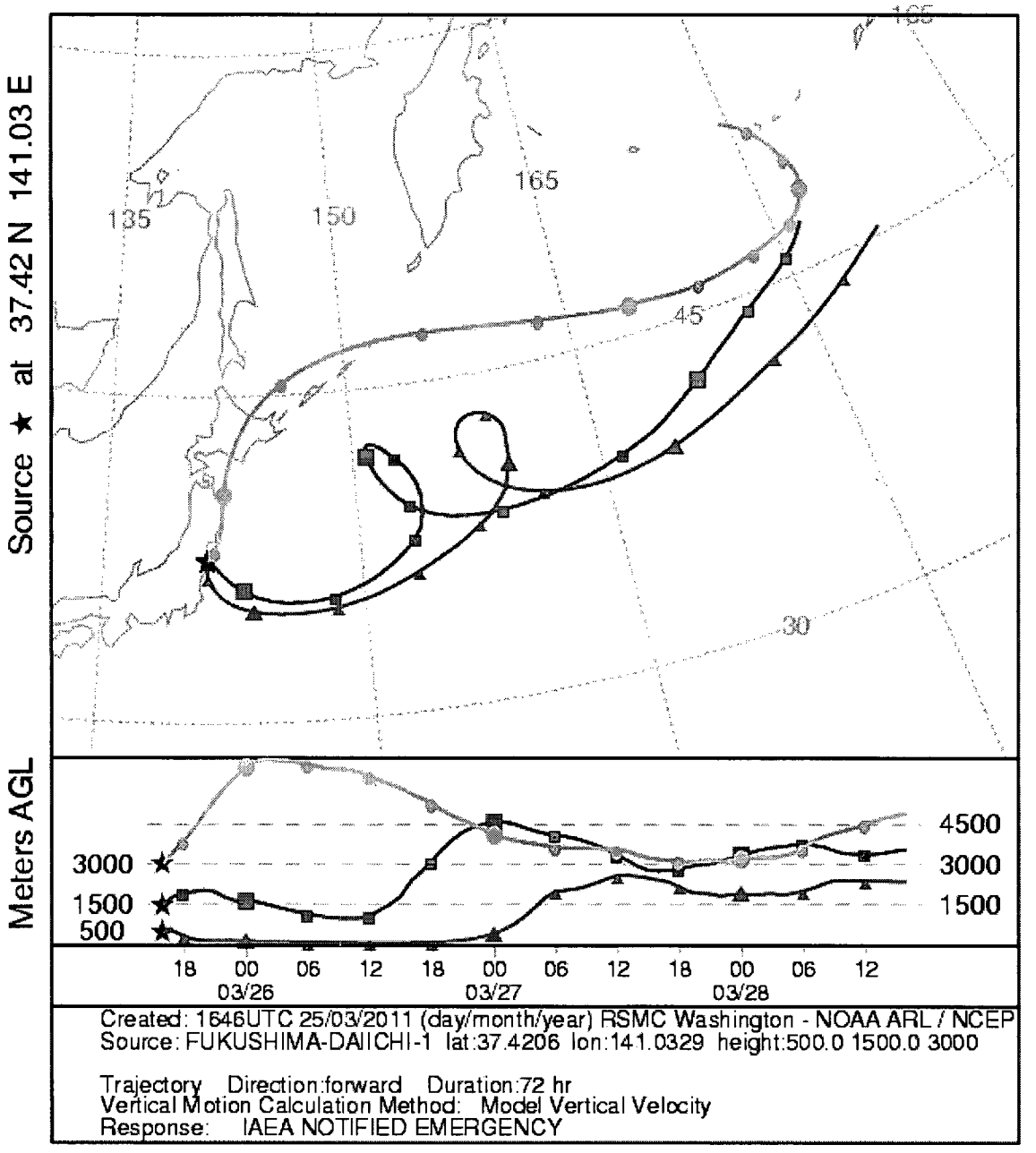
Source term and dispersion model details

RSMC Washington - NOAA ARL / NCEP

Response: IAEA NOTIFIED EMERGENCY

Location:FUKUSHIMA-DAIICHI-1 lat:37.4206 lon:141.0329
Release Start (YYYY MM DD HH MM):2011 03 25 16 45
Meteorology: 1200 UTC 25 Mar 2011 GFS
Trajectories: 500.0, 1500.0, 3000.0 m AGL
Release ID:I131 Rate: .0138 Bq/hr Duration: 72 hr Particles: 5000
Distribution: Uniform between 20 and 500 m AGL
Dry Deposition Rate:0.02 m/s Wet Removal (below/in-cloud):1.00E-04/3.20
Note: Contour values may change from chart to chart

NOAA HYSPLIT MODEL
Forward trajectories starting at 16 UTC 25 Mar 11
12 UTC 25 Mar GFSG Forecast Initialization



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Source: FUKUSHIMA-DAIICHI-1 lat:37.4206 lon:141.0329 height:500.0 1500.0 3000

Trajectory Direction:forward Duration:72 hr
Vertical Motion Calculation Method: Model Vertical Velocity
Response: IAEA NOTIFIED EMERGENCY

NOAA HYSPLIT MODEL

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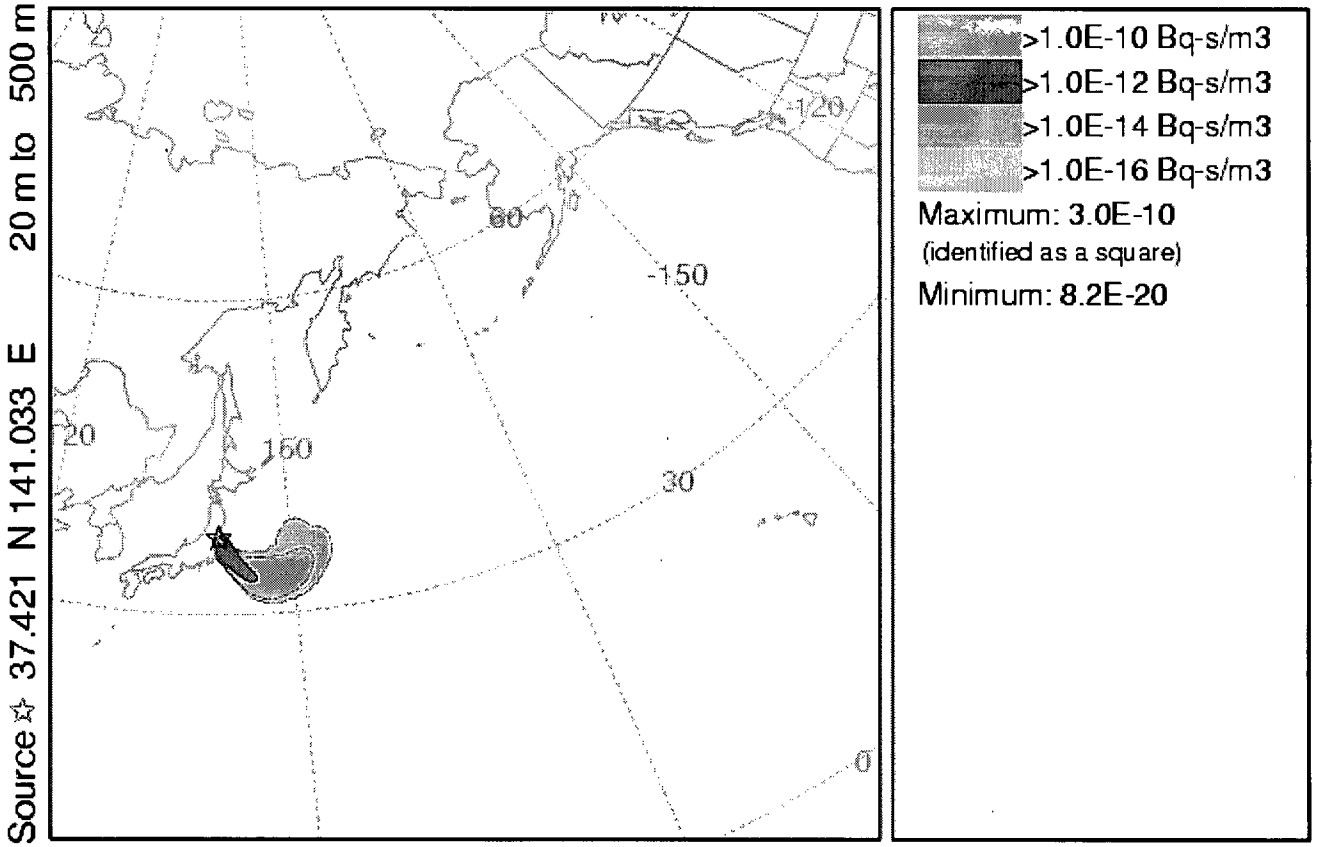
Integrated from 1200 25 Mar to 1200 26 Mar 11 (UTC)
I131 Release started at 1645 25 Mar 11 (UTC)



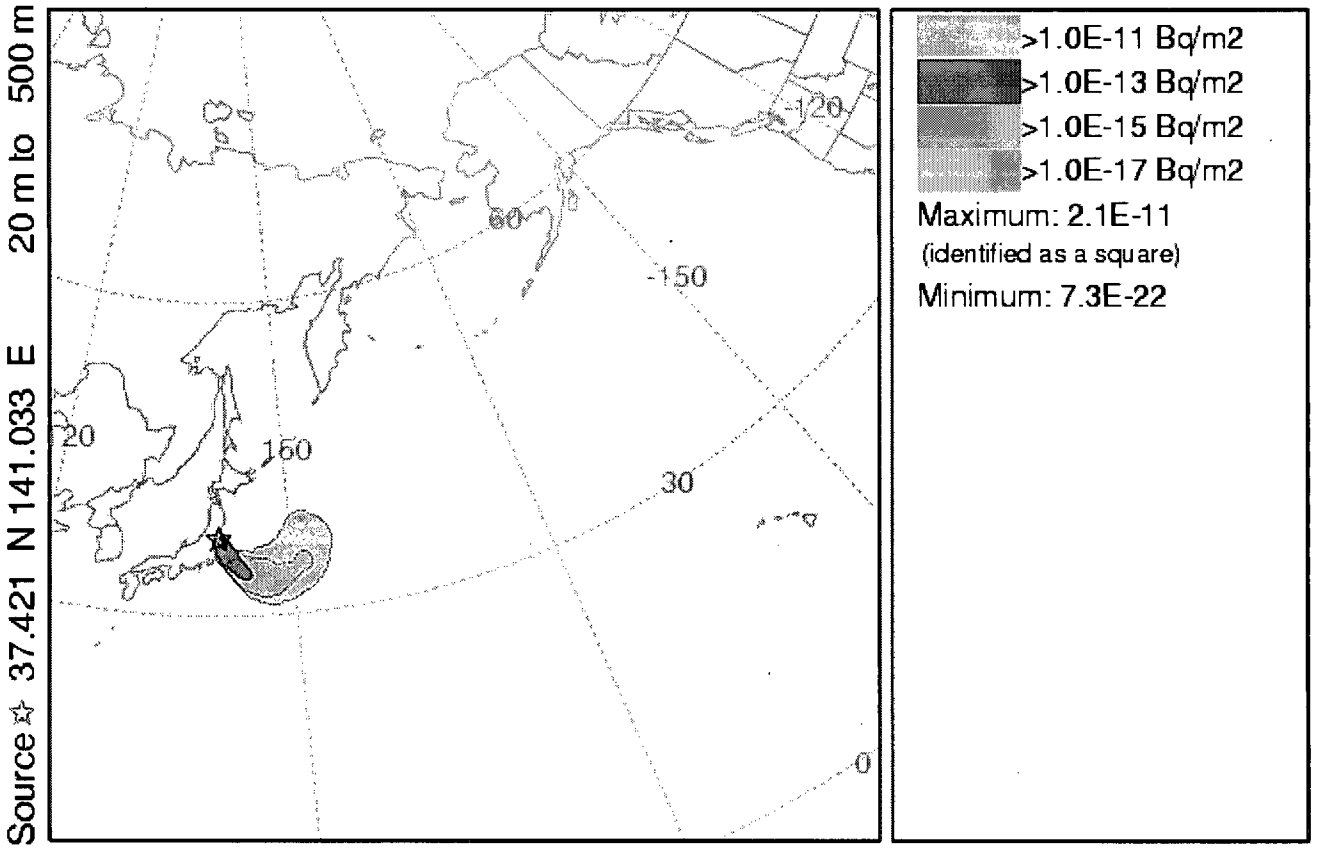
1200 25 Mar 11 GFSG FORECAST INITIALIZATION

Created: 1646UTC 25/03/2011 (day/month/year) RSMC Washington - NOAA ARL / NCEP
Source:FUKUSHIMA-DAIICHI-1 lat:37.4206 lon:141.0329 hgt:20 to 500 m
Release ID:I131 Rate: .0138 Bq/hr Duration: 72 hr Particles: 5000
Distribution: Uniform between 20 and 500 m AGL
Dry Deposition Rate:0.02 m/s Wet Removal (below/in-cloud):1.00E-04/3.20E+05
Meteorology: 1200 UTC 25 Mar 2011 GFS
Note: Contour values may change from chart to chart

Response: IAEA NOTIFIED EMERGENCY

NOAA HYSPLIT MODEL

Deposition (Bq/m2) at ground-level
Integrated from 1200 25 Mar to 1200 26 Mar 11 (UTC)
I131 Release started at 1645 25 Mar 11 (UTC)



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Response: IAEA NOTIFIED EMERGENCY

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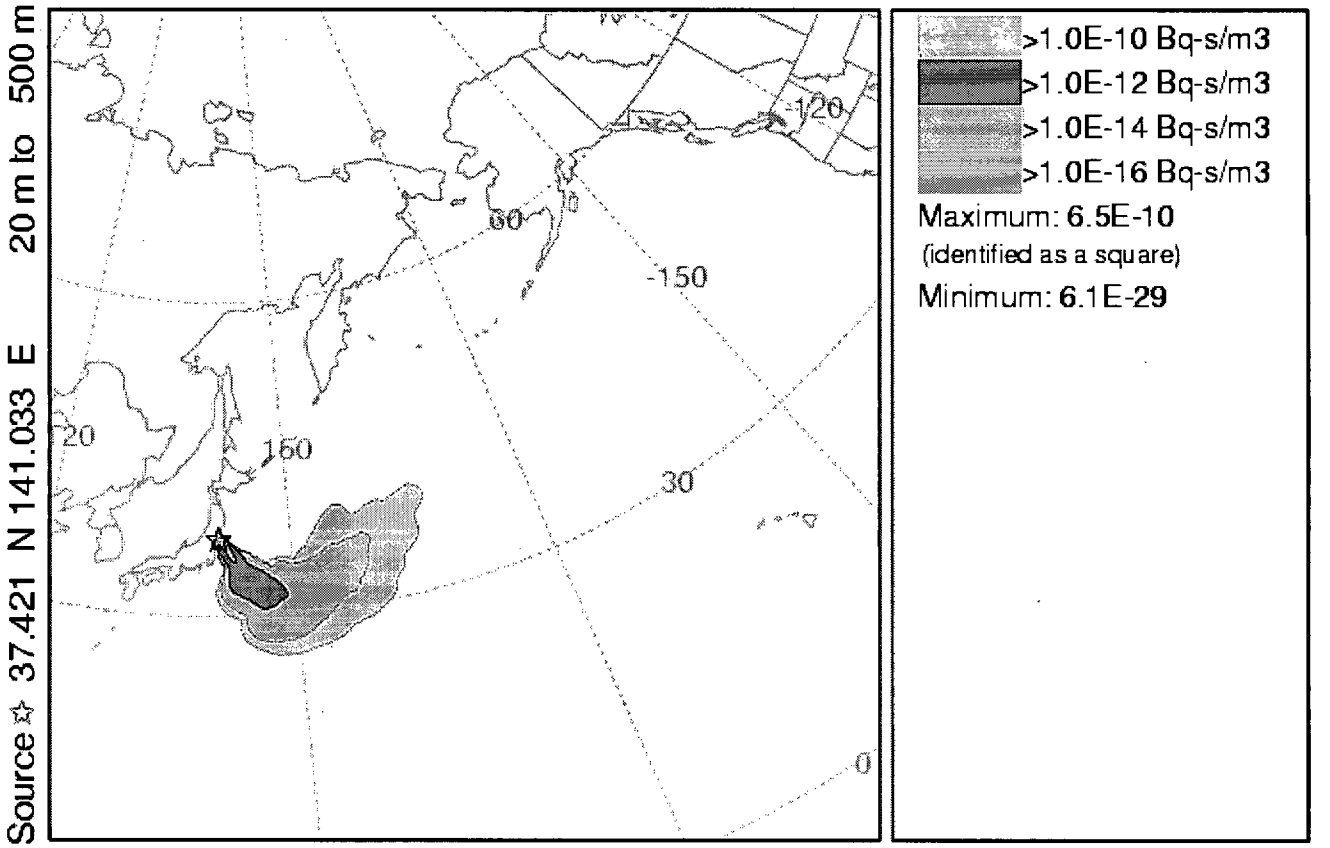

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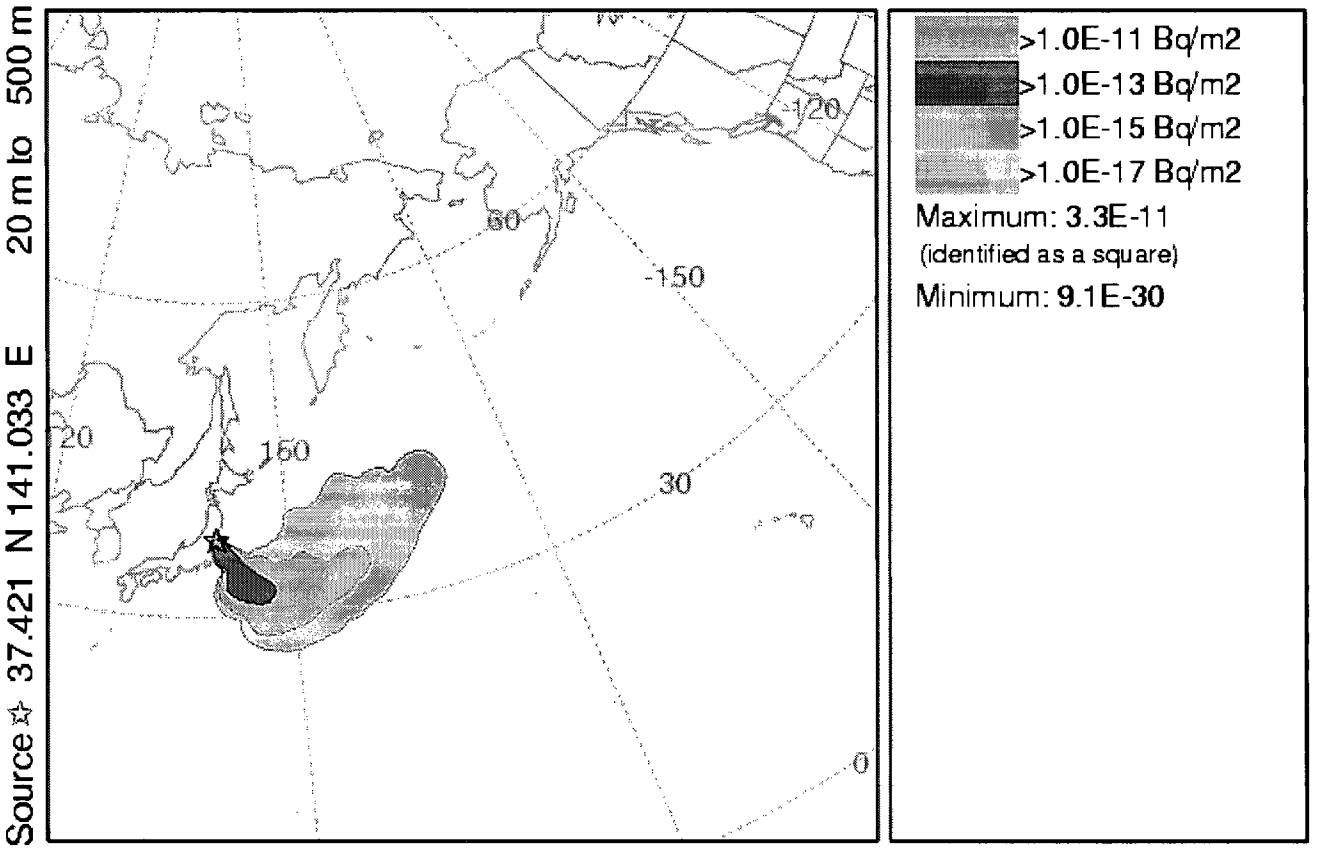

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Response: IAEA NOTIFIED EMERGENCY

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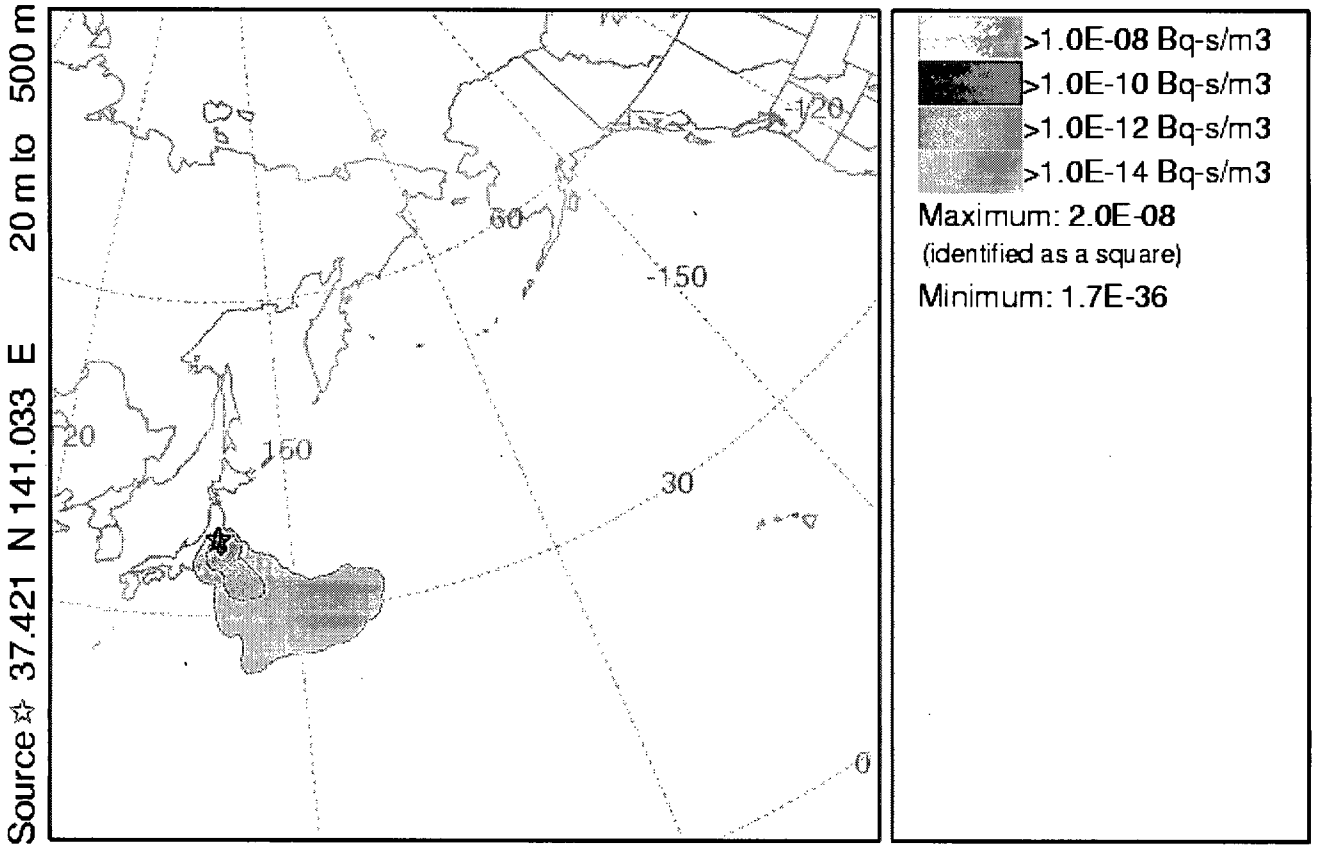

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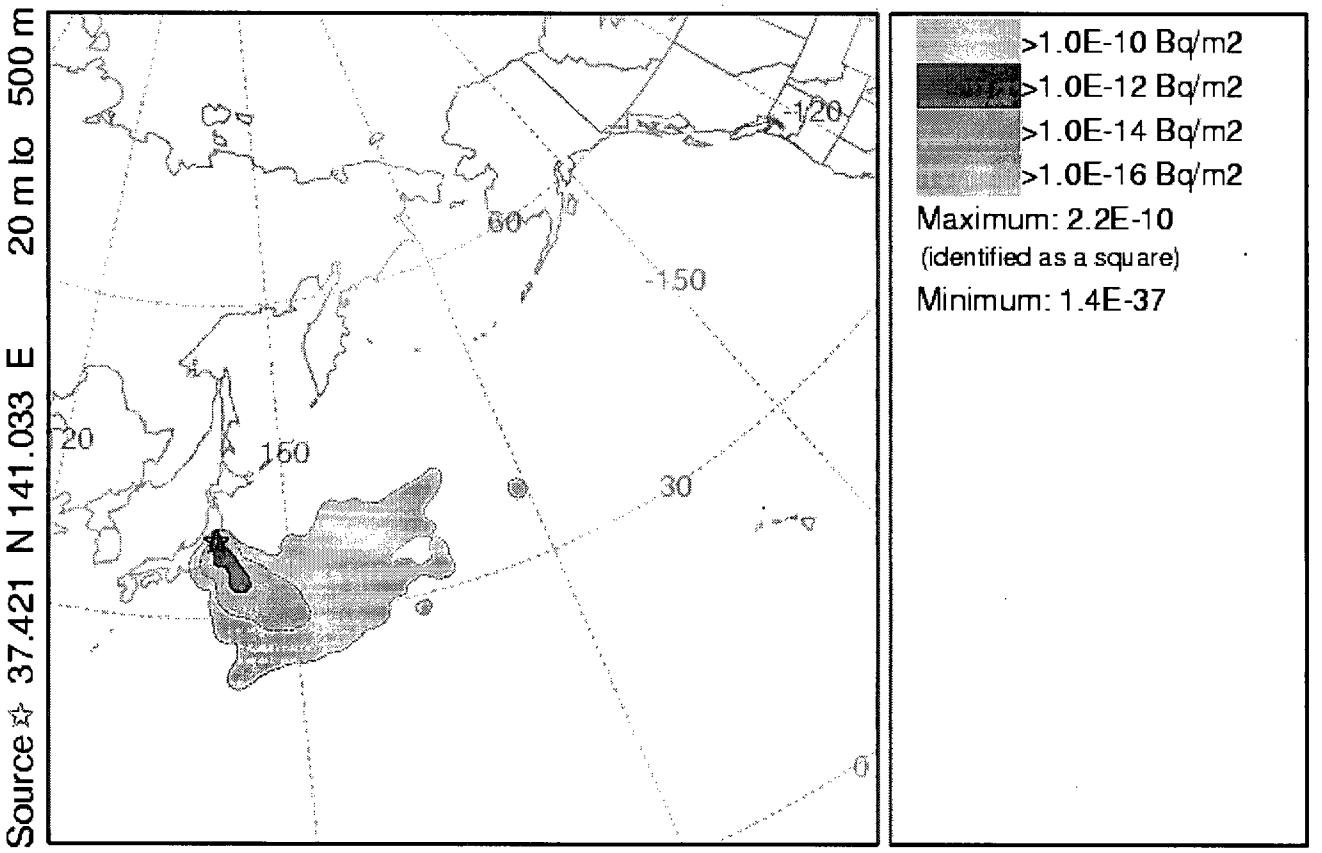
Integrated from 1200 25 Mar to 1200 28 Mar 11 (UTC)
I131 Release started at 1645 25 Mar 11 (UTC)



1200 25 Mar 11 GFSG FORECAST INITIALIZATION

Created: 1646UTC 25/03/2011 (day/month/year) RSMC Washington - NOAA ARL / NCEP
Source:FUKUSHIMA-DAIICHI-1 lat:37.4206 lon:141.0329 hgt:20 to 500 m
Release ID:I131 Rate: .0138 Bq/hr Duration: 72 hr Particles: 5000
Distribution: Uniform between 20 and 500 m AGL
Dry Deposition Rate:0.02 m/s Wet Removal (below/in-cloud):1.00E-04/3.20E+05
Meteorology: 1200 UTC 25 Mar 2011 GFS
Note: Contour values may change from chart to chart

Response: IAEA NOTIFIED EMERGENCY

From: OST01 HOC
Sent: Friday, March 25, 2011 7:51 AM
To: PMT02 Hoc; PMT11 Hoc; Hoc, PMT12
Cc: FOIA Response.hoc Resource
Subject: FW: Fukushima Hysplit Output - 03/25/2011 06Z Model Run
Attachments: 2011032506.FUKUSHIMA-DAIICHI-1.rsmc13.pdf

-----Original Message-----
From: HOO Hoc [mailto:HOO.Hoc@nrc.gov]
Sent: Friday, March 25, 2011 7:46 AM
To: LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Subject: FW: Fukushima Hysplit Output - 03/25/2011 06Z Model Run

---
From: NITOPS[SMTP:NITOPS@NNSA.DOE.GOV]
Sent: Friday, March 25, 2011 7:46:14 AM
To: CMHT; HOO Hoc; NARAC; PMT01 Hoc; PMT02 Hoc; Hoc, PMT12
Subject: FW: Fukushima Hysplit Output - 03/25/2011 06Z Model Run Auto forwarded by a Rule

-----Original Message-----
From: SDM [mailto:Sdm@noaa.gov]
Sent: Friday, March 25, 2011 7:39 AM
To: oar.jp.iaea.results@noaa.gov
Subject: Fukushima Hysplit Output - 03/25/2011 06Z Model Run

Results for official use only--not to be distributed outside your organization without prior authorization from NOAA.

Attached is the latest NOAA Hysplit dispersion model run with a simulated release time of 03/25/2011 1100Z, release duration of 72 hours, and model run duration of 72 hours using the 06Z NCEP GFS.

This simulation was not an official request from the IAEA. This output reflects trajectories and dispersion of simulated current and future releases and does not reflect potential previous releases.

SDM Rob Handel

nnn/201

U.S. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

RSMC Washington (NOAA ARL, NOAA NCEP)

Room 410 - W/NMC33
World Weather Building
5200 Auth Road
Camp Springs, Maryland USA

Tel (24 hrs - NCEP): 301-763-8298
Tel (Backup - ARL): 301-713-2614

Fax (24 hrs - NCEP): 301-763-8592
Fax (Backup - ARL): 301-713-4592

RSMC products created Fri Mar 25 11:14 UTC 2011

The following charts will follow:
- trajectory map
- several time-itegrated concentration maps
- total (dry + wet) deposition map

Please contact us if any problems arise with these products.

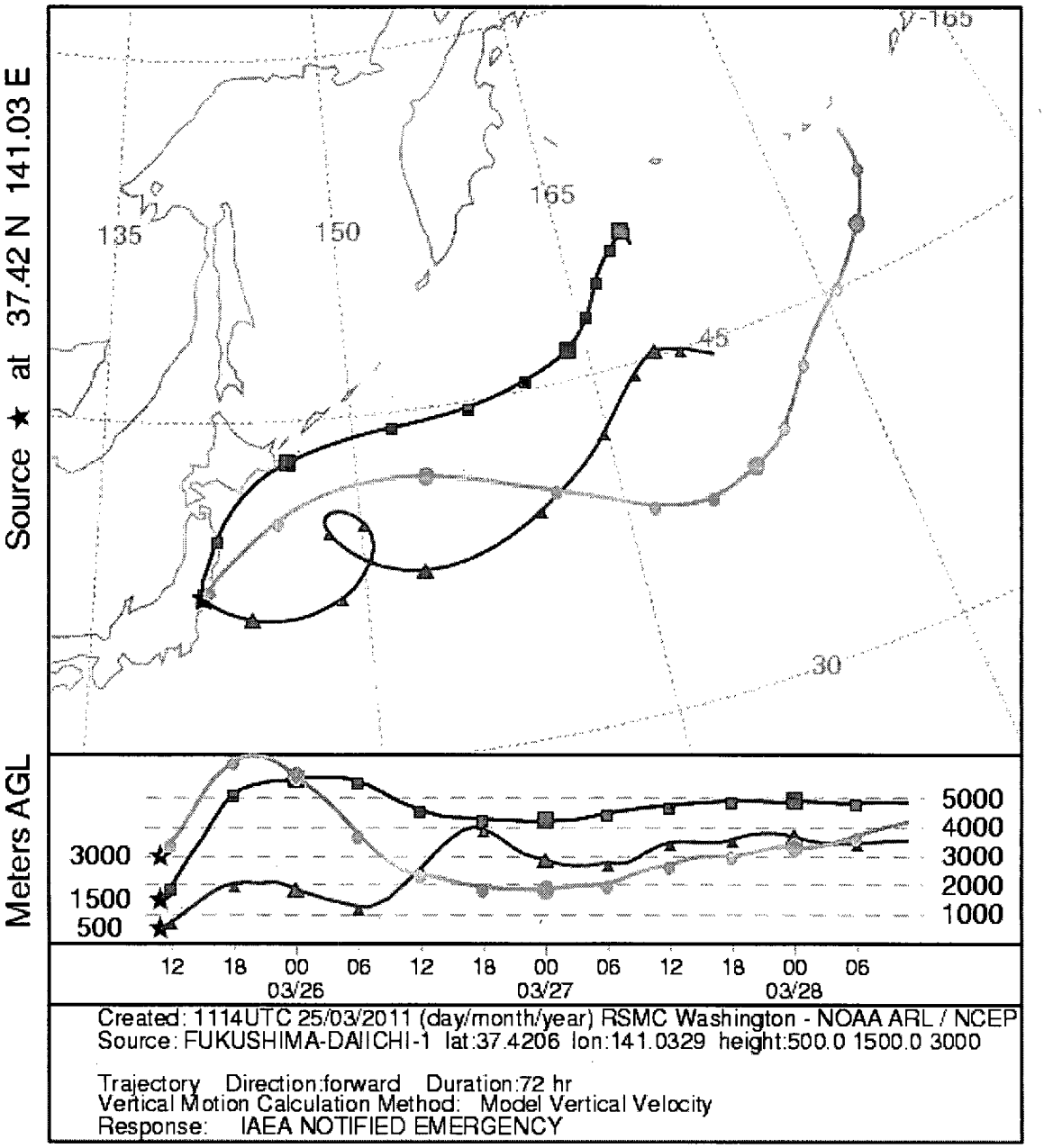
Source term and dispersion model details

RSMC Washington - NOAA ARL / NCEP

Response: IAEA NOTIFIED EMERGENCY

Location:FUKUSHIMA-DAIICHI-1 lat:37.4206 lon:141.0329
Release Start (YYYY MM DD HH MM):2011 03 25 11 00
Meteorology: 0600 UTC 25 Mar 2011 GFS
Trajectories: 500.0, 1500.0, 3000.0 m AGL
Release ID:I131 Rate: .0138 Bq/hr Duration: 72 hr Particles: 5000
Distribution: Uniform between 20 and 500 m AGL
Dry Deposition Rate:0.02 m/s Wet Removal (below/in-cloud):1.00E-04/3.20
Note: Contour values may change from chart to chart

NOAA HYSPLIT MODEL
Forward trajectories starting at 11 UTC 25 Mar 11
06 UTC 25 Mar GFSG Forecast Initialization

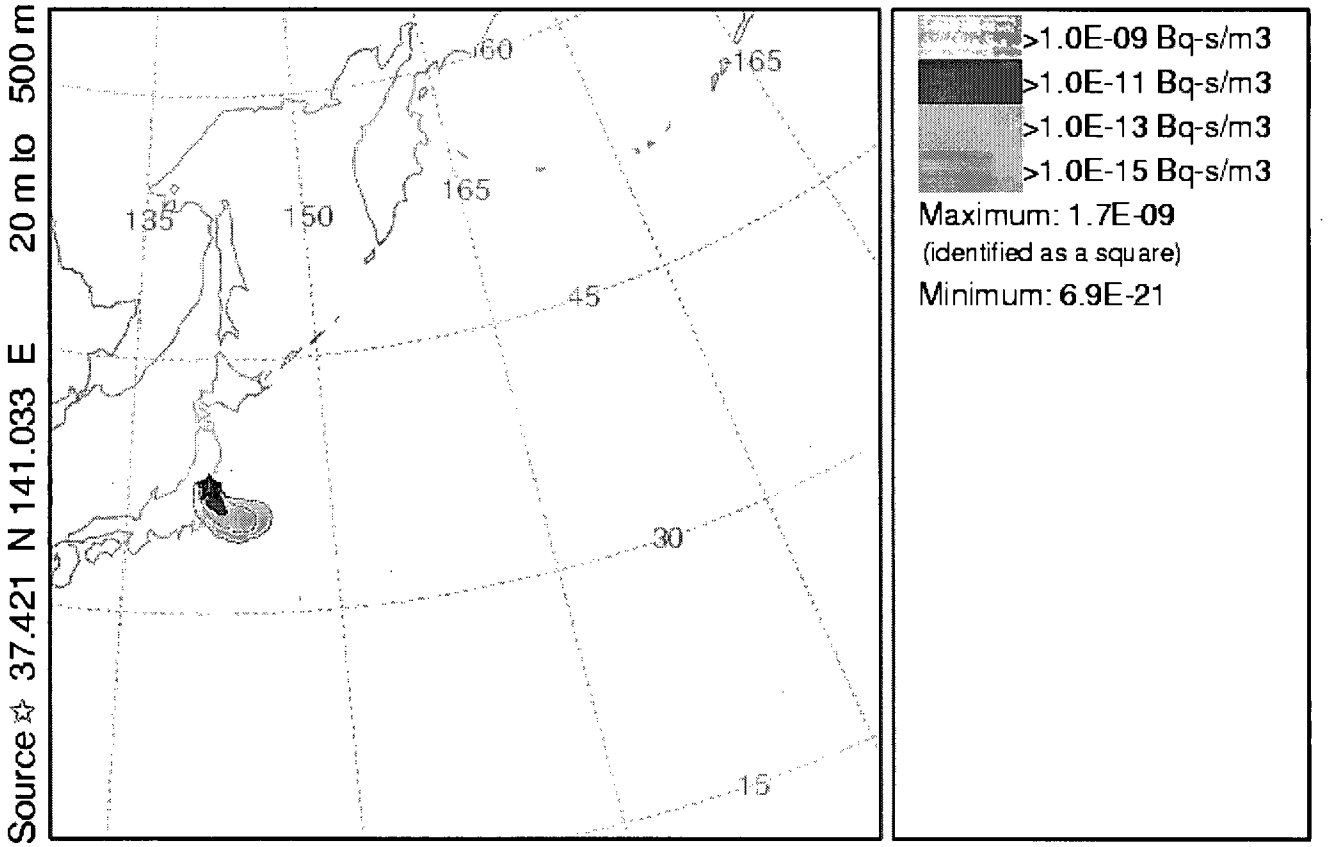


Created: 1114UTC 25/03/2011 (day/month/year) RSMC Washington - NOAA ARL / NCEP
Source: FUKUSHIMA-DAIICHI-1 lat:37.4206 lon:141.0329 height:500.0 1500.0 3000

Trajectory Direction:forward Duration:72 hr
Vertical Motion Calculation Method: Model Vertical Velocity
Response: IAEA NOTIFIED EMERGENCY

NOAA HYSPLIT MODEL

Exposure (Bq-s/m3) averaged between 0 m and 500 m
Integrated from 0000 25 Mar to 0000 26 Mar 11 (UTC)
I131 Release started at 1100 25 Mar 11 (UTC)



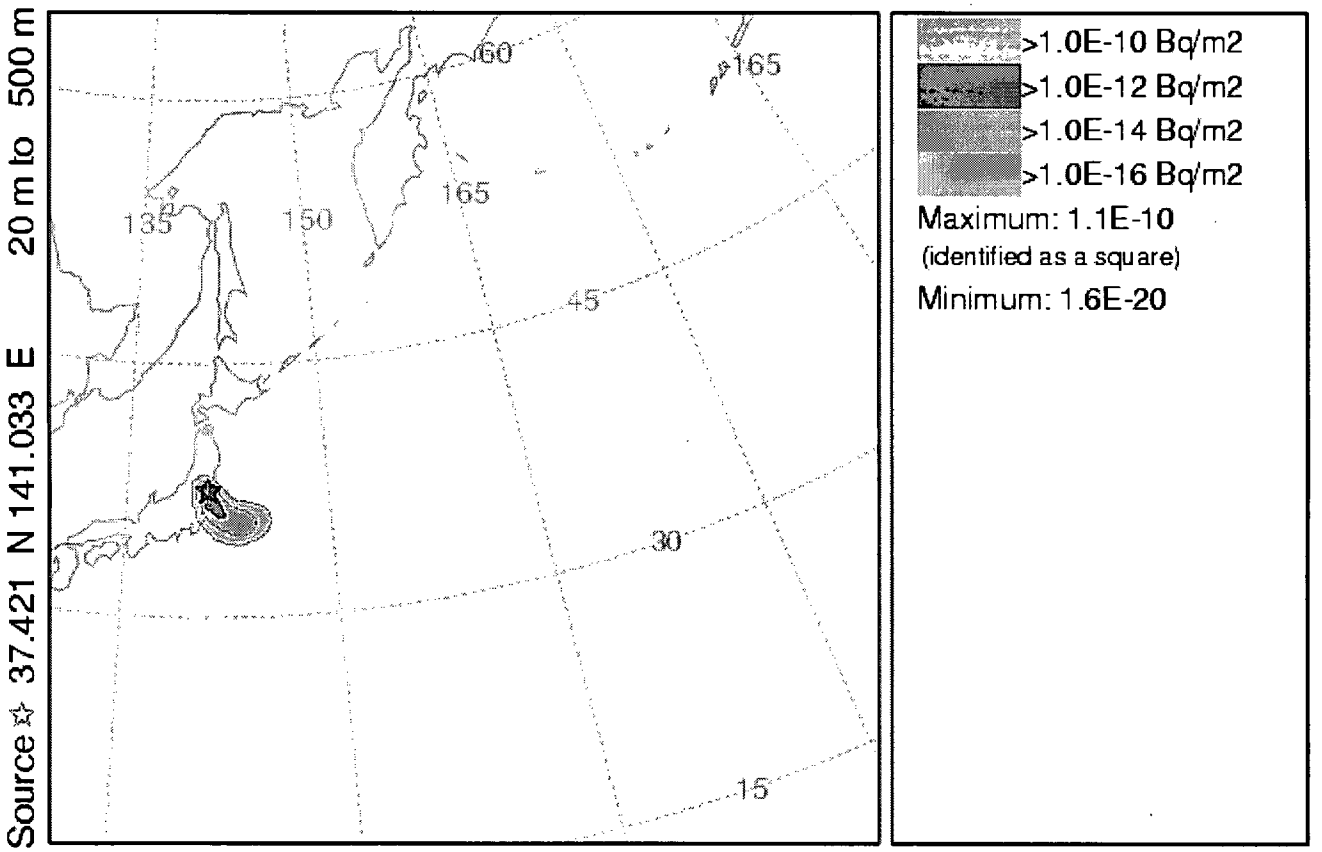
0600 25 Mar 11 GFSG FORECAST INITIALIZATION

Created: 1114UTC 25/03/2011 (day/month/year) RSMC Washington - NOAA ARL / NCEP
Source:FUKUSHIMA-DAIICHI-1 lat:37.4206 lon:141.0329 hgt:20 to 500 m
Release ID:I131 Rate: .0138 Bq/hr Duration: 72 hr Particles: 5000
Distribution: Uniform between 20 and 500 m AGL
Dry Deposition Rate:0.02 m/s Wet Removal (below/in-cloud):1.00E-04/3.20E+05
Meteorology: 0600 UTC 25 Mar 2011 GFS
Note: Contour values may change from chart to chart

Response: IAEA NOTIFIED EMERGENCY

NOAA HYSPLIT MODEL

Deposition (Bq/m2) at ground-level
Integrated from **0000** 25 Mar to **0000** 26 Mar 11 (UTC)
I131 Release started at 1**100** 25 Mar 11 (UTC)



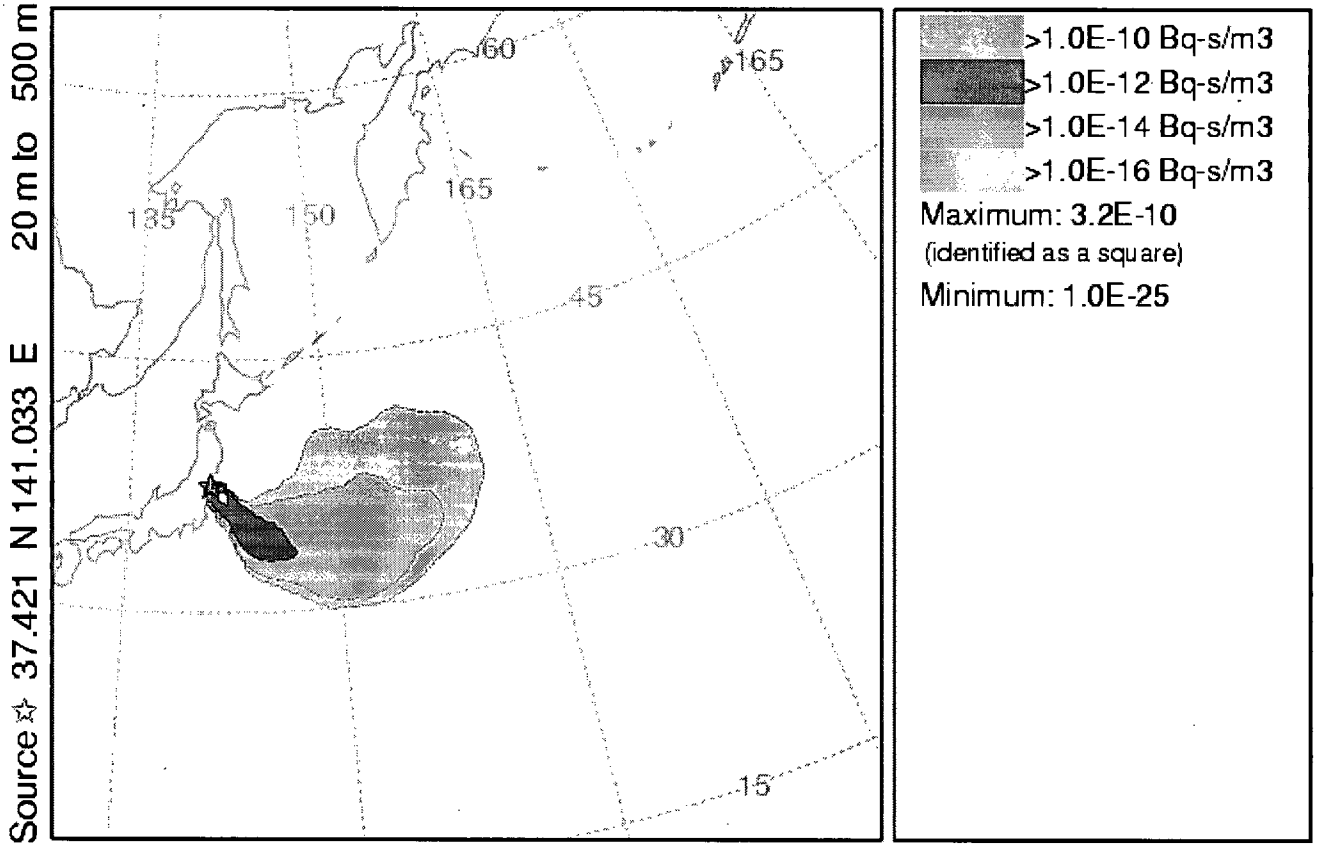
0600 25 Mar 11 GFSG FORECAST INITIALIZATION

Created: 1114UTC 25/03/2011 (day/month/year) RSMC Washington - NOAA ARL / NCEP
Source:FUKUSHIMA-DAIICHI-1 lat:37.4206 lon:141.0329 hgt:20 to 500 m
Release ID:I131 Rate: .0138 Bq/hr Duration: 72 hr Particles: 5000
Distribution: Uniform between 20 and 500 m AGL
Dry Deposition Rate:0.02 m/s Wet Removal (below/in-cloud):1.00E-04/3.20E+05
Meteorology: 0600 UTC 25 Mar 2011 GFS
Note: Contour values may change from chart to chart

Response: IAEA NOTIFIED EMERGENCY

NOAA HYSPLIT MODEL

Exposure (Bq-s/m3) averaged between 0 m and 500 m
Integrated from 0000 26 Mar to 0000 27 Mar 11 (UTC)
I131 Release started at 1100 25 Mar 11 (UTC)



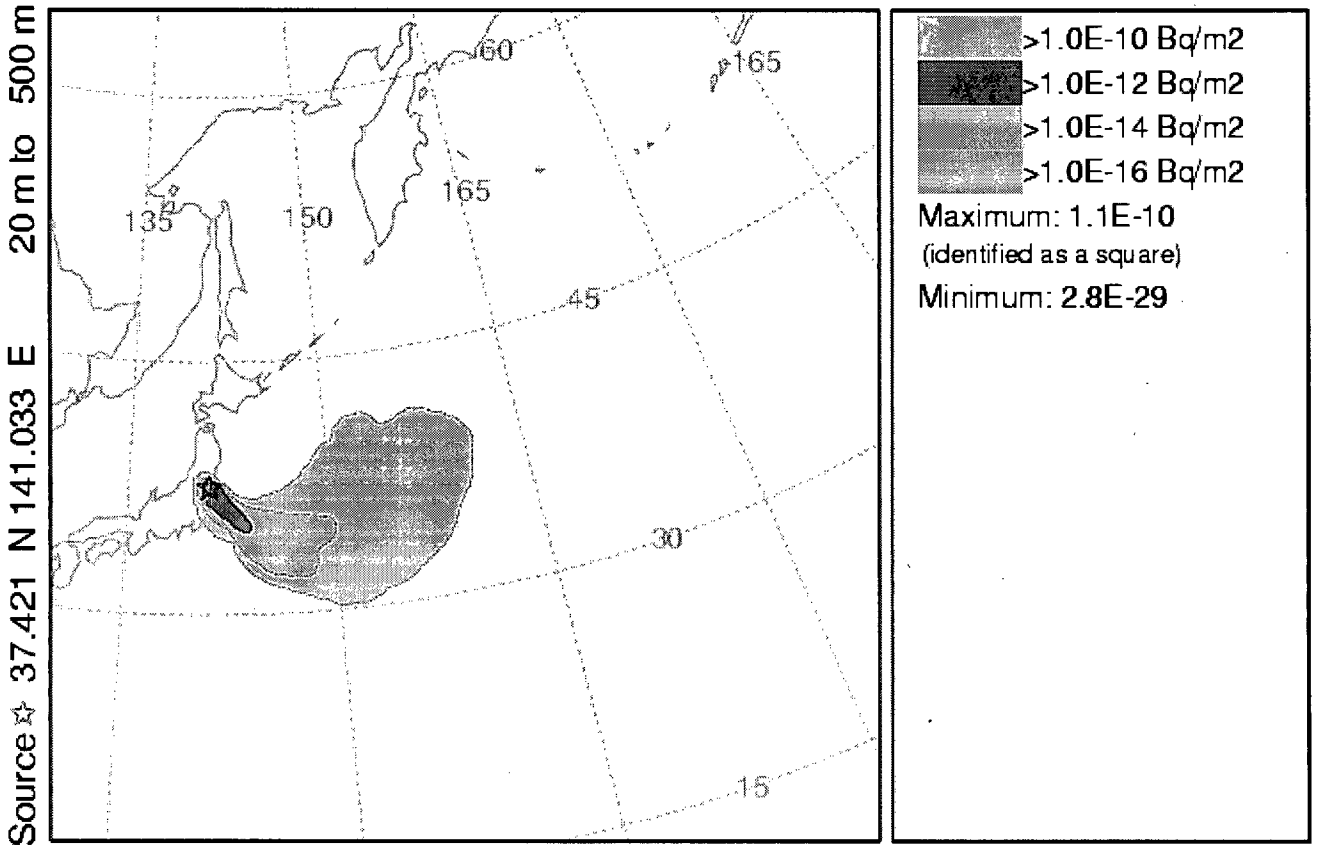
0600 25 Mar 11 GFSG FORECAST INITIALIZATION

Created: 1114UTC 25/03/2011 (day/month/year) RSMC Washington - NOAA ARL / NCEP
Source:FUKUSHIMA-DAIICHI-1 lat:37.4206 lon:141.0329 hgt:20 to 500 m
Release ID:I131 Rate: .0138 Bq/hr Duration: 72 hr Particles: 5000
Distribution: Uniform between 20 and 500 m AGL
Dry Deposition Rate:0.02 m/s Wet Removal (below/in-cloud):1.00E-04/3.20E+05
Meteorology: 0600 UTC 25 Mar 2011 GFS
Note: Contour values may change from chart to chart

Response: IAEA NOTIFIED EMERGENCY

NOAA HYSPLIT MODEL

Deposition (Bq/m2) at ground-level
Integrated from 0000 25 Mar to 0000 27 Mar 11 (UTC)
I131 Release started at 1100 25 Mar 11 (UTC)



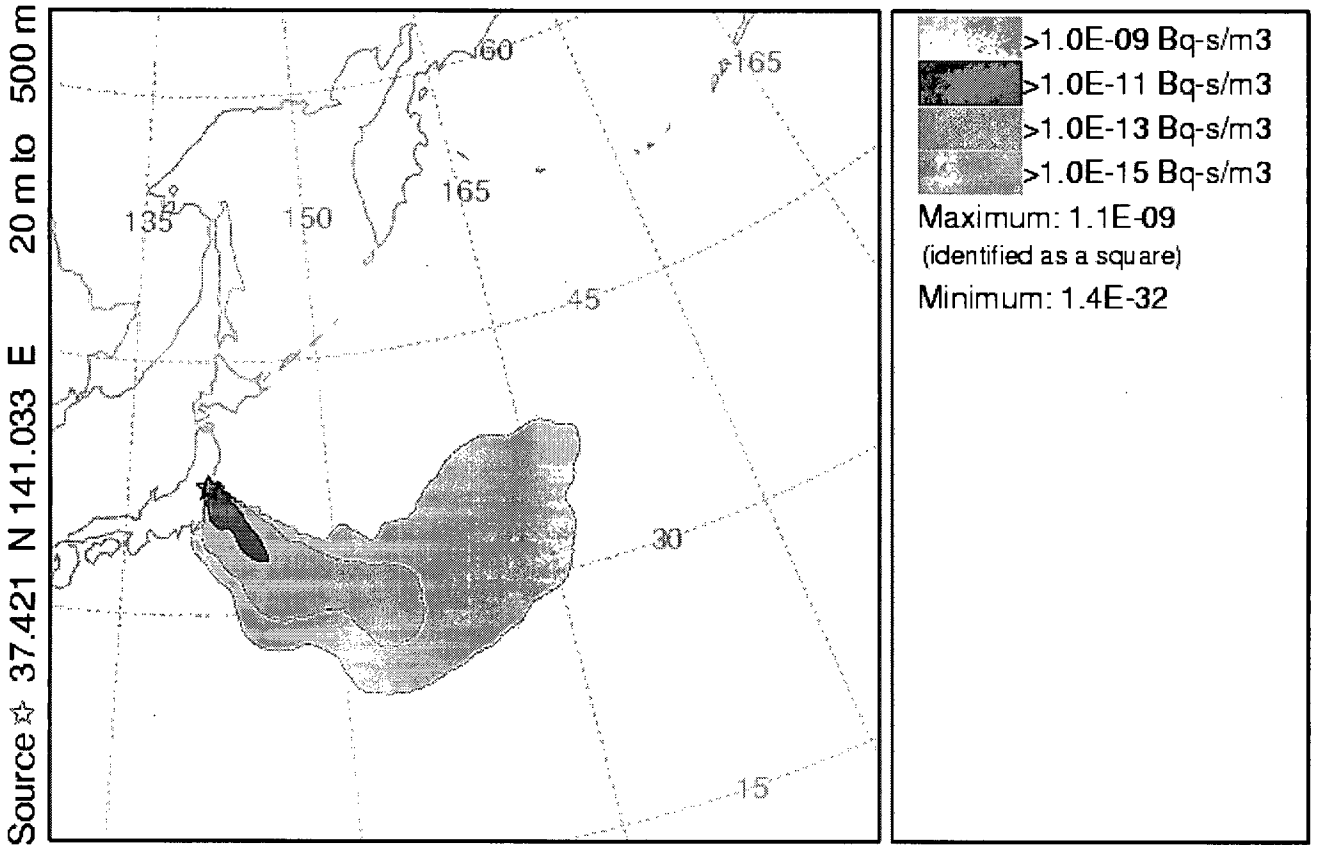
0600 25 Mar 11 GFSG FORECAST INITIALIZATION

Created: 1114UTC 25/03/2011 (day/month/year) RSMC Washington - NOAA ARL / NCEP
Source:FUKUSHIMA-DAIICHI-1 lat:37.4206 lon:141.0329 hgt:20 to 500 m
Release ID:I131 Rate: .0138 Bq/hr Duration: 72 hr Particles: 5000
Distribution: Uniform between 20 and 500 m AGL
Dry Deposition Rate:0.02 m/s Wet Removal (below/in-cloud):1.00E-04/3.20E+05
Meteorology: 0600 UTC 25 Mar 2011 GFS
Note: Contour values may change from chart to chart

Response: IAEA NOTIFIED EMERGENCY

NOAA HYSPLIT MODEL

Exposure (Bq-s/m3) averaged between 0 m and 500 m
Integrated from 0000 27 Mar to 0000 28 Mar 11 (UTC)
I131 Release started at 1100 25 Mar 11 (UTC)



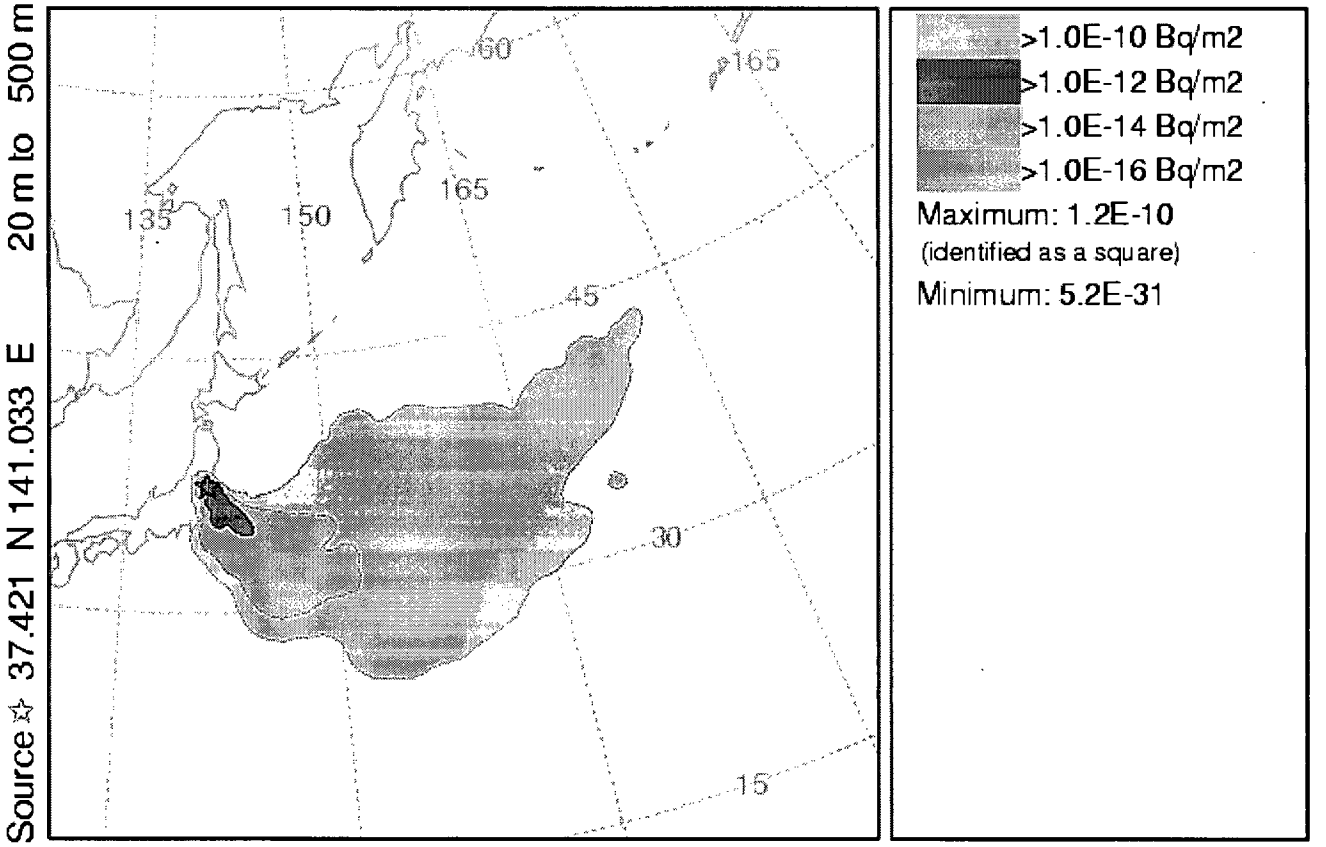
0600 25 Mar 11 GFSG FORECAST INITIALIZATION

Created: 1114UTC 25/03/2011 (day/month/year) RSMC Washington - NOAA ARL / NCEP
Source:FUKUSHIMA-DAIICHI-1 lat:37.4206 lon:141.0329 hgt:20 to 500 m
Release ID:I131 Rate: .0138 Bq/hr Duration: 72 hr Particles: 5000
Distribution: Uniform between 20 and 500 m AGL
Dry Deposition Rate:0.02 m/s Wet Removal (below/in-cloud):1.00E-04/3.20E+05
Meteorology: 0600 UTC 25 Mar 2011 GFS
Note: Contour values may change from chart to chart

Response: IAEA NOTIFIED EMERGENCY

NOAA HYSPLIT MODEL

Deposition (Bq/m2) at ground-level
Integrated from 0000 25 Mar to 0000 28 Mar 11 (UTC)
I131 Release started at 1100 25 Mar 11 (UTC)



0600 25 Mar 11 GFSG FORECAST INITIALIZATION

Created: 1114UTC 25/03/2011 (day/month/year) RSMC Washington - NOAA ARL / NCEP
Source:FUKUSHIMA-DAICHI-1 lat:37.4206 lon:141.0329 hgt:20 to 500 m
Release ID:I131 Rate: .0138 Bq/hr Duration: 72 hr Particles: 5000
Distribution: Uniform between 20 and 500 m AGL
Dry Deposition Rate:0.02 m/s Wet Removal (below/in-cloud):1.00E-04/3.20E+05
Meteorology: 0600 UTC 25 Mar 2011 GFS
Note: Contour values may change from chart to chart

Response: IAEA NOTIFIED EMERGENCY

From: Brandon, Lou
Sent: Saturday, March 26, 2011 7:16 AM
To: Dorman, Dan
Cc: PMT02 Hoc; PMTERDS Hoc
Subject: Speedi Plots

Dan,

I've been attempting to interpret the Speedi Plots, to help address your question. The plots come in three forms, a wind flow chart valid for one hour, an air emersion dose rate, and an iodine concentration. The activity released appears to be 1 Bq in one hour.

The Iodine Concentration in air plot appears to start with a maximum concentration of 6.76 x 10^{-10} Bq/m3 which seems to be 1 Bq dispersed through a hemisphere, of 1 km radius. The plot then highlights 5 contours of decreasing concentrations from 5 x 10^{-10} Bq/m3 to 5 x 10^{-12} Bq/m3. In essence the plot is like a smoke plot. If we were to artificially construct a RASCAL run with the same meteorological data (wind direction and speed for 1 hr) and set up some reasonable source term, then we could scale the Speedi plot to obtain a concentration downwind and compare. In Speedi, the concentration drops off by a factor of 5 from 9 km to 15 km. Setting up a similar met situation in RASCAL (F stability), we see the iodine concentration drops off from 1.5 E6 Bq/m3 at 11km to about 6.7 Bq/m3 at 16 km, roughly maybe a factor of 2.5 over the same distances. That's the kind of analysis we can do.

The Air Emersion Dose Rate plot works similarly, where the maximum dose rates starts at 2.835 E-15 uGy/h. I can't quite see how that number is arrived at, but it must be related to a Bq to dose rate conversion. The radionuclide is translated as rare gas (noble gas?) but a specific radionuclide is not identified. The dose rate drops off by a factor of 5 from about 6 km to 13 km. In RASCAL, the cloud shine drops off from 5.4 E-3 Sv/h at 4.8 km to 2.9 E-3 Sv/h at 11.3 km, roughly less than a factor of 2 over a doubling of the distance.

With the release of RASCAL 4.1, and it's new atmospheric dispersion model, we would expect greater dispersion than in the old model. With these initial comparisons, it would appear that the Speedi model has greater dispersion. My RASCAL run used one windspeed in one direction. In the Speedi runs, particularly the far reaching air immersion plot, turbulence is quite evident in the higher resolution model, so I think the greater dispersion is as expected.

This example just uses one set of Speedi data and a hypothetical RASCAL run. We're limited to how we can compare and contrast, but this case will hopefully give you perspective on what is possible and how one case compares.

Lou

nnn/202

From: OST01 HOC
Sent: Saturday, March 26, 2011 3:25 AM
To: Virgilio, Martin
Cc: OST02 HOC; OST01 HOC
Attachments: 03-26-2011 Ops Center Staffing Level.xlsx

Marty:

Per your request.

The staffing levels for the Ops Center in Support of the Japanese Earthquake event is attached.

This spreadsheet reflects staffing levels as of March 26, 2011 and going forward.

Person/shift was zeroed if the position was "on-call" and for the Naval Reactors position.

Steve Campbell
EST Coordinator

nnn/203

Japanese Event Staffing Levels as of March 26, 2011

Position	# of shifts/day	Person/shift	people/day	Comment
ET Director	3	1	3	
ET Esponse Advisor	3	1	3	
ET Rx Prot Measures & State Coor	3	0	0	Eliminated position
EBT Admin Assistant	3	1	3	
EBT Coordinator	3	1	3	
EST Status Officer	3	1	3	
EST Actions Officer	2	1	2	11pm-7am shift eliminated
EST Coordinator	3	1	3	
EST Chronology Officer	3	1	3	
EST Response Operations Mgr	3	1	3	
EST Admin Assistant	2	1	2	11pm-7am shift eliminated
LT Director	3	1	3	
LT Coordinator	3	1	3	
LT State Liaison	3	0	0	essentially all shifts on call
LT Federal Liaison	3	1	3	
LT Congressional	3	0	0	all shifts on call
LT International	3	2	6	
PMTR Director	3	1	3	
PMTR Coordinator	3	1	3	
PMTR Protective Actions Asst Dir	3	1	3	
PMTR RAAD	3	1	3	
PMTR Dose Assessment (RASCAL)	3	2	6	
PMTR GIS	1	1	1	One GIS on call for 7am-3pm shift
PMTR Meteorologist	1	1	1	One meteorologist on call for 7am-3pm shift
RST Director	3	1	3	
RST Coordinator	3	1	3	
Severe Accident/PRA	3	1	3	
BWR Expertise	3	1	3	
RST Comm/ERDS Operator	3	1	3	
RST Support (Seismology Q &A)	3	0	0	all shifts on call
RST Support (Structural	3	0	0	all shifts on call
Naval Reactors	2	0	0	Not included in pay structure
Contractors	2	1	2	
Guards	3	2	6	Estimated Average
Total	94	31	86	

From: PMT02 Hoc
Sent: Sunday, March 27, 2011 4:15 PM
To: PMT09 Hoc; PMTERDS Hoc
Subject: Potential Shielded suits.and anti contamination clothing

Shielded suits from Rad Shield.
http://www.radshield.com/

www.orex.com

Suits for anti-contamination.

PMT Dose Analyst (PMT02)
NRC Operation Center

THIS IS A monitoring action for Japanese event.

nnn/204

News Release

Readings at Monitoring Post out of 20 Km Zone of Fukushima Dai-ichi NPP

As of 16:00 March 27, 2011
Ministry of Education, Culture, Sports, Science and Technology (MEXT)

1. Monitoring Outputs by MEXT ***Boldface and underlined readings are new.**

* 1 measured by Geiger-Müller counter
* 2 measured by ionization chamber type survey mete
* 3 measured by NaI scintillator detector

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : μ Sv / h)	Weather	Reading by
Reading Point 【1】 (about 60Km Northwest)	**2011/3/27 9:41**	**2.5 *2**	**No rain**	**MEXT**
Reading Point 【2】 (about 55Km Northwest)	**2011/3/27 14:51**	**5.7 *2**	**Rain**	**JAEA (Japan Atomic Energy Agency)**
Reading Point 【2】 (about 55Km Northwest)	2011/3/27 10:10	5.1 *2	No rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【3】 (about 45Km Northwest)	**2011/3/27 14:25**	**3.6 *2**	**No rain**	**JAEA (Japan Atomic Energy Agency)**
Reading Point 【3】 (about 45Km Northwest)	2011/3/27 10:41	5.5 *2	Rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【4】 (about 50Km Northwest)	2011/3/27 10:30	1.6 *2	No rain	MEXT
Reading Point 【5】 (about 45Km North)	**2011/3/27 13:25**	**1.5 *2**	**No rain**	**JAEA (Japan Atomic Energy Agency)**
Reading Point 【5】 (about 45Km North)	2011/3/27 11:12	0.3 *2	No rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【6】 (about 45Km North)	**2011/3/27 12:00**	**1.5 *2**	**No rain**	**JAEA (Japan Atomic Energy Agency)**
Reading Point 【7】 (about 45Km North)	**2011/3/27 12:10**	**1.7 *2**	**No rain**	**JAEA (Japan Atomic Energy Agency)**
Reading Point 【31】 (about 30Km West-northwest)	**2011/3/27 11:30**	**16.8 *2**	**Rain**	**MEXT**
Reading Point 【31】 (about 30Km West-northwest)	2011/3/27 11:03	23.0 *2	No rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【32】 (about 30Km Northwest)	**2011/3/27 11:55**	**45.0 *2**	**No rain**	**MEXT**

＊1 measured by Geiger-Müller counter
＊2 measured by ionization chamber type survey mete
＊3 measured by NaI scintillator detector

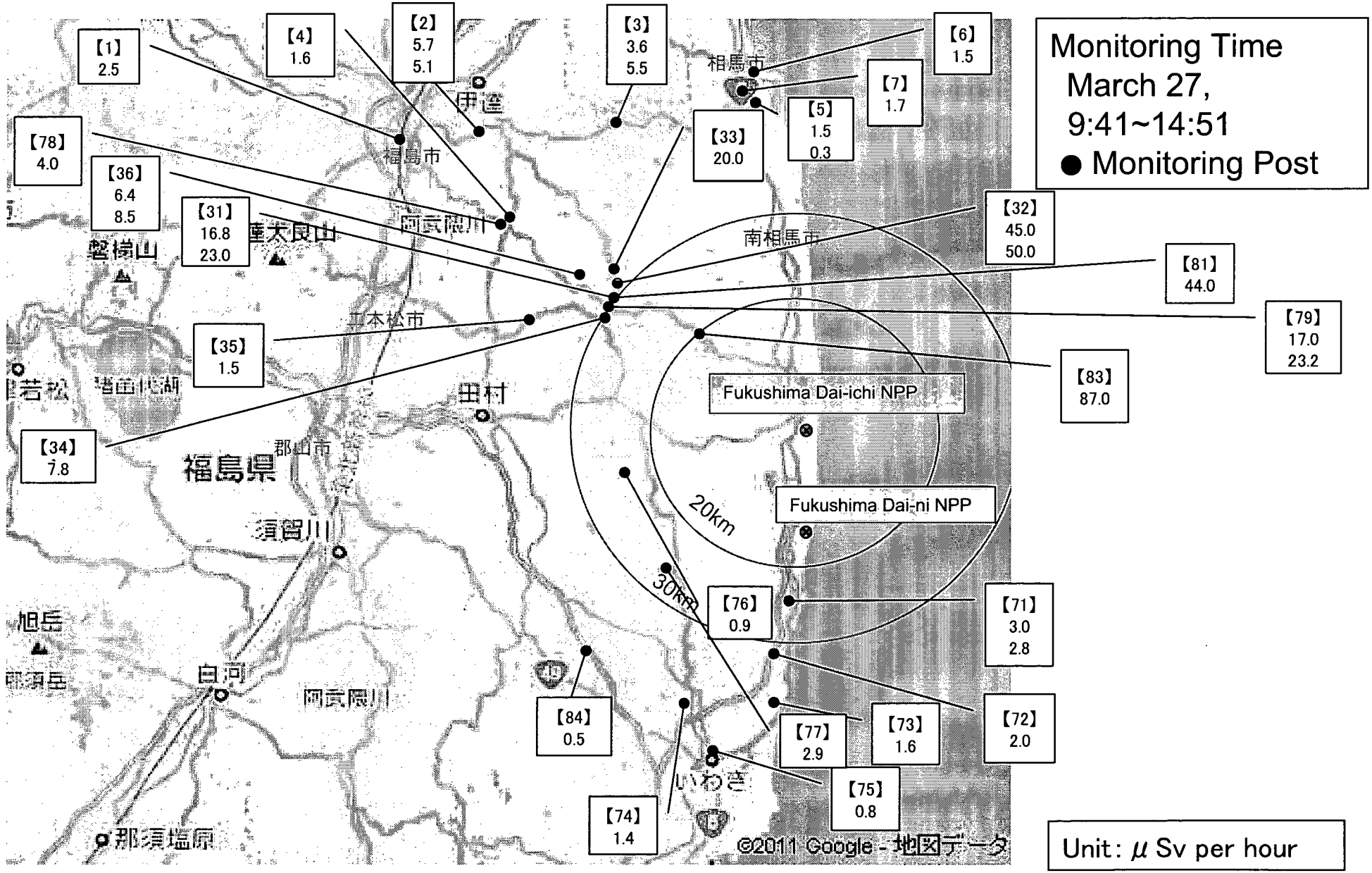
Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : μ Sv / h)	Weather	Reading by
Reading Point 【32】 (about 30Km Northwest)	2011/3/27 11:30	50.0 *2	No rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【33】 (about 30Km Northwest)	2011/3/27 12:15	20.0 *2	No rain	MEXT
Reading Point 【34】 (about 30Km Northwest)	2011/3/27 13:40	7.8 *2	No rain	MEXT
Reading Point 【35】 (about 35Km Northwest)	2011/3/27 14:00	1.5 *2	No rain	MEXT
Reading Point 【36】 (about 40Km Northwest)	2011/3/27 11:10	6.4 *2	Rain	MEXT
Reading Point 【36】 (about 40Km Northwest)	2011/3/27 10:43	8.5 *2	No rain	JAEA (Japan Atomic Energy Agency)
Reading Point 【71】 (about 25Km South)	2011/3/27 14:02	3.0 *2	No rain	MEXT
Reading Point 【71】 (about 25Km South)	2011/3/27 8:17	2.8 *2	No rain	Police (counter NBC operations unit)
Reading Point 【72】 (about 30Km South)	2011/3/27 8:43	2.0 *2	No rain	Police (counter NBC operations unit)
Reading Point 【73】 (about 35Km South)	2011/3/27 9:00	1.6 *2	No rain	Police (counter NBC operations unit)
Reading Point 【74】 (about 35Km South)	2011/3/27 9:29	1.4 *2	No rain	Police (counter NBC operations unit)
Reading Point 【75】 (about 45Km South)	2011/3/27 7:19	0.8 *2	No rain	Police (counter NBC operations unit)
Reading Point 【76】 (about 25Km Southwest)	2011/3/27 12:00	0.9 *2	Rain	Police (counter NBC operations unit)
Reading Point 【77】 (about 25Km Southwest)	2011/3/27 12:20	2.9 *2	No rain	Police (counter NBC operations unit)
Reading Point 【78】 (about 45Km Northwest)	2011/3/27 7:25	4.0 *2	No rain	Police (counter NBC operations unit)
Reading Point 【79】 (about 30Km Northwest)	2011/3/27 13:27	17.0 *2	No rain	MEXT
Reading Point 【79】 (about 30Km Northwest)	2011/3/27 10:04	23.2 *2	No rain	Police (counter NBC operations unit)
Reading Point 【81】 (about 30Km West-northwest)	2011/3/27 9:44	44.0 *2	No rain	Police (counter NBC operations unit)

＊1 measured by Geiger-Müller counter
＊2 measured by ionization chamber type survey mete
＊3 measured by NaI scintillator detector

Monitoring Post (length from NPP)	Monitoring Time	Reading (unit : μSv / h)	Weather	Reading by
Reading Point 【83】 (about 20Km Northwest)	2011/3/27 10:25	87.0 *2	No rain	Police (counter NBC operations unit)
Reading Point 【84】 (about 40km Southwest)	2011/3/27 11:18	0.5 *2	No rain	MEXT

2. Under construction, Reading by Ministry of Defense

Readings at Monitoring Post out of Fukushima Dai-ichi NPP



From: Salley, MarkHenry
To: Correia, Richard
Subject: RE: Fukushima events
Date: Monday, March 28, 2011 5:05:57 PM
Attachments: More Unit 3 3 expolsions.flv

Rich,

We have studied (and continue to do so) a lot on cable fires although though not H2 generated. I would surmise the H2 would cause more cable damage from the deflagration/detonation mechanical impact rather than thermal damage from the flash fire. A flash fire should not have overcome the cable's thermal inertia to cause damage. Also, you did not see large plumes of black smoke that would suggest cables (polymer/plastic/hydrocarbon) burning in a conventional manner. I'd guess water damage is a greater concern than fire damage for the cables and connections. I'd also think it was very Unit specific:

U1: H2 explosion looked to be contained to refuel floor.
U2: Rx Bldg looks intact, however there were reports of H2 explosions lower in the plant.
U3: Bad shape ~ I'm not sure anything works. If I'm listening to this video correctly, you hear at least 3 separate H2 explosions (Attached)
U4: Damage appears to be from U3 explosions, then some U4 internal.

MHS

From: Correia, Richard
Sent: Monday, March 28, 2011 4:42 PM
To: Salley, MarkHenry
Subject: Fukushima events

Mark,

Any thoughts on the effects the H2 explosions/fire had on electrical cables at the Fukushima plant? Is this something we have studied or have information on from earlier analyses?

thanks

Richard Correia, PE
Director, Division of Risk Analysis
Office of Nuclear Regulatory Research
US NRC

richard.correia@nrc.gov

NRR/206

From: Drouin, Mary
To: Thompson, John
Cc: Thomas, Eric; Demoss, Gary; Coe, Doug; Correia, Richard
Subject: RE:
Date: Monday, March 28, 2011 5:50:35 PM

John,

I am impressed that someone found this paper! With regard to what Mark I plants that did not install hardened pipe vents, I seem to recall that only one plant initially "fought" the request (not a regulation), and it was FitzPatrick. However, I say initially because what I seem to remember is that they had a hardened pipe vent and were initially objecting because the issue was being "forced" via a generic letter versus a regulation. Bottom line, I believe that all operating reactors in Mark I containments have hardened pipe vents.

You might want to look at NUREG-1560 (IPE insights report) which discusses insight on SBO and the technical report we sent to NRR when we did the technical basis for risk-informing 50.44, combustible gas control.

Hope this helps.

Tks, mary

From: Thompson, John
Sent: Monday, March 28, 2011 3:59 PM
To: Drouin, Mary
Cc: Thomas, Eric
Subject:

Mary,

I just re-read your SECY 96-51 on the interim status of the IPE program. The paper, among other things, discusses Mark I vulnerabilities related to station blackout and containment venting. Very interesting reading in light of what is going on with the three units at Daiichi in Japan. It looks like the scenarios mentioned in the paper are being played out in Japan.

We in IOEB (OpE) are compiling documents that shows the level of knowledge the NRC has in the area of Mark I reviews, severe accident insights and what actions US reactors took in response to identified design vulnerabilities. I believe the NRC will have to put together a case for why US plants with Mark I containments are safe to operate in light of what is going on in Japan and this historical review will be of benefit.

By the way, do you know what US Mark I plant did not install a hardened vent? The SECY alludes to this point in the attachements.

John Thompson

NRR/207

From: OST01 HOC
Sent: Monday, March 28, 2011 1:01 PM
To: OST02 HOC
Subject: FW: FedEx package

From: Dorsey, Cynthia
Sent: Monday, March 28, 2011 12:18 PM
To: OST01 HOC
Subject: FW: FedEx package

Tony, last night I packaged 2 cd's that needed to be FedEx out this morning, they were on the corner of your desk. Do you know if they were sent?

nnn/208

From: OST01 HOC
Sent: Monday, March 28, 2011 1:05 PM
To: Reis, Terrence
Cc: OST02 HOC; OST01 HOC
Subject: Replacement PMTR Director Slots

Terry,

We replaced you with Don Cool on Tuesday and Wednesday 7am-3pm and with John Lubinski on Thursday from 3pm to 11 pm. This is reflected on the current Master ERO Staffing Schedule. Thank you for your support of the Japanese Earthquake response activities.

Tony McMurtray
EST Coordinator

From: OST01 HOC
Sent: Thursday, April 21, 2011 6:37 PM
To: Tracy, Glenn

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

nnn/210

From: PMTERDS Hoc
Sent: Sunday, March 27, 2011 2:04 AM
To: Jackson, Todd; Miller, Marie
Subject: Reentry guidance

For your information, the reentry guidance that was developed by the PMT was sent to the White House NSS on 3/26/11 at 1653.

From: PMTERDS Hoc
Sent: Saturday, March 26, 2011 1:05 PM
To: Hoc, PMT12
Cc: PMT02 Hoc; PMT03 Hoc; PMT05 Hoc
Subject: Useful Japan web site with dose monitoring data

http://www.bousai.ne.jp/eng/

nnn/212

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
Attachments: Japan One Pager 1800 EDT 4-25-11.docx

From: Hoc, PMT12
Sent: Monday, April 25, 2011 9:07 PM
To: OST01 HOC
Subject: RE: ACTION: UPDATE -- One Pager for 4/25/11 - 2300 EDT

See final updates to PMT section.

Thanks,
Stacey

From: OST01 HOC
Sent: Monday, April 25, 2011 8:53 PM
To: Hoc, PMT12
Subject: FW: ACTION: UPDATE -- One Pager for 4/25/11 - 2300 EDT

See updates provided by Jeff for PMT and incorporate into your PMT input. 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.

NRR/213

Thank you…

Mary Glenn Crutchley
EST Coordinator

*** Attachment is OUO ***

From: Carpenter, Cynthia
Sent: Monday, April 25, 2011 10:16 PM
To: OST01 HOC
Subject: Japan One Pager 2300 EDT 4-25-11.doc
Attachments: Japan One Pager 2300 EDT 4-25-11.doc

NNN/214

From: OST01 HOC
Sent: Tuesday, March 29, 2011 11:30 PM
To: PMT02 Hoc; PMT11 Hoc; Hoc, PMT12
Cc: FOIA Response.hoc Resource
Subject: FW: SONGS Samples for 3/29/11

-----Original Message-----
From: HOO Hoc
Sent: Tuesday, March 29, 2011 11:23 PM
To: LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Subject: FW: SONGS Samples for 3/29/11

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

-----Original Message-----
From: Mike.Mcbrearty@sce.com [mailto:Mike.Mcbrearty@sce.com]
Sent: Tuesday, March 29, 2011 11:18 PM
To: Mike.Mcbrearty@sce.com; Hoc, PMT12; HOO Hoc; Reynoso, John
Subject: SONGS Samples for 3/29/11

Below are the results of SONGS air samples for March 29, 2011.

Measured concentration of I-131 ranged from 1E-13 to 2E-13 microcuries/cc.

Measured concentration of Cs-137 was 7E-13 microcuries/cc.

Please let me know if you have any questions.

Mike McBrearty
Nuclear Regulatory Affairs
San Onofre Nuclear Generating Station

nnn/215

From: Ibarra, Jose
To: Correia, Richard
Subject: RE: info on John Lane
Date: Tuesday, March 29, 2011 8:32:12 AM

Rich,
I got John to put some bullets together on his experience related to sever accidents, 5B5 guidelines, and accident recovery. I additionally wanted him to put some bullets together on working with other international regulators. I am reviewing the bullets just now. It also turns out his government passport has expired. I told him to call Kia Jackson (OIP) who takes care of the passports. I also talked to Mike Case this morning to let him know I would have the information for him this morning. They expect the team to leave April 2. John comes in about 9 and I will touch base with him again. Thanks. Jose

---

From: Correia, Richard
Sent: Tuesday, March 29, 2011 7:56 AM
To: Ibarra, Jose
Subject: info on John Lane

Jose,

Did you get what you needed on John Lane for the Japan team?

Richard Correia, PE
Director, Division of Risk Analysis
Office of Nuclear Regulatory Research
US NRC

richard.correia@nrc.gov

NRR/216

From: Tobin, Jennifer
To: Correia, Richard
Subject: RE: Japan team information
Date: Tuesday, March 29, 2011 10:56:24 AM

Richard,
Periodically LIA02 (or LIA03) receives a list from the State Department that contains people in Japan from other agencies. I know that we got a new one the end of last week because we were requested to update the travel plans of NRC folks. The last one we got might even still be open on the computer (pretty sure it's in Excel). I don't know if it has EVERYBODY on it but it might be a start. We could probably request a new one from DoS. I'm filling in tomorrow for a few hours but Jill or Karen (currently on shift) should be able to help you out if you ask.

Thanks for asking!
-Jenny

Jenny (Tobin) Wollenweber
Export Licensing Officer
Office of International Programs
office: 301-415-2328

From: Correia, Richard
Sent: Tuesday, March 29, 2011 10:34 AM
To: Tobin, Jennifer
Subject: Japan team information

Hi jenny,

Hope you are doing well after the tour of the IRC (maybe you're still on shift?). Does OIP have a list of non-NRC people that are going to Japan in support of the events at Fukushima? We heard today that there is (are) DOE lab people going over (because they called us looking for reports etc). Any assistance would be very much appreciated.

Thanks

Richard Correia, PE
Director, Division of Risk Analysis
Office of Nuclear Regulatory Research
US NRC

richard.correia@nrc.gov

NNN/217

From: Droggitis, Spiros
Sent: Tuesday, March 29, 2011 4:19 PM
To: Bubar, Patrice
Subject: Briefing Book

Patty: Becky says tomorrow's hearing is just on Japan so OCA had no responsibility to prepare briefing material on Japan. That was up to the Operations Center. Thursday's hearing is on budget and thus the briefing book which we brought around. Spiros

nnn/218

From: OST01 HOC
Sent: Tuesday, April 26, 2011 2:42 PM
To: FOIA Response.hoc Resource
Subject: FW: [METI Japan](Apr_26)Update on Recovery from Seismic and Tsunami Damage
Attachments: [METI] Apr 25_1130_Seismic Damage to the NPSs.pdf; Apr_26 Radioactivity Level Map Chart.pdf

-----Original Message-----
From: HOO Hoc
Sent: Tuesday, April 26, 2011 2:30 PM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC
Subject: FW: [METI Japan](Apr_26)Update on Recovery from Seismic and Tsunami Damage

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

-----Original Message-----
From: meti-info@meti.go.jp [mailto:meti-info@meti.go.jp]
Sent: Tuesday, April 26, 2011 2:12 PM
To: meti-info@meti.go.jp
Subject: [METI Japan](Apr_26)Update on Recovery from Seismic and Tsunami Damage

From today, Ministry of Economy, Trade and Industry will be providing information focusing on recovery from Great East Japan Earthquake based on the fact that there are many important symptoms of restoration from the Earthquake.

This Monday, the following information has been updated.

---- Today's news ----
1. METI released a report on the impact of Great East Japan Earthquake on supply chain. [Please refer to 2. and the attached file]

---- Updates from METI ----
2. [METI] Apr 26_METI released a report on the impact of Great East Japan Earthquake on supply chain. (only Japanese version is now available.
English version will be uploaded.)
http://www.meti.go.jp/press/2011/04/20110426005/20110426005.html

nnn1219

3. [METI] Apr 25_1130_Seismic Damage to the NPSs [Please refer to the attached file]

4. [METI] Apr 26_Radioactivity Level Map Chart [Please refer to the attached file]

---- Updates from NISA ----
5. [NISA] Apr 26 1300_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/2011/04/20110426009/20110426009-1.pdf

[NISA] Apr 21 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/en20110421-5-1.pdf

6. [NISA] Apr 25 0800_Fukushima Dai-ichi Major Parameters of the Plant
http://www.nisa.meti.go.jp/english/files/en20110426-1-3.pdf

---- Major Updates from other agencies of Japanese Government --- 7. [MLIT] Apr 26 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, Kawaski City and Ichikawa City (Chiba) were as shown in the attachment at very safe level to health.

8. [MLIT] Apr 26 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.

9. [NSC] Apr 26 1645_Assessment of the result of environment monitoring (only Japanese version is available)
http://www.nsc.go.jp/nsc_mnt/110426_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

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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 25_1130_Seismic Damage to the NPSs.pdf)

(See attached file: Apr_26 Radioactivity Level Map Chart.pdf)

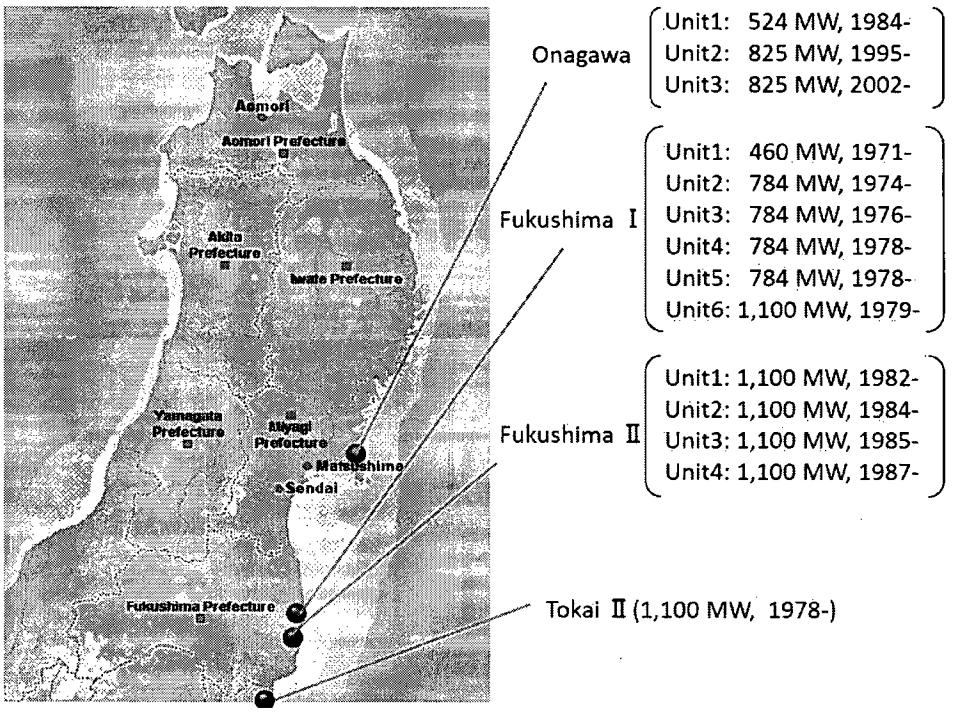
Great East Japan Earthquake and the seismic damage to the NPSs

As of 11:30am April 25th, 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

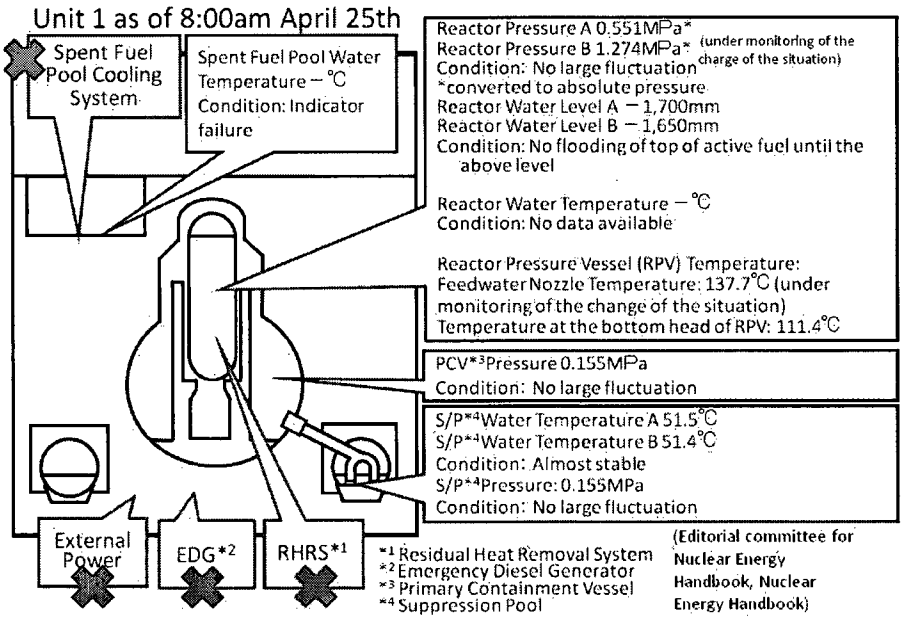
- Lighting in the main control room was recovered on March 24th. And the power supply for the fresh water injection to the reactor pressure vessel was switched to the external power supply on April 3rd.

Stagnant water

- As the result of concentration measurement in the stagnant water on the basement floor of the turbine building, 2.1×10^{5}Bq/cm^3 of ^{131}I (Iodine) and 1.8×10^{6}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, 4.1×10^{3}Bq/cm^3 of ^{131}I (Iodine), 1.6×10:Bq/ cm^3 of ^{134}Cs (Cesium), 1.5×10:Bq/ cm^3 of ^{137}Cs (Cesium) were detected. (April 17th)

Power supply

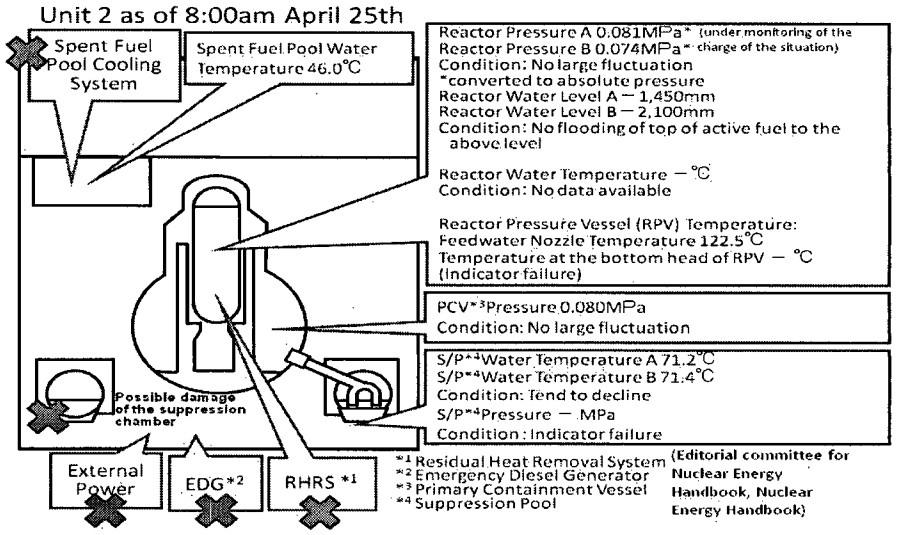
- On March 26th, lighting of the main control room was recovered. And the power supply for the fresh water injection to the reactor pressure vessel was switched to the external power supply on April 3rd.

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

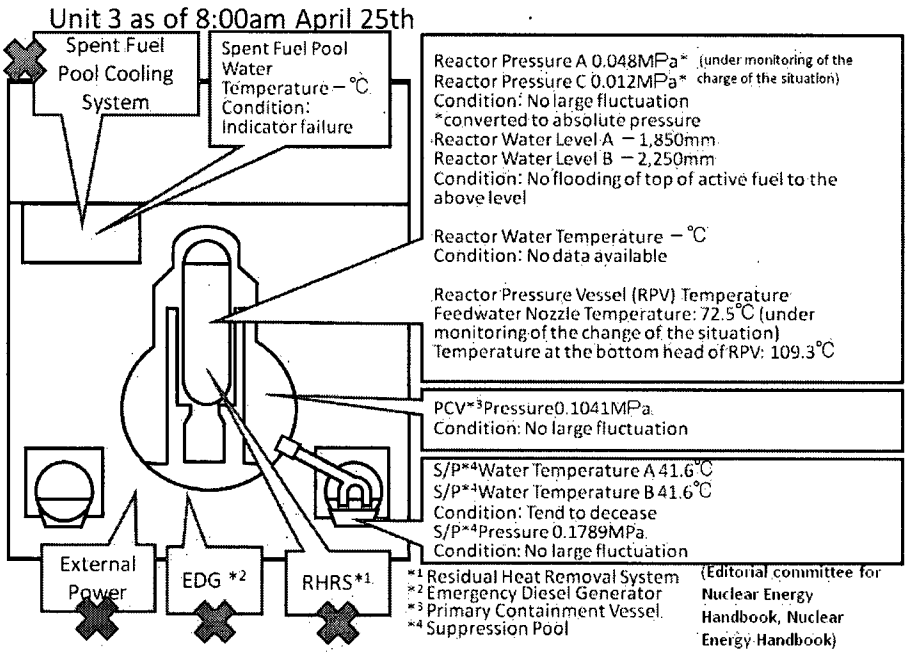
- In order to pour water into the spent fuel pool, helicopters, water cannon trucks, fire engines and concrete pump trucks discharged water to the spent fuel pool of Unit 3 from sky and ground. Since March 29th till April 22th, fresh water spray over the spent fuel pool using the concrete pump truck had been carried out.
- Test injection of fresh water to the spent fuel pool using fuel pool coolant clean-up system for Unit 3 was carried out on April 22nd.

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

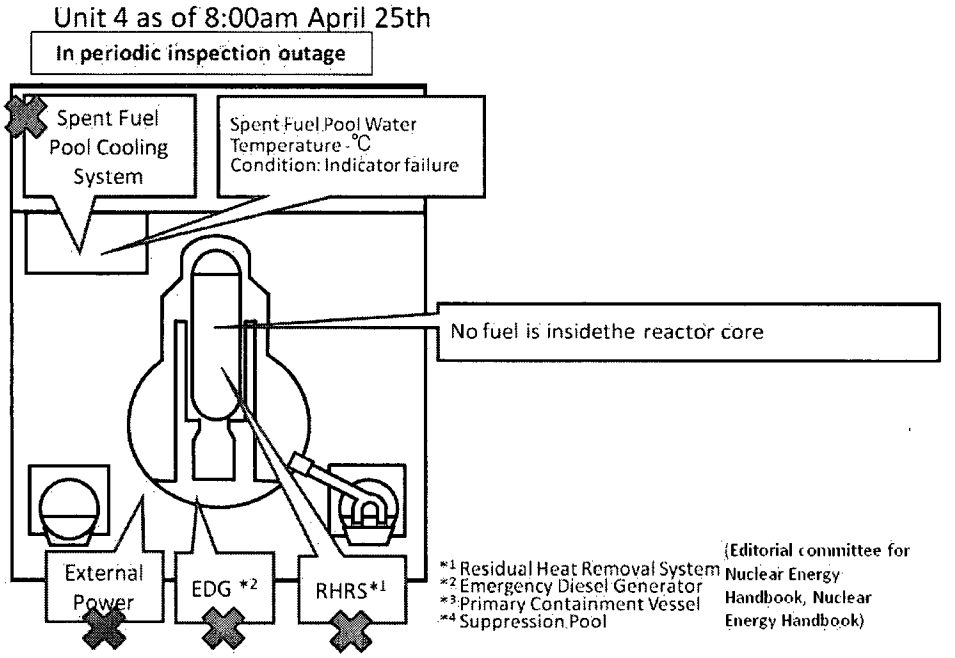
- Water spray using fire engine with seawater over the spent fuel pool of Unit 4 was carried out from March 20th till March 21st. And water spray using a concrete pump truck had been carried out with seawater from March 22nd till March 27th and with fresh water from March 30th till April 24th.

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

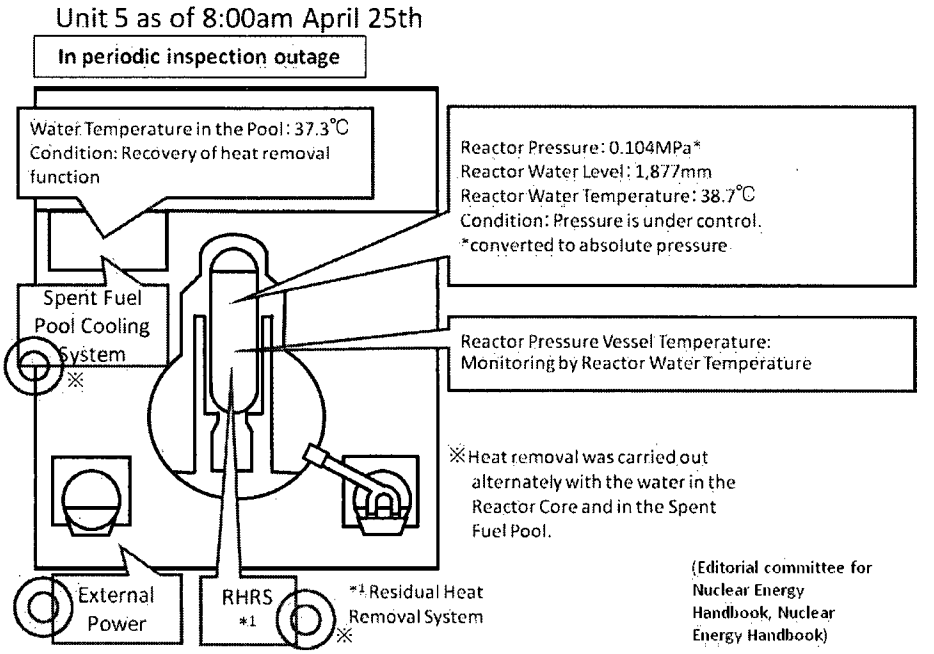
- Unit 5 and 6 received electricity reached to the starting transformer on March 20th. The power supply of Unit 5 and 6 was switched from the emergency diesel generators to the external power supply on March 21st and March 22nd.
- Power supply for the temporary pumps for RHR seawater system of Unit 5 and 6 were switched from the temporary to the permanent on March 24th and 25th.

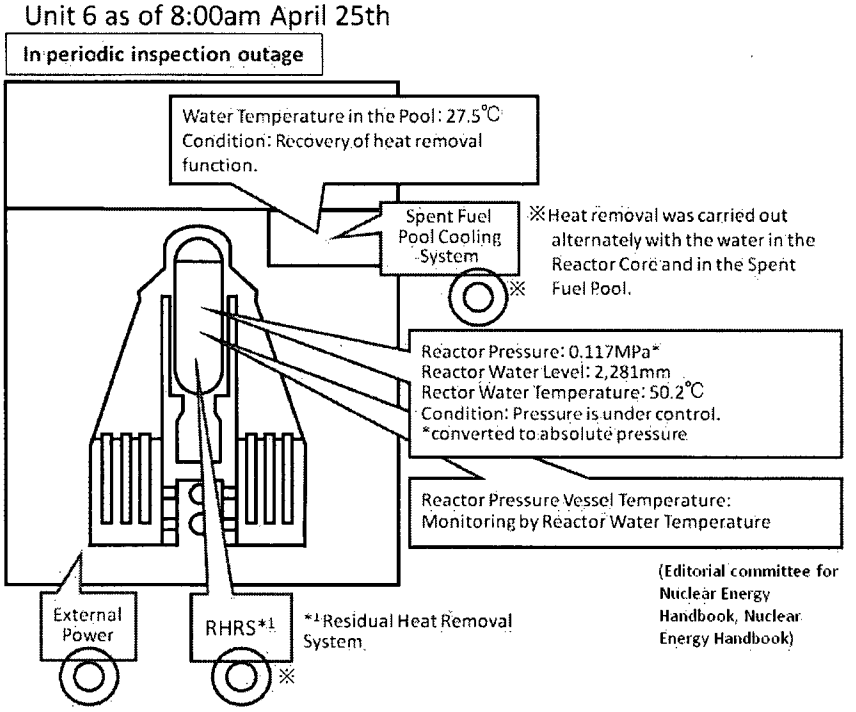
Low-level radioactivity water discharge

- 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, 7.4×10^{1}Bq/cm^3 of ^{131}I (1850.5 times higher than the limit of consentration 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, 4.6×10^{1}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/cm^3 in the controlled area and that of 2.2×10^{1} Bq/cm^3 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 24th.
- Removal of the rubble using remote-control heavy machineries was carried out from April 10th till 24th.
- 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.

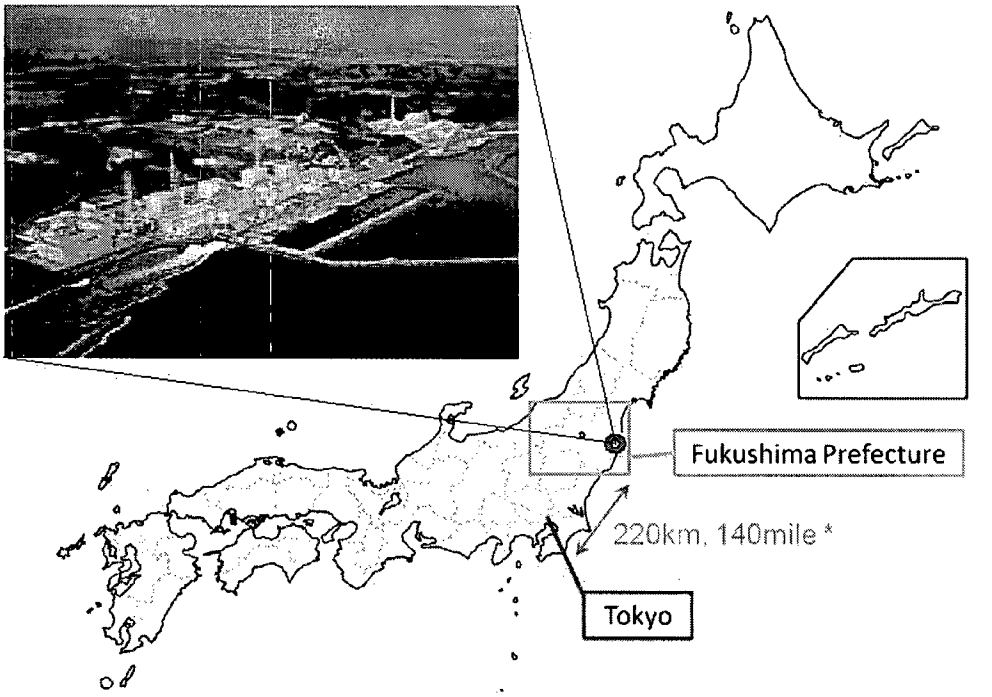
- On March 16th, the Local Emergency Response Headquarter issued "the direction to administer the stable Iodine during evacuation from the evacuation area (20 km radius)" to the Prefecture Governors and the heads of cities, towns and villages.

Monitoring Data

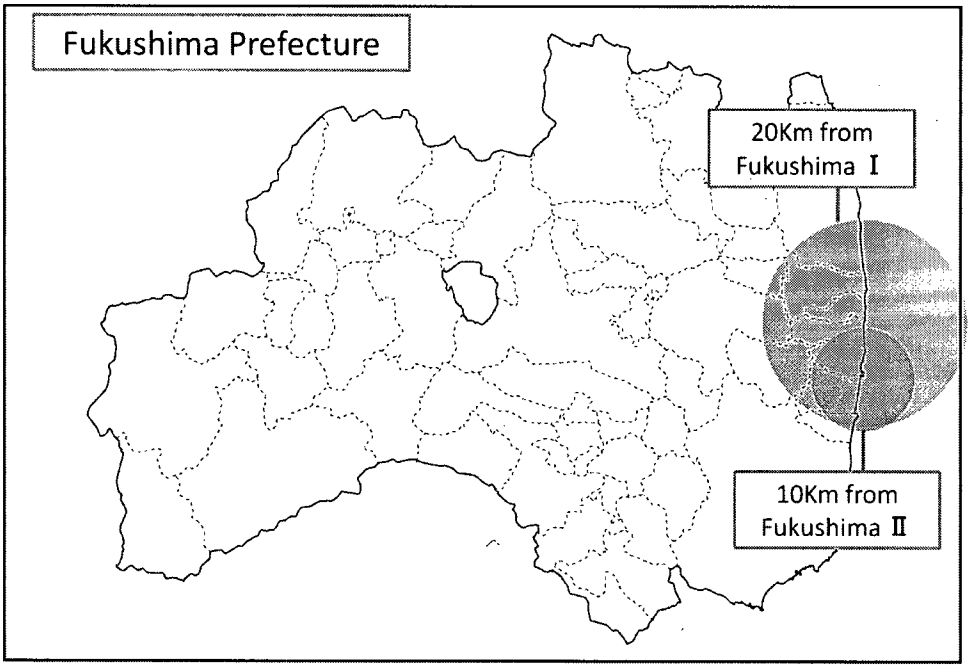
1) The data of Monitoring Post out of 20 kilometers zone of Fukushima I NPS is available on the following website:
http://www.mext.go.jp/a_menu/saigaijohou/syousai/1303726.htm

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



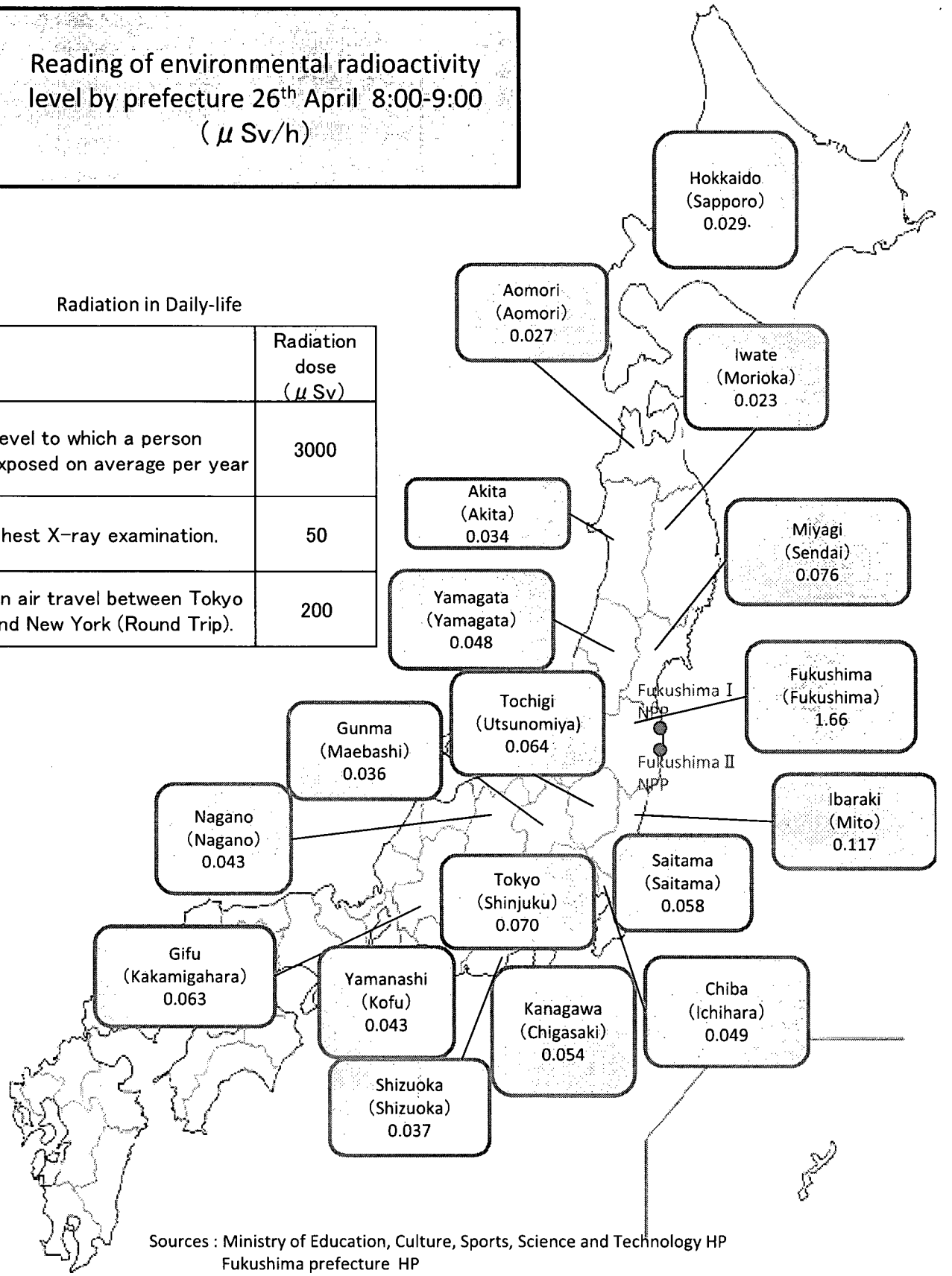
*Distance between Three Mile Island and Washington D.C. : 140km, 88mile



Reading of environmental radioactivity level by prefecture 26th 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: Coe, Doug
To: Correia, Richard
Subject: FW: Additional RES areas post Fukushima Dai ichi
Date: Tuesday, March 29, 2011 11:26:09 AM

Rich, this is what I would propose to Brian (send to Brett Rini, TA) –

Per Brian's request for Additional Areas of Research post-Fukushima:

1. Emergency H2 venting and whether current US plant configurations could lead to pockets of H2 in areas not covered by H2 ignitors or recombiners, that give rise to explosive power sufficient to damage BWR secondary containments.

2. Spent Fuel Pool accident phenomenology (similar to core damage accident research) and the effectiveness of B.5.b provisions

3. Effectiveness of SAMGs and EDMGs provisions

4. Emergency response given large area wide catastrophe and what can be expected

5. Multi-unit site risk including spent fuel (wet and dry) and consequential (linked) multiple initiating events (e.g. seismic with induced tsunami and fire, plus damage to fire suppression and safety systems from either seismic or tsunami), i.e. a Level III PRA

nnn/220

From: RST01 Hoc
Sent: Tuesday, April 26, 2011 2:18 PM
To: OST01 HOC; Hoc, PMT12; LIA08 Hoc
Subject: RE: One Pager Input

Under RST, please replace the highlighted text with the text below:

Revision 2 of the RST assessment is no longer needed and to support the NRC site team. The team requested that no further revision to the RST assessment Revision 1 be done.

From: OST01 HOC
Sent: Tuesday, April 26, 2011 1:31 PM
To: Hoc, PMT12; RST01 Hoc; LIA08 Hoc
Subject: One Pager Input

If you haven't had a chance to update the one-pager for this shift, could you please respond with your updates? Thank you!

Jeff Kowalczik
EST Coordinator

nnn/221

From: LIA08 Hoc
Sent: Tuesday, April 26, 2011 1:59 PM
To: OST01 HOC
Subject: RE: One Pager Input

Below addresses bullet 2 of the LT input:
According to the Japan Site Team there are no U.S. Citizens who live within the 12- and 50- mile radius of the Daiichi Nuclear Power Plant. They verified this information with the Embassy.

Thakns!
Beth Reed
Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: OST01 HOC
Sent: Tuesday, April 26, 2011 1:31 PM
To: Hoc, PMT12; RST01 Hoc; LIA08 Hoc
Subject: One Pager Input

If you haven't had a chance to update the one-pager for this shift, could you please respond with your updates? Thank you!

Jeff Kowalczik
EST Coordinator

From: Ibarra, Jose
To: Correia, Richard
Subject: FW: Japan GW Assessment
Date: Wednesday, March 30, 2011 7:39:18 AM

FYI

From: Nicholson, Thomas
Sent: Tuesday, March 29, 2011 4:23 PM
To: Coe, Doug
Cc: Ibarra, Jose
Subject: FW: Japan GW Assessment

Doug:

I spoke to Jose Ibarra about the following e-mail message from Dr. Randy Bassett, TETRA TECH. Dr. Bassett had worked for RES as a contractor with the University of Arizona on HLW research. He wants me to respond to his inquiry.

I will not respond to Dr. Bassett until I hear back from you.

Thanks ..... Tom

From: Bassett, Randy [mailto:Randy.Bassett@tetratech.com]
Sent: Tuesday, March 29, 2011 4:14 PM
To: Nicholson, Thomas
Subject: Japan GW Assessment

Tom:

I hope you had an enjoyable vacation away from the office for a few days.

I would like to ask if in your official capacity at the NRC you could provide some feedback to us on how to make our team of scientists and engineers available for an assessment of the groundwater in NE Japan.

Tetra Tech is an engineering/science based corporation of more than 12,000 employees, with global office locations. We have assembled a strong technical team here at Tetra Tech that we believe could provide a technical assessment of the ground water potentially affected by the nuclear crisis in Japan. When the current situation stabilizes we believe an objective group of scientists and engineers with strong technical credentials could be rapidly deployed to assess the ground water status and begin the process of determining what if any degradation has occurred, flow directions, transport rates, surface water/ground water interactions,
and potential for surface runoff to infiltrate the fractured rock aquifers and further impact the ground
water.

NNN/222

Tetra Tech has highly respected scientists and engineers with specific training and professional experience with these issues. Internationally known scientists and engineers in health physics, geochemistry, flow, surface water, soil investigations, watershed modeling, and sample collection and analysis are all highly accomplished with applicable skills and are immediately available.

My field as you know is geochemistry having worked for many years at our field site in fractured rock funded
by the NRC, on issues at INEEL, on Yucca Mountain projects, and Hanford. Additionally I suspect boron isotopes will be useful in tracking the cooling water as a supplement to the other nuclides present, and we have a boron isotope lab.

In short we are reaching out to the NRC to determine if the NRC could suggest how to
most effectively get involved in assessing the status of the groundwater in NE Japan, e.g. how we can
best help the commercial and governmental entities understand their water impacts, and what the best funding consortium would be in order to proceed. We are discussing our assessment capabilities with the IAEA, USDOE, the World Bank, and Japanese colleagues that we have in science and engineering.

Would you be willing to provide any feedback from the NRC point of view on who to contact in Japan that
would welcome an objective investigation and whether the NRC could provide any portion of the funding
or provide technical liaisons as we build the necessary bridge between our team and those who make the decisions there in Japan?

Sincerely,

RB

R. L. Bassett, Ph.D. | Principal Geochemist
Phone: 970.206.4254 | Fax: 970.223.7171
randy.bassett@tetratech.com

Tetra Tech | Complex World, CLEAR SOLUTIONS™
3801 Automation Way, Suite 100 | Fort Collins, CO 80525 | www.tetratech.com

From: OST01 HOC
Sent: Wednesday, March 30, 2011 7:47 PM
To: PMT02 Hoc; PMT11 Hoc
Cc: FOIA Response.hoc Resource
Subject: FW: SONGS Samples for 3/30/11

From: HOO Hoc
Sent: Wednesday, March 30, 2011 7:44 PM
To: LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC; LIA08 Hoc
Subject: FW: SONGS Samples for 3/30/11

From: Mike.Mcbrearty@sce.com [mailto:Mike.Mcbrearty@sce.com]
Sent: Wednesday, March 30, 2011 7:36 PM
To: Mike.Mcbrearty@sce.com; Hoc, PMT12; HOO Hoc; Reynoso, John; Warnick, Greg
Subject: SONGS Samples for 3/30/11

Below are the results of SONGS air samples for March 30, 2011.

Measured concentration of I-131 was 2.2E-13 microcuries/cc.

Measured concentration of Cs-137 ranged from 1.9E-13 to 3.1E-13 microcuries/cc.

Please let me know if you have any questions.

Mike McBrearty
Nuclear Regulatory Affairs
San Onofre Nuclear Generating Station

NRR/223

From: Peters, Sean
To: Coe, Doug; Correia, Richard
Subject: Fukushima Research Input
Date: Wednesday, March 30, 2011 9:03:11 AM

Hey Rich and Doug,

In our Monday meeting, Doug requested input on possible research topics based upon the Fukushima incident. HFRB has brainstormed the following topics:

- SAMG Procedure Adequacy
- Risk Communication
- Decisionmaking
- B.5.b Human Action credit – lowered staffing
- Prolonged Fatigue
- Level III PRA (of course!)
- Human Action reliability
- Safety Culture (as discussed before)
- Human perception of risk as incorporated into the design basis and regulations
- Construction HRA
- Reexamination of design basis events
- Control room staffing and plant staffing for severe accidents
- Reliance on automation/overriding automation
- Common cause failure frequencies

Sean

NNR/224

From: Drouin, Mary
To: Correia, Richard; Coe, Doug; Demoss, Gary; Coyne, Kevin; Peters, Sean
Subject: potential impact on projects due to Japan!
Date: Wednesday, March 30, 2011 10:11:54 AM
Importance: High

FYI

I just received a phone call from Sandia and Jeff LaChance and Randy Gantt were, at the very last minute, put on planes last night to Japan. Jeff is a major contributor to a couple of my programs and I believe he supports others. Sandia is letting me know how they plan to address my programs. I will be taking a look ASAP to see if milestones may be impacted.

I have not been informed on this via Sandia management, but one of the staffers who has been asked to pick up Jeff's work on one of my programs (reviewing the fire portion of the IPEEE for Watts Bar Unit 2).

Tks, mary

NRR/225

From: Hoc, PMT12
Sent: Wednesday, March 30, 2011 2:15 AM
To: PMTERDS Hoc
Attachments: Untitled

nnn/226

From: PMTERDS Hoc
Sent: Tuesday, March 15, 2011 12:08 PM
To: LIA04 Hoc
Subject: RE: QandADocumentinWordperDougRequest.doc
Attachments: QA.docx

Rosetta:

Here is what we have on our data file from 3/14/11. This looks different from what you just sent to me. There may be some info for your use from the attached. Please let me know, and we will then coordinate internally before sharing with outsiders.

Prosanta

From: LIA04 Hoc
Sent: Tuesday, March 15, 2011 11:18 AM
To: PMTERDS Hoc
Cc: Couret, Ivonne; Turtil, Richard; Burnell, Scott; Rivera, Alison
Subject: QandADocumentinWordperDougRequest.doc

Prasanta - Given Can we update the attached Q&As and Key Messages/Talking Points, which were distributed early Sunday morning to the NRC Regional State Liaison Officers and Governor-appointed State Liaison Officers? They had previously been coordinated with PMT (Greg Casto) and OPA and approved by the ET.

Thanks much!

Rosetta Virgilio
State Liaison
NRC Operations Center
301-816-5193
Ext 5202

1. **The US Troops in Japan has sent ships to help the relief effort – are they in danger from the radiation?** US Armed forces are trained and equipped to measure radiation and to prevent themselves from entering a dangerous situation. We are in contact with the armed forces and we are monitoring the data.
2. **Should I take KI or other protective measures?** No protective measures are necessary in the United States.
3. **What are the risks to my children?** Based on the information we have now there are no risks to residents of the United States or its territories, and we don't expect that even in the worst case scenario with the Japanese reactors that there would be health and safety impacts for United States residents.
4. **Has the US government set up radiation monitoring stations to track the release?** For concerns within the US, there are existing monitoring stations at US nuclear power plants for their own use, however these stations have the ability to pick up any measurements from other sources. However, no new monitoring stations have been set up and this is not a role that NRC plays and we have not directed licensees to participate in monitoring activities. Non public note–EPA/ERAMS has monitoring capability and we don't know what they are doing.
5. **Is the US Government tracking the radiation released from the Japanese plants?** The NRC is tracking all available data related to the radiation released from the Japanese plants. We have contact with other government agencies, the US military, as well as in the international community. Any data that comes in is reviewed .
6. **What are the offsite and onsite dose rates measured?** The limited data regarding offsite/onsite dose rates has come from several sources and is often in bits and pieces. The measurements are above background levels and are consistent with the practice of venting the containment, however it is too soon to make any definitive statements about the details of the known dose rates.
7. **Is there field measurement data? If so where are the measurements being taken from?** The NRC has received limited field measurement data from Japanese authorities.

From:	Droggitis, Spiros
Sent:	Wednesday, March 30, 2011 5:09 AM
To:	Droggitis, Spiros
Cc:	Schmidt, Rebecca; Powell, Amy; Shane, Raeann; Decker, David; Riley (OCA), Timothy; Weil, Jenny; Dacus, Eugene
Subject:	Daily Plant Status Report - 3/30/2011
Attachments:	USNRC Japan Plant Condition Update March 30 0430EDT.PDF

NRR/727

From: OST01 HOC
Sent: Tuesday, April 26, 2011 12:17 AM
To: FOIA Response.hoc Resource
Subject: FW: your travel

From: Reynolds, Steven
Sent: Tuesday, April 26, 2011 12:14 AM
To: Carpenter, Cynthia; OST01 HOC
Cc: Johnson, Michael; Casto, Chuck; Satorius, Mark; Shear, Gary
Subject: My response: your travel

Cindy,

I am leaving Tokyo on May 3rd and will then turn around and leave Chicago on May 12th to arrive in Tokyo on May 13th, then return home again on May 27th (friday).

Thanks,
Steve

From: Carpenter, Cynthia
To: Reynolds, Steven; OST01 HOC
Cc: Johnson, Michael
Sent: Mon Apr 25 22:27:43 2011
Subject: your travel

Steve

Mary Matheson would like confirmation that you plan to travel back home on May 3 for 2 weeks. Could you confirm? Thank you.

nnn/228

From: OST01 HOC
Sent: Thursday, March 31, 2011 5:11 AM
To: PMT02 Hoc; Hoc, PMT12; PMT11 Hoc
Cc: FOIA Response.hoc Resource
Subject: FW:
Attachments: Fax from 81355105111; Fax from 81355105111

From: HOO Hoc
Sent: Thursday, March 31, 2011 5:10 AM
To: LIA07 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Subject:

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

nnn/229

From: Droggitis, Spiros
Sent: Thursday, March 31, 2011 5:22 AM
To: LIA07 Hoc
Subject: Re: 0430 EDT 3312011 USNRC Japan Plant Condition Update

Thanks again.

From: LIA07 Hoc
To: LIA07 Hoc; LIA12 Hoc; Droggitis, Spiros; Riley (OCA), Timothy
Sent: Thu Mar 31 05:20:37 2011
Subject: 0430 EDT 3312011 USNRC Japan Plant Condition Update

Please find attached the 0430 3/31/11 NRC Japan Plant Condition Update.

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

Thank you,

-Jim

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

nnn/230

From: Droggitis, Spiros
Sent: Thursday, March 31, 2011 5:32 AM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Shane, Raeann; Riley (OCA), Timothy; Weil, Jenny; Decker, David; Dacus, Eugene
Subject: Daily Plant Status Report - 3/31/2011
Attachments: USNRC Japan Plant Condition Update March 31 0430EDT.PDF

NRR/231

From: Droggitis, Spiros
Sent: Thursday, March 31, 2011 8:18 AM
To: LIA07 Hoc
Subject: RE: 0430 EDT 3312011 USNRC Japan Plant Condition Update

Ok, thanks. Spiros

From: LIA07 Hoc
Sent: Thursday, March 31, 2011 8:10 AM
To: Droggitis, Spiros
Subject: RE: 0430 EDT 3312011 USNRC Japan Plant Condition Update

Yes. I'll be here this morning. Let me know if you need anything.

From: Droggitis, Spiros
Sent: Thursday, March 31, 2011 8:09 AM
To: LIA07 Hoc; LIA12 Hoc; Riley (OCA), Timothy
Subject: RE: 0430 EDT 3312011 USNRC Japan Plant Condition Update

No, I think resending may confuse things. Let's see if anyone notices then we may have to. Will you be there this morning?

From: LIA07 Hoc
Sent: Thursday, March 31, 2011 8:02 AM
To: Droggitis, Spiros; LIA12 Hoc; Riley (OCA), Timothy
Subject: RE: 0430 EDT 3312011 USNRC Japan Plant Condition Update

Apologize for the messed up page numbers. Do you want us to send you a revision?
Yen

From: Droggitis, Spiros
Sent: Thursday, March 31, 2011 7:10 AM
To: LIA07 Hoc; LIA12 Hoc; Riley (OCA), Timothy
Subject: RE: 0430 EDT 3312011 USNRC Japan Plant Condition Update

Jim: I've sent this out to the Congressional contacts. I don't know if we'll get questions, but I noticed the page numbers are messed up and some of the pages still reflect March 30. Just a head's up. Thanks, Spiros

---

From: LIA07 Hoc
Sent: Thursday, March 31, 2011 5:21 AM
To: LIA07 Hoc; LIA12 Hoc; Droggitis, Spiros; Riley (OCA), Timothy
Subject: 0430 EDT 3312011 USNRC Japan Plant Condition Update

Please find attached the 0430 3/31/11 NRC Japan Plant Condition Update.

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

Thank you,

NRR/232

-Jim

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

From: Droggitis, Spiros
Sent: Friday, April 01, 2011 11:44 AM
To: Wittick, Susan
Subject: No transcripts yet, just video links

Senate Energy Committee (Borchardt):
http://energy.senate.gov/public/index.cfm?Fuseaction=Hearings.Hearing&Hearing_ID=e8a6b69c-9a06-a2e4-eb1e-2ed705f85bd6

Senate Appropriations Subcommittee (Chairman): http://appropriations.senate.gov/ht-energy.cfm?method=hearings.view&id=45a98e21-056f-4978-96ab-51b80ffa482e

House Transportation and Infrastructure Committee (Weber):
http://transportation.house.gov/hearings/hearingdetail.aspx?NewsID=1193

Nothing available from yesterday's House Appropriations Subcommittee hearing in which the Chairman participated.

nnn/733

From: Droggitis, Spiros
Sent: Friday, April 01, 2011 5:18 AM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Shane, Raeann; Dacus, Eugene; Decker, David; Weil, Jenny; Riley (OCA), Timothy
Subject: Daily Plant Status Report - 4/1/2011
Attachments: USNRC Japan Plant Condition Update April 1 0430EDT.PDF

nnn/234

From: OST01 HOC
Sent: Friday, April 01, 2011 2:07 PM
To: Karas, Rebecca
Cc: Rheaume, Cynthia; OST02 HOC; OST01 HOC
Subject: Training Cynthia Rheamue for EST Chronology Officer Position

Rebecca:

On Tuesday. April 5, 2011, during the 3pm – 11 pm shift, Cynthia will be shadowing you to learn the subject position.

Thanks

Steve Campbell
EST Coordinator

nnn/235

From: Droggitis, Spiros
Sent: Saturday, April 02, 2011 6:10 AM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Shane, Raeann; Dacus, Eugene; Decker, David; Riley (OCA), Timothy; Weil, Jenny
Subject: Daily Plant Status Report - 4/2/2011
Attachments: USNRC Japan Plant Condition Update April 2 0430EDT.PDF

mm/236

From: OST01 HOC
Sent: Saturday, April 02, 2011 1:45 PM
To: LIA01 Hoc
Subject: FW: Japanese Government Action Items and Material Request List (Consortium Call) Rev 04-02 2000 hrs.xlsx

Could you please provide a copy of the spreadsheet, it was not attached.

Thank you,

Stacy Smith
EST Coordinator

From: OST02 HOC
Sent: Saturday, April 02, 2011 1:41 PM
To: OST01 HOC
Subject: FW: Japanese Government Action Items and Material Request List (Consortium Call) Rev 04-02 2000 hrs.xlsx

---

From: Tilden, Jay [mailto:Jay.Tilden@nnsa.doe.gov]
Sent: Saturday, April 02, 2011 1:39 PM
To: LIA01 Hoc; Al Hochevar; Caponiti, Alice; Blamey, Alan; Blount, Tom; Boger, Bruce; Casto, Chuck; Christensen, Harold; Craig Gaddis; DORLCAL Resource; Dorman, Dan; DprNrrCal Resource; Emche, Danielle; ET05 Hoc; ET07 Hoc; FOIA Response.hoc Resource; Giitter, Joseph; Glenn Southern; HOO Hoc; INPO; INPO; INPO; INPO; INPO; INPO; INPO; INPO; LIA06 Hoc; LIA08 Hoc; LIA11 Hoc; McDermott, Brian; McGinty, Tim; Miller, Chris; Monninger, John; Morris, Scott; NRC Liaison at USAID; OST02 HOC; PACOM Watch Officer; Pentagon Japan Crisis Team J-4 Desk; Lyons, Peter; Hoc, PMT12; Rick Nielsen; Robert Gambone; Robert Mercer; Ross-Lee, MaryJane; RST01 Hoc; RST01B Hoc; Golub, Sal; Sal Golub; Aoki, Steven; Tom Vavoso; Virgilio, Martin; Weber, Michael; Wiggins, Jim; William Webster; Zimmerman, Roy
Subject: RE: Japanese Government Action Items and Material Request List (Consortium Call) Rev 04-02 2000 hrs.xlsx

DOE & NNSA Comment on the Spreadsheet –

Item 21 (near the bottom of the spreadsheet) – robotics for rubble removal – this item is not closed. While the KMAX (unmanned helicopter) may be cancelled, a whole range of remote heavy equipment will likely be needed. It is unclear that specialized equipment the DOE has available that may be offered/requested. Commercial sources are available to GOJ. This is an open issue being discussed by the Remote Control Project Team.

Thanks Jay

Jay A. Tilden
Japan Logistics Coordinator &
Director, NA-47
National Nuclear Security Administration
202-586-4582

From: LIA01 Hoc [mailto:LIA01.Hoc@nrc.gov]
Sent: Saturday, April 02, 2011 6:52 AM
To: Al Hochevar; Caponiti, Alice; Blamey, Alan; Blount, Tom; Boger, Bruce; Casto, Chuck; Christensen, Harold; Craig

NMM/237

Gaddis; DORLCAL Resource; Dorman, Dan; DprNrrCal Resource; Emche, Danielle; ET05 Hoc; ET07 Hoc; FOIA Response.hoc Resource; Giitter, Joseph; Glenn Southern; HOO Hoc; INPO; INPO; INPO; INPO; INPO; INPO; INPO; INPO; Tilden, Jay; LIA01 Hoc; LIA06 Hoc; LIA08 Hoc; LIA11 Hoc; McDermott, Brian; McGinty, Tim; Miller, Chris; Monninger, John; Morris, Scott; NRC Liaison at USAID; OST02 HOC; PACOM Watch Officer; Pentagon Japan Crisis Team J-4 Desk; Lyons, Peter; Hoc, PMT12; Rick Nielsen; Robert Gambone; Robert Mercer; Ross-Lee, MaryJane; RST01 Hoc; RST01B Hoc; Golub, Sal; Sal Golub; Aoki, Steven; Tom Vavoso; Virgilio, Martin; Weber, Michael; Wiggins, Jim; William Webster; Zimmerman, Roy
Subject: Japanese Government Action Items and Material Request List (Consortium Call) Rev 04-02 2000 hrs.xlsx

Please see attached. Reply back any updates NLT 1500 today.

Federal Liaison Desk
301-816-5186

From: Droggitis, Spiros
Sent: Sunday, April 03, 2011 6:41 AM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Shane, Raeann; Decker, David; Dacus, Eugene; Weil, Jenny; Riley (OCA), Timothy
Subject: Daily Plant Status Report - 4/3/2011
Attachments: USNRC Japan Plant Condition Update April 3 0430EDT.PDF

NRR/238

From: Droggitis, Spiros
Sent: Monday, April 04, 2011 2:25 PM
To: Dinitz, Ira
Subject: Panelists Say Nuclear Industry Freeze Unlikely, Say Industry Reacted Well To Japan Crisis
Attachments: image001.gif

Panelists Say Nuclear Industry Freeze Unlikely, Say Industry Reacted Well To Japan Crisis. Platts Energy Week, as aired on WUSA-TV Washington, DC (4/3, 8:11 a.m. EDT), interviewed former NRC member Peter Bradford and Washington lawyer Daniel Stenger. Both judged it unlikely that Congress would adopt a proposal by Rep. Ed Markey (D-MA) to freeze nuclear plant licensing, but noted that the additional review work required could slow down NRC's licensing actions. Later in the segment, asked to evaluate the NRC's performance in responding to the Japanese crisis, attorney Stenger stated that the agency "is doing an excellent job. They got on top of the events right away and sent some of their technical experts to Japan" and "began its operations center immediately."

NRR/239

From: Droggitis, Spiros
Sent: Monday, April 04, 2011 6:07 AM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Decker, David; Dacus, Eugene; Shane, Raeann; Riley (OCA), Timothy; Weil, Jenny
Subject: Daily Plant Status Report - 4/4/2011
Attachments: USNRC Japan Plant Condition Update April 4 0430EDT.PDF

NRR/240

From: Droggitis, Spiros
Sent: Monday, April 04, 2011 7:46 AM
To: Dinitz, Ira
Subject: Taxpayers On The Hook For Nuclear Disaster In US.
Attachments: image001.gif

Taxpayers On The Hook For Nuclear Disaster In US. CNN Newsroom (4/1, 1:12pm) reported, "Who pays for the nuclear disaster in this country?" The NRC "commissioned a study to determine the cost of a nuclear disaster and estimated 50,000" deaths "and $314 billion in property damage, adjusting that amount for inflation brings us to the $720 billion that you see here in today's money." Back in the "1950s, the government capped the liability for utility companies. That cap adjusted for inflation is currently $12.6 billion."

nnn/241

~~Not for Release~~

Fukushima-Daiichi Current Status and Planned Work

28 April at 06:00 & 09:00 (Rev-102)

		1F1	1F2	1F3	1F4	1F5	1F6	Common Pool Concentrated RW
Reactivity Control (Halt Reactor)	Current Status	■All CRs are kept inserted in the core	■All CRs are kept inserted in the core	■All CRs are kept inserted in the core	■All fuel assemblies are stored in SFP ■Gate between SFP & reactor cavity closed (For core shroud replacement work during outage)	■Core was loaded with bundles for the start of the next operation cycle ■RPV bolted up (Earthquake occurred after completion of RPV hydraulic test just before the startup) ■Maintaining cold shutdown (at 14:3 on 20 March)	■Long term outage (7 month) ■RPV Head on ■Cold shutdown (at 19:29 on 20 March)	
		CAMS (at 05:00 on 28 April) : D/W: (A) & (B) No measurement S/C: (A) 1.16×10^{0} SV/h (watching trend continuously) (B) 1.67×10^{0} SV/h (watching trend continuously)	CAMS (at 05:00 on 28 April) : D/W: (A) 2.24×10^{1} SV/h, (B) 2.52×10^{1} SV/h, S/C: (A) 4.63×10^{-1} SV/h (watching trend continuously) (B) 4.08×10^{1} SV/h (watching trend continuously)	CAMS (at 05:00 on 28 April) : D/W: (A) 1.42×10^{1} SV/h, (B) 1.08×10^{1} SV/h, S/C: (A) 5.33×10^{-1} SV/h (watching trend continuously) (B) 5.92×10^{-1} SV/h (watching trend continuously)				
	Next Works Planned (TEPCO Headquarters' Activities)	<Long term measure> ☐To add boric acid to fresh coolant before acieving cold shut down <After restoring power> ☐Operating SLC	☐Borated fresh water injection started (at 10:10 on 26 March) <Long term measure> ☐To add boric acid to fresh coolant before acieving cold shut down <After restoring power> ☐ Opeating SLC	<Long term measure> ☐To add boric acid to fresh coolant before acieving cold shut down <After restoring power> ☐Operating SLC				
Coolant Supply & Residual Heat Removal (Core cooling)	Current Status	■Fresh water injection through FDW line (Switch to temporary installed motor driven pump was completed) (Flow Rate: 10.0 m^3/h by interim instrumaentation at 05:00 on 28 April) ・Power source was switched to off-site power. (at 18:25 on 25 April) ■For PCV flooding ・Core cooling water flow rate was changed. 6 → 10 m3/h (Hold) (on 27 April) ■Installing temporary replacement pump for CCSW ■Camera to monitor operating conditions of Core cooling water supply pumps was installed. (on 6 April) ■Backup line for core cooling water injection was installed. (on 14 April) ■Temporary D/G for core cooling water injection was moved to high ground (on 15 April) ■Replacement of water supply hose (on 18 April)	■Fresh water injection from FP line to low pressure coolant injection (Switch to temporary installed motor driven pump was completed) (Flow Rate: 7.0 m3/h by interim instrumaentation at 05:00 on 28 April) ・Power source was switched to off-site power. (at 18:25 on 25 April) ■Installation of the alternate pump for RHRS (28 March) ■Camera to monitor operating conditions of Core cooling water supply pumps was installed. (on 6 April) ■Backup line for core cooling water injection was installed. (on 14 April) ■Temporary D/G for core cooling water injection was moved to high ground (on 15 April) ■Replacement of water supply hose (on 18 April)	■Fresh water injection from FP line to low pressure coolant injection (Switch to temporary installed motor driven pump was completed) (Flow Rate: 6.8 m3/h by interim instrumaentation at 05:00 on 28 April) ・Power source was switched to off-site power. (at 18:25 on 25 April) ■Instalation of the alternate pump for RHRS (28 March) ■Camera to monitor operating conditions of Core cooling water supply pumps was installed. (on 6 April) ■Backup line for core cooling water injection was installed. (on 14 April) ■Temporary D/G for core cooling water injection was moved to high ground (on 15 April) ■Replacement of water supply hose (on 18 April)		■Ordinary operation in SHC mode of RHR (27 April 19:13-) (SHC mode: Cooling mode with heat-exchanger)	■Ordinary operation in SHC mode of RHR (27 April 20:08-) ■One out of two temporary RHRS pumps tripped (25 April 18:00 - 26 April 11:17)	
		■Reactor Water Level (at 05:00 on 28 April) TAF-1650 mm (Fuel Range; Gauge A) TAF-1600 mm (Fuel Range; Gauge B) ■RPV Dome Pressure (at 05:00 on 28 April) 0.415 MPa-g (Gauge A) 1.188 MPa-g (Gauge B) (watching trend continuously) ■RPV Temperature (at 05:00 on 28 April) Feed water nozzle: 107.3℃ (watching trend continuously) Bottom of RPV : 98.5℃	■Reactor Water Level (at 05:00 on 28 April) TAF -1500 mm (Fuel Range; Gauge A) TAF -2100 mm (Fuel Range; Gauge B) ■RPV Dome Pressure (at 05:00 on 28 April) -0.016 MPa-g (Gauge A) (watching trend continuously) -0.020 MPa-g (Gauge D) (watching trend continuously) ■RPV Temperature (at 05:00 on 28 April) Feed water nozzle: 119.9℃ Bottom of RPV : No measurement	■Reactor Water Level (at 05:00 on 28 April) TAF-1850 mm (Fuel Range; Gauge A) TAF-2250 mm (Fuel Range; Gauge C) ■RPV Dome Pressure (at 05:00 on 28 April) -0.055 MPa-g (Gauge A) (watching trend continuously) -0.089 MPa-g (Gauge C) (watching trend continuously) ■RPV Temperature (at 05:00 on 28 April) Feed water nozzle : 86.0 ℃ (watching trend continuously due to suspected indication problem) Bottom of RPV : 109.6 ℃		■Reactor Water Level (at 06:00 on 28 April) TAF+2081 mm (Shut Down Range Gauge) ■RPV Dome Pressure (at 06:00 on 28 April) 0.007 MPa-g ■Coolant Temprature (at 06:00 on 28 April) 33.7 ℃	■Reactor Water Level (at 06:00 on 28 April) TAF-2136mm ■RPV Dome Pressure (at 06:00 on 28 April) 0.013 MPa-g ■Coolant Temprature (at 06:00 on 28 April) 47.5 ℃	
	Next Works Planned (Activities of Cooling Water Supply Force)	☐Switch the temporary motor driven pump to MUW pump (The work was suspended due to high radiation environment around MUWP in the turbine building). <Long Term Cooling Measure> ☐SHC ordinary operation in SHC mode after restoring off-site power & related equipments	☐Switch the temporary motor driven pump to MUW pump (The work was suspended due to high radiation environment around MUWP in the turbine building). <Long Term Cooling Measure> ☐RHR ordinary operation in SHC mode after restoring off-site power & related equipments	☐Switch the motor driven pump to MUW pump (The work was suspended because of high radiation environment around MUWP in the turbine building). Preparing to drain the high radiation water <Long Term Cooling Measure> ☐RHR ordinary operation in SHC mode after restoring off-site power & related equipments				

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Containment Function (Cooling and Confinement)	Current Status	■D/W (at 05:00 on 28 April) ・Pressure; 0.125 MPa-abs ・Temperature; RPV bellow seal; 100.5 ℃ *HVH return; 38.3 ℃* ■S/C (at 05:00 on 28 April) ・Pressure; 0.125 MPa-abs ・Temperature; (A) 50.7 ℃, (B) 50.6 ℃ ■Started ventilation through hardened line (at 14:30 on 12 March) ＊PCV design pressure : 384 kPa PCV max pressure for use : 427 kPa Rapture disc working pressure : 310 kPa	■D/W (at 05:00 on 28 April) ・Pressure; 0.075 MPa-abs ・Temperature; RPV bellow seal; No measurement *HVH return; 111 ℃* ■S/C (at 05:00 on 28 April) ・Pressure; Down Scale (Examining) ・Temperature; (A) 70.4 ℃, (B) 70.7 ℃ ■Ready to start ventilation through hardened line (Not executed so far) PCV design pressure : 384 kPa PCV max pressure for use : 427 kPa Rapture disc working pressure : 325 kPa	■D/W (at 05:00 on 28 April) ・Pressure; 0.1017 MPa-abs ・Temperature; RPV bellow seal; 124.7 ℃ (watching trend *continuously*) HVH return; 102.1 ℃ ■S/C (at 05:00 on 28 April) ・Pressure; 0.1783 MPa-abs ・Temperature; (A) 41.0 ℃, (B) 41.0 ℃ ■Started ventilation through hardened line (at 9:20 on 13 March) PCV design pressure : 384 kPa PCV max pressure for use : 427 kPa *Rapture disc working pressure : 310 kPa*		■Negative pressure kept by SGTS ■RHR was stopped and resumed for installing temporary RHRS (on 20 April)	■Negative pressure kept by SGTS ■RHR was stopped and resumed for installing temporary RHRS (on 20 April)	
	Next Works Planned (TEPCO Headquarters' Activities)	☐Hydrogen countermeasure first ＊Fill PCV and ventilation line with nitrogen ＊Reinforced monitoring of PCV pressure ＊Continue to secure ventilation line <After securing off-site power> ☐Restoring PCV spray function ＊MUWC system, FP system <After restration of equipments> ☐RHR operation in SHC mode ☐Restoring D/W cooling coil ☐Alternative heat removal by CUW	Same as unit 1	Same as unit 1				
Spent Fuel Pool (SFP) (Decay Heat Removal & Water Supply)	Current State	■SFP water level uncertain (No water level meter) ■SFP temperature uncertain (Unable to measure because of no power supply) ■Skimmer surge tank level 3700 mm (at 05:00 on 26 April) ■Watering by concrete pumping vehicle (Fresh Water) (called the Elephant) ・31 March 13:03-13:57 ・31 March 14:29-16:04 ・2 April 17:16-17:19 The nickname of concrete pumping vehicle for Unit 1 was changed from "large Giraffe" to "Elephant" to prevent confusion on 3 April. ■Preparation for water feeding with electric motor pumps was completed. (on 9 April) ■The Elephant #1 was moved from Unit 3 to Unit 1. (on 26 April)	■SFP water level uncertain (No water level meter) ■SFP temperature 59.0℃ (at 05:00 on 29 April) ■Skimmer surge tank level 5400mm (at 05:00 on 28 April) ■Fresh water injection to SFP trough the existing FPC line and temprary line ・19 April 16:08-17:28 ・22 April 15:55-17:40 ・25 April 10:12-11:18 (38 ton) ■Removal of the existing strainer in FPC line was completed (31 March). (Scheduled for 31 March)	■SFP water level uncertain (No water level meter) ■SFP temperature uncertain (Unable to measure because of lack of power supply) ■Skimmer surge tank level No measurement ■Water spray with new special pumping vehicle《call Zebra-improved》 ・8 April 17:06- 20:00 (Fresh Water) ・10 April 17:15-19:15 (Fresh Water) ■Preparation for water feeding with electric motor pumps was completed. (on 9 April) ■The Zebra-improved was moved for replacement and The Elephant was moved; Unit 4→Unit 3 (on 11 April) ■Water spray with the Elephant #1 ・18 April 14:18 - 15:02 (30ton) ・22 April 14:19 - 15:40 (50ton) ・26 April 12:00 - 12:02 (check of water level) ■Confirarmtion of injection line to the pool through FPC line ・22 April 13:40 - 14:00 (10ton) ・26 April 12:25 - 14:02 (47.5ton) ■The Elephant #1 was moved from Unit 3 to Unit 1. (on 26 April)	■SFP water level : Uncertain ■SFP water temperature; gauge out of order (at 11:10 on 24 March and later) ■Skimmer surge tank level 6550 mm (at 05:00 on 28 April) ■Installation alternation pump for RHRS ■Watering with the Elephant ・5 April 17:35-18:22 ・7 April 18:23-19:40 ・9 April 17:07-19:24 ■Preparation for water feeding with electric motor pumps was completed. (on 9 April) ■The Elephant was moved; Unit 4 → Unit 3 (on 11 April) ■Water sampling from SFP by the Elephant #2 was completed. (12 April) Most of the fuel is believed to be undamaged. ■Attaching measuring instruments (level gage etc.) on the Elephant #2 and measuring temperature, water level and radiation dose. (on 22, 23 and 24 April) ■Watering with the Elephant #2 ・25 April 18:15-00:26 (210ton) ・26 April 16:50-20:35 (130ton) ・27 April 12:18-14:01 14:32-15:15 (95ton)	■Inventory securing ＊CST -> MUWC -> FPC -> SFP ■Heat removal ＊FPC (Surge Tank) -> RHR -> S/C ＊Heat removal in S/C cooling mode of RHR ■SFP Water level; uncertain (Water level alarms were not activated.) ■SFP Water temp; 40.4℃ (at 06:00 on 26 April) ■Secondary containment is intact with roof of R/B ■Fresh water was transferred to fresh water tank #3 by tank lorry (- 1 April) ■SHC mode (27 April 19:13 -)	■Inventory securing ＊CST -> MUWC -> FPC -> SFP ■Heat removal ＊FPC (Surge Tank) -> RHR -> S/C ＊Heat removal in S/C cooling mode of RHR ■SFP Water level; uncertain(Water level alarms were not activated.) ■SFP Water temp; 27.0℃ (at 06:00 on 28 April) ■Secondary containment is intact with roof of R/B ■Fresh water was transferred to fresh water tank #3 by tank lorry (- 1 April) ■SHC mode (27 April 20:00 -)	■SFP water temperature 32℃ at 06:50 on 27 April ■Cooling function achieved by air fin coolers (at 16:26 on 24th March) ■Water supply to the common SFP by MUW system (24 March 16:15-18:04) ■FPC(A) started at 18:05 on 24th March
	planned work (Next Activities of FPC Team)	☐Repair of the Elephant #1	☐Fresh water injection to SFP trough the existing FPC line (scheduled on 28 April 10:00-11:30 60ton)		☐Sampling water in SFP (scheduled on 28 April) ☐Reinforcement work of fuel pool support structure			

High Voltage AC Power Supply	Current Status	■480V P/C 2C connected to local distribution network of Tohoku EPC *(at 15:46 on 20 March)* ■Equipments of MUW tested for short circuit and ground but in fail on 2t March ■120V I & C main bus powered at 01:40 on 23 March ■Illumination of MCR restored at 11:30 on 24 March ■Monitoring posts (MP5-8) were restored. ■*Strengthen on-site power* ・Tie line between Unit1&2 and Unit3&4 was installed. (Tohoku Nuclear line – Ohkuma line has been available) (on 19 April) ・Tie line to Unit 5&6 main bus was installed. (on 25 April)	■480V P/C 2C connected to local distribution network of Tohoku EPC *(at 15:46 on 20 March)* ■MCC 2A-1 in the turbine building was powered at 16:40 on 26 March ■Illumination is restored in main control room at 16:46 on 27 March. ■Strengthen on-site power ・Tie line between Unit1&2 and Unit3&4 was installed. (Tohoku Nuclear line – Ohkuma line *has been available) (on 19 April)* ・Tie line to Unit 5&6 main bus was installed. (on 25 April)	■480V P/C 4D powered through transmission line (at 10:35 on 22nd March) ・*Temporary power supply achieved utilising the* non-damaged part of 66kV off-site power transmission line ・Trial electric charge of the motor Center vehicle for Unit3 and Unit4 was completed at 14:28 on 18 March ・Instalation of multi circuit breakers and power cables were completed on 19 March ・*Inspection of cable from the breakers and loads* was conducted on 20 March ・Instalation of cables were completed on 21 March. ・Power supply was stopped due to strengthen on-site power of Unit 3&4 (uprate; 6.9kV →66kV) (26 April 10:23-15:27) ・Uprating Ohkuma-line #3 (6.9→66kV) (scheduled on 27-30 April) ■T/B MCC 3C-2 has been powered on 22 March. ■T/B MCC 3C-1 has been powered on 22 March ■120V I & C main bus powered on 22 March ■Illumination is restored in main control room on 23 March. ■T/B MCC 3D-1 has been powered on 29 March. ■T/B MCC 3A-1 has been powered on 30 March ■*Tie line between Unit1&2 and Unit3&4 was* installed. (Tohoku Nuclear line – Ohkuma line has been available) (on 19 April)	■480V P/C 4D powered through transmission line (at 10:35 on 22nd March) ・*Power supply was stopped due to strengthen* on-site power of Unit 3&4 (uprate; 6.9kV →66kV) (26 April 10:23-15:27) ・Uprating Ohkuma-line #3 (6.9→66kV) (scheduled on 27-30 April) ■*Illumination of MCR restored at 11:50* on 29 March ■Tie line between Unit1&2 and Unit3&4 was installed. (Tohoku Nuclear line – Ohkuma line has been available) (on 19 April)	■Temporary power supply achieved utilising the *non-damaged part of 66kV off-site power* transmission line (Yono-Mori line 1L,2L) ■Non-safety grade buses of 5A and 5B are unavailable ■Temporary pump (RHRS) was installed and connected to the water supply line on 24th March ■Emergency administration building was *powered on 24th March* ■Water Purification Facility was powered at 9:10 on 24th March ■Investigating cable laying work for monitoring posts (MP-1/2/3/4) on 26 March. ■T/B MCC 5D-2 has been powered on 31 March ■*Strengthen on-site power* ・Tie line to Unit 1&2 main bus was installed. (25 April)	■Temporary power supply achieved utilising the non-damaged part of 66kV off-site power transmission line (*Yono-Mori line* 1L,2L) ■Non-safety grade buses of 6A and 6B are unavailable ■Temporary pump (works as a subsutitute of RHRS) was installed and put in-service (Powered by P/C) ■Test run od installed cable was conducted *on 20 March* ■Monitoring posts (MP1-4) were restored. ■Strengthen on-site power ・Tie line to Unit 1&2 main bus was installed. (25 April)	■Temporary power for common pool was restored at 15:30 on 24th March ■Temporary power for common pool was tripped due to short circuit during practice of disconnecting switch operation (17 April 14:36-17:30) :restored at 17:44 on 17 April ■P/C for common pool ・Power supply was stopped due to strengthen *on-site power of Unit 3&4 (uprate; 6.9kV →66kV)* (26 April 15:56-16:34)
	planned work (Next Activities of Electric Power Supply Team)	☐Restration work of electricity will be restarted after completing water transfer from T/B	☐Restration of power for instrumentation	☐Power off due to work at Shin-Fukushima substation (scheduled on 12 & 17 May) ☐Restration work of electricity will be restarted after completing water transfer from T/B	☐Power off due to work at Shin-Fukushima substation (scheduled on 12 & 17 May)	☐Charging test of startup transformer SSB (scheduled on 2 May) ☐Laying temporary power cable for SLC (B)		
DC Power Supply	Current Status	■Part of I & C equipments were powered by temporary battety to monitor plant status	■Part of I & C equipments were powered by temporary battety to monitor plant status ■Common DC125V has been powered at 16:30 on 31 March	■Part of I & C equipments were powered by temporary battety to monitor plant status * Batteries for reactor level guages were replaced by fresh ones at 12:15 on 21st March ■Restration of DC 125V Charge cenetr (B) (*30* March)	■Part of I & C equipments were powered by temporary battety to monitor plant status	■Part of I & C equipments were powered by temporary battety to monitor plant status ■DC 24 Charger 5B-1has been powered on 31 March	■Part of I & C equipments were powered by temporary battety to monitor plant status	
	Next Works Planned (Activities of Electric Power Supply Team)	-						
Miscellaneous Measures against Hydrogen	Current Status	■Measurement for hydrogen gas accmulating in PCV ・Considering the injection of N2 gas ■Injection of N2 gas is in progress ・(Flow rate; 28m^3/h, degree of purity; 98%) 7 April 01:31- 9 April 03:29 (suspended due to switch to high degree of purity N2 gas) ・Injection of high degree of purity N2 gas (Flow rate; *28m3/h, degree of purity;* 99.92%) 9 April 04:10 - ・Injection of N2 gas was stopped due to an earthquake (11 April 17:16 – 23:19) ・Injection was suspended (14 April 16:30-19:05) ・Injection was suspended (25 April 14:10-19:10; due to switching power source)	■Considering the injection of N2 gas into PCV ■Generation of hydrogen gas at the top part of the reactor building is of concerned * White smoke observed on 21st March was supposed to be the steam from SFP that was leaked through the rain drainage duct. It is hoped that this mitigates the concentrated of Hydrogen gas.	■Considering the injection of N2 gas into PCV		■3 holes(3~7.5 cm) were drilled on the ceiling panel (250 mm thick) of the rector building on 18 March to relieve hydrogen gas and to avoid explosion ■The holes on the R/B ceiling were covered to prevent rain inundation (on 20 March)	■3 holes(3~7.5 cm) were drilled on the ceiling panel (250 mm thick) of the rector building on 18 March to relieve hydrogen gas and to avoid explosion ■The holes on the R/B ceiling were covered to prevent rain inundation (on 20 March)	
	Next Works Planned (Next Activities)		☐Water jet pump is ready at off-site stock yard, however lifting machine is not available					

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Turbine Building Water Draining	Current Status	■Draining water in T/B ・Water level in T/B OP +5050mm (at 07:00 on 28 April) ; same as 17 April 11:00 ・Water transfer H/W → CST (3 April 13:55- 10 April 09:30) ■Draining water in Trench ・Radiation level of the water surface in the trench: 0.4 mSv/h on 28 March ・Water level (from top edge of grating to water surface) 1530 mm (at 7:00 on 28 April) ; same as 20 April 18:00 ・Remote monitoring measurement of water level in the trench was established (on 2 April)	■Draining water in T/B ・Water level in T/B OP +3100mm (at 07:00 on 28 April) ; same as 16 April 07:00 ・Water trabsfer (H/W → CST) (2 April 17:10 - 9 April 13:10) ・Monitoring camera for water level was installed (on 2 April) ■Draining water in Trench ・Radiation level of the water surface in the trench: higher than 1000 mSv/h (on 28 Mar.) ・Water level (from top edge of grating to water surface) 890 mm (at 7:00 on 28 April) ; same as 27 April 18:00 ・Remote monitoring measurement of water level in the trench was established (on 2 April) ■Operation " Beaver" ・A rubber board was placed over the crack. (at 13:15 on 6 April) ・Injection of liquid chemical to prevent leaks (conducted on 7 April) ■ Water transfer (trench→H/W) (660 ton) ・ April 12 19:35 - April 13 11:00 ・ April 13 15:02 - 17:04 ■ Water transfer (trench→RW facilities) ・ *April 19 10:08* -	■Draining water in T/B ・Water level in T/B OP +3090mm (at 07:00 on 28 April) ; same as 23 April 11:00 ・Water trabsfer (CST → SPT surge tank) (28 March 17:40 - 31 March 08:37) ・*H/W is full.* Leak from vacuum breaker was confirmed (on 7 April) ■Draining water in Trench ・Radiation level of the water surface in the trench: (No measurement due to difficulty in approach by debris) ・Water level (from top edge of grating to water surface) 950 mm (at 07:00 on 28 April) ; 10 mm higher than 27 April 18:00 ・Remote monitoring measurement of water level in the trench was established (on 2 April)	■Draining water ・Water level in T/B OP +3100mm (at 07:00 on 28 April) ; same as 27 April 11:00 ・Water transfer (Concentrated RW → T/B) (2 April 14:25 - 4 April 09:22; suspended) ・*Water transfer pumps were added* (1 → 5 pumps; 3 Apr. 10:00 - 4 Apr. 09:22, suspended due to high water level in the trench) ■Work for shutting off the leak in pit ・Concrete was poured (25m3) to clog cracks	■Draining water ・Water transfer RHR pump area & CS pump area → S/C (4 April) ■Discharging water in sub-drain of Unit 5 to the sea; 950 m3 *(4 April 21:00 - 8 April 12:14)* ■Draining water in R/B ・CS area →Torus (on 19 April)	■Draining water ・Water level in T/B OP +5050mm (on 27 April) ; 15 mm higher than 25 April ・Water transfer (RW base floor → H/W) (1 April 13:40 - 2 April 10:00) ・ *Suspended by large amount of water; considering draining water* ■Discharging water in sub-drain of Unit 6 to the sea; 372.6 m3 (4 April 21:00 - 9 April 18:52)	■Draining water ・Concentrated RW → sea; 9070 m3 (4 April 19:03 - 10 April 17:40) ■Draining water from main process building was completed. ■Draining water from incinerator building *to the sea was completed.* ■Concrete pouring for stopping groundwater inundation is in progress (15 April - 18 April) ■Work for shutting off the leak of process building (on 16 April) ■High contaminated water transfer from Unit 2 to RW facilities (19 April 10:08 -) ・Amount of increase at RW (at 07:00 on 28 April) 1055 mm higher than the initial value
	Next Works Planned	☐Draining water in T/B basement ・Preparing for transfer draining water in T/B basement to RW facilities		☐Draining water in T/B basement ・Preparing for transfer water in T/B basement from the trench to RW facilities	☐Work for shutting off the leak in pit		☐Draining water ・Preparing for transfer water in T/B basement to temporary storage tank (scheduled from 1 May)	
Others	Current Status	■Barge ・Water transfer; Barge No.1 → Filtered water tank (on 1 & 2 April) ・Water transfer; Barge No.2 → Barge No.1; (on 2 & 3 April) ・Barge No.2 arrived at dock (on 4 April) ■Air Borne Contamination Control ・In progress (Conducted on 1, 5, 6, 8, 10, 11, 12, 13, 14, 15, 16, 18, 20, 21, 24, 25,26 and 27 April) ■Removal of debris ・In progress (Conducted on 18,19, 20, 21,22, 23, 24, 25, 26 and 27 April) ■Additional grout was poured (on 19 April; 7 m^3 into intake power supply pit) ■Silt fence; (on 11 April Two fences were installed on the south), (on 13 April Unit 3&4; in fromt of Screen facilities), (on 14 April Unit 1&2; in fromt of Screen facilities, Unit 1-4; north of Intake) ■Iron plate in fromt of bar screen facilities. ■Nitrogen gas bubling in Filtered water tank (13 April -) ■T-Hawk project (wireless-controlled helicopter) (on 10, 14, 15 and 21April) ■Placing of sandbags of zeolite around Intake structure (at 3 locations on 15 April, at 7 locations on 17 April, pulled 2 up for radiation dose measurement on 19 April) ■Field investigation with robot (Unit 1; on 17, 26 April) (Unit 2; on 18 April) (Unit 3; on 17 April) ■Fire engine was moved from Fukushima Daiichi to Fukushima Daini (for securing 2 D/G for 1Unit) ■Convey Drill (Fukushima Daiichi site →J-village →Prefectural medical college) (on 21 April) ■Installation of Wimax (Wireless LAN) (on 26 April)						
	Next Works Planned	☐Removal of debris (scheduled on 28 April) ☐Air Borne Contamination Control (scheduled on 28 April) ☐Field investigation with robot in Unit 1 (scheduled on 28 April)						

Abbreviations:

CAMS :Containment Area radiation Monitor System
CST :Condensate Storage Tank
CUW :(Reactor Water) Clean Up Water (System)
D/W :Dry Well
ECCS :Emergency Core Cooling System
FP :Fire Protection
MS :Main Steam
M/C :Motor Power Center
MUWC :Make Up Water Condensate (system)
P/C :Power Distribution Center
RCIC :Reactor Core Isolation Cooling
RHR :Residual Heat Removal
RPV :Reactor Pressure Vessel
S/C :Suppression Chamber
SDF :Self Defense Force
SFP :Spent Fuel Pool
SGTS :Stabd by Gas Treatment System
SHC :Shut Down Cooling
SLC :Stand by Liquid Control

FUKUSHIMA DAIICHI

Status as of 6pm (JST) April 28, 2011- TC Briefing.

Information that is in italics should not be shared as it has not yet been released by TEPCO.

The priorities remain as follows:

- Ensuring fresh water injection and cooling capabilities to the reactors and spent fuel pools. Goal is to reduce and maintain temperature in the reactors and spent fuel pools below 100 degrees centigrade.
- Draining water from the turbine buildings and trenches to reduce the radiation levels so that work can continue.
- Containing the spread of radioactive materials.

Highlights for today include the following:

- N2 purging of the Unit 1 Drywell continues. TEPCO increased injection flow to the primary containment vessel to 10 m3/hr at approximately 10:00 am Wednesday morning. Reactor vessel temperature, drywell temperature and pressure were observed to decrease after the start of the injection increase. The rate of change of these parameters slowed this morning. TEPCO intends to stop the increased injection rate before drywell pressure reaches atmospheric.
- The robot is scheduled to enter the Unit 1 reactor building today to check for possible leakage following the increase in vessel injection rate.
- Transfer of highly radioactive water from Unit 2 to the Centralized Radioactive Waste Treatment Facility continues at a rate of 250 tons/day. Level in the Radioactive Waste Facility has risen 1055 mm since the start of transfer.
- Unit 2 trench level has decreased only slightly since Monday and is now 900 mm from the top of the trench. Unit 3 trench level has increased an additional 20 mm and is now 950 mm from the top.
- Unit 4 turbine building water level increased 50 mm and is at 3050 mm (1.2 m above floor level). Unit 3 turbine building water level remained steady at 3000 mm.
- Eighty five tons of water was added to the Unit 4 Spent Fuel Pool (SFP) yesterday. No addition to the Unit 4 SFP is scheduled for today. Sixty tons of water is scheduled to be added to Unit 2 SFP today.
- After reexamining the recent differences between observed water level increase and calculated water level increase following water additions to the Unit 4 SFP, TEPCO now believes the Unit 4 SFP pool may not be leaking. The condition of the Unit 4 SFP will continue to be evaluated closely by TEPCO.
- A water sample for radionuclide analysis is scheduled to be taken from the Unit 4 SFP today.

- TEPCO released their plan for radioactive water treatment today. Ultimately it will have a capacity of 1,200 m3/day. A reservoir capacity of 31, 400 m3 will be installed by early June. Additional capacity will be added later. Currently there is an accumulation of 87,500 m3 of radioactive waste water at the station. Injection into the reactor pressure vessels is adding to this total daily.

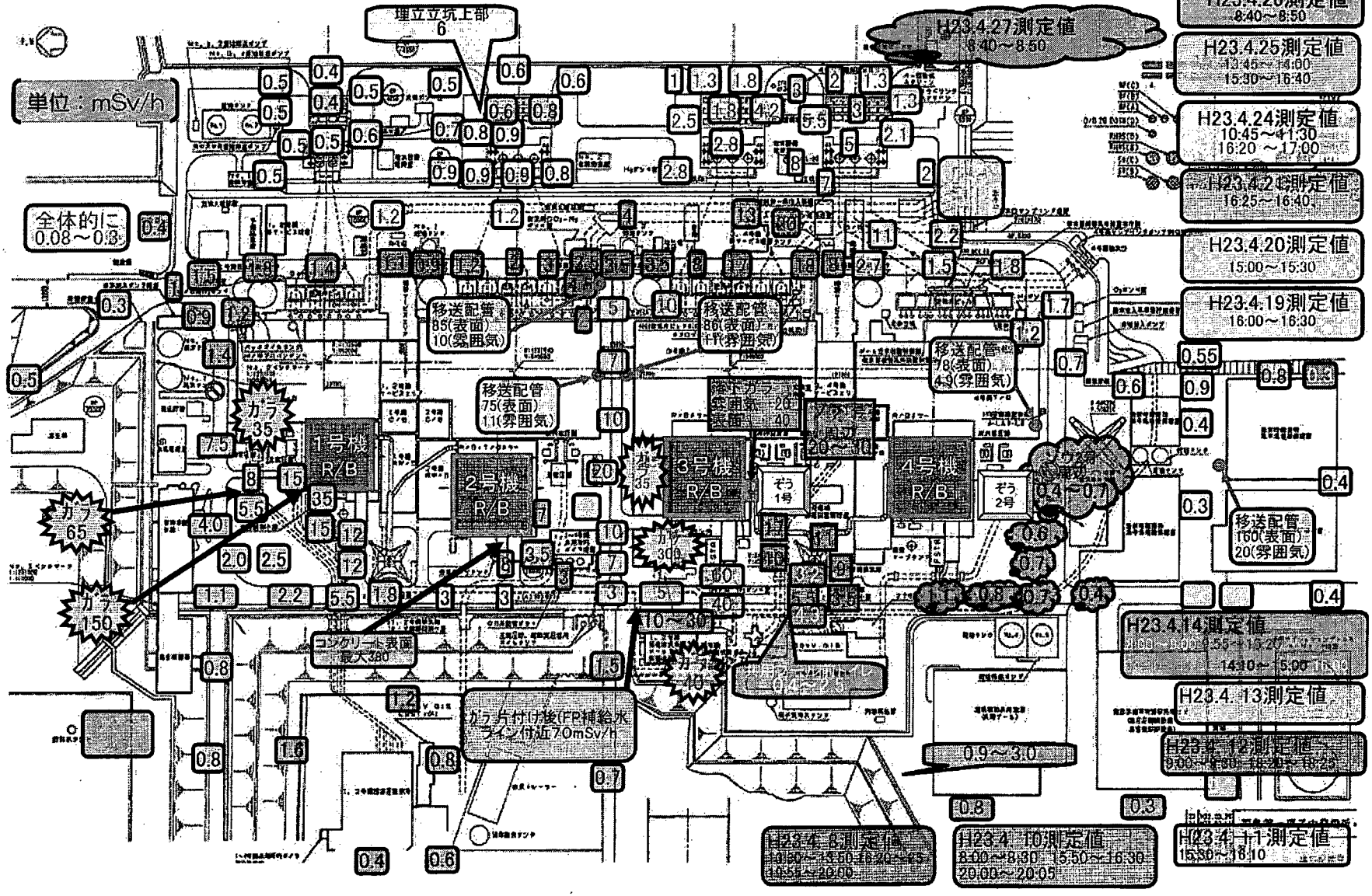
Unit Status

- In Unit 1, non-borated fresh water injection into the main feedwater line was increased in steps up to 10 m3/hr yesterday on a temporary basis. Future injection flow will be determined following analysis of data obtained during the injection flow increase. Comments on parameters:
  - Reactor pressure decreased to .415 MPa abs (60 psig).
  - Feedwater nozzle temperature is considered to be suspect but did show a decrease of approximately 25 C (77F).
  - Reactor vessel lower decreased approximately 12 C to 98.5 C (209 F)
  - Drywell and Torus pressure decreased to .125 MPa abs (18 psia).
  - Drywell and Torus dose rates are considered to be suspect.
- In Unit 2, injection of non-borated fresh water using the low pressure coolant injection continues at approximately 7 m3/hr. Comments on parameters:
  - Unit 2 reactor pressures remain suspect.
  - Feedwater nozzle temperature was steady at 120 C (248 F)
  - Reactor vessel lower temperature is believed unreliable.
  - Drywell pressure was stable near atmospheric.
  - Dose rate in the U2 Drywell continues to decrease. The drywell dose rate is 2.24Sv/hr or (2,240 Rem/hr). The Torus dose rate reading is considered suspect.
- In Unit 3, of non-borated fresh water using the low pressure coolant injection continues at approximately 6.8 m3/hr. Comments on parameters:
  - Unit 3 reactor pressures are considered suspect.
  - Feedwater nozzle temperature is considered to be suspect.
  - Reactor vessel lower temperature was steady at 110 C (230 F)
  - Drywell pressure was steady at .102 MPa abs (15 psi). Torus pressure is also steady at .178 MPa abs (26 psi).
  - Dose rate in the U3 Drywell continues to decrease and is at 14.2 Sv/hr (1,420 Rem/hr). Dose rate in the Torus is considered to be suspect.

Dose and Dose Rates

- As reported yesterday, a female employee received a cumulative radiation dose of approximately 18 mSv during the first quarter of 2011. This exceeds the maximum allowable dose for a female of 5 mSv/3 months. Upon examination it was determined that the woman received 13.6 mSv internal exposure. The woman was working in a building that was contaminated by the hydrogen explosion on March 12th and was not wearing a protective mask. Two other females working in the same building may have also exceeded their exposure limits.
- Overall site dose rates are stabilizing or decreasing slightly. For example:
  - The last reading reported at the main gate was 48 μSv /hr (4.8 mrem/hour) and 22 μSv /hr (2.2 mrem/hour) at the west gate.
  - The side of the administration building facing the units decreased slightly to 430 μSv/hr or 43 mrem/hr.

福島第一サーベイマップ（平成23年4月27日 8:５０現在）



From: Droggitis, Spiros
Sent: Tuesday, April 05, 2011 11:05 AM
To: Weil, Jenny
Subject: FW: NRC's Employee Assistance Program (EAP) Briefing - April 6

From: OST02 HOC
Sent: Tuesday, April 05, 2011 11:02 AM
To: Abrams, Charlotte; Abu-Eid, Boby; Adams, John; Afshar-Tous, Mugeh; Ahn, Hosung; Alemu, Bezakulu; Algama, Don; Alter, Peter; Anderson, Brian; Anderson, James; Arndt, Steven; Arribas-Colon, Maria; Ashkeboussi, Nima; Athey, George; Baker, Stephen; Ballam, Nick; Barnhurst, Daniel; Barr, Cynthia; Barss, Dan; Bazian, Samuel; Benner, Eric; Bensi, Michelle; Bergman, Thomas; Berry, Rollie; Bhachu, Ujagar; Bloom, Steven; Blount, Tom; Boger, Bruce; Bonnette, Cassandra; Borchardt, Bill; Bowers, Anthony; Bowman, Gregory; Boyce, Tom (RES); Brandon, Lou; Brandt, Philip; Brenner, Eliot; Brock, Kathryn; Brown, Cris; Brown, David; Brown, Eva; Brown, Frederick; Brown, Michael; Bukharin, Oleg; Burnell, Scott; Bush-Goddard, Stephanie; Campbell, Stephen; Camper, Larry; Carlson, Donald; Carpenter, Cynthia; Carter, Mary; Case, Michael; Casto, Greg; Cecere, Bethany; Cervera, Margaret; Chazell, Russell; Chen, Yen-Ju; Cheng, May; Cheok, Michael; Chokshi, Nilesh; Chowdhury, Prosanta; Chung, Donald; Circle, Jeff; Clement, Richard; Clinton, Rebecca; Coe, Doug; Coggins, Angela; Collins, Frank; Cool, Donald; Correia, Richard; Corson, James; Costa, Arlon; Couret, Ivonne; Craffey, Ryan; Crutchley, Mary Glenn; Cruz, Zahira; Cuadrado, Leira; Dacus, Eugene; DeCicco, Joseph; Decker, David; Dembek, Stephen; Devlin, Stephanie; Dimmick, Lisa; Doane, Margaret; Dorman, Dan; Dorsey, Cynthia; Dozier, Jerry; Droggitis, Spiros; Dube, Donald; Dudes, Laura; Eads, Johnny; Easson, Stuart; Emche, Danielle; English, Lance; Erlanger, Craig; Esmaili, Hossein; Evans, Michele; Faria-Ocasio, Carolyn; Figueroa, Roberto; Fiske, Jonathan; Flanders, Scott; Flannery, Cindy; Floyd, Daphene; Foggie, Kirk; Foster, Jack; Fragoyannis, Nancy; Franovich, Rani; Frazier, Alan; Fuller, Edward; Galletta, Thomas; Gambone, Kimberly; Gardocki, Stanley; Gartman, Michael; Gibson, Kathy; Giitter, Joseph; Gilmer, James; Glenn, Nichole; Gordon, Dennis; Gott, William; Grant, Jeffery; Gray, Anita; Gray, Kathy; Greenwood, Carol; Grimes, Kelly; Grobe, Jack; Gross, Allen; Gulla, Gerald; Hackett, Edwin; Hale, Jerry; Hardesty, Duane; Hardin, Kimberly; Hardin, Leroy; Harrington, Holly; Harris, Tim; Harrison, Donnie; Hart, Ken; Hart, Michelle; Harvey, Brad; Hasselberg, Rick; Hayden, Elizabeth; Helton, Donald; Henderson, Karen; Hiland, Patrick; Hipschman, Thomas; Holahan, Patricia; Holahan, Vincent; Holian, Brian; HOO Hoc; Horn, Brian; Howard, Arlette; Howard, Tabitha; Howe, Allen; Huffert, Anthony; Hurd, Sapna; Huyck, Doug; Imboden, Andy; Isom, James; Jackson, Karen; Jacobson, Jeffrey; Jervey, Richard; Jessie, Janelle; Johnson, Don; Johnson, Michael; Jolicoeur, John; Jones, Andrea; Jones, Cynthia; Jones, Henry; Kahler, Carolyn; Kammerer, Annie; Karas, Rebecca; Kauffman, John; Khan, Omar; Kolb, Timothy; Kotzalas, Margie; Kowalczik, 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; Nagai Masao (nagai.masao@nrc.gov); Maupin, Cardelia; Mayros, Lauren; Mazaika, Michael; McConnell, Keith; McCoppin, Michael; McDermott, Brian; McGinty, Tim; McGovern, Denise; McIntyre, David; McMurtray, Anthony; Merritt, Christina; Meyer, Karen; Miller, Charles; Miller, Chris; Milligan, Patricia; Miranda, Samuel; Mohseni, Aby; Moore, Scott; Morlang, Gary; Morris, Scott; Mroz (Sahm), Sara; Munson, Clifford; Murray, Charles; 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; 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; Turtil, Richard; Uhle, Jennifer; Valencia, Sandra; Vaughn,

nnn243

James; Velazquez-Lozada, Alexander; Vick, Lawrence; Virgilio, Martin; Virgilio, Rosetta; Ward, Leonard; Ward, William; Wastler, Sandra; Watson, Bruce; Webber, Robert; Weber, Michael; White, Bernard; Wiggins, Jim; Williams, Donna; Williams, Joseph; Williams, Tamera; Williamson, Linda; Willis, Dori; Wimbush, Andrea; Wittick, Brian; Wray, John; Wright, Lisa (Gibney); Wright, Ned; Wunder, George; Young, Francis; Zimmerman, Jacob; Zimmerman, Roy
Cc: Linnerooth, Sarah
Subject: NRC's Employee Assistance Program (EAP) Briefing - April 6

FYI – By way of reminder, NRC's Employee Assistance Program (EAP) will be briefing employees who work in the Ops Center on the issue of critical incident stress. Three sessions are scheduled for tomorrow as follows:

Wednesday, April 6, 7 – 8 a.m.
Wednesday, April 6, 2 – 2:30 p.m.
Wednesday, April 6, 3 – 4 p.m.

These sessions are open to staff working in the Ops Center on those days, as well as to any staff who have worked or will be working in the Ops Center on another day.

We understand the high level of stress that staff may be experiencing or seeing coworkers experience during the current traumatic Japanese incident. We want to bring you the support you deserve during this heightened time of stress. We strongly encourage all employees to attend. The briefings will be held in T-4B3 (conference room located down the hall to the right upon exiting the Ops Center).

Please forward this e-mail to any staff who has worked in the Ops Center in support of the Japan earthquake/tsunami event that appears to be missing from the distribution list above.

EST Admin

United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WASHINGTON, DC 20510-6175

April 6, 2011

The Honorable Gregory B. Jaczko
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Chairman Jaczko,

I appreciate your hard work on the nuclear accident at the Fukushima power plant, and your efforts to help the public understand its implications for the American nuclear power fleet. I do want to raise concerns about some aspects of your response, with the hope that you can resolve them fully and quickly.

My concerns stem from the confirmation in response to my staff's inquiries that the Nuclear Regulatory Commission has been operating in a state of emergency since the Tohoku Earthquake on March 11, 2011. In particular, I question whether:

1) You may not have followed law as it pertains to the delineation of emergency authority as provided in Reorganization Plan #1 of 1980 (PL 98-614); and

2) This action may have reduced the contributions of your experienced colleagues in monitoring the event and in decision-making.

Section 3 of the Reorganization Plan #1 states that the functions transferred to the Chairman are those pertaining to an emergency concerning a particular facility or materials licensed or regulated by the NRC. Your Congressional Affairs staff indicated that you invoked these powers when the NRC Operations Center entered "monitoring mode" at 9:46 AM on March 11th in reaction to the Tohoku Earthquake and resulting potential tsunami threat to U.S. plants. At this time, the crisis is unfolding in Japan and I am not aware that you issued any warnings to any U.S. licensee or regulated facility since March 11th. On the contrary, you have repeatedly stated publicly that U.S. nuclear plants are safe and indicated, as has the U.S. Environmental Protection Agency, that any radiation resulting from the Fukushima nuclear accident that reaches the U.S. will not be significant enough to impact public health. Given what has transpired, it would be helpful if you could provide the basis for your invocation of emergency authority.

Secondly, if your basis for invoking emergency authority was the potential threat of a tsunami affecting nuclear plants in California, that threat ceased on March 11th. Please provide your rationale for continuing to exercise emergency authority after March 11th and your

expectations for when and under what conditions you anticipate returning the agency to non-emergency status.

Section 3 of Reorganization Plan #1 also states that the functions transferred to the Chairman in an emergency include declaring, responding, issuing orders, etc., relative to the emergency incident. Since March 28th was the first indication my staff received regarding your exercise of emergency authority—and apparently no public declaration was made--I am concerned that any effort by you to declare an emergency has been less than ideal, especially given your commitment to openness and transparency.

Lastly, Section 3 of Reorganization Plan #1 states that the Chairman shall, to the maximum extent possible, inform the Commission of actions taken relative to the emergency. On March 30, my staff queried all four of your fellow commissioners regarding their knowledge of any such declaration. All four offices indicated that none of the commissioners received any communication from you declaring your intent to exercise emergency powers. It would be helpful if you could provide an explanation as to why the commissioners were apparently not informed of your action.

By April 8th, please provide the information requested above and any legal analysis prepared prior to March 30, 2011 that supports the transfer of functions from the Commission to you including the basis for continuing to exercise those powers.

I look forward to working with you as the NRC addresses the Japan nuclear accident, and to ensure the safety of the nation's nuclear fleet.

Sincerely,

James M. Inhofe
Ranking Member
Committee on Environment and Public Works

Cc: Commissioner Svinicki
Commissioner Apostolakis
Commissioner Magwood
Commissioner Ostendorff

From: Droggitis, Spiros
Sent: Tuesday, April 05, 2011 5:23 AM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Decker, David; Dacus, Eugene; Weil, Jenny; Shane, Raeann; Riley (OCA), Timothy
Subject: Daily Plant Status Report - 4/5/2011
Attachments: USNRC Japan Plant Condition Update April 5 0430EDT.PDF

NRR/244

From: OST01 HOC
Sent: Tuesday, April 05, 2011 4:34 PM
To: PMT11 Hoc; PMT02 Hoc; Hoc, PMT12
Subject: FW: [METI Japan](Apr_5)Update on Seismic and Tsunami Damage Information
Attachments: [METI] Apr 5 1530_Tohoku-Pacific Ocean Earthquake and the Seismic Damages to the NPSs.pdf; Apr_5_Radioactivity Level Map [Chart].pdf

FYI

-----Original Message-----
From: HOO Hoc
Sent: Tuesday, April 05, 2011 2:59 PM
To: HOO Hoc
Subject: FW: [METI Japan](Apr_5)Update on Seismic and Tsunami Damage Information

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: Tuesday, April 05, 2011 2:44 PM
To: meti-info@meti.go.jp
Subject: [METI Japan](Apr_5)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. TEPCO initiated discharge of low radioactive waste water to the sea at Fukushima Dai-ichi NPS. [Please refer to 10. below]

---- Updates from METI ----

NRR/245

2. [METI] Apr 5 1530_Tohoku-Pacific Ocean Earthquake and the Seismic Damages to the NPSs [Please refer to the attached file]

3. [METI] Apr 5_Radioactivity Level Map Chart [Please refer to the attached file]

---- Updates from NISA ----
4. [NISA] Apr 4 1500_Current Situation of Onagawa, Fukushima Dai-ichi, Fukushima Dai-ni, Tokai Dai-ni NPSs
http://www.nisa.meti.go.jp/english/files/en20110404-5-1.pdf

5. [NISA] Apr 4 1400_Conditions of FukushimaDai-ichi NPS http://www.nisa.meti.go.jp/english/files/en20110404-5-2.pdf

6. [NISA] Apr 4 1400_Fukushima Dai-ichi Major Parameters of the Plant
http://www.nisa.meti.go.jp/english/files/en20110404-5-3.pdf

---- Major Updates from other agencies of Japanese Government ---

7.[MLIT] Apr 5 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, Kawaski City and Ichikawa City (Chiba) were as shown in the attachment at very safe level to health.

8. [MLIT] Apr 5 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.

9. [NSC] Apr 5 1645_Assessment of the result of environment monitoring (only Japanese version is available)
http://www.nsc.go.jp/nsc_mnt/110405_1.pdf

---- Other Updates ----

10. [TEPCO] Apr 4 1703_Discharge of low radioactive wastewater (approximately 10,000 ton in total) from Central Radioactive Waste Disposal Facility to the sea was initiated http://www.tepco.co.jp/en/press/corp-com/release/11040508-e.html

TEPCO evaluates the impact on the discharge of the low radioactive wastewater to the sea as approximately 0.6 mSv per year per an adult if an adult eats adjacent fish and seaweeds everyday. The amount (0.6 mSv of effective radioactive doses per year) is one-forth of annual radioactive dose to which the general public is exposed from nature.

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

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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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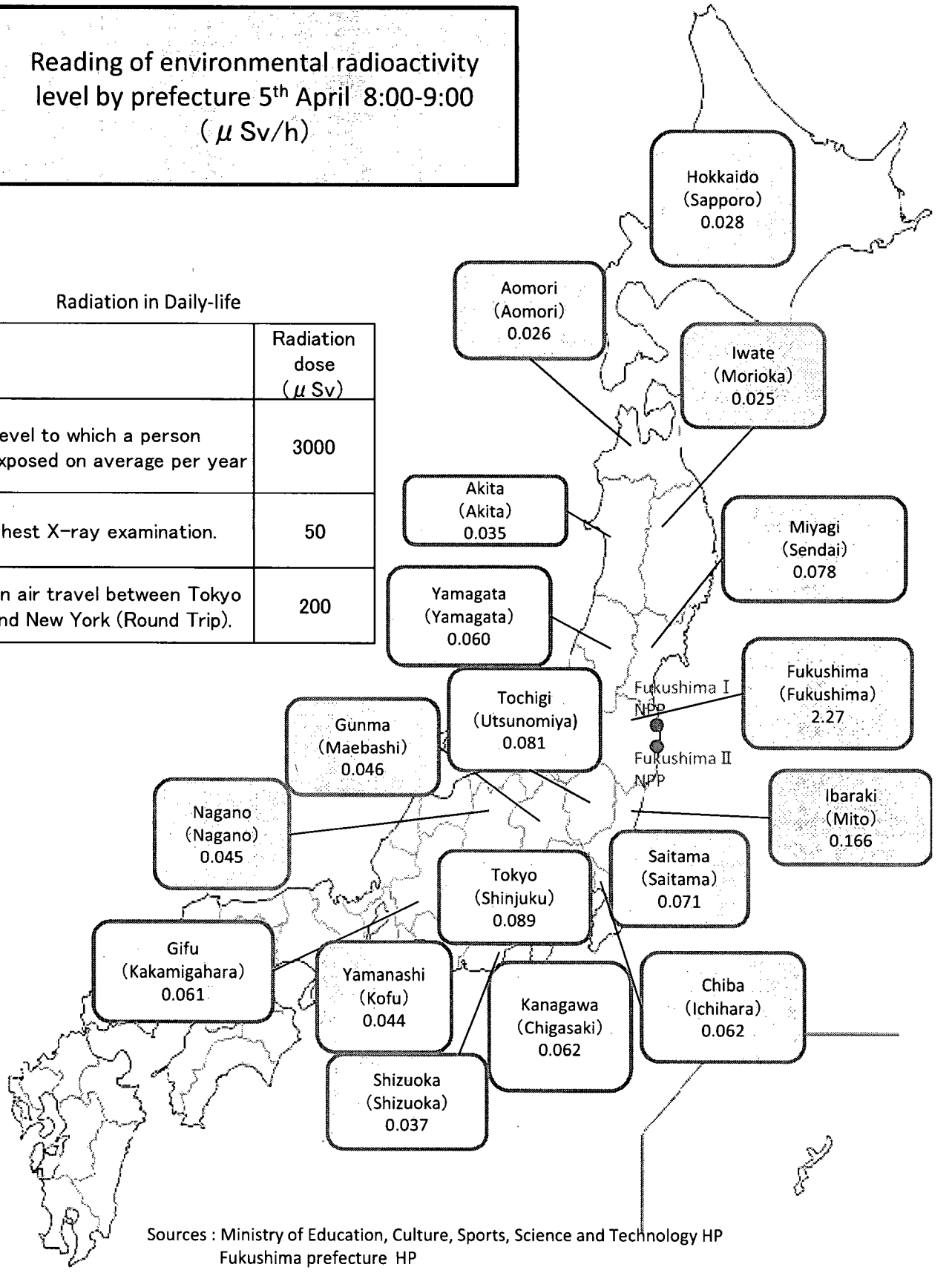
(See attached file: [METI] Apr 5 1530_Tohoku-Pacific Ocean Earthquake and the Seismic Damages to the NPSs.pdf) (See attached file:
Apr_5_Radioactivity Level Map [Chart].pdf)

Reading of environmental radioactivity level by prefecture 5th 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

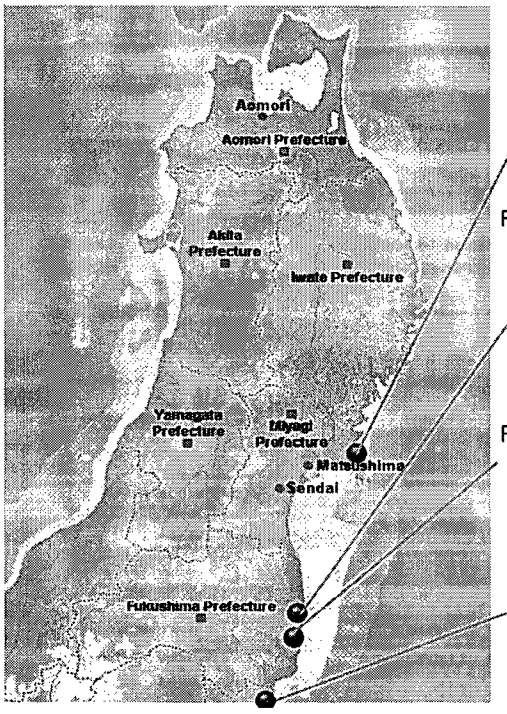
As of 15:30 April 3rd, 2011 (JST)
Ministry of Economy, Trade and industry

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.



Onagawa
- Unit1: 524 MW, 1984-
- Unit2: 825 MW, 1995-
- Unit3: 825 MW, 2002-

Fukushima I
- Unit1: 460 MW, 1971-
- Unit2: 784 MW, 1974-
- Unit3: 784 MW, 1976-
- Unit4: 784 MW, 1978-
- Unit5: 784 MW, 1978-
- Unit6: 1,100 MW, 1979-

Fukushima II
- Unit1: 1,100 MW, 1982-
- Unit2: 1,100 MW, 1984-
- Unit3: 1,100 MW, 1985-
- Unit4: 1,100 MW, 1987-

Tokai II (1,100 MW, 1978-)

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 15:30 April 3rd, instead of seawater. At 8:32am on March 29th, the pump for the fresh water injection was switched from the fire pump truck to the temporary motor-driven pump.

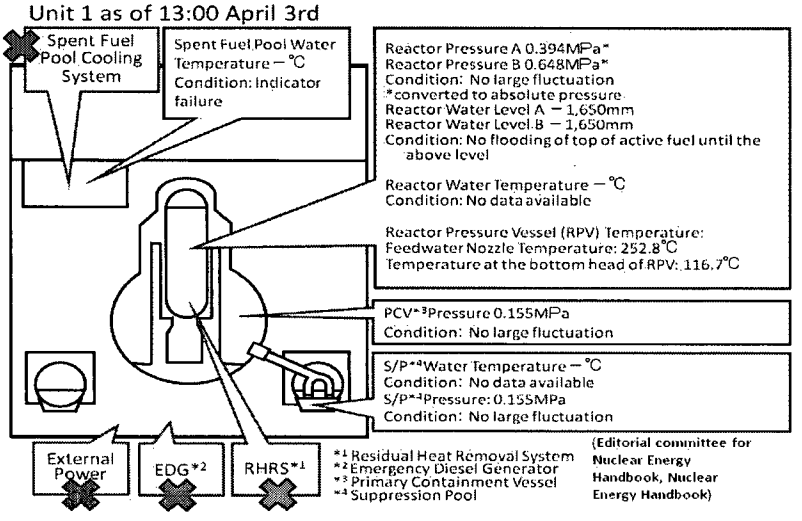
- From 13:03 till 16:04 March 31st, spray of fresh water over the spent fuel pool of Unit 1 using the concrete pump truck was carried out. From 17:16 till 17:19 April 2nd, a test water spray over the spent fuel pool was carried out in order to confirm the appropriate position for water spray.

- Lighting in the main control room was recovered at 11:30am 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 at 12:02 on April 3rd.

- White smoke was confirmed to generate continuously as of 6:30am April 3rd.

- As the result of concentration measurement in the stagnant water on the basement floor of the turbine building, 2.1×10^{5}Bq/cm^3 of ^{131}I (Iodine) and 1.8×10^{6}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).



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 15:30 April 3rd, instead of seawater. At 18:31 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 (From 16:30 till 18:25 March 29th). From 19:05 March 30th till 23:50 March 30th, the injection of fresh water was resumed. From 14:56 till 17:05 April 1st, fresh water injection to the spent fuel pool via the spent fuel cooling line using the temporary pump was carried out. At 9:00am on April 3rd, the temperature in the spent fuel pool was 61.0 degree centigrade.

- The power center of Unit 2 received electricity at 15:46 on Match 20th. At 16:46 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 at 12:12 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 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.

- 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 high polymer absorbent, etc. were put inside. (From 13:47 till 14:30 April 3rd)

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 3rd, white smoke was confirmed to generate continuously.

- For counter measures, seawater was being injected into the reactor pressure vessel, thereafter; fresh water is being injected as of 15:30 April 3rd, instead of seawater. 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 Unit 3 from sky and ground. From 14:17 till 18:18 March 29th, the water spray (fresh water) using the concrete pump truck was carried out.

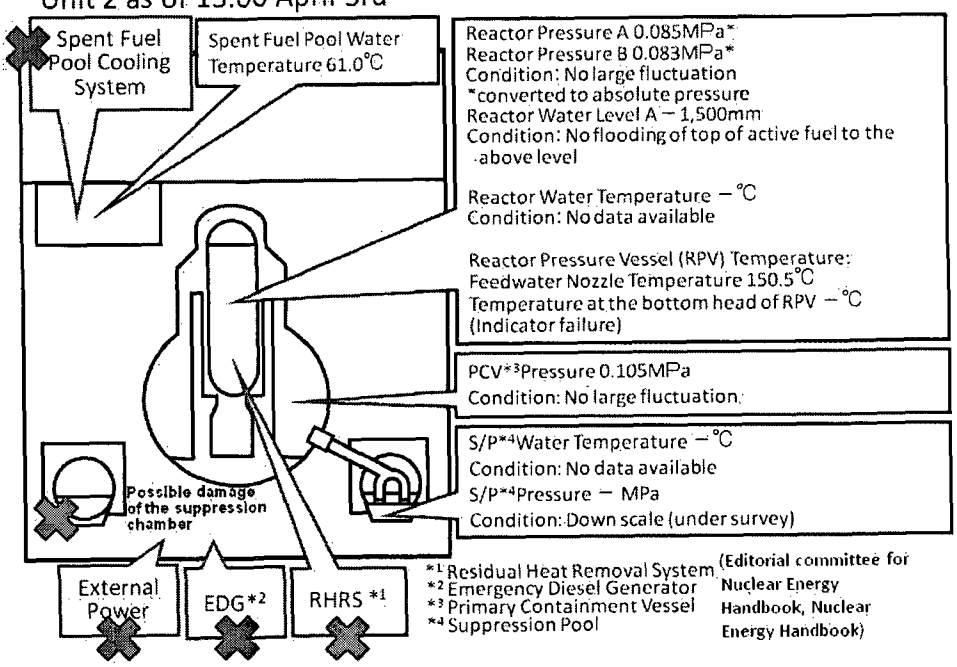
- Injection of seawater to the spent fuel pool via the cooling and purification line was carried out from 11:03am till 13:20 March 23rd and from around 5:35am till around 16:05 March 24th. At 20:30 on March 28th, the pump for the fresh water injection was switched from the fire pump truck to the temporary motor-driven pump. From 16:30 till 19:33 March 31st and from 9:52am till 12:54 April 2nd, fresh water spray over the spent fuel pool using the concrete pump truck was carried out.

- 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. (106.2 kPa as of 10:30am April 3rd)

- 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.

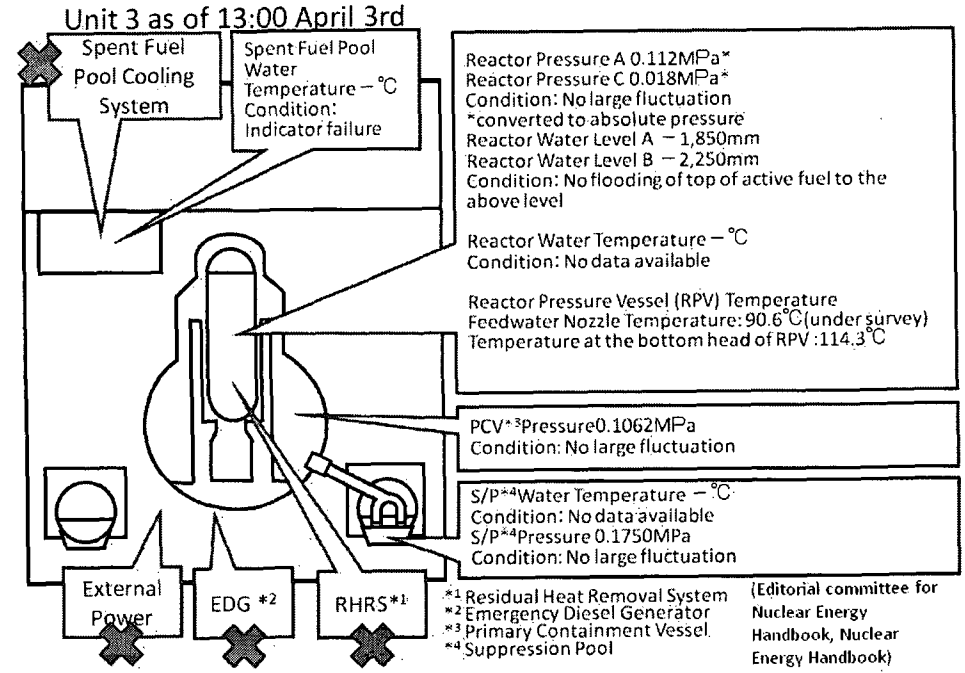
- In order to prepare for transferring the stagnant water on the basement floor of turbine building to the condenser, the water in the condensate storage tank is being transferred to the surge tank of suppression pool water from 17:40 March 28th till around 8:40am March 31st.

Unit 2 as of 13:00 April 3rd



(Editorial committee for Nuclear Energy Handbook, Nuclear Energy Handbook)

Unit 3 as of 13:00 April 3rd



(Editorial committee for Nuclear Energy Handbook, Nuclear Energy Handbook)

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.

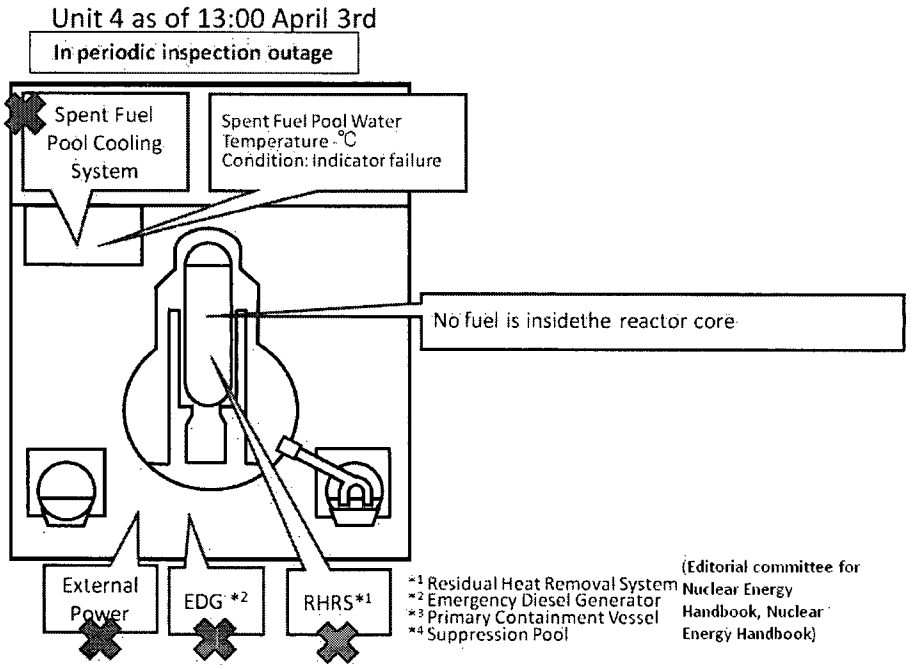
- It was confirmed that a part of wall of the operation floor of the reactor building of Unit 4 was damaged at 6:14am on March 15th. A fire took place at Unit 4 at 9:38am, but the fire was extinguished spontaneously as of 11:00am. And at 5:45am on March 16th, it was reported that a fire occurred at Unit 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 3rd.

- 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 seven times from March 22nd till April 1st. 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 as of 10:35am March 22nd. At 11:50 on March 29th, lighting in the main control room was recovered. On April 2nd, lighting in the turbine building was partially turned on.

- On April 2nd, the stagnant water in the main building of radioactive waste treatment facilities is being transferred to the turbine building of Unit 4.



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 at 5:00am and 22:14 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 at 19:52 March 20th. The power supply of Unit 5 and Unit 6 was switched from the emergency diesel generator to the external power supply at 11:36am on March 21st and 19:17 on 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.

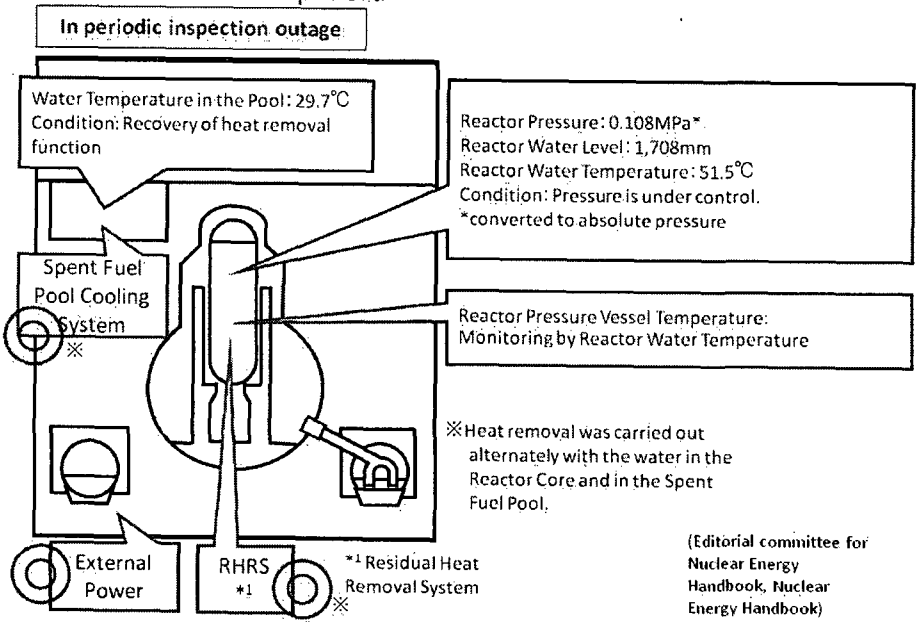
- Power supply for the temporary pumps for RHRS of Unit 6 was switched from the temporary to the permanent at 15:38 and 15:42 on March 25th.

- The temperature of water in the spent fuel pool of Unit 5 and Unit 6 were 29.7 degree centigrade and 29.5 degree centigrade, respectively as of 13:00 April 3rd.

Common Spent Fuel Pool

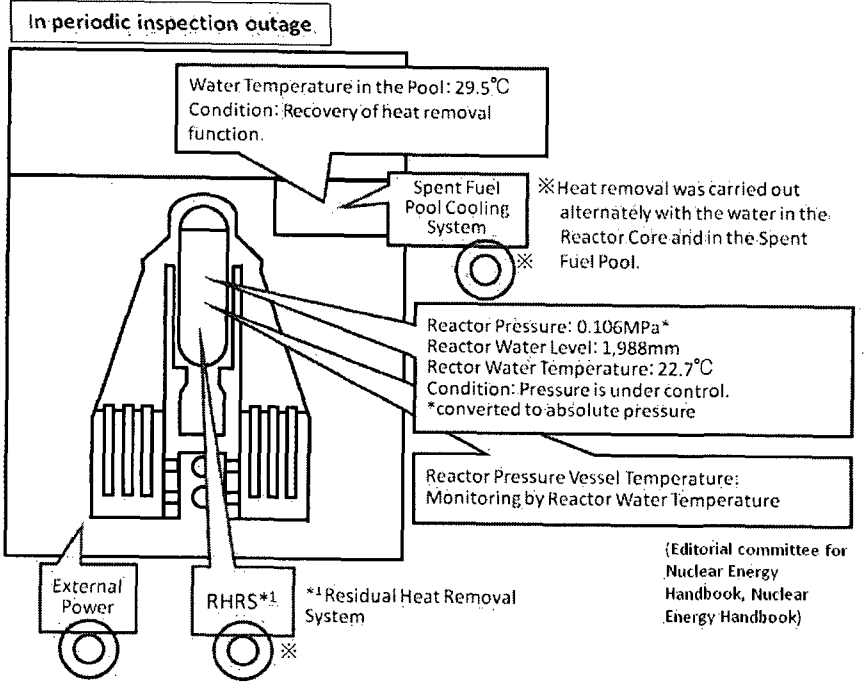
- The power supply was started at 15:37 and cooling was also started at 18:05 on March 24th. As of 8:10am April 3rd, the water temperature of the pool was around 32 degree centigrade.

Unit 5 as of 13:00 April 3rd



(Editorial committee for Nuclear Energy Handbook, Nuclear Energy Handbook)

Unit 6 as of 13:00 April 3rd



(Editorial committee for Nuclear Energy Handbook, Nuclear Energy Handbook)

Other

- As the result of nuclide analysis at around the southern water discharge canal, 7.4×10^{1}Bq/cm^3 of ^{131}I (1850.5 times higher than the limit of concentration of water outside the Environmental Monitoring Aria) 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, 4.6×10^{1}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.

- 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/cm^3 in the controlled area and that of 2.2×10^{1} 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. (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. (9:10am April 2nd)

- The spraying for test scattering of anti-scattering agent was carried out in the area of about 500 m^2 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)

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.

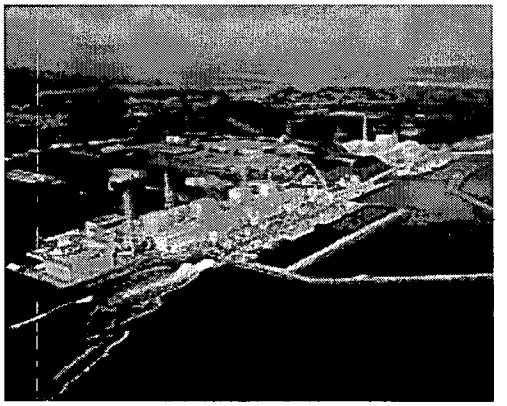
- On March 16th, the Local Emergency Response Headquarter issued "the direction to administer the stable Iodine during evacuation from the evacuation area (20 km radius)" to the Prefecture Governors and the heads of cities, towns and villages.

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

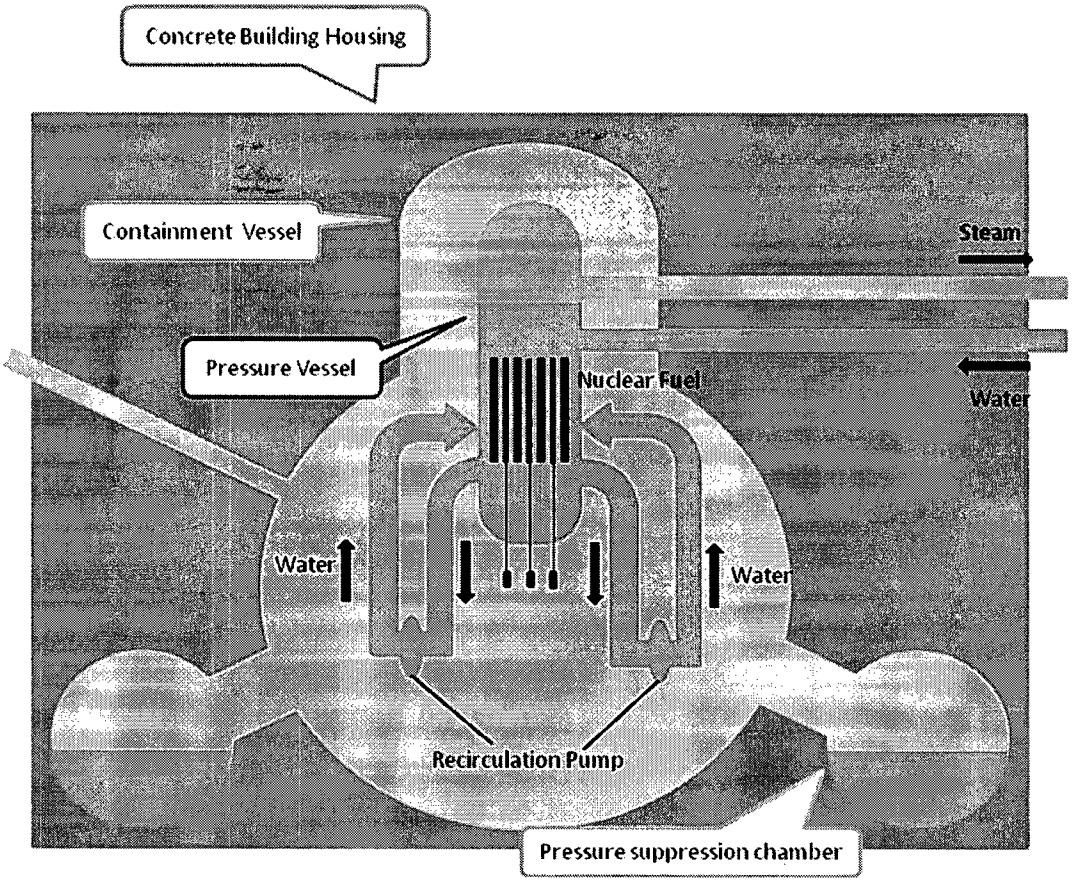
2) The real-time radiation data collected via the System for Prediction of Environment Emergency Dose Information (SPEEDI) is available on the following website:
http://www.bousai.ne.jp/eng/

Outline of the Fukushima I Nuclear Power Station



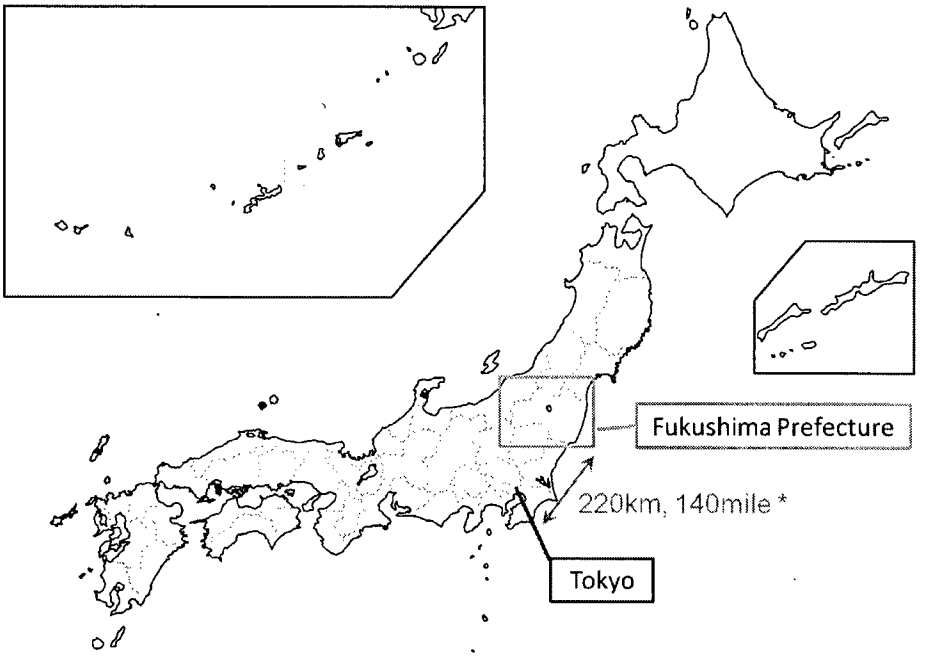
(Fukushima Dai-ichi nuclear power station)

↓

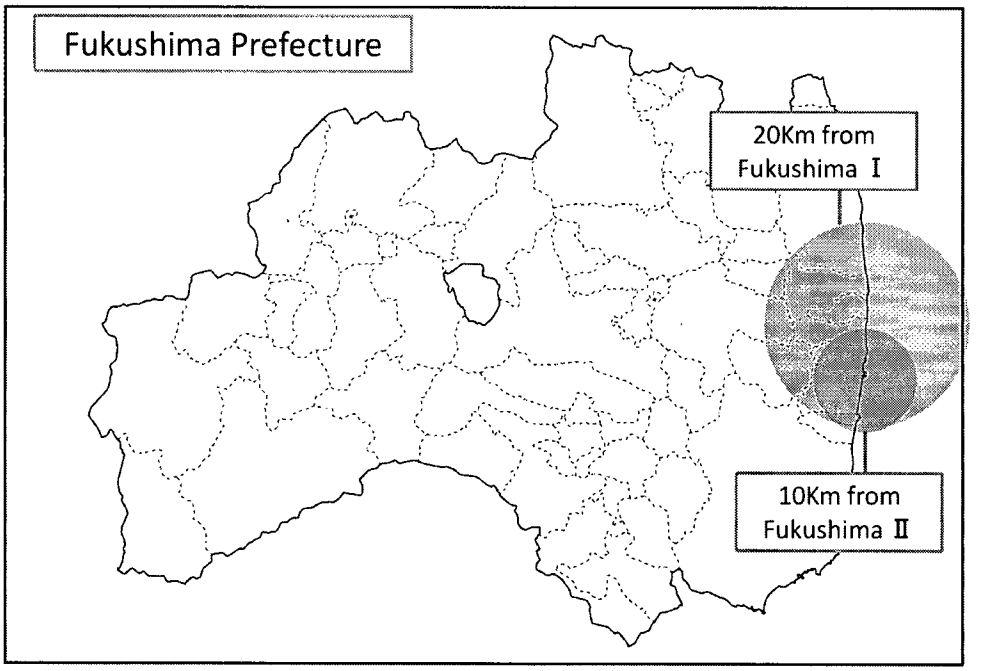


(Structure of BWR)

Location of Fukushima I and II in Japan



*Distance between Three Mile Island and Washington D.C. 140 k m、88mile



King, Mark

From: King, Mark \ NRC
Sent: Tuesday, April 05, 2011 6:58 AM
To: Pannier, Stephen
Subject: FW: 0430 EDT (April 5, 2011) USNRC Earthquake/Tsunami Status Update
Attachments: NRC Status Update 4-05-11--0430EDT.pdf

Steve,
See attached FYI – as the ET briefer....today. Not sure if you get these updates.

NOTE: Early on during the Japan event I attached it to the ET briefing report - each day that I had the briefing - back when it was a little fresher event and things were changing more rapidly. Still good to read through it, and be up to date, have a copy... as a minimum for yourself... if not for everyone.
Your call - on how much to discuss ... or not too related to Japan Events.
Mark

From: LIA07 Hoc \ NSIR
Sent: Tuesday, April 05, 2011 5:08 AM
To: LIA07 Hoc
Subject: 0430 EDT (April 5, 2011) USNRC Earthquake/Tsunami Status Update

Attached, please find a 0430 EDT, April 5, 2011 status update from the US Nuclear Regulatory Commission's Emergency Operations Center regarding the impacts of the earthquake/tsunami.

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

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

-Jim

Jim Anderson
Executive Briefing Team Coordinator
Office of Nuclear Security and Incident Response
US Nuclear Regulatory Commission
LIA07.HOC@nrc.gov (Operations Center)
james.anderson@nrc.gov

nnn/246

From: OST01 HOC
Sent: Wednesday, April 27, 2011 4:42 PM
To: ET02 Hoc
Subject: FW: Japan One Pager 1500 EDT 4-27-11.doc
Attachments: Japan One Pager 1500 EDT 4-27-11.doc

Rich, let me know if this is your email address for tonight

From: OST01 HOC
Sent: Wednesday, April 27, 2011 3:21 PM
To: Correia, Richard; LIA08 Hoc; Hoc, PMT12; RST01 Hoc
Subject: Japan One Pager 1500 EDT 4-27-11.doc

One-Pager to update for the 2300 EDT upload into Sharepoint

Thanks

nnn/247

From: OST01 HOC
Sent: Wednesday, April 06, 2011 6:41 AM
To: Cool, Donald
Subject: EST Coordinator

Don:

I am coordinator today. I know you are going to the Hill. Let me know if you need anything.

Steve Campbell
EST Coordinator

nnn/248

From: Droggitis, Spiros
Sent: Wednesday, April 06, 2011 5:08 AM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Shane, Raeann; Riley (OCA), Timothy; Weil, Jenny; Decker, David; Dacus, Eugene
Subject: Daily Plant Status Report - 4/6/2011
Attachments: USNRC Japan Plant Condition Update April 6 0430EDT.PDF

NRR/249

From: PMTERDS Hoc
Sent: Thursday, April 07, 2011 1:00 PM
To: LIA08 Hoc
Subject: Higashidori Nuclear Power Plant - Wikipedia, the free encyclopedia

http://en.wikipedia.org/wiki/Higashid%C5%8Dri_Nuclear_Power_Plant

nnn/250

From: Droggitis, Spiros
Sent: Thursday, April 07, 2011 5:10 AM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Shane, Raeann; Dacus, Eugene; Decker, David; Riley (OCA), Timothy; Weil, Jenny
Subject: Daily Plant Status Report - 4/7/2011
Attachments: USNRC Japan Plant Condition Update April 7 0430EDT.PDF

NRR/251

From: OST01 HOC
Sent: Wednesday, April 27, 2011 9:56 PM
To: LIA08 Hoc
Subject: RE: Japan One Pager 1500 EDT 4-27-11.doc

thanks

From: LIA08 Hoc
Sent: Wednesday, April 27, 2011 9:51 PM
To: OST01 HOC
Subject: FW: Japan One Pager 1500 EDT 4-27-11.doc

See attached for Liaison Team input. New Input 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: Wednesday, April 27, 2011 3:21 PM
To: Correia, Richard; LIA08 Hoc; Hoc, PMT12; RST01 Hoc
Subject: Japan One Pager 1500 EDT 4-27-11.doc

One-Pager to update for the 2300 EDT upload into Sharepoint

Thanks

nnn/252

From: Droggitis, Spiros
Sent: Friday, April 08, 2011 6:06 AM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Shane, Raeann; Dacus, Eugene; Dacus, Eugene; Riley (OCA), Timothy; Weil, Jenny
Subject: Daily Plant Status Report - 4/8/2011
Attachments: USNRC Japan Plant Condition Update April 8 0430EDT.PDF

nnn/253

From: Droggitis, Spiros
Sent: Saturday, April 09, 2011 5:56 AM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Shane, Raeann; Dacus, Eugene; Decker, David; Riley (OCA), Timothy; Weil, Jenny
Subject: Daily Plant Status Report - 4/9/2011
Attachments: USNRC Japan Plant Condition Update April 9 0430EDT.PDF

NNN/254

OIP_ITServices Resource

From: LIA02 Hoc
Sent: Saturday, April 09, 2011 6:54 AM
To: LIA02 Hoc; Mamish, Nader; Doane, Margaret
Cc: Abrams, Charlotte; Wittick, Brian; Afshar-Tous, Mugeh; 'ShafferMR@state.gov'; Bloom, Steven; Schwartzman, Jennifer; Tobin, Jennifer; Mayros, Lauren; Jones, Andrea; English, Lance; Smiroldo, Elizabeth; Young, Francis; Henderson, Karen; Ramsey, Jack; Shepherd, Jill; Baker, Stephen; Emche, Danielle; Fragoyannis, Nancy; LIA03 Hoc; Stahl, Eric; Owens, Janice; Fehst, Geraldine; Foggie, Kirk; Breskovic, Clarence; LIA08 Hoc; LIA06 Hoc
Subject: One Pager for April 9, 2011
Attachments: MDoane report 4-9 (5).docx

OFFICIAL USE ONLY

Attached is One Page Summary for April 9, 2011.

OFFICIAL USE ONLY

nnn/255

From: Droggitis, Spiros
Sent: Sunday, April 10, 2011 6:11 AM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Shane, Raeann; Riley (OCA), Timothy; Dacus, Eugene; Decker, David; Weil, Jenny
Subject: Daily Plant Status Report - 4/10/2011
Attachments: USNRC Japan Plant Condition Update April 10 0430EDT.PDF

NRR/256

From: Droggitis, Spiros
Sent: Monday, April 11, 2011 12:14 PM
To: LIA07 Hoc
Cc: Riley (OCA), Timothy
Subject: FW: 0430 EDT 04112011 USNRC Japan Plant Condition Update
Attachments: USNRC Japan Plant Condition Update April 11 0430EDT.pdf

Sara: This is what I am asking about. When will Tim and I get these? Thanks, Spiros

---

From: LIA07 Hoc
Sent: Monday, April 11, 2011 4:38 AM
To: LIA12 Hoc; Droggitis, Spiros; Riley (OCA), Timothy; LIA07 Hoc
Subject: 0430 EDT 04112011 USNRC Japan Plant Condition Update

Please find attached the 0430 04/11/11 NRC Japan Plant Condition Update.

After this shift, we will only issue one status report at 1800 EDT each day. These plant condition reports also will be issued at 1800 EDT instead of 0430 EDT.

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

Thank you,

Yen

Yen Chen
Executive Briefing Team Coordinator
LIA07.HOC@nrc.gov (Operations Center)

nnn/257

From: Droggitis, Spiros
Sent: Monday, April 11, 2011 4:56 AM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Riley (OCA), Timothy; Decker, David; Dacus, Eugene; Shane, Raeann; Weil, Jenny
Subject: Daily Plant Status Report - 4/11/2011
Attachments: USNRC Japan Plant Condition Update April 11 0430EDT.PDF

NNN/258

From: OST01 HOC
Sent: Monday, April 11, 2011 11:27 PM
To: Wiggins, Jim
Subject: Latest One-Pager (2200EDT 4-11-11)
Attachments: One Pager 2200EDT 4-11-11.docx

Mr. Wiggins,

Here is the most recent One-Pager.

Rebecca

mm/259

From: OST01 HOC
Sent: Monday, April 11, 2011 11:08 PM
To: LIA08 Hoc
Subject: FW: One Pager
Attachments: April 11 2200hrs.doc

From: Carpenter, Cynthia
Sent: Monday, April 11, 2011 9:44 PM
To: OST01 HOC
Subject: RE: One Pager

Please print 2 copies – thank you.

From: OST01 HOC
Sent: Monday, April 11, 2011 7:15 PM
To: Carpenter, Cynthia
Subject: One Pager

NNN/260

From: OST01 HOC
Sent: Tuesday, April 12, 2011 8:23 PM
To: Morris, Scott; Marshall, Jane
Subject: HOC Task Assignment Process_4.12.11
Attachments: HOC Task Assignment Process_4.12.11.doc

VVV/261

HOC Task Assignment Process

Background:
NRC is realigning the functions of the Japan Earthquake and Tsunami response to better serve the changing information needs of stakeholders. The Headquarters Response Team will continue to have enhanced staffing around the clock dedicated to this response, but will have fewer individuals per shift in the Headquarters Operations Center (HOC). The primary focus of the Response Team will be coordination and communications. Most of the technical assessment work associated with this response will shift to NRC's regular line organizations. To facilitate this goal, the HOC Task Assignment Process has been established to assign and track technical work performed outside of the HOC.

Objective:
The objective of the HOC Task Assignment Process is to provide a consistent approach for assigning and tracking technical work performed outside of the HOC for high-priority short and medium term actions. Longer term actions in support of the HOC will be tasked through the normal OEDO Green Ticket process or other mechanisms (e.g., NSIR's lessons learned process).

Process Overview:
Tasks initiated through the HOC in support of Fukushima Daiichi 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 HOC. If the Headquarters Response Team identifies a need for work to be performed outside of the HOC, the HOC will initiate the assignment following approval by the ET Director. Assignments will include specific expectations for the date and time of completion of the assignment, deliverable to be provided back to the Response Team, and the level of internal coordination and concurrence.

Assignments will be tracked via the nsir-ops.nrc.gov 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 assignment list via the "Alert Me" feature. Once the task is entered into the SharePoint site, an Adobe PDF assignment sheet will be transmitted electronically to the assigned Office point of contact and technical staff. Work on the 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. If the technical staff need more information on the task, or if they cannot meet the assigned due date, the assigned lead office point of contact should promptly contact the Response Team at 301-816-5111 for discussion of the assignment.

Responsibilities:

Headquarters Response Team – The Headquarters Response Team under the direction of the Executive Team Director is responsible for reviewing tasks and assigning them within the HOC via the Task Tracker or outside the HOC through the HOC Task Assignment Process (or initiation an alternative tracking mechanism).

OEDO – OEDO is responsible for supervising the assignment of tasks and supporting the agency's overall response.

Office Points of Contact – Office points of contact are responsible for receiving Task Assignments from the HOC. The Office Points of Contact are responsible for identifying the technical staff responsible for the task and providing that information to the HOC.

Technical Staff – NRC technical staff are responsible for providing support for the completion of assigned HOC tasks within the appropriate timeframe and scope of the assignment. Completion of these tasks should be given high a priority but should not detract from the NRC's mission to protect the U.S. public health and safety and the environment and promote the common defense and security associated with nuclear facilities and materials that are regulated by the NRC. Questions regarding priorities should be directed by the staff to their supervision. NRC Technical Staff should contact the Headquarters Response Team (301-816-5111) as necessary to obtain clarification on specific tasks adjustments.

Managers and Supervisors – Managers and supervisors are responsible for supporting technical staff in timely and high quality completion of HOC actions (including through the approval of overtime) while accomplishing the NRC's mission of licensing and regulating the U.S.'s civilian use of byproduct, source, and special nuclear materials in order to protect public health and safety, promote the common defense and security, and protect the environment.

Effective Date:

From: Droggitis, Spiros
Sent: Tuesday, April 12, 2011 12:14 PM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Riley (OCA), Timothy; Combs, Thomas; Dacus, Eugene; Decker, David; Shane, Raeann; Weil, Jenny
Subject: Daily Plant Status Report - 4/12/2011
Attachments: USNRC Japan Plant Condition Update April 12 1200EDT.PDF

USNRC/262

From: OST01 HOC
Sent: Tuesday, April 12, 2011 4:35 PM
To: RST01 Hoc
Cc: RST09 Hoc; RST07 Hoc
Subject: FW: [METI Japan](Apr_12)Update on Seismic and Tsunami Damage Information
Attachments: [METI] Apr 9_0800_Tohoku-Pacific Ocean Earthquake and the Seismic Damages to the NPSs.pdf; Apr_12 Radioactivity Level Map [Chart].pdf; 110412INES Rating.pdf

-----Original Message-----
From: HOO Hoc
Sent: Tuesday, April 12, 2011 12:25 PM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC; OST02 HOC; OST03 HOC
Subject: FW: [METI Japan](Apr_12)Update on Seismic and Tsunami Damage Information

-----Original Message-----
From: meti-info@meti.go.jp [mailto:meti-info@meti.go.jp]
Sent: Tuesday, April 12, 2011 12:14 PM
To: meti-info@meti.go.jp
Subject: [METI Japan](Apr_12)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. Statement by Prime Minister Naoto Kan "Kizuna - The Bonds of Friendship
- " [Please refer to 8.]

2. The Rating of the International Nuclear and Radiological Event Scale
(INES) on the events in Fukushima Dai-ichi Nuclear Power Station (NPS), Tokyo Electric Power Co. Inc. (TEPCO), caused by the Tohoku District - off the Pacific Ocean Earthquake is temporarily assessed as Level 7, considering information obtained after March 18th.
However, the amount of discharged radioactive materials is approximately 10 percent of the Chernobyl accident which was assessed on the same level.
[Please refer to the attached file]

---- Updates from METI ----

UNN/263

3. [METI] Apr 9_0800_Tohoku-Pacific Ocean Earthquake and the Seismic Damages to the NPSs [Please refer to the attached file]

4. [METI] Apr 12_Radioactivity Level Map Chart [Please refer to the attached file]

---- Updates from NISA ----
5. [NISA] INES (the International Nuclear and Radiological Event Scale) Rating on the Events in Fukushima Dai-ichi Nuclear Power Station by the Tohoku District - off the Pacific Ocean Earthquake [Please refer to the attached file]

6. [NISA] Apr 12 0800_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/2011/04/20110412002/20110412002-1.pdf

7. [NISA] Apr 9 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/en20110412-3-1.pdf

8. [NISA] Apr 110200_Fukushima Dai-ichi Major Parameters of the Plant (only Japanese version is available. English version will be uploaded.) http://www.meti.go.jp/press/2011/04/20110412002/20110412002-2.pdf

9. [NISA] Apr 9 0600_Fukushima Dai-ichi Major Parameters of the Plant (English version)
http://www.nisa.meti.go.jp/english/files/en20110412-3-3.pdf

---- Major Updates from other agencies of Japanese Government --- 10. [PM] Apr 11_Statement by Prime Minister Naoto Kan "Kizuna - The Bonds of Friendship - "
http://www.kantei.go.jp/foreign/kan/statement/201104/11kizuna_e.html

11. [MLIT] Apr 12 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, Kawaski City and Ichikawa City (Chiba) were as shown in the attachment at very safe level to health.

12. [MLIT] Apr 12 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.

13. [NSC] Apr 12 1645_Assessment of the result of environment monitoring (Only Japanese version is available)
http://www.nsc.go.jp/nsc_mnt/110412_1.pdf

14. [MHLW] Apr 8_MHLW lifted the ban on the distribution of spinach and Kakina (a kind of leafy vegetable) harvested in Gunma Prefecture and of fresh raw milk produced in Kitakata City and six towns in Fukushima Prefecture based on the substatially reduced level of radioactive materials detected in the farm produce in the areas. (English version is uploaded) http://www.mhlw.go.jp/english/topics/2011eq/dl/food-110410.pdf

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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

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(See attached file: [METI] Apr 9_0800_Tohoku-Pacific Ocean Earthquake and the Seismic Damages to the NPSs.pdf)
(See attached file: Apr_12 Radioactivity Level Map [Chart].pdf)

(See attached file: 110412INES Rating.pdf)

News Release

経済産業省
Ministry of Economy, Trade and Industry

April 12, 2011

INES (the International Nuclear and Radiological Event Scale) Rating on the Events in Fukushima Dai-ichi Nuclear Power Station by the Tohoku District - off the Pacific Ocean Earthquake

The Rating of the International Nuclear and Radiological Event Scale (INES) on the events in Fukushima Dai-ichi Nuclear Power Station (NPS), Tokyo Electric Power Co. Inc. (TEPCO), caused by the Tohoku District - off the Pacific Ocean Earthquake is temporarily assessed as Level 7, considering information obtained after March 18th.

However, the amount of discharged radioactive materials is approximately 10 percent of the Chernobyl accident which was assessed on the same level.

1. INES

INES is the rating, which International Atomic Energy Agency (IAEA) and Nuclear Energy Agency, Organization for Economic Cooperation and Development (OECD/NEA) established and proposed to the Member States in March 1992, in order to indicate the impact on safety by the individual event in a nuclear facility and so on. Japan has also utilized it since 1 August 1992.

2. Events in Fukushima Dai-ichi NPS, TEPCO, by the Tohoku District - off the Pacific Ocean Earthquake

On 18 March, the ratings of the events in Fukushima Dai-ichi NPS by the Tohoku District - off the Pacific Ocean Earthquake were informed to be temporarily assessed as Level 5, considering information obtained before March 18th. However, Nuclear and Industrial Safety Agency (NISA) estimated the total amount of discharged radioactive materials from the reactors of Fukushima Dai-ichi NPS to the air, making a trial

calculation using the result of analysis of the situation of the reactors and so on, which was carried out by Japan Nuclear Energy Safety Organization (JNES). This estimation resulted in the value corresponding to Level 7 of INES rating*, as listed in the following table..

* The value representing radiation impact, which is converted to the amount equivalent to ^{131}I (Iodine), exceeds several tens of thousands of tera-becquerel (of the order of magnitude as 10^{16} Bq).

In addition, Nuclear Safety Commission of Japan (NSC) also estimated and announced the result of the trial calculation in the current stage regarding the total amount of discharged radioactive materials to the air, which had been being carried out in the Commission. This trial calculation is counted backward from the results of monitoring data of ^{131}I and ^{137}Cs (Caesium) as the total amount of the discharge from the Fukushima Dai-ichi NPS, This results in the value corresponding to Level 7 of INES rating as well.

	Assumed amount of the discharge from Fukushima Dai-ichi NPS		(Reference) Amount of the discharge from the Chernobyl accident
	Estimated by NISA	Announced by NSC	
^{131}I ... (a)	1.3×10^{17} Bq	1.5×10^{17} Bq	1.8×10^{18} Bq
^{137}Cs	6.1×10^{15} Bq	1.2×10^{16} Bq	8.5×10^{16} Bq
(Converted value to ^{131}I) ... (b)	2.4×10^{17} Bq	4.8×10^{17} Bq	3.4×10^{18} Bq
(a) + (b)	3.7×10^{17} Bq	6.3×10^{17} Bq	5.2×10^{18} Bq

(Notes) The conversion of the values to be equivalent to radiation impact of ^{131}I regarding the NISA's estimation and the NSC's

announcement were carried out by NISA in accordance with the INES User's Manual.

Although Level 7 is the highest level of INES rating, it is estimated that the amount of discharged radioactive materials to the environment in the current stage is approximately 10 percent of the Chernobyl accident, which was assessed on the same level in the past.

3. Procedures to be taken

This information is about the result of the total amount of the discharge from Fukushima Dai-ichi NPS in the current stage. As radioactive materials are being released to the environment, NISA will continuously gather and evaluate information.

In addition, the official level of INES will be determined, considering the technical evaluation from specialist view points made by INES Evaluation Subcommittee (Chairman: Dr. Naoto Sekimura, Professor of University of Tokyo, Nuclear Professional School Engineering, Department of Nuclear Engineering and Management), which set up in the Nuclear and Industrial Safety Subcommittee of the Advisory Committee for Natural Resources and Energy, after the recurrence prevention measures are confirmed based on the concrete causes found.

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Tohoku Pacific Earthquake and the seismic damage to the NPSs

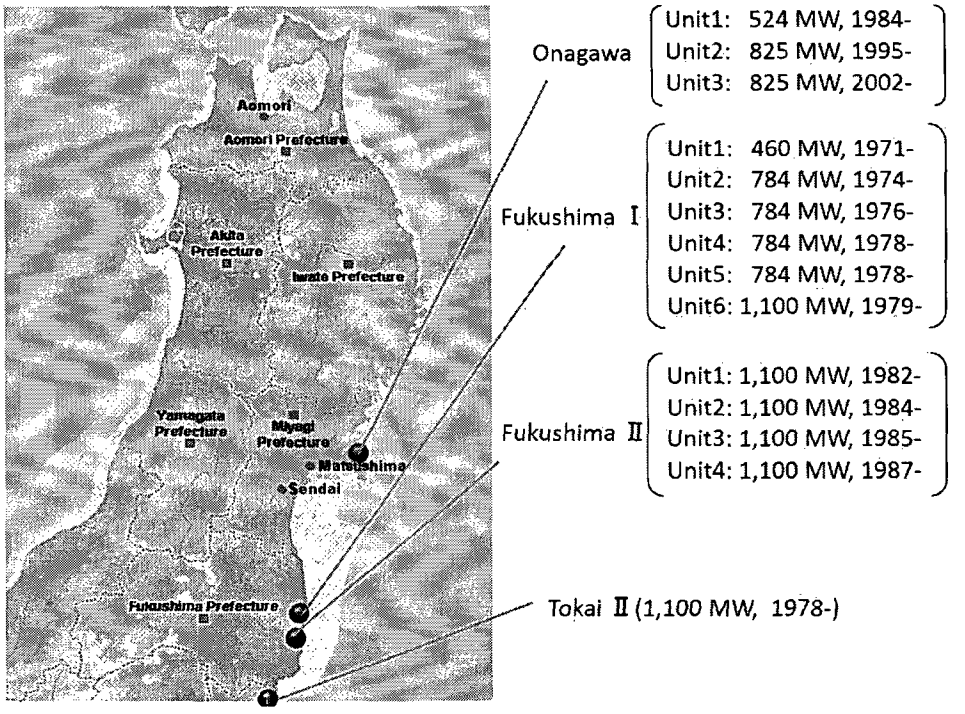
As of 8:00am April 9th, 2011 (JST)
Ministry of Economy, Trade and industry

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.

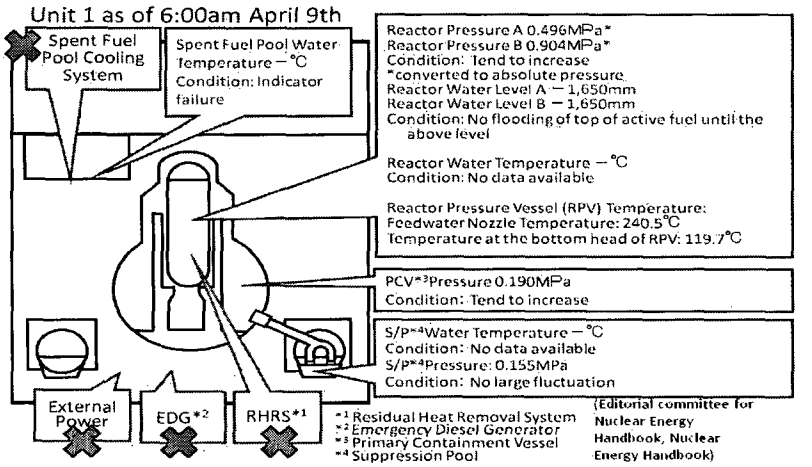
The emergency diesel power generators and the pumps supplying seawater to the cooling system were halted at 15:41 on March 11th due to the Tsunami estimated more than 10 meters high from the seawater level. Fukushima I lost the AC power sources for Unit 1, 2, 3 and 4 and lost function necessary for cooling down the reactor cores (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 9th, 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 9th.
- As the result of concentration measurement in the stagnant water on the basement floor of the turbine building, 2.1×10^{5}Bq/cm^{3} of ^{131}I (Iodine) and 1.8×10^{6}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 9th, 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 0:00am on April 9th, the temperature in the spent fuel pool was 50.0 degree centigrade.
- The power center of Unit 2 received electricity on Match 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 9th.
- 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 8:00am April 9th.

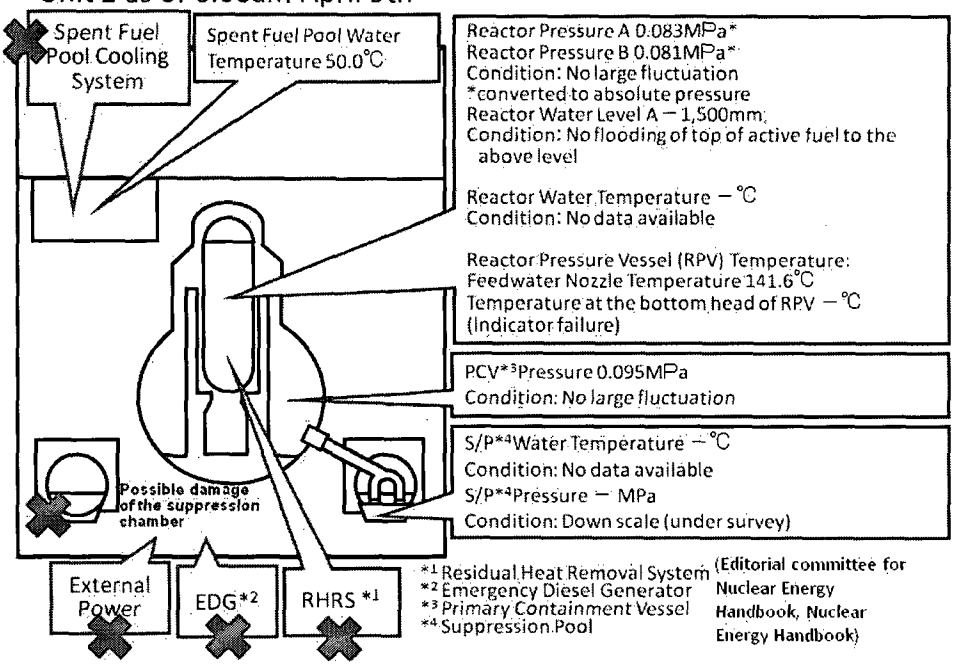
- At the same time, to pour water into the spent fuel pool, helicopters, water cannon trucks, fire engines and concrete pump trucks discharged water to the spent fuel pool of Unit 3 from sky and ground. Injection of seawater to the spent fuel pool via the cooling and purification line was carried out on March 23rd and March 24th. From March 29th till April 8th, fresh water spray over the spent fuel pool using the concrete pump truck had been carried out six 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. (105.4 kPa as of 0:00am April 9th)

- 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 9th



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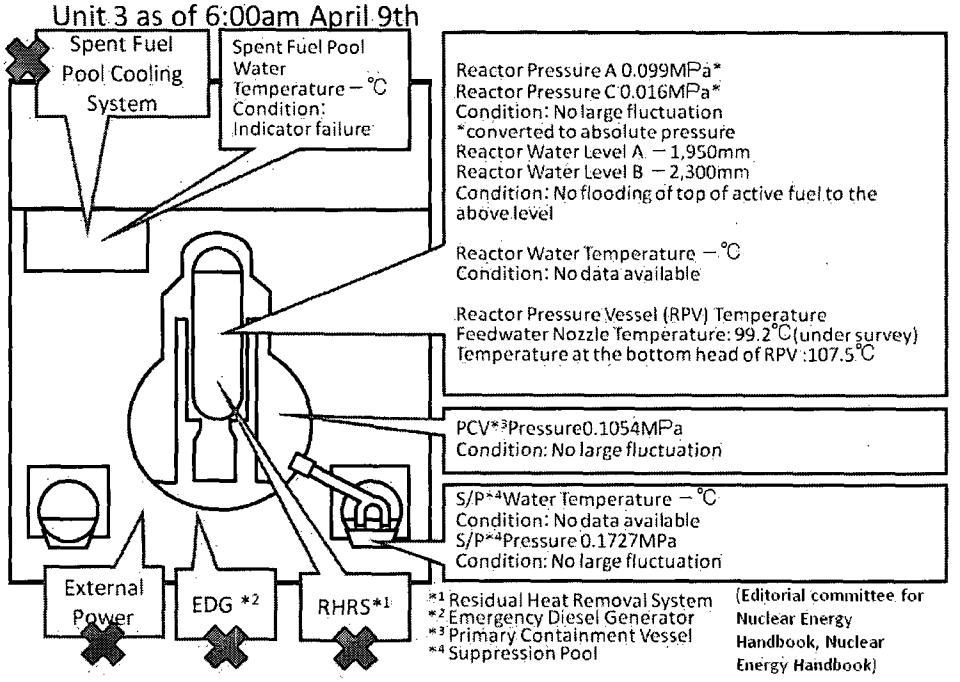
Unit 3 as of 6:00am April 9th



(Editorial committee for Nuclear Energy Handbook, Nuclear Energy Handbook)

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.

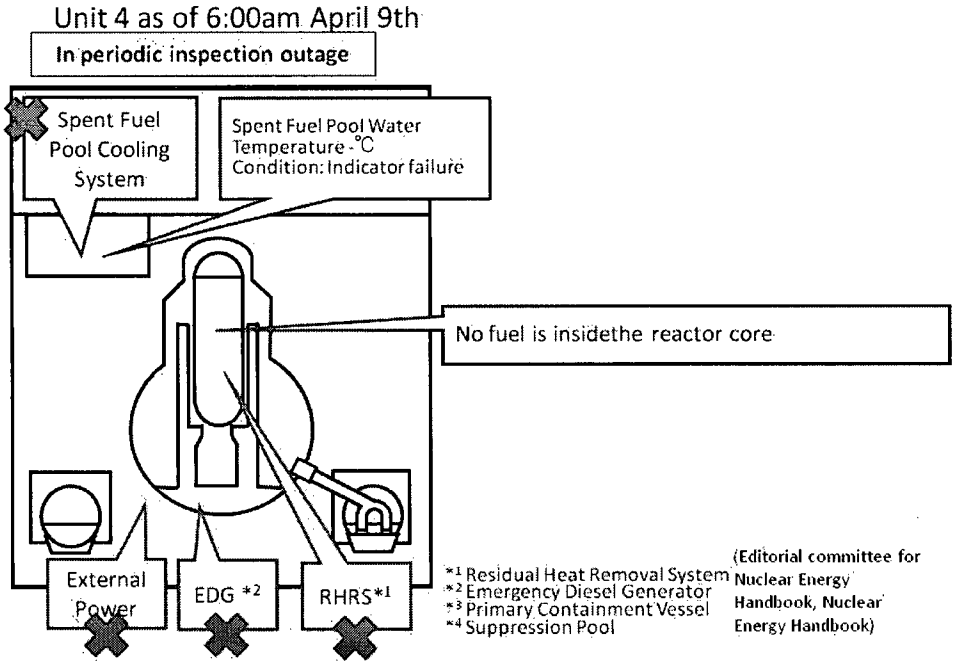
- It was confirmed that a part of wall of the operation floor of the reactor building of Unit 4 was damaged at 6:14am on March 15th. A fire took place at Unit 4 at 9:38am, but the fire was extinguished spontaneously as of 11:00am. And at 5:45am on March 16th, it was reported that a fire occurred at Unit 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 9th.

- 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.

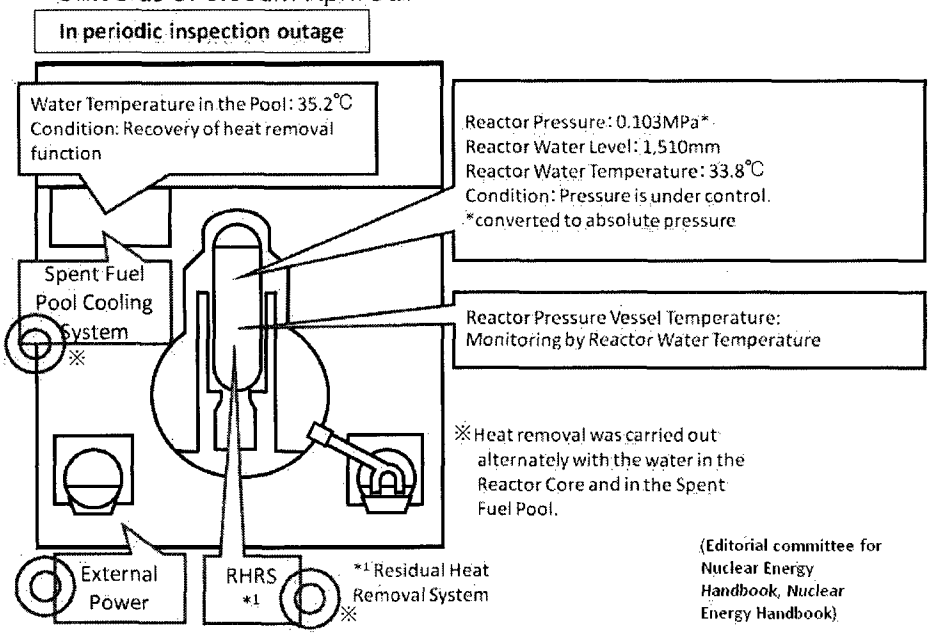
- The temperature of water in the spent fuel pool of Unit 5 and Unit 6 were 35.2 degree centigrade and 24.0 degree centigrade, respectively as of 6:00am April 9th.

- 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

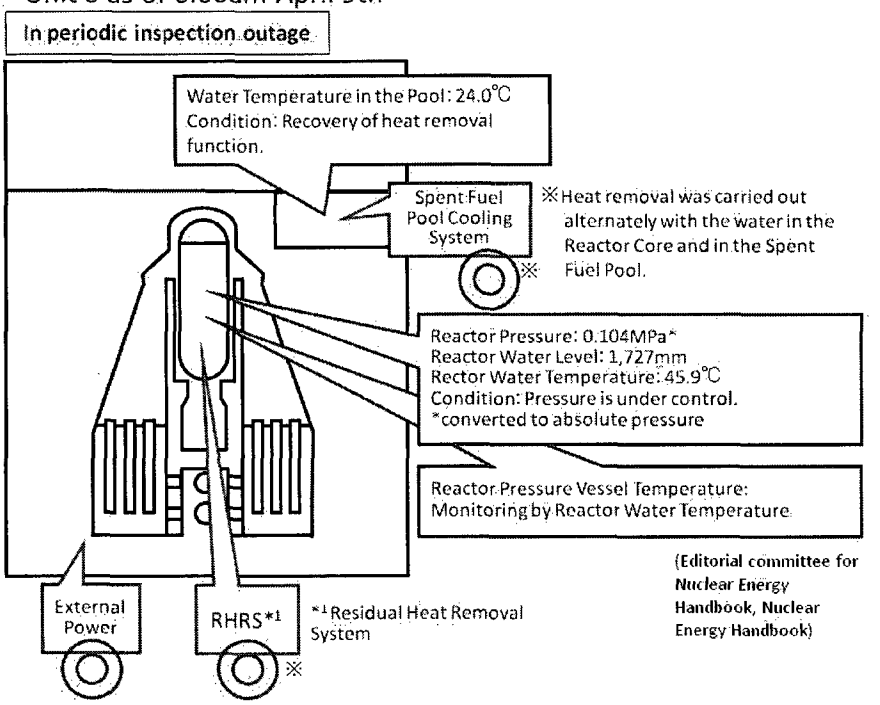
- The power supply was started at 15:37 and cooling was also started at 18:05 on March 24th. As of 7:20am April 8th, the water temperature of the pool was around 28 degree centigrade.

Unit 5 as of 6:00am April 9th



(Editorial committee for Nuclear Energy *Handbook*, *Nuclear* Energy Handbook)

Unit 6 as of 6:00am April 9th



(Editorial committee for Nuclear Energy Handbook, Nuclear Energy Handbook)

Other

- As the result of nuclide analysis at around the southern water discharge canal, 7.4×10^{1}Bq/cm^3 of ^{131}I (1850.5 times higher than the limit of concentration of water outside the Environmental Monitoring Aria) 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, 4.6×10^{1}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 1.2×10^{1} Bq/cm^3 in the controlled area and that of 2.2×10^{1} 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 m^2 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 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.

- Pumping out the water in the radioactive waste treatment facilities, which was suspended by the earthquake off the coast of Miyagi Prefecture occurred on April 7th, was resumed. (14:30 April 8th)

- 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 17:20 April 6th till 18:20 April 7th)

- 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 on the mountain-side of the Common Pool. (April 5th, 6th and 8th)

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

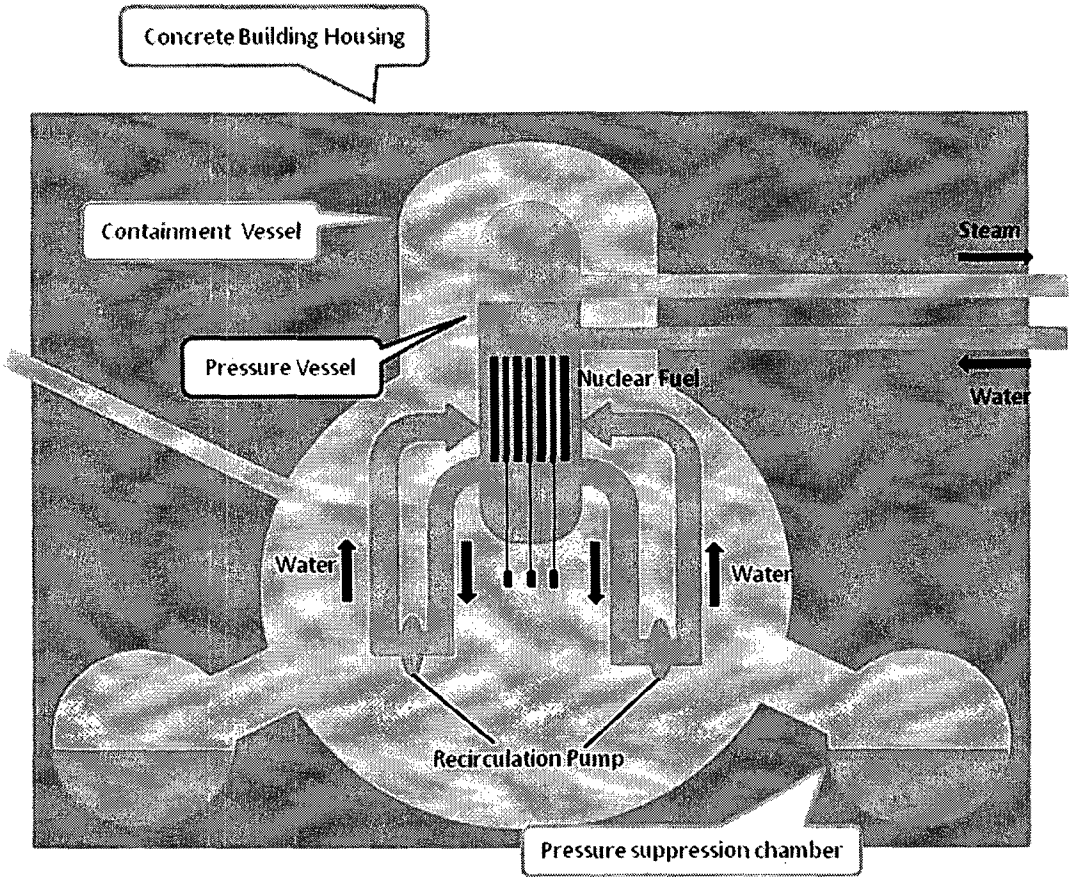
1) The data of Monitoring Post out of 20 kilometers zone of Fukushima I NPS is available on the following website:
http://www.mext.go.jp/a_menu/saigaijohou/syousai/1303726.htm

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

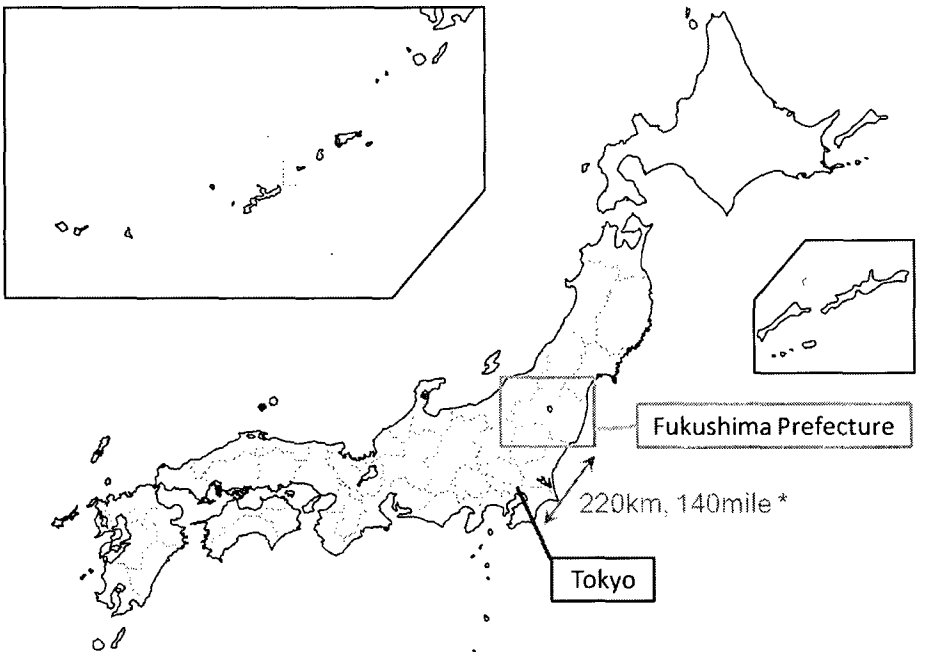
(Fukushima Dai-ichi nuclear power station)

↓

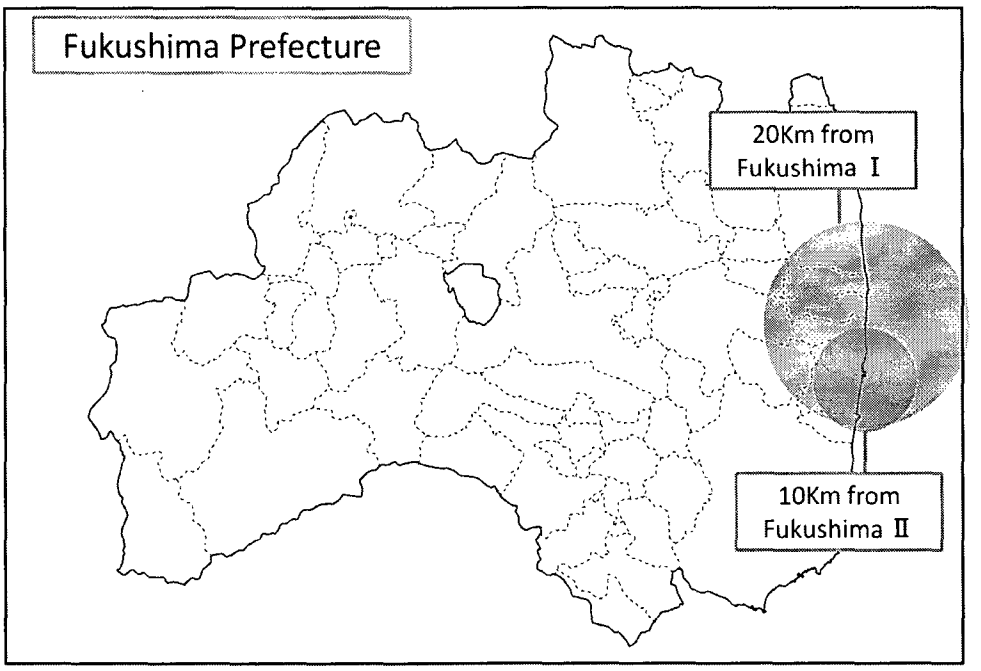


(Structure of BWR)

Location of Fukushima I and II in Japan



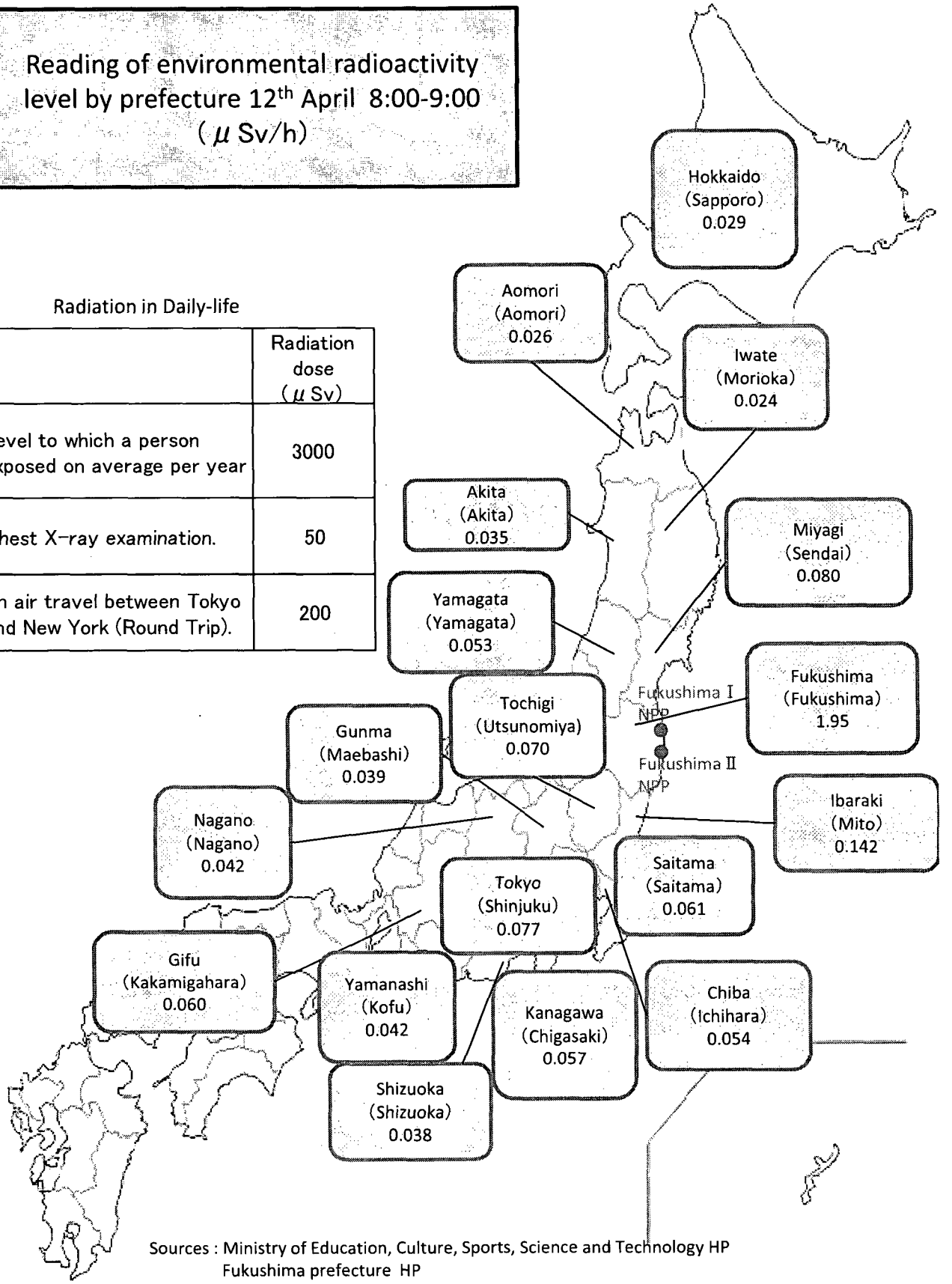
*Distance between Three Mile Island and Washington D.C. 140 k m、88mile



Reading of environmental radioactivity level by prefecture 12th 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: Dyer, Jim
Sent: Wednesday, April 13, 2011 2:30 PM
To: RST01 Hoc; Hoc, PMT12; OST01 HOC
Cc: Boger, Bruce
Subject: Here's the final for day shift. please transmit
Attachments: Japan One Pager 1500EDT 4-13-11.doc

NNN/264

From: OST01 HOC
Sent: Wednesday, April 13, 2011 10:23 PM
To: Boger, Bruce
Subject: One Pager
Attachments: Doc2.doc

nnn/265

From: Droggitis, Spiros
Sent: Wednesday, April 13, 2011 12:17 PM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Riley (OCA), Timothy; Decker, David; Dacus, Eugene; Weil, Jenny; Shane, Raeann; Combs, Thomas
Subject: Daily Plant Status Report - 4/13/2011
Attachments: USNRC Japan Plant Condition Update April 13 1200EDT.PDF

NRR/2606

From: Dyer, Jim
Sent: Wednesday, April 13, 2011 2:35 PM
To: RST01 Hoc; Hoc, PMT12; OST01 HOC
Subject: Disregard my last final one pager transmittal
Attachments: Japan One Pager 1500EDT 4-13-11.doc

This is the true final version. Please transmit. Jim

UNN/267

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 : 0815 UTC 13: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: 0000 UTC 13 APR 2011
Emissision duration: 24
Emission (per hour): 4.17E-02
Substance released: I131 (Halflife: 8.04398E+0
Vertical distribution: UNIFORM
Meteorological Model: Access G (~80km/29 sigma lvls)
Dispersion Model: HYSPLIT 4.9

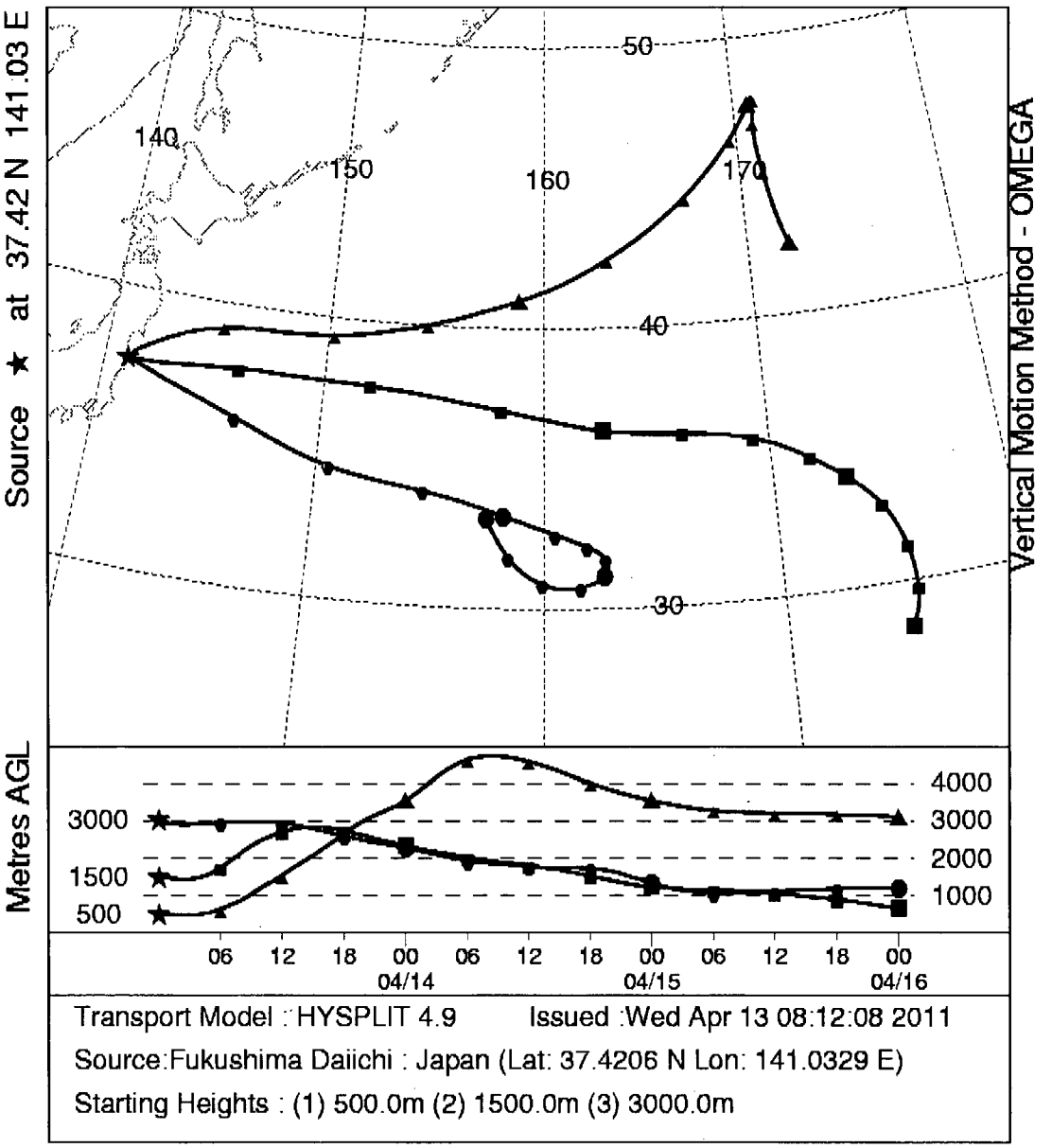
Number of Pages (incl cover sheet) = 6

RSMC Melbourne : Environmental Emergency Response Centre

Forward trajectories starting at 0000 UTC 13 Apr 2011

Meteorological Data : ACCESS-G : base time 0000 UTC 13 Apr

OPERATIONAL EVENT OPERATIONAL EVENT

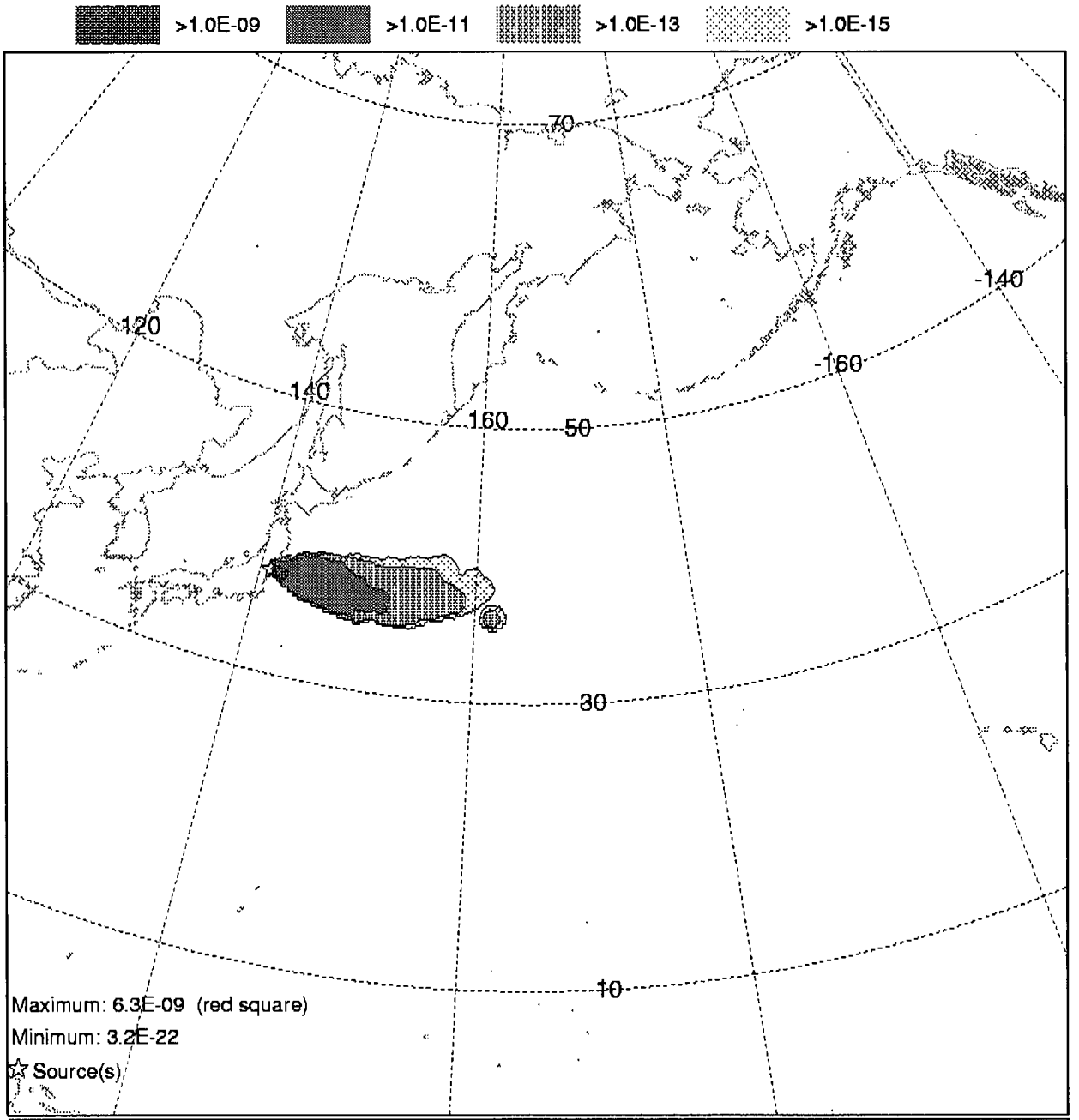


RSMC Melbourne : Environmental Emergency Response Centre

OPERATIONAL EVENT

Integrated from 0000 13 Apr to 0000 14 Apr 11 (UTC)

Exposure (Bq-s/m3) averaged between 0 m and 500 m



NRAD RELEASE STARTED AT 0000 UTC13 APR 2011

Source:Fukushima Daiichi : Japan (Lat: 37.4206 N Lon: 141.0329 E)

Isotope : I131 (Halflife: 8.04398E+00 days) Rate:4.17E-02 Bq/hr

Duration:24 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 0000 UTC 13 Apr

Note: "Contours may change from Chart to Chart"

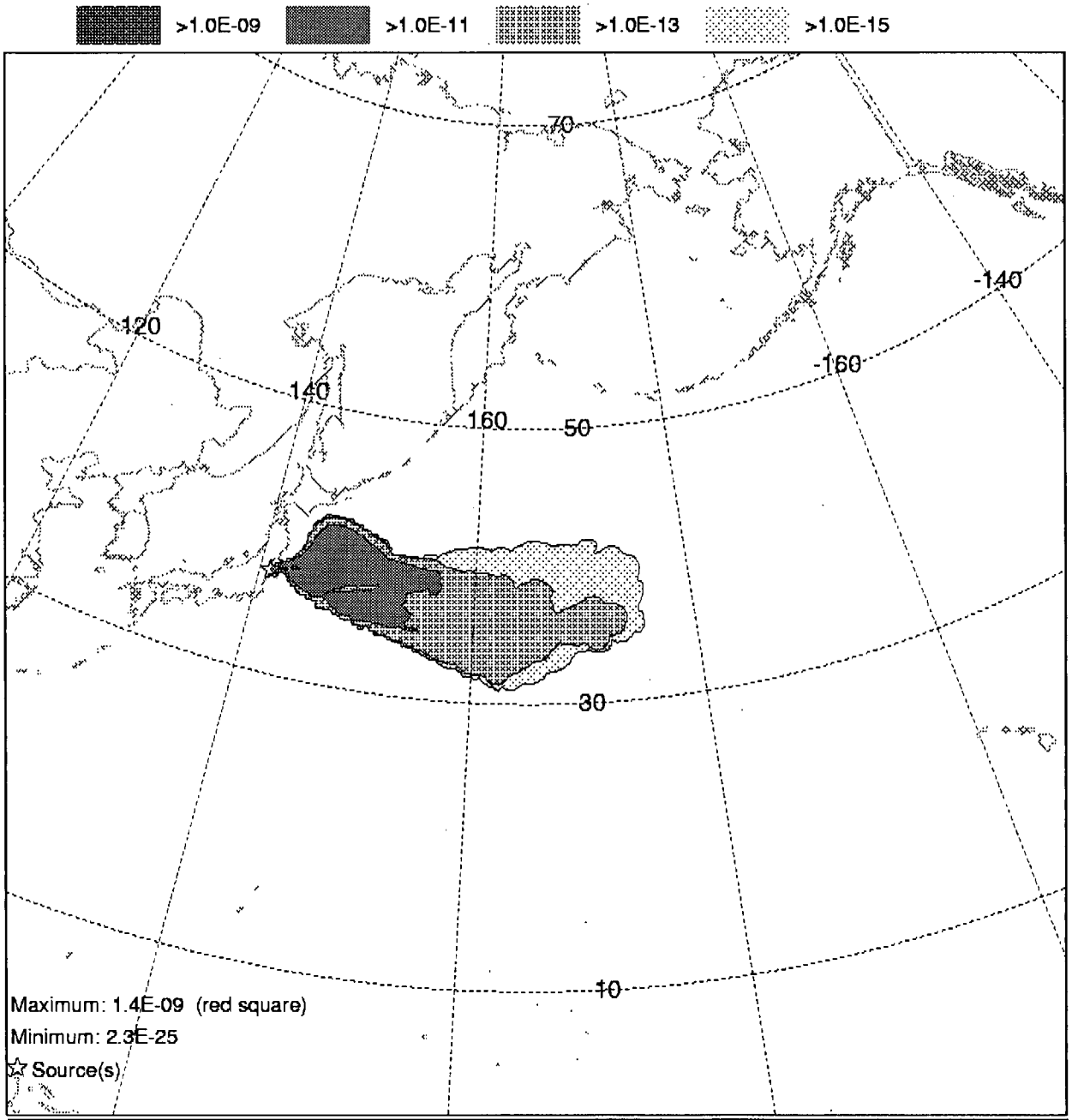
Issued :Wed Apr 13 08:12:08 2011

RSMC Melbourne : Environmental Emergency Response Centre

OPERATIONAL EVENT

Integrated from 0000 14 Apr to 0000 15 Apr 11 (UTC)

Exposure (Bq-s/m3) averaged between 0 m and 500 m



NRAD RELEASE STARTED AT 0000 UTC13 APR 2011

Source:Fukushima Daiichi : Japan (Lat: 37.4206 N Lon: 141.0329 E)

Isotope : I131 (Halflife: 8.04398E+00 days) Rate:4.17E-02 Bq/hr

Duration:24 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 0000 UTC 13 Apr

Note: "Contours may change from Chart to Chart"

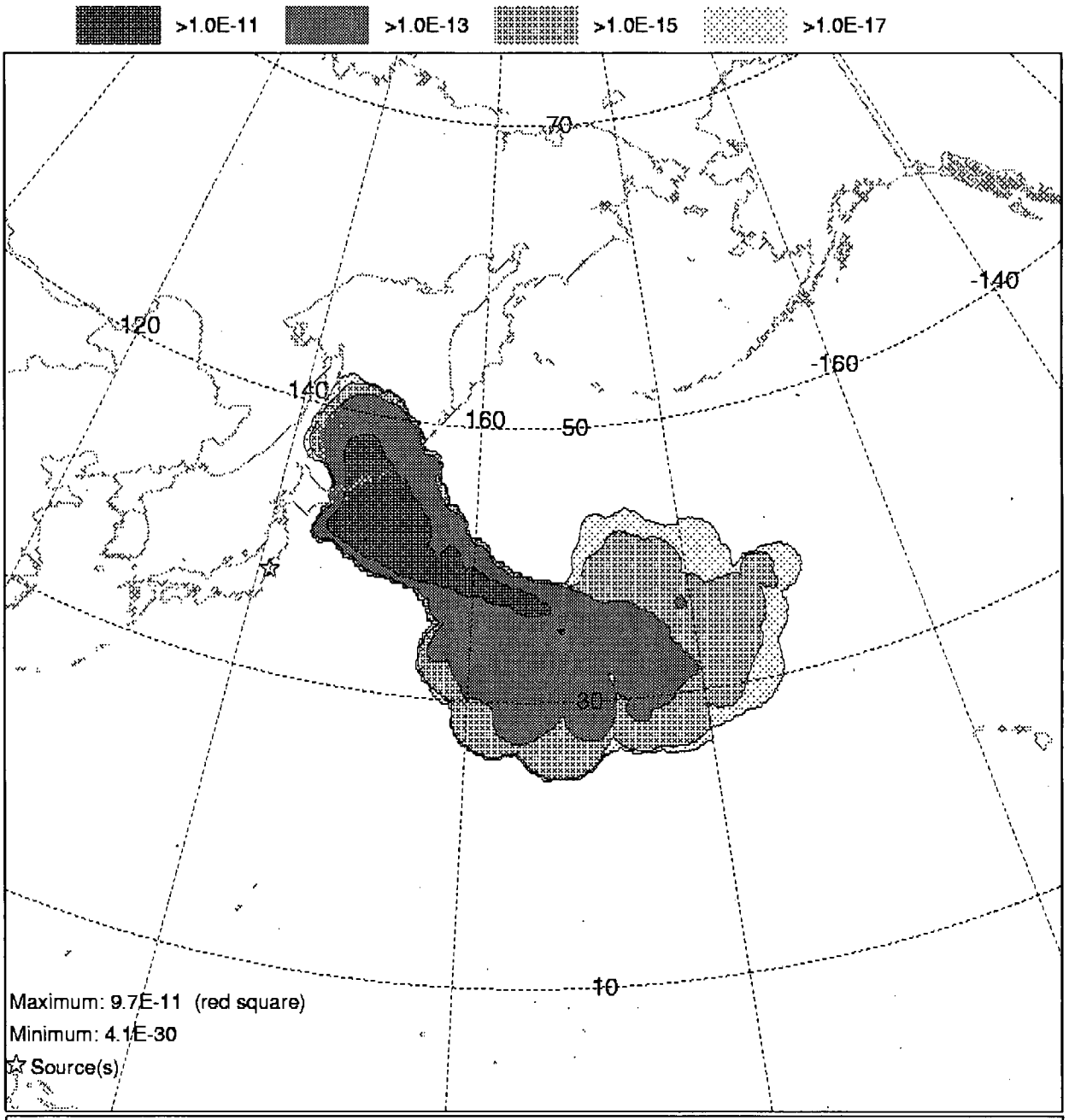
Issued :Wed Apr 13 08:12:08 2011

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



NRAD RELEASE STARTED AT 0000 UTC13 APR 2011

Source:Fukushima Daiichi : Japan (Lat: 37.4206 N Lon: 141.0329 E)

Isotope : I131 (Halflife: 8.04398E+00 days) Rate:4.17E-02 Bq/hr

Duration:24 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 0000 UTC 13 Apr

Note: "Contours may change from Chart to Chart"

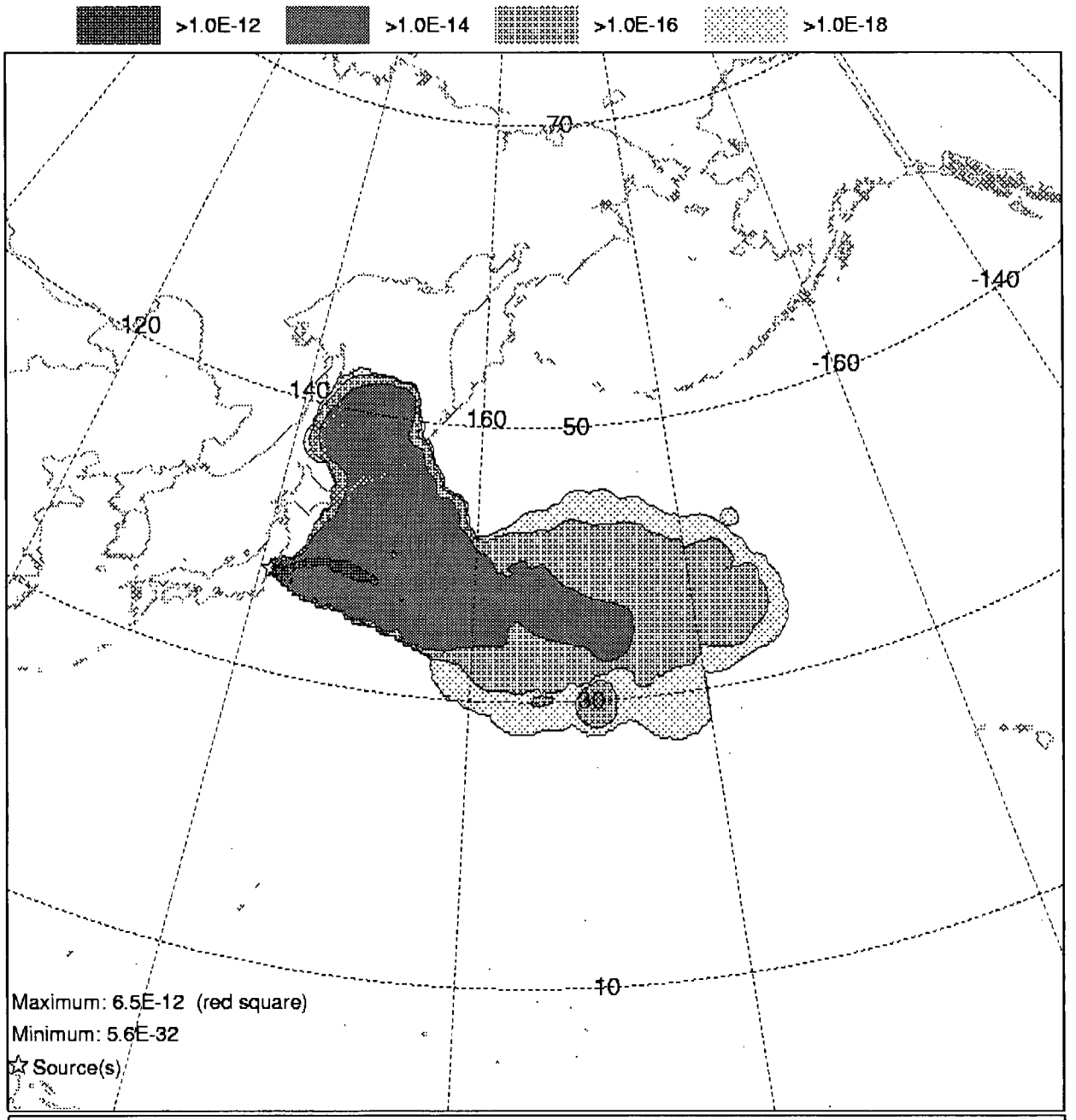
Issued :Wed Apr 13 08:12:08 2011

RSMC Melbourne : Environmental Emergency Response Centre

OPERATIONAL EVENT

Integrated from 0000 13 Apr to 0000 16 Apr 11 (UTC)

Deposition (Bq/m2) at ground-level



NRAD RELEASE STARTED AT 0000 UTC13 APR 2011

Source:Fukushima Daiichi : Japan (Lat: 37.4206 N Lon: 141.0329 E)

Isotope : I131 (Halflife: 8.04398E+00 days) Rate:4.17E-02 Bq/hr

Duration:24 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 0000 UTC 13 Apr

Note: "Contours may change from Chart to Chart"

Issued :Wed Apr 13 08:12:08 2011

From: Hoc, PMT12
Sent: Thursday, April 28, 2011 9:15 PM
To: OST01 HOC
Cc: FOIA Response.hoc Resource
Subject: Japan One Pager 2300 EDT 4-28-11.docx
Attachments: Japan One Pager 2300 EDT 4-28-11.docx

nnn/269

From: HOO Hoc
Sent: Thursday, April 14, 2011 11:19 AM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC
Subject: FW: [METI Japan](Apr_14)Update on Seismic and Tsunami Damage Information
Attachments: Apr_14 Radioactivity Level Map [Chart].pdf

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

-----Original Message-----
From: meti-info@meti.go.jp [mailto:meti-info@meti.go.jp]
Sent: Thursday, April 14, 2011 11:12 AM
To: meti-info@meti.go.jp
Subject: [METI Japan](Apr_14)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 Thursday, the following information has been updated.

---- Updates from METI ----
1. [METI] Apr 14_Radioactivity Level Map Chart [Please refer to the attached file]

---- Updates from NISA ----
2. [NISA] Apr 14 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/2011/04/20110414004/20110414004-1.pdf

3. [NISA] Apr 10 0830_Current Situation of Onagawa, Fukushima Dai-ichi, Fukushima Dai-ni, Tokai Dai-ni NPSs (English version) http://www.nisa.meti.go.jp/english/files/en20110414-2-1.pdf

4. [NISA] Apr 14 0900_Fukushima Dai-ichi Major Parameters of the Plant (only Japanese version is available. English version will be uploaded.) http://www.meti.go.jp/press/2011/04/20110414004/20110414004-2.pdf

nnn/270

5. [NISA] Apr 10 0600_Fukushima Dai-ichi Major Parameters of the Plant (English version)
http://www.nisa.meti.go.jp/english/files/en20110414-2-3.pdf

---- Major Updates from other agencies of Japanese Government --- 6. [MHLW] Apr 14_MHLW lifted the ban on the distribution of Kakina (a kind of leafy vegetable) harvested in Tochigi Prefecture based on the substantially reduced level of radioactive materials detected in the farm produce in the areas. (only Japanese version is now available. English version will be uploaded.) http://www.mhlw.go.jp/stf/houdou/2r985200000196xd.html

7. [MLIT] Apr 14 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, Kawaski City and Ichikawa City (Chiba) were as shown in the attachment at very safe level to health.

8. [MLIT] Apr 14 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.

9. [NSC] Apr 14 1645_Assessment of the result of environment monitoring (Only Japanese version is available)
http://www.nsc.go.jp/nsc_mnt/110414_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

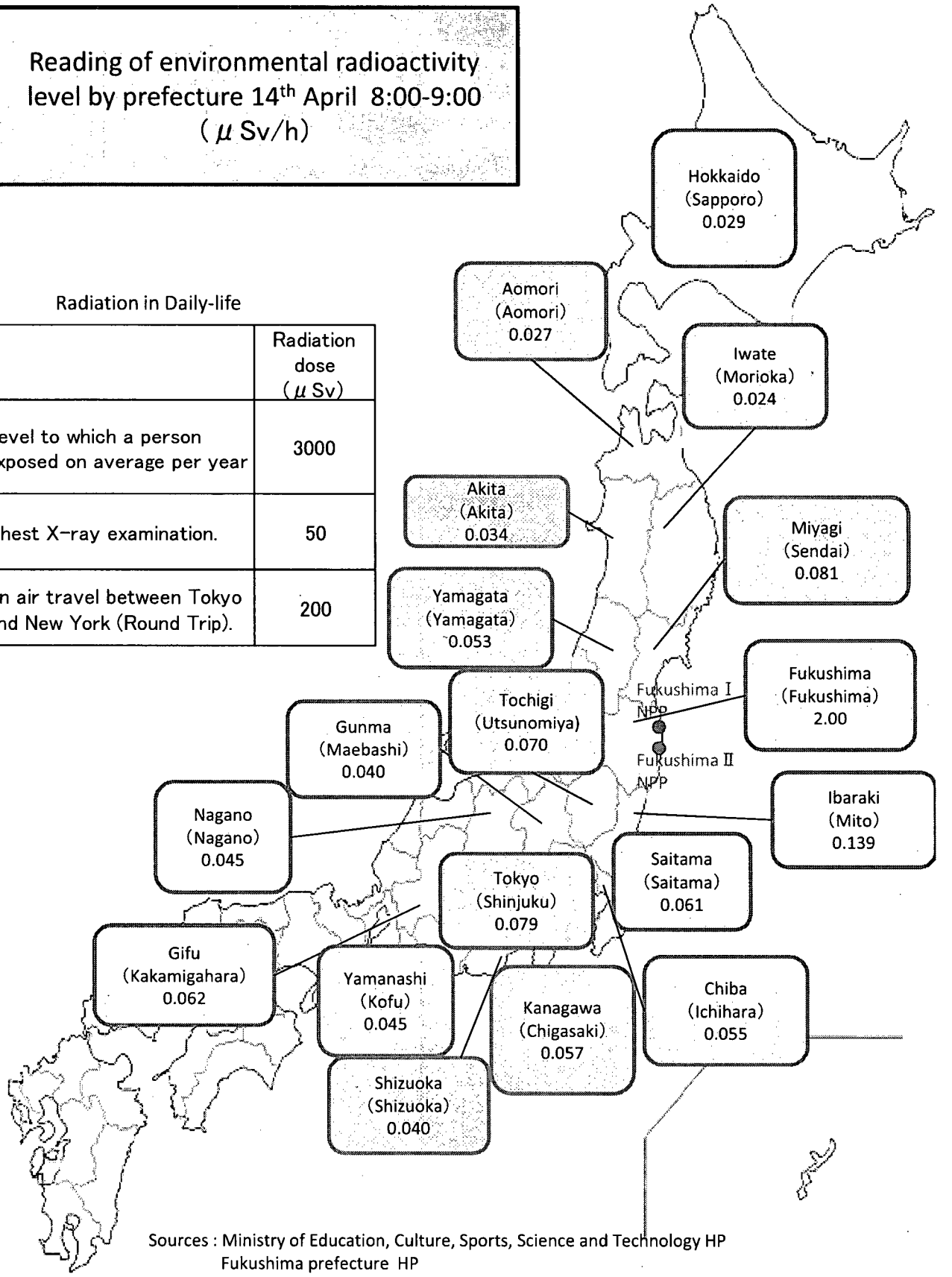
==========

(See attached file: Apr_14 Radioactivity Level Map [Chart].pdf)

Reading of environmental radioactivity level by prefecture 14th 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: Hiland, Patrick
Sent: Thursday, April 14, 2011 4:35 PM
To: Dudek, Michael
Cc: Ruland, William; RST08 Hoc; OST01 HOC
Subject: NRR POC for IRC

Mike I'll be out of office tomorrow 4/15, and David Skeen (my #1 backup) doesn't arrive home from Vienna until Saturday. I'll be checking my email and I have my NRC blackberry, but please include Mr. Bill Ruland (backup #2) on any request from OST01/RST01. Thanks.

nnn/all

From: HOO Hoc
Sent: Thursday, April 14, 2011 12:58 AM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC
Subject: FW: Fax from +61386166600
Attachments: File1.PDF

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: Thursday, April 14, 2011 12:52 AM
To: HOO Hoc
Subject: Fax from +61386166600

RECEIVE NOTIFICATION FOR JOB 00018154

Notice for: HOO1

Remote ID: +61386166600

Received at: 04/14/2011 00:51

Pages: 6

Routed by:

Routed at: 04/14/2011 00:51

nnn/272

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 : 0428 UTC 14: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: 0000 UTC 14 APR 2011

Emissision duration: 72

Emission (per hour): 1.39E-02

Substance released: I131 (Halflife: 8.04398E+0

Vertical distribution: UNIFORM

Meteorological Model: Access G (~80km/29 sigma lvls)

Dispersion Model: HYSPLIT 4.9

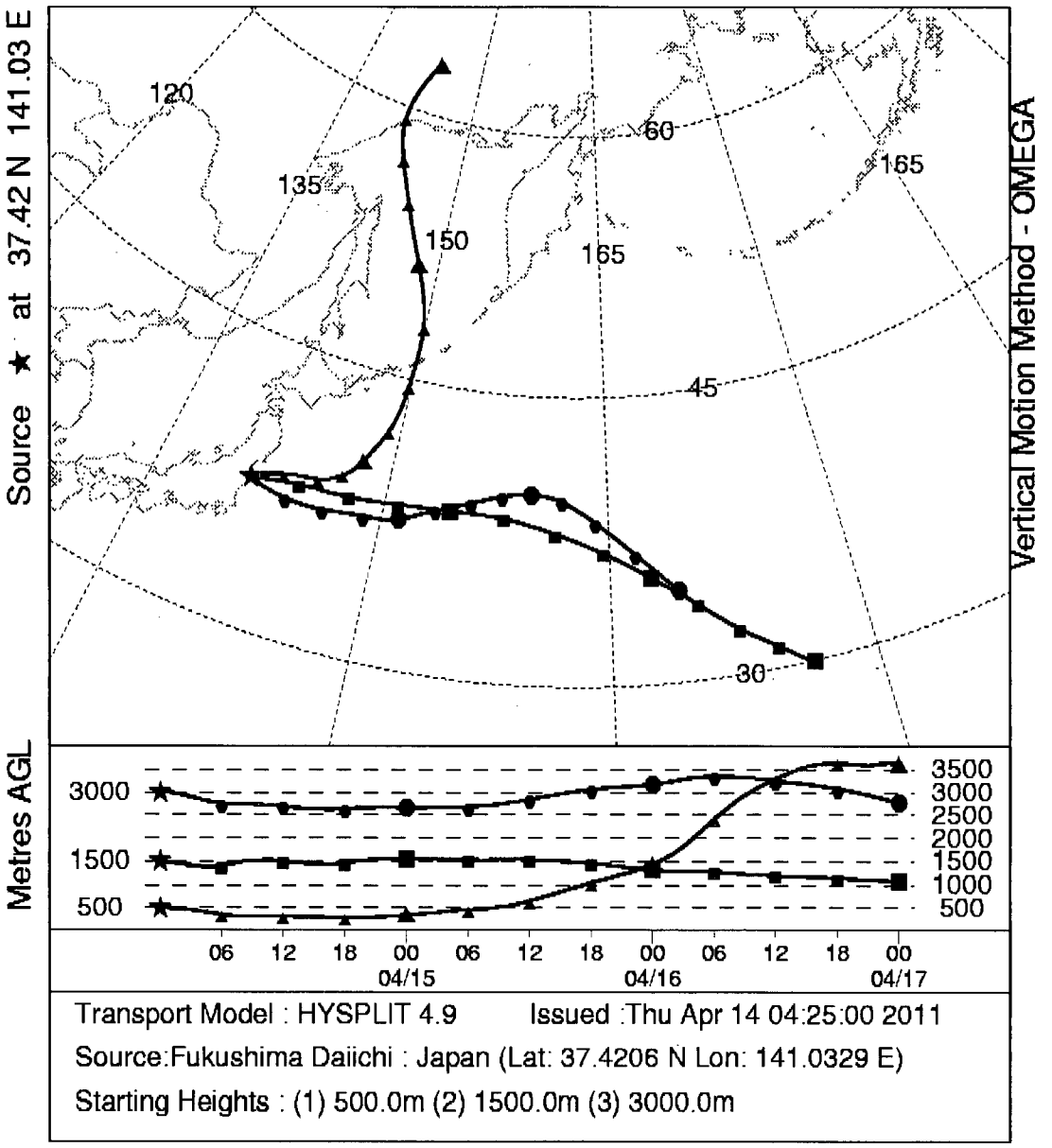
Number of Pages (incl cover sheet) = 6

RSMC Melbourne : Environmental Emergency Response Centre

Forward trajectories starting at 0000 UTC 14 Apr 2011

Meteorological Data : ACCESS-G : base time 1200 UTC 13 Apr

OPERATIONAL EVENT OPERATIONAL EVENT



Transport Model : HYSPLIT 4.9 Issued :Thu Apr 14 04:25:00 2011

Source:Fukushima Daiichi : Japan (Lat: 37.4206 N Lon: 141.0329 E)

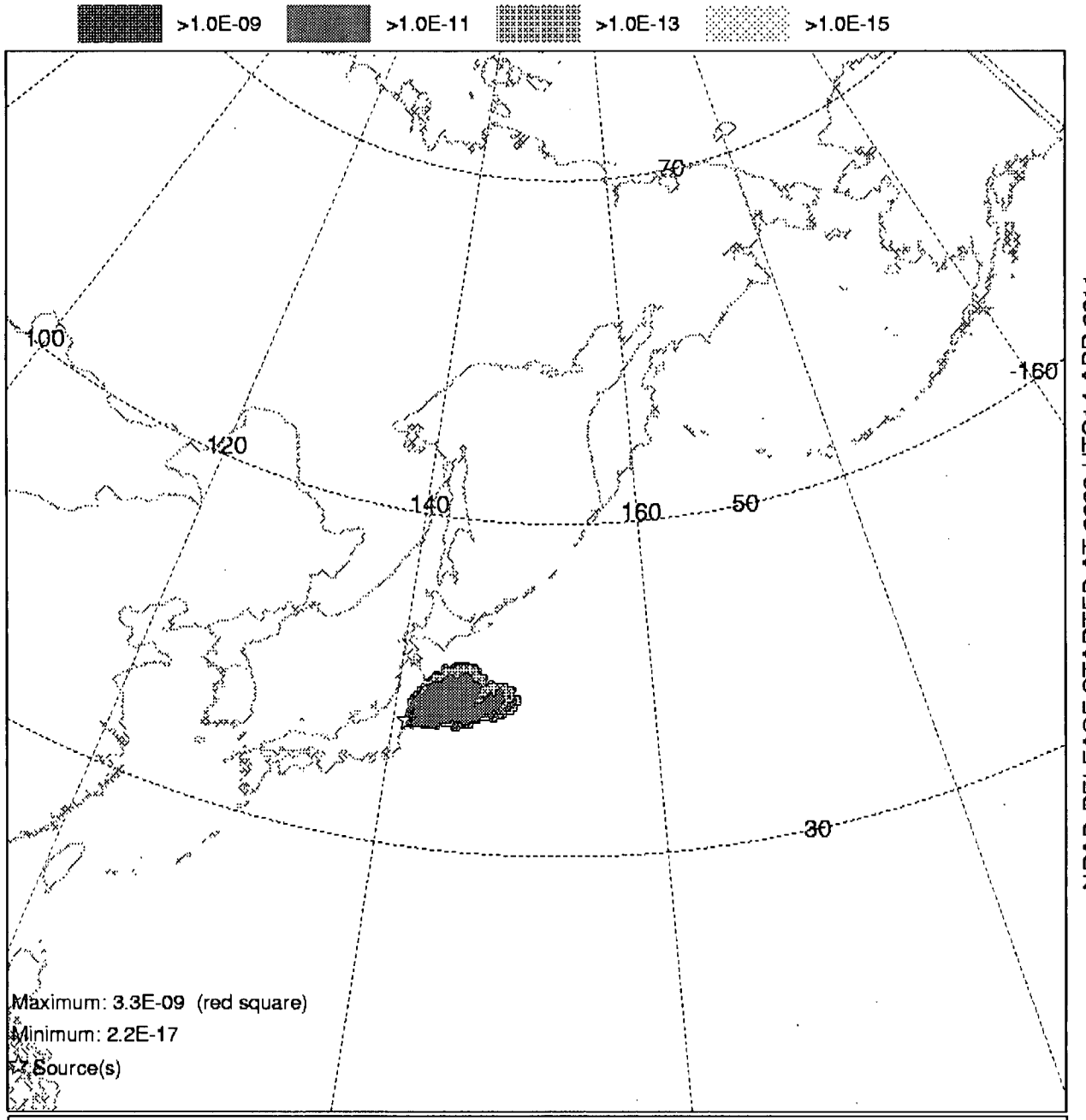
Starting Heights : (1) 500.0m (2) 1500.0m (3) 3000.0m

RSMC Melbourne : Environmental Emergency Response Centre

OPERATIONAL EVENT

Integrated from 0000 14 Apr to 0000 15 Apr 11 (UTC)

Exposure (Bq-s/m3) averaged between 0 m and 500 m



NRAD RELEASE STARTED AT 0000 UTC14 APR 2011

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 13 Apr

Note: "Contours may change from Chart to Chart"

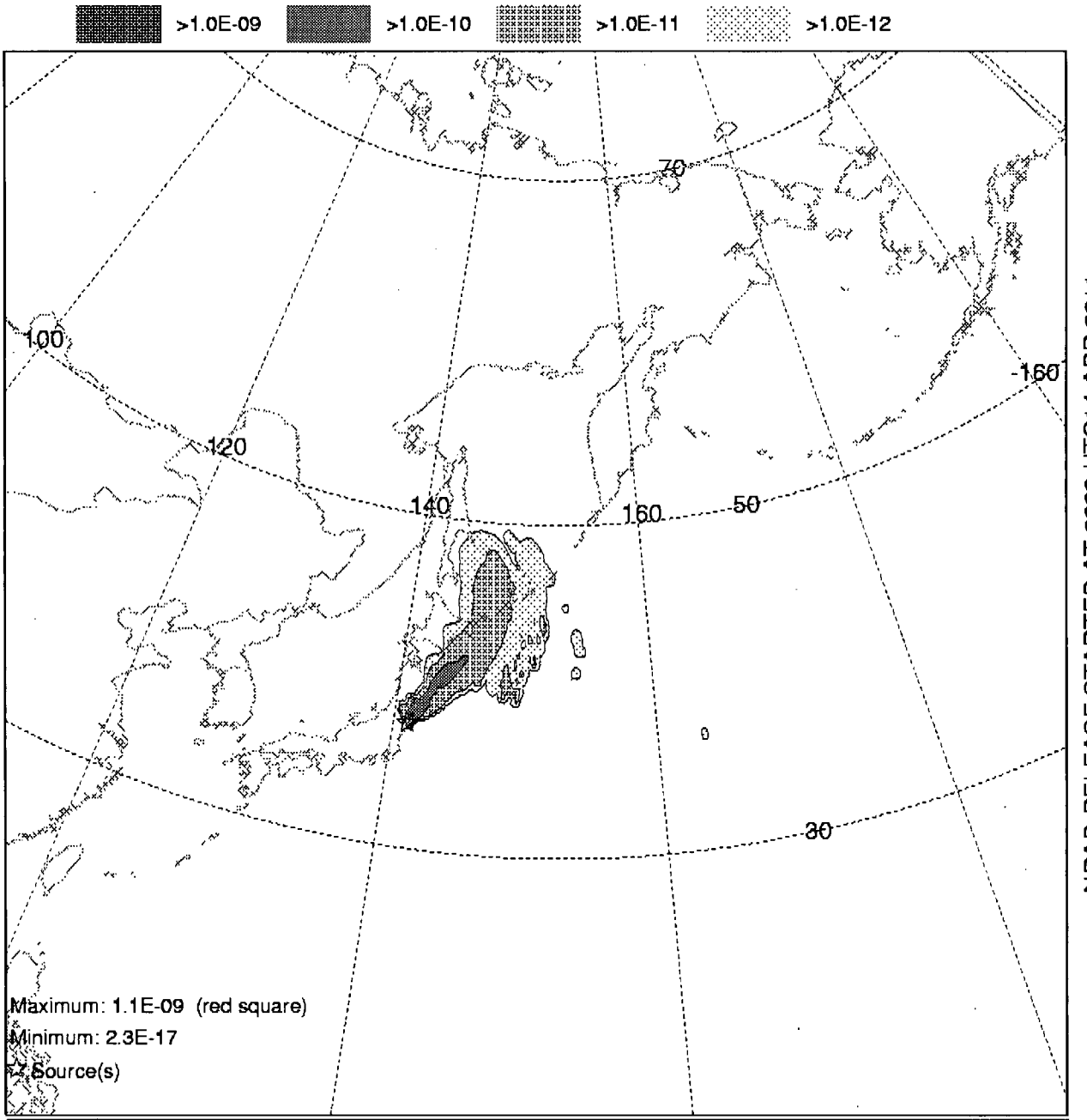
Issued :Thu Apr 14 04:25:00 2011

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



NRAD RELEASE STARTED AT 0000 UTC14 APR 2011

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 13 Apr

Note: "Contours may change from Chart to Chart"

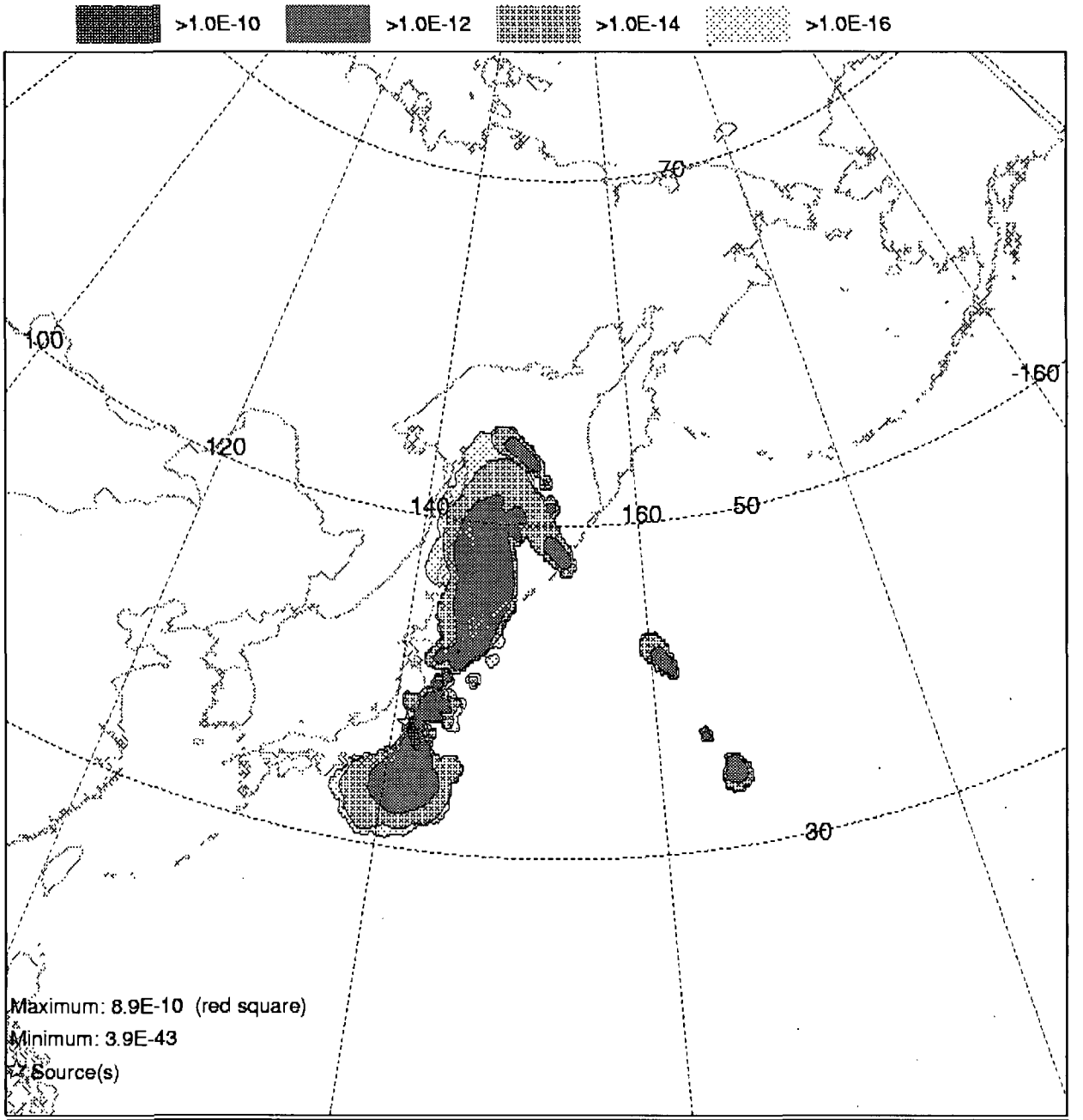
Issued :Thu Apr 14 04:25:00 2011

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



NRAD RELEASE STARTED AT 0000 UTC14 APR 2011

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 13 Apr

Note: "Contours may change from Chart to Chart"

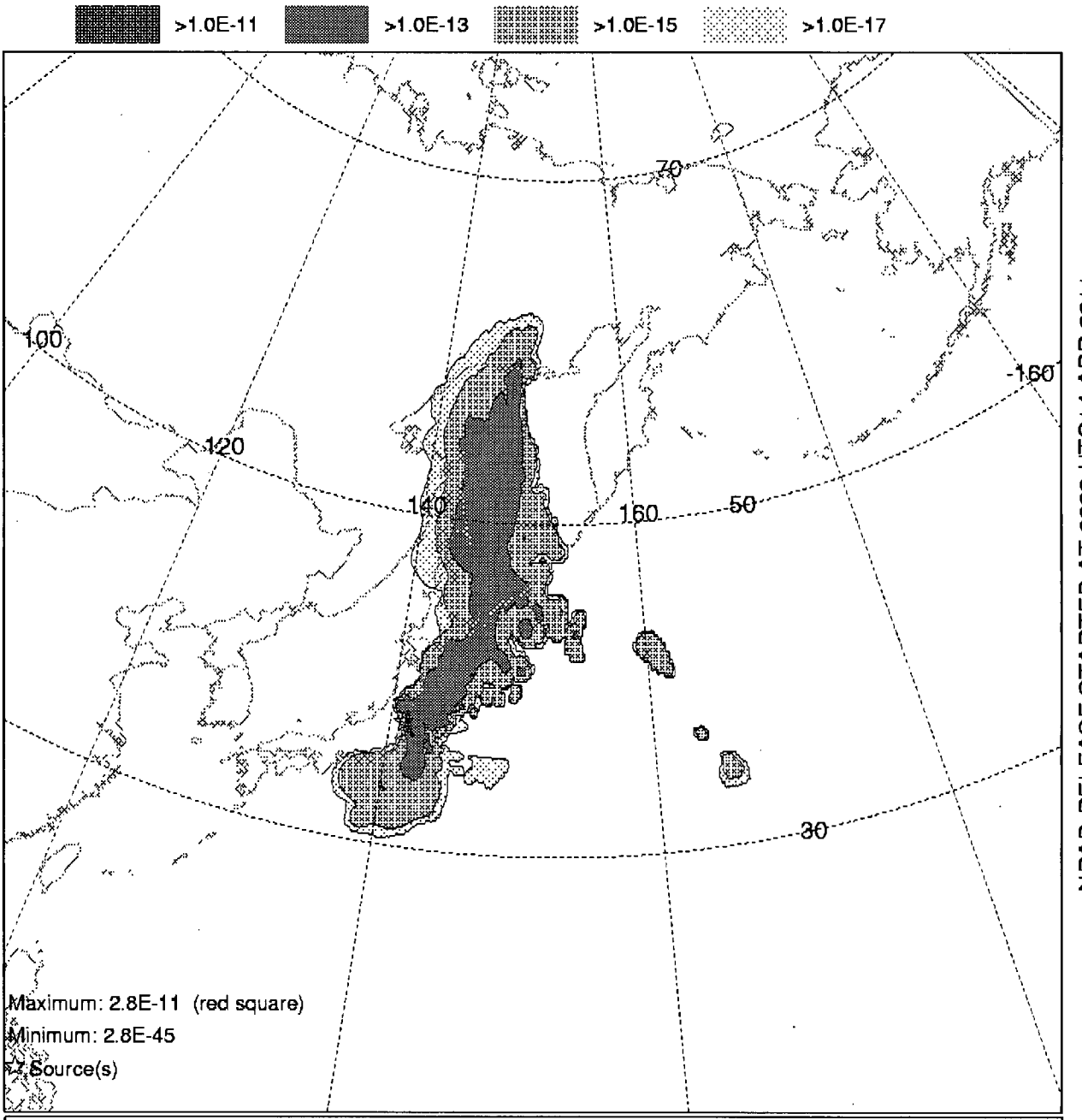
Issued :Thu Apr 14 04:25:00 2011

RSMC Melbourne : Environmental Emergency Response Centre

OPERATIONAL EVENT

Integrated from 0000 14 Apr to 0000 17 Apr 11 (UTC)

Deposition (Bq/m2) at ground-level



NRAD RELEASE STARTED AT 0000 UTC14 APR 2011

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 13 Apr

Note: "Contours may change from Chart to Chart"

Issued :Thu Apr 14 04:25:00 2011

From: Marshall, Jane
Sent: Thursday, April 14, 2011 10:45 AM
To: OST01 HOC
Subject: RE:

We're discussing it at the 11:00, and I have our secretary making copies for that meeting. No doubt there will be changes from that meeting to be incorporated, then it should go final.

From: OST01 HOC
Sent: Thursday, April 14, 2011 10:32 AM
To: Marshall, Jane
Subject: RE:

Thank you Jane. I will save this on the M: drive under "**EST Support Documents.**" Should I be doing anything with this document at this time? Or waiting for other comments? When finalized should I upload to WEB EOC?

Thank you,
Annette

From: Marshall, Jane
Sent: Thursday, April 14, 2011 10:25 AM
To: OST01 HOC
Subject:

000273

From: OST01 HOC
Sent: Thursday, April 14, 2011 12:58 AM
To: LIA08 Hoc; Hoc, PMT12; RST01 Hoc
Subject: Transition Plan as of 4/11/11 Monday Morning (latest update)
Attachments: transition plan - monday (2).docx

Please see attached Transition Plan document.

Request to review during this shift. LT will concentrate on the POCs for each office.

Thanks,
-Nick

nnw/274

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, Ulses, 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: RST01 Hoc
Sent: Thursday, April 14, 2011 3:53 PM
To: Hoc, PMT12; Huffert, Anthony
Cc: Hart, Michelle; Watson, Bruce; OST01 HOC
Subject: RE: Questions from PMT for task

RST is not aware of any efforts on the below topics.

RST Team

From: Hoc, PMT12
Sent: Thursday, April 14, 2011 1:42 PM
To: RST01 Hoc; Huffert, Anthony
Cc: Hart, Michelle; Watson, Bruce; OST01 HOC
Subject: Questions from PMT for task

Hello RST and Japan Team,

Can you please respond to these two questions to assist the staff in answering a question from NARAC on the development of new source terms. Please respond to all. NRC staff points of contact are Bruce Watson and Michelle Hart. This is not an action, just a question – we are just looking for information.

- Do we have anyone recreating the source term from the reactors and SFP based on plant conditions or field measurement readings?
- Are there updates on releases or degree of core damage based on plant data?

NRR/275

From: Marshall, Jane
Sent: Thursday, April 14, 2011 6:28 PM
To: OST01 HOC
Subject: RE: updated (and final!) transition plan

Thanks!

From: OST01 HOC
Sent: Thursday, April 14, 2011 5:48 PM
To: Marshall, Jane
Subject: RE: updated (and final!) transition plan

Updated in file and printed a copy at the EST desk.

From: Marshall, Jane
Sent: Thursday, April 14, 2011 4:46 PM
To: OST01 HOC
Cc: Dudek, Michael
Subject: updated (and final!) transition plan

nnn/276

From: Droggitis, Spiros
Sent: Thursday, April 14, 2011 12:27 PM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Shane, Raeann; Riley (OCA), Timothy; Combs, Thomas; Decker, David; Dacus, Eugene
Subject: Daily Plant Status Report - 4/14/2011
Attachments: USNRC Japan Plant Condition Update April 14 1200EDT.PDF

nnn/277

From: Droggitis, Spiros
Sent: Thursday, April 14, 2011 1:02 PM
To: Powell, Amy; Bavol, Bruce
Subject: Here is the letter
Attachments: 03-13-11ejmtopotusemergencyresponse[1].pdf

So we know what we are talking about. Went to President, then I suspect sent to DOE to prepare a response. Wonder if FEMA is involved?

nnn/278

U.S. House of Representatives
Committee on Natural Resources
Washington, DC 20515

March 13, 2011

President Barack H. Obama
The White House
1600 Pennsylvania Avenue NW
Washington, DC 20500

Dear President Obama:

I write to request information about how the United States federal government would respond to a nuclear disaster such as the unfolding crisis at reactors in Japan following the massive earthquake there. I am concerned that based on recent reports, it appears that no agency sees itself as clearly in command of emergency response in a nuclear disaster.

The unfolding crisis in Japan shows us the magnitude of the response we must be prepared for in the event of a nuclear disaster, be it caused by a natural catastrophe or a man-made accident or terrorist attack. Already, more than 200,000 people have been evacuated in a 12-mile radius around Fukushima Daiichi. It is not clear when, or if, they will be able to return to their homes. The Daiichi-1 reactor has been permanently disabled when it was flooded with sea water in a desperate attempt to halt a meltdown. At least one other reactor has also suffered a partial meltdown, and two others have seriously disabled cooling systems. Radioactive cesium and iodine have been released into the atmosphere. Three Fukushima Daiichi workers are suffering from radiation poisoning. Twenty two people are showing symptoms of radiation exposure. One hundred and seventy others have tested positive for radiation exposure. Potassium iodide tablets are being distributed to reduce the risk of thyroid cancer.

At a time when emergency responders should be trying to rescue victims trapped underneath rubble, they are instead being compelled to flood nuclear reactors with water from the ocean to halt the imminent meltdown, screen toddlers for radiation exposure and evacuate hundreds of thousands of citizens.

As you know, there are 31 reactors in the US of the same designs as the Fukushima Daiichi and Daini units that have already melted down or are under threat of a melt-down. A nuclear disaster could also come from terrorists: Al Qaeda considered crashing a plane into a nuclear reactor during the 9/11 attacks and a man was arrested on February 24, 2011 for planning to target reactors. The seriousness of this threat is beyond question.

Yet a review of internal documents made public through a Freedom of Information Act (FOIA) request by *Inside EPA*[1] indicates that it appears that no agency sees itself as clearly in command of emergency response in a nuclear disaster. These materials indicate that:

- EPA, the Nuclear Regulatory Commission (NRC) and the Federal Emergency Management Agency (FEMA) are not in agreement about which Federal agency would lead efforts to respond to and clean up a large-scale radiation release caused by an accident at or attack on a nuclear reactor.

- The Agencies are reportedly also concerned that sufficient funds needed to conduct a long-term cleanup might not be available under the Price-Anderson Act, a statute that is designed to ensure that the massive costs associated with a large-scale nuclear catastrophe would not be absent due to the bankruptcy of the company that owned the reactor that failed.

- There is also disagreement about whether the medium and long-term clean-up standards for a large-scale nuclear disaster would be as stringent as EPA's current radiological standards. I have expressed my concerns about this aspect of radiological emergency response planning in the past.[2]

The federal response to other types of disasters are much more clearly specified in U.S. law and regulation. Following public outcry about the Exxon Valdez oil spill, Congress passed the Oil Pollution Act (OPA) of 1990, amending the Clean Water Act. The OPA mandated planning for a spill and made it clear who would be in charge of federal response -- EPA for spills inland, USCG for spills at sea or on the coasts. A detailed process for leading and coordinating the federal response and clean-up efforts was specified in both law and regulation. Similarly, to address shortcomings in the federal response to Hurricane Katrina, Congress passed the Post-Katrina Emergency Management Reform Act, which amended the Stafford Act and Homeland Security Act. FEMA is directed to lead the nation in comprehensive emergency preparedness, response, and in reducing the risk of a disaster. The Stafford Act clearly says that the President has the authority to declare an emergency or national disaster, in the case of natural catastrophes and at the request of state authorities. If the President declares a disaster, then this automatically grants FEMA the authority to coordinate the contributions of 28 federal agencies and non-governmental organizations such as the American Red Cross.

In stark contrast to the scenarios contemplated for oil spills and hurricanes, there is no specificity for emergency coordination and command in place for a response to a nuclear disaster. The Nuclear/Radiological Incident Annex to the National Response Framework says that "The Secretary [of Homeland Security] is responsible for coordinating Federal operations within the United States to prepare for, respond to, and recover from terrorist attacks, major disasters, and other emergencies."[3] Yet the Annex also indicates that, depending on the type of

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[1] "Agencies Struggle To Craft Offsite Cleanup Plan For Nuclear Power Accidents", Inside EPA, November 10, 2010. http://environmentalnewsstand.com/Environmental-NewsStand-General/Public-Content/agencies-struggle-to-craft-offsite-cleanup-plan-for-nuclear-power-accidents/menu-id-608.html

[2] http://markey.house.gov/docs/102709_epa_radiation_letterfn.pdf

[3] http://www.fema.gov/pdf/emergency/nrf/nrf_nuclearradiologicalincidentannex.pdf

incident, the Coordinating Agency may instead be the Department of Energy, Department of Defense, EPA, NRC, or US Coast Guard (USCG). When my staff was briefed by staffs of the EPA and NRC, they were informed by both agencies that there is no clarity regarding which agency would be in charge of the various aspects of a response to a nuclear disaster, and that the identity of the lead Federal agency is dependent on many different factors. One Agency official essentially told my staff that if a nuclear incident occurred, they would all get on the phone really quickly and figure it out.

Federal agencies have not yet developed a coordinated plan for a nuclear disaster. Nuclear power plants are required by FEMA and NRC to have Radiological Emergency Response Plans, but "it is not clear that these plans extend to long-duration accidents that extend over large land areas or involve large populations," according to a July 27, 2010 Draft Report to the Congress of the Presidential Commission on Catastrophic Nuclear Accidents. The Commission noted no "planning for such a possibility" as an evacuation on the scale of the 135,000 people permanently evacuated following the Chernobyl meltdown.[4] In Japan, more than 200,000 people have already been evacuated from around the threatened reactors. The Report to Congress does not appear to be publicly available, except for the Draft version obtained by *Inside EPA*. Email messages uncovered through the FOIA request match this confusion. In response to the *Inside EPA* reporter's questions, an EPA staffer wondered "Why doesn't he ask NRC? They regulate the cleanup of NRC regulated facilities. We don't get involved at all."

I am also concerned that plans to more fully specify nuclear disaster responsibilities, and steps that members of the public should take in a nuclear disaster, have not been adequately prioritized. Last year, your Administration sent an interagency Planning Guidance for Response to a Nuclear Detonation to local emergency responders.[5] But a large-scale exercise for a nuclear detonation, planned for May 2010, was cancelled in response to local opposition in Nevada. A 2011 FEMA exercise to simulate a 7.7-magnitude earthquake in the Midwest is reportedly being scaled back.[6]

The tragic events in Japan highlight the need for more intensive and specific nuclear disaster response plans. The Oil Pollution Act and its implementing regulations were drafted in the wake of the Exxon-Valdez disaster. It should not require a nuclear disaster in this country to construct the Federal response to a catastrophic nuclear event. Consequently, I ask for your prompt attention in responding to the following questions:

1) Which federal agency is responsible for making a formal declaration that a nuclear emergency or disaster exists? Please also specify the circumstances under which such a declaration would occur.

---

[4] "Agencies Struggle To Craft Offsite Cleanup Plan For Nuclear Power Accidents", Inside EPA, November 10, 2010. http://environmentalnewsstand.com/Environmental-NewsStand-General/Public-Content/agencies-struggle-to-craft-offsite-cleanup-plan-for-nuclear-power-accidents/menu-id-608.html

[5] http://hps.org/hsc/documents/Planning_Guidance_for_Response_to_a_Nuclear_Detonation-2nd_Edition_FINAL.pdf. Cited in: "U.S. Rethinks Strategy for the Unthinkable". New York Times, December 15, 2010. http://www.nytimes.com/2010/12/16/science/16terror.html

[6] "National disaster exercises, called too costly and scripted, may be scaled back". Washington Post, April 2, 2010. http://www.washingtonpost.com/wp-dyn/content/article/2010/04/01/AR2010040103746.html

2) Which federal agency is responsible for coordinating the federal government's efforts during a nuclear disaster, and what roles and responsibilities are contemplated for each other federal agency involved in response efforts? If different agencies would be responsible for different types of disasters or different types of nuclear facilities (i.e. nuclear power plant vs nuclear weapons facility), please fully specify the conditions under which each agency would assume its role and responsibility, and who would make these determinations during the event.
3) Which federal agency is responsible for determining when a large-scale evacuation of an area surrounding a nuclear power plant (including the evacuation of an area larger than a 10-mile radius surrounding a nuclear power plant) must occur, and on what basis is such a determination to be made?
4) Which federal agency is responsible for conducting and overseeing a large-scale evacuation (including the evacuation of an area larger than a 10-mile radius surrounding a nuclear power plant) following a nuclear disaster? Does that agency currently have the authority to coordinate and direct other federal, state and non-governmental resources, in the same manner as FEMA can following a Stafford Act declaration?
5) Which federal agency is responsible for determining when people that were evacuated from their homes following a nuclear disaster can return, and on what basis is such a determination to be made?
6) Which federal agency is responsible for cleaning up radiation to restore affected areas for people and the environment? Will these long-term standards differ from EPA's current standards for safe radiation levels, and if so, why?
7) Has there been analysis for how earthquake damage to nuclear power plants, combined with other forms of earthquake damage that also require considerable governmental response efforts, would affect emergency response and evacuation efforts and resource needs? If so, please fully describe these plans, and if not, why not? Have the effects of radiation release been accounted for in planning for evacuations that may also be necessary due to other earthquake impacts on buildings? If so, please fully describe these plans, and if not, why not?

Thank you very much for your attention to this important matter. If you have any questions or concerns, please have your staff contact Dr. Michal Freedhoff of the Natural Resources Committee staff or Dr. Ilya Fischhoff of my staff at 202-226-2836.

Sincerely,

Edward J. Markey

Edward J. Markey

From: OST01 HOC
Sent: Friday, April 15, 2011 5:43 AM
To: Johnson, Michael; Hoc, PMT12; RST01 Hoc; LIA08 Hoc
Subject: Latest One Pager
Attachments: Japan One Pager 0700 EDT 4-15-11.docx

Please see the compiled One Pager for our shift. Thank you for your input!

-Nick

From: Droggitis, Spiros
Sent: Friday, April 15, 2011 12:31 PM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Riley (OCA), Timothy; Shane, Raeann; Combs, Thomas; Dacus, Eugene; Decker, David
Subject: Daily Plant Status Report - 4/15/2011
Attachments: USNRC Japan Plant Condition Update April 15 1200EDT.PDF

nnn/280

From: HOO Hoc
Sent: Friday, April 15, 2011 7:43 AM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC
Subject: FW: OUO -- 1200 EDT (April 14, 2011) USNRC Earthquake-Tsunami Update
Attachments: image001.jpg

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

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

From: Virgilio, Martin
Sent: Friday, April 15, 2011 7:40 AM
To: LIA07 Hoc; RST01B Hoc; ET07 Hoc; HOO Hoc; Wiggins, Jim; Holahan, Patricia; Evans, Michele; Merzke, Daniel
Subject: Re: OUO -- 1200 EDT (April 14, 2011) USNRC Earthquake-Tsunami Update

Jim/Michele

Please ensure I am copied on the response. It is one of the primary roles of the ops center team to ensure we evaluate and address inconsistencies in the incoming information

Also. Please provide a status of the global assessment, the composite assessment and the slides for the SoS briefing from the team.

Marty

From: Monninger, John
To: LIA07 Hoc; RST01B Hoc; ET07 Hoc; HOO Hoc; Virgilio, Martin
Sent: Fri Apr 15 06:59:08 2011
Subject: FW: OUO -- 1200 EDT (April 14, 2011) USNRC Earthquake-Tsunami Update

Ops Center:

Yesterday's NRC's EOC Status Update for the Unit 4 Spent Fuel Pool had the following statement – "Based upon an isotopic analysis of the sampling from the spent fuel pool (Unit 4), TEPCO concluded that the likelihood of damaged fuel in the pool is low."

In contrast, yesterday, TEPCO issued the following statement (attached) – "The firm known as TEPCO said its analysis of a 400-milliliter water sample taken Tuesday from the No. 4 unit's spent nuclear fuel pool revealed the damage to some fuel rods in such a pool for the first time, as it detected higher-than-usual levels of radioactive iodine-131, cesium-134 and cesium-137."

These 2 statements are 180 degrees and both attributed to TEPCO on the same day.

NNR/281

During the TA briefing yesterday afternoon it was also reported that – "Unit 4 spent fuel pool is confirmed that it is filled above the fuel level with water. Isotopic analysis indicates there was no damage. Iodine in the water sample indicates there may have been a criticality, possibly from another unit. At one time it was thought unit 4 pool was empty and on fire. Still working to understand this information, but seen as good news."

If we (NRC) now believe no fuel damage occurred in the Unit 4 spent fuel pool, we need to reconcile the additional statement in the NRC's status update that secondary containment was "severely damaged from hydrogen explosion." You can't generate hydrogen with no fuel damage.

Thanks,
John Monninger

From: LIA07 Hoc
Sent: Thursday, April 14, 2011 12:23 PM
To: LIA07 Hoc
Subject: OUO -- 1200 EDT (April 14, 2011) USNRC Earthquake-Tsunami Update

Attached, please find a 1200 EDT, April 14, 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)

From: HOO Hoc
Sent: Thursday, April 14, 2011 12:28 PM
To: HOO Hoc
Subject: FW: OUO -- 1200 EDT (April 14, 2011) USNRC Earthquake-Tsunami Update
Attachments: USNRC Earthquake-Tsunami Update.041411.1200EDT.pdf; 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

From: LIA07 Hoc
Sent: Thursday, April 14, 2011 12:23 PM
To: LIA07 Hoc
Subject: OUO -- 1200 EDT (April 14, 2011) USNRC Earthquake-Tsunami Update

Attached, please find a 1200 EDT, April 14, 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)

From: OST01 HOC
Sent: Friday, April 15, 2011 4:17 AM
To: Johnson, Michael
Subject: FW: notes from 0300 call

From: RST07 Hoc
Sent: Friday, April 15, 2011 4:12 AM
To: OST01 HOC; Hoc, PMT12
Subject: notes from 0300 call

Notes from 0300 EST/1600 Japan phone call: Japan team, RST, Liaison Team, INPO, GEH and NR on the call. Japan team disconnected prior to the end of the call.

Injection is unchanged: 6 cu. m./hr on unit 1, 7 cu. m./hr on unit 2, 7 cu. m/hr on unit 3.

SFP #3 injected 25 tons of water on 4/14.

SFP #4 plan to inject 140 tons of water on 4/15 (should be in progress). Prior to injection the level was approx. 2 m. above top of fuel. Injection should raise level less than 1 meter.

#3 Drywell temperature continues to rise but more slowly. At midnight JST was at 265°C. Somewhat tied to vessel flange temperature: rising more quickly when vessel flange temp was rising and rose less quickly when vessel flange temp was lowering.

2½ hour interruption in Nitrogen injection on Unit 1. Back on.

Temperatures lowering on units 1 and 2.

Unit 1 drywell level believed to be 14 m above reference. This is consistent with the calculations performed for water level early in the nitrogen injection.

NEI 05-07 on B.5.b approaches sent to INPO to coordinate with NEI and distribute to TEPCo/NISA.

TEPCo does not intend to do any more sampling on the unit 4 SFP.

Japan Team (Steve Garchow/Jeff Mitman) requested EPRI document on TMI Clean up Lessons Learned. This document has not yet been located and forwarded to them.

GEH has completed their analysis for the potential of a vessel breach in unit 2. They are writing it up now and should have it to the RST by 1700 April 15.

Japan team wanted us to check on our access to the N-drive. Currently we do not have access. Once access is gained, Japan team cautions that for it to be useful they must control the documents sent to the N-drive (i.e. don't dump documents there).

nnn/262

From: Droggitis, Spiros
Sent: Saturday, April 16, 2011 1:17 PM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Dacus, Eugene; Decker, David; Riley (OCA), Timothy; Shane, Raeann; Combs, Thomas
Subject: Daily Plant Status Report - 4/16/2011
Attachments: USNRC Japan Plant Condition Update April 16 1200EDT.PDF

nnn/283

From: LIA08 Hoc
Sent: Saturday, April 16, 2011 10:02 PM
To: RST01 Hoc; Hoc, PMT12; OST01 HOC
Subject: FW: Situational Awareness Report - Severe Weather - East Coast - 16 Apr 11

For your info. From Dept of Homeland Security tonight.

Jeff Temple
Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: LIA01 Hoc
Sent: Saturday, April 16, 2011 9:57 PM
To: LIA08 Hoc; LIA11 Hoc
Subject: FW: Situational Awareness Report - Severe Weather - East Coast - 16 Apr 11

From: NICC [mailto:Nicc@dhs.gov]
Sent: Saturday, April 16, 2011 9:52 PM
Subject: Situational Awareness Report - Severe Weather - East Coast - 16 Apr 11

All,

For your situational awareness:

Critical Infrastructure effects: Energy (Electricity), Emergency Services, Transportation (Highway)

The NICC is monitoring IP/PSA, FEMA and open source reports of severe weather across the East Coast causing tornados, flooding, and power outages.

- Severe weather has been reported from Southeast Pennsylvania and Southern New Jersey to the Eastern Carolinas
- At least 15 counties in central North Carolina have reported wind and/or tornado damage
- North Carolina reports over 60, 000 customers state wide without power
- Virginia reports 40,000 customers state wide without power
- Multiple road closures have been reported in Maryland.

The NICC anticipates further reporting on this incident as the situation develops.

***This information is based on current reporting and is provided for your situational awareness. Reporting may have inaccuracies due to a rapidly developing situation and is subject to change.**

nnn/284

If you have any questions or concerns, please feel free to contact the NICC at 202-282-9201 or nicc@dhs.gov. Thank you.

V/r
Mark Stidd
NICC Watch Operations
Department of Homeland Security
202-282-9201
Email: nicc@dhs.gov
HSDN: tsa.nicc@dhs.sgov.gov
JWICS: nicc.watch@tsa.ic.gov

For more information on the NICC go to:
DHS National Infrastructure Coordinating Center

Distro
Situational Awareness Base List
NICC.SWO
NICC Support
PSA - NC, VA, MD, SC, DC
PSA Region Mid Atlantic
ISCD Region 3
ISCD Region 4

From: Andersen, James
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 will be out of the office April 18-21, 2011. If you have an immediate need, please contact Clare Kasputys (April 18-19) or Leigh Trocine (April 20-21).

Thanks,
Jim A.

mnn/285

From: Tracy, Glenn
Sent: Sunday, April 17, 2011 7:21 AM
To: OST01 HOC
Attachments: NRC Site Team Quick Look Assessment of TEPCO Roadmap Rev 1.docx

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: Hoc, PMT12
Sent: Sunday, April 17, 2011 8:40 AM
To: OST01 HOC
Subject: RE: Roadmap

Dear Kelly,

I see, thanks,
Casper

From: OST01 HOC
Sent: Sunday, April 17, 2011 8:38 AM
To: Hoc, PMT12
Subject: Roadmap

It is a scanned document so it is not very clear.

Kelly

nnn/287

From: Droggitis, Spiros
Sent: Sunday, April 17, 2011 12:49 PM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Dacus, Eugene; Decker, David; Shane, Raeann; Riley (OCA), Timothy; Combs, Thomas
Subject: Daily Plant Status Report - 4/17/2011
Attachments: USNRC Japan Plant Condition Update April 17 1200EDT.PDF

NRR/268

From: Pace, Patti
Sent: Monday, April 18, 2011 11:45 AM
To: OST01 HOC
Subject: RE: April 16 - 2300 EDT One-Pager - Fukishima Daiichi

Thank you, I did receive it.

Patti Pace
Assistant to Chairman Gregory B. Jaczko
U.S. Nuclear Regulatory Commission
301-415-1820 (office)
301-415-3504 (fax)

From: OST01 HOC
Sent: Monday, April 18, 2011 11:44 AM
To: Pace, Patti
Subject: RE: April 16 - 2300 EDT One-Pager - Fukishima Daiichi

Patti,

Some addresses got "lost" between shift turnovers. I sent you the 0700 one-pager from this morning (did you receive it?), and I've created a distro list in Outlook that should solve the problem in the future.

Thanks.

R. Clyde Ragland
Executive Support Team
US Nuclear Regulatory Commission
email: ost01hoc@nrc.gov
Desk Ph: 301-816-5111

From: Pace, Patti
Sent: Monday, April 18, 2011 10:01 AM
To: OST01 HOC
Cc: HOO Hoc
Subject: RE: April 16 - 2300 EDT One-Pager - Fukishima Daiichi

Good Morning,

This is the last "one-pager" update I have received. Have you stopped producing them at each shift change? If not, can you please be sure that I am on the email distribution list (along with Catina Gibbs and Herald Speiser) to receive these updates? We are responsible for updating the Chairman's briefing book. Please confirm what the status is with these reports. If they have still been produced since April 16th 2300, could you please send us the updates we missed?

Thanks,

Patti Pace
Assistant to Chairman Gregory B. Jaczko

nnn/289

U.S. Nuclear Regulatory Commission
301-415-1820 (office)
301-415-3504 (fax)

From: OST01 HOC
Sent: Sunday, April 17, 2011 12:02 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; RST01 Hoc; Hoc, PMT12; LIA08 Hoc
Subject: April 16 - 2300 EDT One-Pager - Fukishima Daiichi

Attached, please find the April 16 - 2300 EDT One-Pager - Fukushima Daiichi

Please note that this information is "Official Use Only."

From: Droggitis, Spiros
Sent: Monday, April 18, 2011 2:57 PM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Riley (OCA), Timothy; Shane, Raeann; Combs, Thomas; Decker, David; Dacus, Eugene
Subject: Daily Plant Status Report - 4/18/2011
Attachments: USNRC Emergency Operations Center Status Update.pdf

nnn/290

From:	OST01 HOC
Sent:	Monday, April 18, 2011 8:33 PM
To:	Hoc, PMT12; RST01 Hoc; Boger, Bruce
Subject:	high-level radioactive water
Attachments:	FW: URGENT!:transferring high-level radioactive water(Attachments added); FW: URGENT!:transferring high-level radioactive water

From: HOO Hoc
Sent: Monday, April 18, 2011 8:27 PM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC
Subject:

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

nnn/291

From: OST01 HOC
Sent: Monday, April 18, 2011 9:15 PM
To: Hoc, PMT12; RST01 Hoc; Boger, Bruce
Subject: Radiation Data / TEPCO Roadmap
Attachments: Radiation data by MEXT; RE: TEPCO "Roadmap towards Restoration"

FYI...

The 2nd attached email is a repeat.

From: HOO Hoc
Sent: Monday, April 18, 2011 9:12 PM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC
Subject:

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

nnn/292

From: Droggitis, Spiros
Sent: Monday, April 18, 2011 2:18 PM
To: LIA08 Hoc
Subject: RE: RESEND: USNRC Emergency Operations Center Status Update

Are we going to receive the "Japan Plant Condition Update" for the Congressional contacts today? Thanks, Spiros

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From: LIA08 Hoc
Sent: Monday, April 18, 2011 1:30 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; 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; 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; LIA01 Hoc; LIA02 Hoc; LIA03 Hoc; LIA06 Hoc; LIA08 Hoc; LIA11 Hoc; Logaras, Harral; 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; Nelson, Robert; ROO hoc; Rothschild, Trip; RST01 Hoc; Satorius, Mark; Schmidt, Rebecca; Sharkey, Jeffry; Sheron, Brian; Sigmon, Rebecca; Snodderly, Michael; Sosa, Belkys; Speiser, Herald; Svinicki, Kristine; Tabatabai, Omid; Thoma, John; Thomas, Eric; Tifft, Doug; Kolb, Timothy; Ulses, Anthony; Nakanishi, Tony; Tracy, Glenn; Trapp; Trapp, James; Trojanowski, Robert; Turtil, 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; Zimmerman, Roy; Zorn, Jason
Subject: RESEND: USNRC Emergency Operations Center Status Update

Resent to internal NRC to include missed contacts.

*** Attachment is Official Use Only ***

Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

nnn/253

From: OST01 HOC
Sent: Monday, April 18, 2011 7:43 AM
To: Zimmerman, Roy
Subject: FW: Important Fukushima Information

FYI.

V/R,

Clyde Ragland
Executive Support Team
US Nuclear Regulatory Commission
email: ost01hoc@nrc.gov
Desk Ph: 301-816-5111

-----Original Message-----
From: Dyer, Jim
Sent: Monday, April 18, 2011 7:15 AM
To: OST01 HOC; RST01 Hoc; Hoc, PMT12
Subject: FW: Important Fukushima Information

-----Original Message-----
From: Kelly, John E (NE) [mailto:JohnE.Kelly@Nuclear.Energy.Gov]
Sent: Sunday, April 17, 2011 9:05 PM
To: Steve Fetter; Binkley, Steve; Dyer, Jim; Trautman, Stephen J SES CIV NAVSEA 08 NR
Subject: RE: Important Fukushima Information

Steve
Just a few thoughts here.
The n-p cross-section is moderate so if Cl and neutrons are present then, S-35 productions is likely. Cross-section is higher for low energy neutrons.

I would think that there a variety of source of neutrons.

For instance one could imagine that the core melt has relocated into the lower plenum and is intimately mixed with salt. Neutrons could come from spontaneous emission, photo neutrons (gamma - n from U), and a variety of alpha-n reactions, as well as the criticality case. My guess is that the MOX fuel will have significant Pu-238 and this could create a very active source for neutron production (alpha-n). This would give a constant source (as opposed to a brief burst from criticality event).

It might be useful to get an order of magnitude of the various sources in order to determine likelihood of source.

The statement that peak fell when they stopped injecting salt water is a difficult to reconcile since there is so much salt in the reactors and changing to fresh water should not radically change the Cl content.

nnn/294

-----Original Message-----
From: Steve Fetter
Sent: Thursday, April 14, 2011 2:53 PM
To: Kelly, John E (NE); Binkley, Steve; jim.dyer@nrc.gov; Trautman, Stephen J SES CIV NAVSEA 08 NR
Subject: FW: Important Fukushima Information

FYI

-----Original Message-----
From: Crowley, Kevin [mailto:KCrowley@nas.edu]
Sent: Thursday, April 14, 2011 1:05 PM
To: Fetter, Steve; Holdren, John P.
Cc: Cicerone, Ralph J.; Crowley, Kevin
Subject: Important Fukushima Information

John and Steve:

Mark Thiemens (UC San Diego; mthiemens@ucsd.edu) has detected excess sulfur-35 (in SO2 and SO4) that he believes was produced by the Cl-35 (n,p) reaction at Fukushima after seawater cooling was initiated. This suggests that there was a source of neutrons (perhaps from a criticality event) at Fukushima after the reactors were shut down. You can read the short e-mail thread below for additional details.

I am passing this information along in case it is useful for USG efforts to help reconstruct the accident. Also, Mark is looking for funds to analyze additional samples that are being collected by Japanese colleagues. Such measurements could provide information about the timing and duration of S-35 production events at Fukushima, neutron fluences responsible for production, and transmission of S-35 through the environment. Time is of the essence given the 87-day half life for this isotope.

Ralph Cicerone asked me to let you know that he gives Mark the highest grades for the quality of his measurements.

Regards,

Kevin

Kevin D. Crowley, Ph.D.
Director
Nuclear and Radiation Studies Board
The National Academies
500 Fifth Street, NW
Washington, DC 20001 USA
+1-202-334-3066 (voice)
+1-202-334-3077 (fax)
kcrowley@nas.edu

-----Original Message-----
From: Thiemens, Mark [mailto:mthiemens@ucsd.edu]
Sent: Thursday, April 14, 2011 12:21 PM
To: Crowley, Kevin
Cc: Cicerone, Ralph J.

Subject: RE: Fukushima

Dear Dr. Crowley;

Thank you for the note. Yes, we have detected the excess 35 in both SO2 and SO4 at exactly the time we expected based upon trajectories. It corresponded to when the salt water was added, and it was a peak that came and went away corresponded exactly to when they switched over to fresh water. You are right, it is the Cl-35 (n,p) reaction. It is strikingly clear and well above the background that we measure routinely. we have measured through the winter at south pole where the 35S and other cosmogenics are max and this is far in excess. It looks to be a perfect and clean signal, far more than I expected, and a prefect peak in both gas and solid. we also can get some idea of what actually happened in the chemistry and perhaps the neutronization.

The Japanese have a consortium of radioactivity measurement people and they asked me to participate and they will provide aerosols, rain etc for us to measure. I would like to but it is far in excess of funds I have to do it. I have been making inquiries at NSF for a RAPID grant but so far have not had success in that quest. They are the only people in the Federal Government I have spoken to and why.

Please feel free to pass this along; it is my sense that I should make these measurements as sulfur is the only radioactivity at the right half life to simultaneously measure as a gas and solid. It can tell us not only about the neutron strength, it also says a lot about the transmission through the environment and time scale in a major biogeochemical cycle. At a half life of 87 days though, I need to move it along

any advice or input is most appreciated.
Mark

Mark H. Thiemens
Dean, Division of Physical Sciences
Distinguished Professor of Chemistry and Biochemistry and Chancellors Associates Chair University of California San Diego La Jolla,California
92093-0356

From: Crowley, Kevin [KCrowley@nas.edu]
Sent: Thursday, April 14, 2011 8:26 AM
To: Thiemens, Mark
Cc: Cicerone, Ralph J.; Crowley, Kevin
Subject: Fukushima

Dr. Thiemens:

I am the director of the Nuclear and Radiation Studies Board at the National Academies. Ralph Cicerone told me that you have detected higher-than-normal concentrations of atmospheric S-35 that you believe might have been produced in the Fukushima reactors (presumably through the Cl-35 (n,p) S-35 reaction) when seawater was used for cooling. If your hunch is correct it provides important information about the status of the reactor fuel at Fukushima. All of the reactors had been shut down for several days before seawater was introduced for cooling. Consequently, there should not have been a substantial source of neutrons to produce S-35. However, there was a media report that a high neutron flux had been detected at the site, presumably from a criticality event in one of the reactors or spent fuel pools. That report was later dismissed for lack of corroborating evidence. Your data might be useful for proving that such an event did in fact occur and for estimating its timing and duration.

Have you mentioned your discovery to anyone in the federal government? If not, I would like to pass your information and name along to OSTP. Please advise.

Thanks,

Kevin Crowley

Kevin D. Crowley, Ph.D.
Director
Nuclear and Radiation Studies Board
The National Academies
500 Fifth Street, NW
Washington, DC 20001 USA
+1-202-334-3066 (voice)
+1-202-334-3077 (fax)
kcrowley@nas.edu

From: Droggitis, Spiros
Sent: Tuesday, April 19, 2011 1:25 PM
To: Droggitis, Spiros
Cc: Schmidt, Rebecca; Powell, Amy; Riley (OCA), Timothy; Shane, Raeann; Decker, David; Dacus, Eugene; Combs, Thomas
Subject: Daily Plant Status Report - 4/19/2011
Attachments: USNRC Emergency Operations Center Status Update.pdf

NMN/295

From: OST01 HOC
Sent: Thursday, April 28, 2011 7:19 AM
To: FOIA Response.hoc Resource
Subject: FW: [METI Japan](Apr_27)Update on Recovery from Seismic and Tsunami Damage
Attachments: Apr_27 Radioactivity Level Map Chart.pdf

-----Original Message-----
From: HOO Hoc
Sent: Wednesday, April 27, 2011 10:16 AM
To: LIA07 Hoc; LIA08 Hoc; OST01 HOC
Subject: FW: [METI Japan](Apr_27)Update on Recovery from Seismic and Tsunami Damage

-----Original Message-----
From: meti-info@meti.go.jp [mailto:meti-info@meti.go.jp]
Sent: Wednesday, April 27, 2011 10:15 AM
To: meti-info@meti.go.jp
Subject: [METI Japan](Apr_27)Update on Recovery from Seismic and Tsunami Damage

For your information, Ministry of Economy, Trade and Industry is providing information on Japan's recovery from Great East Japan Earthquake.

This Wednesday, the following information has been updated.

---- Today's news ----
1. METI uploaded the English version of the report on the impact of Great East Japan Earthquake on supply chain. [Please refer to 3.]

2. METI updated 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 4.]

---- Updates from METI ----
3. [METI] Apr 27_METI uploaded the English version of the report on the impact of Great East Japan Earthquake on supply chain. (English version) http://www.meti.go.jp/english/press/2011/pdf/0426_01a.pdf

4. [METI] Apr 27_METI updated a presentation on the current situation of Fukushima Dai-ichi Nuclear Power Station and Japanese Government's challenges and efforts toward it.
http://www.meti.go.jp/english/earthquake/nuclear/japan-challenges/pdf/japan-challenges_full.pdf

5. [METI] Apr 27_Radioactivity Level Map Chart [Please refer to the attached file]

---- Updates from NISA ----

nnn/296

6. [NISA] Apr 27 1200_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/2011/04/20110427006/20110427006-1.pdf

[NISA] Apr 22 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/en20110422-4-1.pdf

7. [NISA] Apr 26 0100_Fukushima Dai-ichi Major Parameters of the Plant
http://www.nisa.meti.go.jp/english/files/en20110427-1-3.pdf

---- Major Updates from other agencies of Japanese Government --- 8. [MLIT] Apr 27 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, Kawaski City and Ichikawa City (Chiba) were as shown in the attachment at very safe level to health.

9. [MLIT] Apr 27 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.

10. [NSC] Apr 26 1645_Assessment of the result of environment monitoring (only Japanese version is available)
http://www.nsc.go.jp/nsc_mnt/110426_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

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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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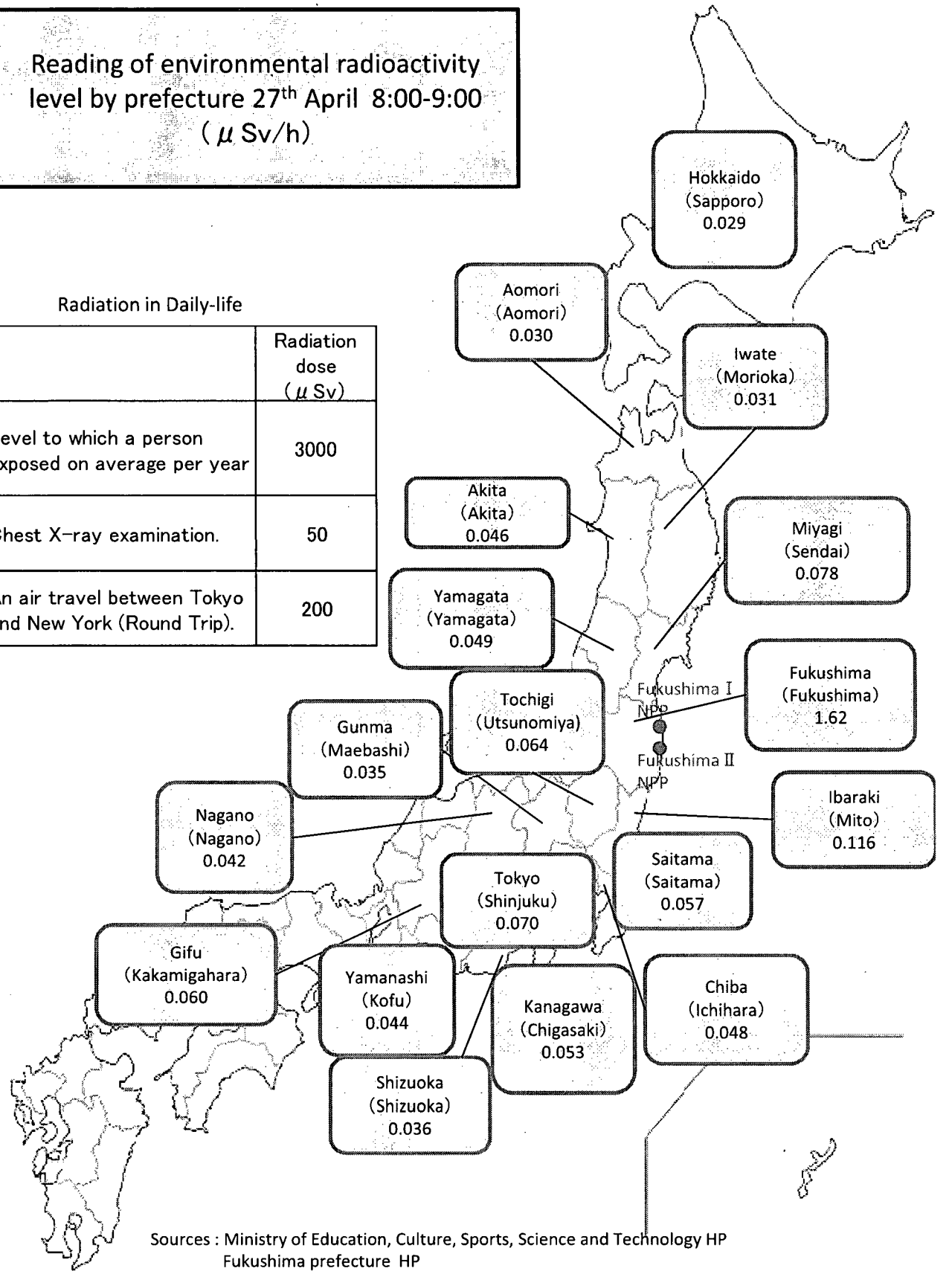
(See attached file: Apr_27 Radioactivity Level Map Chart.pdf)

Reading of environmental radioactivity level by prefecture 27th 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: Hiland, Patrick
Sent: Tuesday, April 19, 2011 8:18 AM
To: RST01 Hoc
Cc: Collins, Timothy; OST01 HOC; Ruland, William; Skeen, David
Subject: RE: Task Tracker 4769 RST Assessment Rev 2 initial due date Monday April 18, 2011

Status: Tim Collins is working to complete RST Assessment by Wednesday April 20. Note: My understanding is that the "Global" document referenced below is the "interim comprehensive assessment" 129 page document that is under review. Dave Skeen will discuss completion dates with Japan Team at 8:30 am call on 4/19.

From: RST01 Hoc
Sent: Friday, April 15, 2011 6:16 PM
To: Ruland, William; Hiland, Patrick
Cc: Collins, Timothy; OST01 HOC
Subject: Task Tracker 4769 RST Assessment Rev 2 initial due date Monday April 18, 2011
Importance: High

Bill/Pat,

We have made a task tracker assigned to Tim Collins for RST Assessment Revision 2. Mike Hay of the NRC Japan Team requested the document be completed by Monday April 18, 2011. Mike's basis for this date was for inclusion in the Global document which may or may not have any relevance at this time.

Please let us know if there is any information we can supply or ask the Japan Team to supply to help in the revision of this document.

RST
Chuck Norton

NNN/297

From: Kowalczik, Jeffrey
Sent: Tuesday, April 19, 2011 1:44 PM
To: OST01 HOC; Dudek, Michael
Cc: Stone, Rebecca
Subject: RE: Composite Paper

I believe the thought was to keep 'working' documents in WebEOC only and upload status updates, sitreps, etc to sharepoint for those who wanted to view…

From: OST01 HOC
Sent: Tuesday, April 19, 2011 1:25 PM
To: Dudek, Michael; Kowalczik, Jeffrey
Cc: Stone, Rebecca
Subject: RE: Composite Paper

No. No one has mentioned it needed to be migrated to Sharepoint until now.

From: Dudek, Michael
Sent: Tuesday, April 19, 2011 1:24 PM
To: OST01 HOC; Kowalczik, Jeffrey
Cc: Stone, Rebecca
Subject: RE: Composite Paper

Is someone attempting to convert it to a PDF and put it on SharePoint?

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

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From: OST01 HOC
Sent: Tuesday, April 19, 2011 1:22 PM
To: Dudek, Michael; Kowalczik, Jeffrey
Cc: Stone, Rebecca
Subject: RE: Composite Paper

There's a "Major Document Status" document on WebEOC, but not on Sharepoint.

From: Dudek, Michael
Sent: Tuesday, April 19, 2011 1:20 PM
To: Kowalczik, Jeffrey; OST01 HOC
Cc: Stone, Rebecca
Subject: FW: Composite Paper

Help… help. Any thoughts on what Dan is referring to?

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

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From: Merzke, Daniel
Sent: Tuesday, April 19, 2011 1:18 PM
To: Dudek, Michael
Subject: RE: Composite Paper

nnn/298

Michael, Marty mentioned a "table of documents" that have been generated that he thought was being migrated to the Sharepoint site. Are you aware of that table? I may have missed it on the sharepoint site.

Dan

From: Dudek, Michael
Sent: Tuesday, April 19, 2011 12:48 PM
To: Merzke, Daniel
Subject: RE: Composite Paper

Yes, all needed Japanese event information (SITREPS, One-Pagers, Q&As, and JETT Assignments) can be found on the http://nsir-ops.nrc.gov/default.aspx SharePoint site.

Is that what you were referring to?

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

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From: Merzke, Daniel
Sent: Tuesday, April 19, 2011 12:33 PM
To: Dudek, Michael
Subject: RE: Composite Paper

Yes, I do. It's not terribly high priority, but Marty wanted me to check on the status.

Also, Marty asked me this morning about the effort to migrate the table of documents generated by the Ops Center over to a Sharepoint site. He mentioned moving the stuff from WEBEOC, too. That way the CAs would have access to it all without requesting information in the future. Do you know anything of this effort and what the status is?

Thanks a lot for all the support lately. It's greatly appreciated.

Dan

From: Dudek, Michael
Sent: Tuesday, April 19, 2011 12:22 PM
To: Merzke, Daniel
Subject: RE: Composite Paper

Did you get any clarity on this? I've been dealing with OCFO and a OMB issue all morning. Do you still need help?

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

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From: Merzke, Daniel
Sent: Tuesday, April 19, 2011 9:58 AM
To: Dudek, Michael
Subject: Composite Paper

Michael, do you happen to know the status of the Composite Paper which recommends the criteria for reducing the EPZ around Fukushima? Is it finalized? Still being circulated for comment? If I went to the Ops Center, could someone there let me see it?

Dan

From: Droggitis, Spiros
Sent: Tuesday, April 19, 2011 1:13 PM
To: Riley (OCA), Timothy
Subject: FW: USNRC Earthquake-Tsunami Update 041911 Revision 1, 1300 EDT
Attachments: USNRC Earthquake-Tsunami Update 041911 Revision 1, 1300 EDT.pdf

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From: LIA08 Hoc
Sent: Tuesday, April 19, 2011 12:52 PM
To: OST01 HOC; A Green; A Rock; Al Coons; Aleshia Duncan; alexancg; Anthony Herbold; Appleman Binkert; B Green; B Russo; Bill King; Bill King2; Bruce Howard; C Lay; C Noser; C Ops; Charles Burrows; Charles Donnell; Christopher Meadow; Clinton Carroll; Conrad Burnside; D Drakeley; D May; D Murakami; D Webb; Damian Peko; Dan Feighert; Darrell Hammons; DHS Ops; DOE NIT; DOT; DTRA; DTRA; Dudek; E Wright; Elmer Naples; EOP; EPA; EPA2; Eric Sinibaldi; F Lewis; G Szeto; G Whitmire; George Higdon; gregopk; Gregory Simonson; Gretchen McCoy; H; Harry Sherwood; HHS; I Clark; Intel DIA; J Barnes; J Bartlett; J Moeller; J Noonkester; J Szymanski; J Tippets; James Purvis; Japan Embassy Task Force; Japan Pentagon; Jason CIA; Jason Pepin; Jeffrey Conran; Jeremy Demott; Jeremy Morrow; Jeremyft1; Jim Kish; Johanna Berkey; John Holdren; Joyce Connery; K Donald; K Gonzalez; K Ousley; Karyn Keller; Kyle Viayra; L Mayer; Lee Nickel; Lee-Jake Strunk; Lisa; Lisa Hammond; Lukas McMichael; M Huchla; M Kerber; M Lansley; M Thon; M Thon2; maceck; MARFORPAC CAT All Hazards Div; MARFORPAC CAT G2; Mark Shaffer; markwb2; Marshall Shull; Michelle Ralston; Nan Calhoun; Navy; NICC; NMIC; NOC; NOC Duty Director; Nulcear SSA; P Gardner; pentagon; Peter Lyons; Phillip Barks; R Roesler; R Schueneman; Rebecca Thomson; roberhh; Ron Cherry; Ron McCabe; S Basile; S Buntman; S Levy; scotc1; Seamus O'Boyle; seiden; state; Stephen Trautman; Steve Colman; Steve Horwitz; T Gatling; T Roberts; Thomas Conran; Thomas Zerr; Tim Greten; Timothy Hitzelberger; Trent Hughes; Troy Heytens; USDA, John; USMC; Vanessa Quinn; Victoria Kinsey; W Cluff; W Young; Will Friese; William Harding; William Webb; A Aviles; A Brown; A Estes; A Hough; A Tribble; B goldberg; B Moffat; B Perry; B Woo; Beavers, Shane; Brinser, Andrew; Brooks, Andrae; Brown, Michael; C Fiore; C Good; C Kim; Carlos Islas; CPF CATN5; Craig Gaddis; D Fletcher; D Putthoff; D Scully; D Smith; D Souza; D Wade; D Williams; David Graves; DOE DART; E Fiser; E kaye; E Price; E Shelland; E Train; Elder, Troy M SGT MIL USA USARPAC; Eric Wright; F Bantell; Fossum, Sgt Zachary; Guathier, Ronald; H Zito; Hickam; Hickam; J Blankenburg; J Kreykes; J McCallister; J Rhodes; J Rivera; J Scarbrough; J Soderbeck; J Stewart; J Trussler; James Williams; JR Haley; JTF505-MAIN-JOC-J2; JTF505-MAIN-JOC-J2-INTEL-ANAY; K Bollow; K Bollow; K Tomlinson; Koluch, SSgt Eric; L Bolling; L Elkins; L Heinrich; L Walter; M Howsare; M Kabbur; M Nguyen; M Opfer; M Taafe; M Thon; M Thon; Marina Llewellyn; Michael Anderson; Micheael Eberlein; Monaghan, Dylan; N Albritton; N Albritton; NCMI Ops; Office of Secretary of Defense Watch Officer ; Olson, Niels; P Almquist; P Higginbotham; P Higgins; P Lyons; P Smalley; P Somboonpakron; PACOM; PACOM; Pasit Sombookpakron; Powers, Jeffrey; R Backley; R Fisher; R Garrett; R Neff; R Stephenson; R Tashma; Richard, Sgt William; Robert Duke; Robert P; RST01 Hoc; RST01B Hoc; RST03 Hoc; S Aoki; S Jerabek; Sean Basile; Shirey, Sgt Eric; Simmers, Keith; Spencer Nordgran; Spurlock, Kenneth; Stephen Greco; T Baden; T Lowman; T Miller; T Reeves; T Reeves; T True; Tovar, SSgt Eric; USAFJ.A2@yokota.af.mil; USFJ; USFJ Intel; V Raphael; Valerie Makino; Vaughn, Sgt Jerrod; Walter Hokett; Wanda Ayuso; William Brysacz; 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; 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; 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; LIA01 Hoc; LIA02 Hoc; LIA03 Hoc; LIA06 Hoc; LIA08 Hoc; LIA11 Hoc; Logaras, Harral; 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;

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Quichocho, Jessie; R1 IRC; R2 IRC; R3 IRC; R4 IRC; Reddick, Darani; Reyes, Luis; Devercelly, Richard; Nelson, Robert; ROO hoc; Rothschild, Trip; Satorius, Mark; Schmidt, Rebecca; Sharkey, Jeffry; Sheron, Brian; Sigmon, Rebecca; Snodderly, Michael; Sosa, Belkys; Speiser, Herald; Svinicki, Kristine; Tabatabai, Omid; Thoma, John; Thomas, Eric; Tifft, Doug; Kolb, Timothy; Ulses, Anthony; Nakanishi, Tony; Tracy, Glenn; Trapp; Trapp, James; Trojanowski, Robert; Turtil, 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; Zimmerman, Roy; Zorn, Jason; Borchardt, Bill; Cohen, Shari; Cooper, LaToya; Dyer, Jim; ET07 Hoc; Flory, Shirley; Hudson, Sharon; Schwarz, Sherry; Sprogeris, Patricia; Taylor, Renee; Virgilio, Martin; Walker, Dwight; Walls, Lorena; Weber, Michael
Subject: USNRC Earthquake-Tsunami Update 041911 Revision 1, 1300 EDT

From: Steger (Tucci), Christine
Sent: Wednesday, April 20, 2011 5:46 PM
To: OST01 HOC
Subject: RE: Please request some support from DSP & DSO

Ok thanks

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

From: OST01 HOC
Sent: Wednesday, April 20, 2011 5:41 PM
To: Steger (Tucci), Christine
Subject: RE: Please request some support from DSP & DSO

That would be helpful for turnover. Thanks!

From: Steger (Tucci), Christine
Sent: Wednesday, April 20, 2011 5:16 PM
To: OST01 HOC
Subject: RE: Please request some support from DSP & DSO
Importance: High

Please advise if I need to arrive at 6:30am tomorrow for my 7-3 shift, for turnover purposes.
Thanks,
Christine

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

From: OST01 HOC
Sent: Friday, April 15, 2011 2:06 PM
To: Steger (Tucci), Christine
Subject: RE: Please request some support from DSP & DSO

Thank you Christine. We've put you down on the watchbill on Thursday, April 21, 7 to 3 in the ET Support position. If you need to change this, please e-mail OST01 Hoc.

Thank you,

WMN/300

Emily

From: Evans, Michele
Sent: Friday, April 15, 2011 2:03 PM
To: OST01 HOC
Cc: Steger (Tucci), Christine; Marshall, Jane
Subject: FW: Please request some support from DSP & DSO

Christine,

I am forwarding your information to the Ops center via this email. They will let you know if they need you to support.

Thanks

Michele

From: Steger (Tucci), Christine
Sent: Friday, April 15, 2011 2:01 PM
To: Evans, Michele
Cc: Givvines, Mary; Ferrell, Kimberly
Subject: RE: Please request some support from DSP & DSO

Hi Michele,

I am able to support the Op Center on Thursday, 4/21 from 7:00-3:00. I will be out of town both weekends.

Christine

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

From: Evans, Michele
Sent: Thursday, April 14, 2011 1:12 PM
To: Nguyen, Caroline; Steger (Tucci), Christine
Cc: Givvines, Mary; Ferrell, Kimberly
Subject: FW: Please request some support from DSP & DSO
Importance: High

We've changed the way we are functioning in the Ops Center and now only have 6 people per shift. Not sure if you guys can work this weekend or some of the later dates, but you would be helpful in this new administrative role. Let me know.

thanks
Michele

From: Morris, Scott
Sent: Thursday, April 14, 2011 12:18 PM
To: Holahan, Patricia; Westreich, Barry; Layton, Michael; Caldwell, Robert

Cc: Marshall, Jane; Evans, Michele
Subject: FW: Please request some support from DSP & DSO
Importance: High

The NRC's response to the Fukushima events has a continuing need for 24/7 staffing support ... currently the watchbill (see attached) for the executive support team position has a number of open slots that we need to have filled ... please contact Jane Marshall with folks from your staff that are willing to support. If no volunteers, please advise ASAP. We are less than 48 hours away from the first open slot!!

From: Marshall, Jane
Sent: Thursday, April 14, 2011 10:44 AM
To: Morris, Scott
Subject: Please request some support from DSP & DSO

Scott:
I need your HP to request some support for staffing the ET Support position. Please send a note requesting support to your counterparts in DSP and DSO to ask if they can loan us folks on a more permanent basis to:

Tasks for the ET Support position include managing tickets in WebEOC and SharePoint, revising short documents, and monitoring communications with other NRC offices. Many of the other admin functions (parking, email forwarding, etc) have been removed from this position. This person will also be responsible for coordinating with the HQ team to facilitate the completion of actions and tracking of progress on tasks. The EST responder will also facilitate emergent CA briefing calls and other ET communications as necessary.

Jane

From: OST01 HOC
Sent: Friday, April 29, 2011 4:19 AM
To: LIA08 Hoc
Subject: RE: Japan One Pager 2300 EDT 4-28-11.docx

Thank you.

From: LIA08 Hoc
Sent: Friday, April 29, 2011 4:19 AM
To: OST01 HOC
Subject: Japan One Pager 2300 EDT 4-28-11.docx

LT has no changes to the One Pager

NNN/301

From: Skeen, David
Sent: Saturday, April 30, 2011 2:40 PM
To: OST01 HOC; Kowalczik, Jeffrey
Subject: RE: one pager for saturday/sunday
Attachments: Japan One Pager 1500 EDT 4-30-11.docx

Jeff,

Please post the Saturday 1-pager.

Let me know when done.

Thanks!

From: OST01 HOC
Sent: Friday, April 29, 2011 4:22 PM
To: Skeen, David
Subject: one pager for saturday/sunday

nnn/302

From: OST01 HOC
Sent: Friday, April 29, 2011 11:58 AM
To: FOIA Response.hoc Resource
Subject: FW: PMT Staffing for the weekend

From: Morris, Scott
Sent: Friday, April 29, 2011 10:09 AM
To: Hoc, PMT12
Cc: Brandon, Lou; Marshall, Jane; OST01 HOC
Subject: RE: PMT Staffing for the weekend

Decision has been made … HQ teams will be on call this weekend … standby for further info.

From: Hoc, PMT12
Sent: Thursday, April 28, 2011 9:07 PM
To: Morris, Scott
Cc: Brandon, Lou; Marshall, Jane; OST01 HOC
Subject: PMT Staffing for the weekend

Scott,

I spoke with the Japan PMT as to whether they feel it is necessary to staff the HQ PMT for the weekend. The Japan PMT informed me that this weekend is a holiday for the Embassy Staff so they do not foresee needing the HQ PMT significantly until the holiday is over (05-02-2011, morning shift). They also felt much of their time this weekend will be occupied with turnover duties since a new crew of NRC representatives are arriving there shortly. However, they like the idea that we remain on-call.

I will leave the final decision up to you as per Lou Brandon's instructions.

Thanks.

-Jessie Kratchman
HQ PMT

nnn/303

From: OST01 HOC
Sent: Friday, April 29, 2011 4:09 PM
To: FOIA Response.hoc Resource
Subject: FW: Japan One Pager 2300 EDT 4-28-11.docx
Attachments: Japan One Pager 2300 EDT 4-28-11.docx

From: LIA08 Hoc
Sent: Friday, April 29, 2011 4:19 AM
To: OST01 HOC
Subject: Japan One Pager 2300 EDT 4-28-11.docx

LT has no changes to the One Pager

nnm/304

From: LIA08 Hoc
Sent: Friday, April 29, 2011 1:37 PM
To: OST01 HOC
Subject: RE: revisions to one-pager

No changes for LT

Liaison Team Coordinator
US Nuclear Regulatory Commission
email: lia08.hoc@nrc.gov
Desk Ph: 301-816-5185

From: OST01 HOC
Sent: Friday, April 29, 2011 1:33 PM
To: Skeen, David; Hoc, PMT12; RST01 Hoc; LIA08 Hoc
Subject: revisions to one-pager

If you have any revisions to this shifts one-pager, could you please email them to me by 2:30pm? Thank you!

nnn/305

From:	Case, Michael
To:	Sheron, Brian; Rini, Brett; Coe, Doug; Correia, Richard; Gibson, Kathy; Richards, Stuart; Scott, Michael; Uhle, Jennifer; Valentin, Andrea
Subject:	RE: Impacts
Date:	Wednesday, March 23, 2011 11:43:29 AM

Brian

Current Activities:

Annie has been working full time on support to the event. Jon has also been called to support to a lesser degree. Jon has been supporting NRR on the GI-199 GL to a limited degree but will likely escalate substantially. Other members of our seismic team have also contributed. Additionally, we can see a bow-wave of additionally seismic work rapidly approaching (congressional letters, GI-199 additional emphasis, etc).

Syed Ali is going to Japan tomorrow for two weeks. We canceled out his participation in the CSNI Working Group meetings as a result.

Mike Case, Tom Boyce, Sapna Hurd, and Rick Jervey have been part of the response team in the Ops Center. This has delayed some of their work on normal duties.

Our materials staff have been called on to support questions, such as the impact of salt on the primary piping. We anticipate that materials and structural type questions may increase in the future.

The issues related to the SBO and batteries will also likely impact us in the future, but not yet.

Impacts:

Seismic Area: Jon and Annie provide oversight (not necessarily day to day direction) to almost all the seismic and tsunami related projects in the branch. They are likely to be delayed somewhat as we adjust. Some of the more important projects like our studies on CEUS that are part of the solution will be tough to keep on track because we need Annie and Jon input on the products. The seismic area has about 18 RGs that are in need of revision. They will go really slow because the key folks internally and externally in the program offices won't be there. We were planning to support NRR on the seismic review of Diablo Canyon Shoreline Fault. That timetable will be affected.

Electrical Area: Some workload shifting but not a large impact because we got a new person coming.

RG Program: We're scheduled to get about 36 out the door this year. Very unlikely because key people throughout the agency will not be focused on this lower priority work.
Materials Area: Unless Japan related work blossoms, we can probably keep up with current plans.

Mike

From: Sheron, Brian
Sent: Wednesday, March 23, 2011 10:04 AM
To: Rini, Brett; Case, Michael; Coe, Doug; Correia, Richard; Gibson, Kathy; Richards, Stuart; Scott, Michael; Uhle, Jennifer; Valentin, Andrea
Subject: Impacts

Bill Borchardt is having a meeting from 12;30 pm to 1:30 pm today with Office Directors and RAs to discuss how the Japanese event is impacting our work. So far, I am aware of the impact on SOARCA, and I am assuming there will be some impact on our seismic work.

1.) Mike, can I get a little more detail on what the impact is, if any, on our seismic work because of Annie's and Jon Ake's participation.

2.) Please let me know if there are other areas that are or will be impacted by the Japanese event. I need this by about 11:30 am today. Thanks.

From:	RidsNsirMailCenter Resource
To:	Abraham, Susan; Albert, Ronald; Anderson, Joseph; Barss, Dan; Biddison, John; Brown, Cris; Buckley, Michael; Caldwell, Robert; Correia, Richard; Costello, Ralph; Cubellis, Louis; Diec, David; Dodmead, James; Erlanger, Craig; Evans, Michele; Giantelli, Adelaide; Gott, William; Grant, Jeffery; Harris, Tim; Holahan, Patricia; Howell, Art; Huyck, Doug; Jones, Cynthia; Kahler, Robert; Kohen, Marshall; Layton, Michael; Masse, Todd; McDermott, Brian; Miller, Chris; Milligan, Patricia; Morey, Dennis; Morris, Scott; Norris, Michael; Peduzzi, Francis; Rayland, Andrew; Rheaume, Cynthia; Stapleton, Bernard; Stransky, Robert; VandenBerghe, John; Wastler, Sandra; Way, Ralph; Wiggins, Jim; Williams, Evelyn; Williams, Kevin; Wray, Roxanne; Young, Francis
Subject:	FW: DRAFT SRM - COMGBJ-11-0002 (NRC Actions Following the Events in Japan)
Date:	Wednesday, March 23, 2011 1:15:24 PM
Attachments:	gbj11-0002.srm.docx
Importance:	High

Subject: DRAFT SRM - COMGBJ-11-0002 (NRC Actions Following the Events in Japan)
Importance: High

The attached file contains a draft SRM which is being circulated for Commission review. Your response is requested as soon as practical today. As provided in the Internal Commission Procedures, the staff is "...afforded an opportunity to review the SRM to ensure that the Commission decision is clear and understandable and that resource, schedular, and legal constraints are properly considered." Please provide any responses to Ken Hart (KRH), Richard Laufer (RJL), Rochelle Bavol (RCB5), and Pam Shea (PWS).

mm/ 307

Attachment gbj11-0002.srm.docx (24224 Bytes) cannot be converted to PDF format.

From: OST01 HOC
Sent: Wednesday, March 23, 2011 4:53 PM
To: ET07 Hoc
Subject: FW: Update - ticket 507672 (Devercelly 3GB file upload)
Attachments: image001.jpg

FYI...

From: McMurtray, Anthony
Sent: Wednesday, March 23, 2011 4:42 PM
To: OST02 HOC; OST01 HOC
Subject: FW: Update - ticket 507672 (Devercelly 3GB file upload)

fyi.

From: Legra, Mark
Sent: Wednesday, March 23, 2011 4:03 PM
To: Davis, Henry; Kim, Jay
Cc: Lawson, Joe; Stone, Rebecca; McMurtray, Anthony
Subject: Update - ticket 507672 (Devercelly 3GB file upload)

Update: 3/23/11 at 4:00pm

I'm getting ready to leave the office for the night. We have downloaded 32 additional files since the below email was sent. I have started the upload to the OPS center of these 32 files.

I will attempt to continue monitoring the file transfers coming from Japan from my home computer. I may be able to get one more batch of files to the OPS center before retiring for the evening. More to follow...

Regards,

-Mark Legra

From: Legra, Mark
Sent: Wednesday, March 23, 2011 1:37 PM
To: Legra, Mark; Davis, Henry; Kim, Jay
Cc: Lawson, Joe; Stone, Rebecca; McMurtray, Anthony
Subject: RE: Update - ticket 507672 (Devercelly 3GB file upload)

Update:

- An additional 31 files have been up uploaded to the OPS center (ET07.hoc@nrc.gov) as of this time. That totals about 90 files out of approximately 300.
- The download from Japan continues. I will upload the files that are ready this afternoon before I leave the office.
- It may be possible for me to continue from home tonight – I will make the attempt to make this happen. If I am not successful, I will do it first thing in the morning.

NRR/308

Mark Legrá, LAN Administrator

STRATIS

USNRC Technical Training Center (TTC)
5746 Marlin Rd., Suite 200
Chattanooga, TN 37411
423-855-6648

-Mark

From: PMT02 Hoc
Sent: Tuesday, March 22, 2011 8:59 PM
To: PMTERDS Hoc
Subject: FW:
Attachments: FW: Plume Predictive Model; FW: For Mr. Mueller - North Team data - Plume; FW: Nomograph for Dose from Ground Deposition

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From: Hoc, PMT12
Sent: Tuesday, March 22, 2011 8:40 PM
To: PMT02 Hoc
Subject:

NNN/309

Nelson, Robert

From: Nelson, Robert NRR
Sent: Wednesday, March 23, 2011 9:00 AM
To: Salgado, Nancy
Cc: Pickett, Douglas; Burnell, Scott
Subject: Action: Summary of Sample Results at Nine Mile Point and Ginna

Please cc: Scott Burnell on any updates

NELSON

R

From: Burnell, Scott OPA
Sent: Wednesday, March 23, 2011 8:52 AM
To: Nelson, Robert; Giitter, Joseph; Howe, Allen
Subject: RE: Summary of Sample Results at Nine Mile Point and Ginna

Please keep me updated on the confirmatory testing. Thanks.

R

From: Pickett, Douglas NRR
Sent: Wednesday, March 23, 2011 8:16 AM
To: Salgado, Nancy
Cc: Guzman, Richard
Subject: FW: Summary of Sample Results at Nine Mile Point and Ginna

Small amounts of Iodine-131 have been detected at the Nine Mile Point and Ginna sites this week. While site personnel believe it is fallout from the events in Japan, the licensee has not informed the public or the state of New York as they continue their investigation of the source. Please note in the email below that the term outfall was erroneously used. The email should have stated that the contamination was observed in storm-drains. According to Glenn Dentel, Iodine-131 has only been observed at Diablo Canyon and the two New York sites below.

R

From: Dentel, Glenn R1
Sent: Tuesday, March 22, 2011 2:14 PM
To: Henderson, Pamela; Roberts, Darrell; Clifford, James; Wilson, Peter; Weerakkody, Sunil; Rogge, John
Cc: Patel, Amar; Dempsey, Douglas; Kolaczyk, Kenneth; Hunegs, Gordon; Casey, Lauren; Screnci, Diane; Sheehan, Neil; McNamara, Nancy; Tifft, Doug; Pickett, Douglas; Bellamy, Ronald; Perry, Neil; Ibarrola, Sherlyn; Cronk, Kevin
Subject: Summary of Sample Results at Nine Mile Point and Ginna

The following environmental sample results were observed at Nine Mile Point and Ginna in upstate New York.

Date	Site	Location	Activity
March 21	Nine Mile Point	Unit 1 outfall	19.1 pCi/l
March 21	Nine Mile Point	Unit 2 outfall	8.6 pCi/l
March 21	Nine Mile Point	Oswego Co. Airport	approximately 10 pCi/l (offsite sample)
Confirmatory samples			
March 22	Nine Mile Point	Unit 1 outfall	18 pCi/l
March 22	Nine Mile Point	Unit 2 outfall	10.3 pCi/l
March 22	Nine Mile Point	Oswego Co. Airport	9.7 pCi/l (offsite sample)
March 22	Ginna	Orchard area rainwater	26.8 pCi/l (owner control area)

nnn/310

The licensees are evaluating these results and potential source. No activities onsite likely to have caused the readings. Additional sampling is ongoing.

Glenn Dentel

Sturzebecher, Karl

From: Orr, Mark
Sent: Wednesday, March 23, 2011 10:03 AM
To: Sturzebecher, Karl
Subject: FW: Fukushima: Lake Barrett report to Science Panel dated 3/19/2011
Attachments: Units1-4_Wed.jpg; 11-03-16_U3_pool_fire_Probly.jpg; 11-03-16_U4_pool_vapor_probly.jpg; 11-03-16_U4_pool_w_vapor_&_crane.jpg; Fuk_1-6_site_11-03-16_best.jpg; Fukushima-Daiichi-Nuclear-Power-Station2_before.jpg; Units1-4_11-03-14_5min_after_U3_Explod.jpg; Units1-4_11-03-17.jpg; Units1-4_11-03-18.jpg; Unit_4_Side_11-03-16.jpg; Units1-4_11-03-17.jpg; Fukushima-Daiichi-Nuclear-Power-Station2_before.jpg; Units1-4_Wed.jpg; Mark_I_Containment.pdf; 0319_1900_Radiation_Monitoring.pdf

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From: ODonnell, Edward
Sent: Wednesday, March 23, 2011 7:28 AM
To: Boyce, Tom (RES); Orr, Mark; Fuhrmann, Mark; Jervey, Richard; Reed, Phil; Carpenter, Robert; Bayssie, Mekonen; Karagiannis, Harriet; Cady, Ralph; George Powers; Chang, Richard; Schaperow, Jason; Wegner, Mary; Kanney, Joseph
Subject: Fukushima: Lake Barrett report to Science Panel dated 3/19/2011

The following is from Lake Barrett, **formerly at NRC**. He was the man in the Three Mile Island cleanup.

Subject: Nuclear Problems in Japan

The following is an unpublished report to the Science Panel, presented by Lake Barrett, a Nuclear Engineer, and the retired Director of the U.S. Department of Energy's (DOE's) Office of Civilian Radioactive Waste Management. This Report provides Lake's evaluation of the current Japan nuclear situation. I worked with Lake from the late 1980s until his retirement in the early years of the 21st Century, on the disposal of High-Level Nuclear Waste at Yucca Mountain, Nevada. During the mid-1990s, I traveled with Lake to Japan, as part of a USDOE delegation that met with the Japanese Government Agencies responsible for Japan's Nuclear Waste Disposal Program. During this visit, we toured and examined a number of Nuclear facilities. Before joining DOE in the 1980s, Lake worked for the U.S. Nuclear Regulatory Commission (NRC), and led the NRC team at the investigation of the Three Mile Island incident. Recently, Lake has appeared on both PBS and CBS as an Expert to provide information concerning the situation in Japan.

From: **Lake Barrett**
Date: Sat, Mar 19, 2011 at 9:43 PM
Subject: Fukushima Update 3/19
To: Science Panel

It has been since last Tuesday, 3/15, since I have given you an update on the Fukushima situation. I was in the process of doing so on Wednesday, 3/16, morning, however as I was writing my summary of the situation, then I could not reconcile conflicting data. The more I dug into the available information the more confusing and contradictory it was. In my putting the

NRR/ 311

pieces together, I discovered that there had been several unreported major explosions in Unit 4 that had happened and also an apparent unreported loss of water in the Unit 3 spent fuel pool. One thing lead to another and reporters started calling and I got stuck in a press and media cycle ever since. So I am sorry, but my summary to you had to wait until now, when things seem to have calmed down a little.

Now, based on the imperfect information publicly available, I believe I have a preliminary speculative understanding of the basics of the situation,. So in this email I will provide my personal views on what I think has happened, is happening, and likely to happen. Much of what I am going to write in the rest of this email is speculation, which is mine and mine alone. It is based on very incomplete information and I am filling many blank spots with what I think happened based on my experiences with reactor systems, accident analysis, and operator training, Three Mile Island Unit 2 (TMI) accident progression, TMI impacts/recovery, spent fuel behavior, and plain old human nature.

In summary I believe we are on the downside of the first phase of the accident: getting thermal control. The worst should be over now, as explained in more detail below. The only major concern I have is that the Unit 2 building could explode from residual core oxidation hydrogen or hydrogen from an overheated spent fuel pool in Unit 2. Now as the initial "get the plant under thermal control" phase is ending, it will now enter into a multi-week "radioactive release mitigation phase and multi-month "environmental assessment" phase. This includes intensive offsite monitoring and letting people go home. These phases will go on intensively for a few weeks, with some sensational news reports, now and then, and then gradually blend into successive multi-year recovery/clean up phases. The current intense news cycle is winding down and will gradually fade. When these two next phases wind down, then the hard long expensive recovery work begins in earnest. The hard feelings that the Japanese have for the poor judgment insensitive US 50 mile evacuation order for Americans will have to be smoothed over and relationships mended. But in the end, I think they will graciously forgive our immaturity. I will explain this unfortunate situation more below, if you care.

So, here are the details. As I wrote before the Fukushima Daiichi Units 1-3 were operating at full power and Unit 4 was in an outage with the full core offloaded into the pool when the earthquake hit. You can see the whole site in the attached before picture. The earthquake dynamic loads were likely around or maybe a little higher than the design basis. But regardless, everything seemed OK dynamically speaking after the scrams with the emergency power picking up loads as it was designed to do. Approximately 45 minutes after the quake, a Tsunami, approximately 8 meters high, hit the plant. I believe the plant design basis tsunami was around 5 meters and some have reported that it realistically would have withheld a wave 6.5 meters in height. But the ~8 meter wave took out the emergency diesel generators and switchgear. This left all the six reactors in a complete loss of power.

Plant operators were faced with a massive challenge to use whatever available means they had to cool the three reactors that had been operating. I have described what happened in earlier emails, but in summary, the operating Units 1, 2, and 3 shutdown, as designed, but operators were not able to get enough water injected into the reactor vessels to keep the cores covered and cooled to reject the decay heat from the nuclear fuel. For a short time they were able to

keep the cores somewhat cooled with water injections, via the isolation condenser in Unit 1 and the battery controlled turbine driven Reactor Core Isolation Cooling (RCIC) systems in the newer Units 2 & 3. The Unit 1 isolation condenser could not be replenished with cooling water and boiled dry first. The Unit 3 RCIC ran until the battery voltage likely dropped, causing turbine or valve control instability and it stopped. The Unit 2 RCIC also had difficulties and it also stopped injecting water.

This lack of cooling led to the overheating of all three reactor cores, to the degree that the nuclear fuel zirconium cladding that encapsulated the uranium oxide fuel pellets oxidized (burned basically) with the steam environment. The cores are likely just like Three Mile Island cores: a bed of rubble with localized melting of composite materials of steel, zirconium, and uranium. Sort of like a highly radioactive steel mill slag-like material. These cores are likely still in the reactor vessels, and are being cooled by seawater injection using highly pressurized fire engine pumps. With a "rubble-ized" core geometry, there is heterogeneous cooling with hot spots likely located throughout the core rubble pile. In Unit 2, which apparently overheated the most, it is likely that some molten materials slumped or melted through the lower core support structure and fell into the lower reactor vessel plenum (water space in the bottom of the ~6 inch thick reactor vessel). If there was substantial hot material resting on the vessel bottom, the lower vessel nozzles penetrations would be challenged, but I believe they should hold, but do not really know.

When all the core cladding zirconium oxidized, a tremendous amount of hydrogen gas was released to the primary coolant system. This over pressurized the primary coolant system, either lifting the relief valves or requiring the operators to manually reduce primary coolant system pressure by blowing steam and gases down into the primary containment torus. This dangerous mixture flowed down into the water filled pressure suppression pool torus in the lower reactor building (note the reactor building also serves as the secondary containment structure of these BWRs). Initially the steam was condensed, but the hydrogen and other gases (Helium and fission-product gases Xenon and Krypton) do not condense. The loss of AC power and safety service water systems prevented the cooling of the torus suppression pool water so that primary containment pressure started to rise. With no decay heat removal capability, the primary containment system would have over-pressurized and failed. To prevent a catastrophic primary containment system failure the operators vented the primary containment through the safety venting system trying to reject heat and excess gases up the100 meter tall stacks at the plants. Normally there are operable fans and filters to control this dangerous mixture, but there was no electrical power for the fans. So most, if not all, of this dangerous mix of hydrogen gas seeped into the reactor building in Units 1 and 3. The hydrogen, being lighter than air, mixed with air in the upper large refueling floor area. I also likely mixed in other building areas and rooms also. As the primary containment was vented, the hydrogen gas concentration built up above the explosive 4% concentration. In Units 1 and 3, this explosive gas concentration was ignited from some source and caused the huge explosions that ripped the sheet metal sides and roofs off the top of the reactor buildings. But in these two units, the primary containment system, in the lower sections of the building survived.

Unit 2 followed a similar, but delayed core degradation sequence of events. But at Unit 2 the plant operators learned from the Unit 1 and 3 RB explosions and worked hard under difficult

conditions to remove a wall panel above the Unit 2 refueling floor. The missing panel can be clearly seen in the Units 1-4 11-03-17 picture. Notice the vapor exiting the building. It is most likely steam being vented from the lower primary containment rising up through the building and vents. The plume also likely contains vapor from the Unit 2 spent fuel pool. Hydrogen gas is highly variable, and an explosion could happen at any time in Unit 2, but I think the period of peak explosion danger is past for Unit 2 with regard to core oxidation generated hydrogen. But there is considerable uncertainty about the Unit 2 spent fuel pool, which could possibly follow the Unit 4 sequence of events and cause an explosion from that hydrogen source. More on the pool situations is below.

Currently the primary systems of all three reactors are depressurized with seawater flowing into the reactor vessels and cooling the core rubble. The seawater injection is still being forced into the primary cooling system with the fire engine pumps. The thermally and radiologically hot seawater or steam flows out of the core into the primary containment. Steam has to be manually vented from Units 1 and 3 primary containments to prevent over pressurization. Although the containment of Unit 2 was reported breached, it now has a containment pressure reading of about 25psig, which is similar to Units 1 & 3. No one knows if it was an instrument problem or not, when there was the reported Unit 2 lower building explosion-like noise heard. Under the harsh environment through all the buildings, all instrument readings are suspect. But a normal pressure reading is better than a no pressure reading. Of course the operators have to manually vent the primary containment periodically to prevent over pressurization. Whenever venting occurs, a vapor mixture of steam, some hydrogen and radioactive materials are released to the RB. The good news is that vented gasses have been scrubbed in the wet environment (although boiling), which scrubs the most significant Cs, Sr and Iodine fission products. Noble gasses pass right through, but they are not biologically significant.

This current "feed and bleed" method of cooling with salt water is not a sustainable long term cooling method. Salt deposits are likely building up in locations in the thermally heterogeneous core rubble pile. This configuration is completely unknown. At some point, I hope in the next couple of days, the operators will get the Residual Heat Removal system functioning so they can enter into a recirculation cooling mode. Operators have laid a new mile long power cable and installed new switch gear. Power is now up to Units 1 & 2 and Unit 3 should get power soon. It will likely take another day or so to get the pumps and valves operable, assuming there is no major damage to the pump motors. Once recirculation cooling is established, I believe the cores will be thermally and mechanically stabilized. Also, primary containment venting can be halted, thus reducing environmental releases of fission products. Also, cooler suppression pool water temperatures will better contain volatile fission products. Cooler is better all the way around.

We have not had any information on the reactor vessel integrity. I suspect it is OK. By OK I mean intact and able to hold the rubble-ized and partially melted mix of uranium and core structural materials. It is an ugly mix of melted uranium, zirconium and stainless steels likely mixed in a very heterogeneous salt cake. The TMI core was an ugly eutectic mess, but these three cores are likely much worse, but very similar from an engineering standpoint. I won't take the time now, but this sequence of events at Fukushima is very similar to what happened at TMI Unit 2 back in 1979. I won't bore you with a trip down "memory lane", but the thermodynamics, hydrogen burns, cooling restoration, and containment control issues are eerily similar. But the

Fukushima reactors, I believe, are much more damaged and contaminated than TMI was and there are three of them in this state.

I should mention how hard it is for the operators to work in this environment. They have to wear contamination control suits and heavy respirators. It is thermally, chemically, and radiologically hot. They have to work under stopwatch time constraints due to high gamma radiation levels. They have had their exposure allowances extended to 25 Rem per the IAEA emergency allowances for operators working to stabilize a nuclear emergency situation. So far, the exposures that I have heard about, are not high, considering the situation there. I have not heard any reports over 15 Rem. Also, considering the power of the earthquake, tsunami, and explosions in Units 1, 3, & 4, there is a surprisingly low number of fatalities (only 1 crane operator, I think) and only a handful of other injuries.

There is the press myth of the "Fukushima 50" on a "suicide" mission. I had to stomp on that in a CNN TV interview Thursday (I think, but the days run together). Crews are being rotated. But leave it to the sensational Hollywood press to do anything to improve viewer ratings. But no matter what, these TEPCO folks are doing well under terrible conditions and pressure. I understand there are now 500 working at the plant on rotating shifts.

Now I will tell you what I can about the spent fuel pools. The Unit 4 reactor has had the most trouble, but Unit 3 may be close behind and Unit 2 is unknown (to me anyway). Unit 4 was undergoing maintenance at the time of the earthquake and its core was off loaded in the spent fuel pool. The spent fuel pool is located up on the refueling floor. Unit 4 shutdown ~106 days ago, so the core was fairly thermally active. It has been reported that there is 135 MTU of fuel in the pool. This is more than a core, which is likely around 90MTU. It could have been some fresh fuel that was planned to be loaded back into the reactor or it could be some old spent fuel. The Fukushima reactors do not have high density spent fuel pool racks like in the US (a good thing). They have another common pool and in the past they have shipped spent fuel off-site for reprocessing in Europe. They also have recently built a dry cask storage facility that has ~90 MTUs of fuel stored in it. You can see where the dry storage facility is located, in the "before" picture attached (it is still there in the "after" pictures, but you cannot see it. I am sure that it is OK).

Whatever happened to the Unit 4 spent fuel pool area, I do not know, but I will venture a good guess. Something must have failed, such that the pool lost a lot of its water, due to a pool leak, or refueling gate failure, or something. Because thermal calculations on a 100 day old core does boil out the top 30 feet of water in about a week. Something must have mechanically happened that spilled a lot of water from the pool, because it is pretty clear, to me, that it boiled nearly dry, overheated, and became so hot that the zirconium cladding oxidized (caught fire) and released a lot of hydrogen gas before then. This gas ignited and blew the sheet metal roof and sides off the building. Pool fuel oxidation hydrogen generation is the only thing that I can imagine that could do this. I have attached several pictures of the Unit 2 RB. On the sides you can see large chucks of concrete blown out as well. There may well have been several separate localized explosions. This likely happened on Tuesday, when the site reported very high gamma fields, and a temporary site evacuation was initiated. Regardless, it must have been quite an explosion.

There may also be a major problem with the Unit 3 spent fuel pool, next door. It may have had structural damage from the building explosion there, and lost a lot of its water also. I do not know how old the Unit 3 spent fuel pool fuel is, but it is older, thus lower energy output, than Unit 4s. It is possible that this pool may have overheated resulting in a second explosion here also. I am very uncertain and not even sure I should write about it, so I caution you this scenario maybe completely wrong. But if you look at the roof of Unit 4, you can see that roof looks yielded from a force from the Unit 3 side. In photos after the initial Unit 3 explosion, the Unit 4 roof looks normal. So there may have been a second explosion in Unit 3 that yielded the roof frames inward. But I do not know if the Unit 3 pool fuel is intact or not. It should be if it stayed flooded, but could have burned if it was uncovered for some time. In some of the photos, it looks like a vapor plume from the Unit 3 pool area. A large vapor plume can be OK if it is just water boiling. A boiling spent fuel pool is a happy spent fuel pool because that means the spent fuel is being cooled. In a reactor the fuel operates at over 600F and that is fine. If it is in a boiling pool with a sufficient water level, its temperature is likely nearer 300F and well within operating range.

TEPCO, with help from the military, is using high pressure water cannon mounted on large airport fire trucks to shoot seawater up on the refueling deck of Unit 3 to put water on to the fuel in that pool. The jet nozzle is mounted on a 70 foot boom to get the seawater up onto the refueling floor pool area. These are now remotely controlled so they can keep spraying without operators becoming overexposed from the high local gamma fields. It has been reported that the these trucks have an 800 gallon-per-minute rate, and that on Saturday, after 13 hours of pumping, they have sprayed over 300,000 gallons of seawater up on to the pool areas of Unit 3. They plan to do the same thing to the Unit 4 pool on Sunday. They are also flying drones over the refueling floors to take thermal measurements to see what the temperatures and radiation fields are, but I have not heard of any results.

When the first helicopter attempt was made, the gamma fields were extremely high, and that first mission had to be aborted. To me, gamma levels that high indicated exposed spent fuel.

On Thursday, USNRC Chairman Jaczko, stated that the Unit 4 pool was dry. The Japanese said that there was water there. I suspect they may have both been right, because it depends upon the time and amount. But to me, all the indications are, that there was a Unit 4 pool fire. It is also possible that a similar thing happened in Unit 3. I don't know if anybody knows what the Unit 2 pool situation is. I hear they are going to fly (or may have by now flown) a small drone in through the removed Unit 2 wall panel, to look at the pool and take thermal measurements.

No matter what the condition of the Unit 3 and 4 pools are, spraying a lot of water on them is good. Hopefully, the pool liners are intact and the pool can hold water, but I do not know. So the pool situation has yet to stabilize, as far as I am concerned. Hopefully, the new larger truck water sprays can keep the fuel wet and cooled.

For fuel in a spent fuel pool all the Iodine has decayed away. The main isotopes of concern are Cs-137 and Sr-90. These are highly soluble at low temperatures (<212F) in water, so if the fuel has been oxidized and cladding destroyed, water should prevent Cs and Sr from escaping into the environment. With the new military drones, TEPCO should soon know what they are facing

in these pools, and be able to figure out how to get water on the fuel to stabilize the situation.

I have attached a lot of pictures to try to give you a perspective of the conditions and what is going on there. I cannot take the time now to describe them all, but there is one that I think that is particularly good. It is the one that is labeled Units1-4 Wed.jpg. I will try to explain what you see here. Unit 1 is on the far right with no roof, and without steam or smoke. That unit has only 50 tons of fuel in that pool and the fuel should be old with low heat output, so hopefully that is OK. Unit 2 is second from right with the intact building. Notice the square hole with the white, what I think is, steam, coming out. This is the missing panel that was removed intentionally to vent the building to keep it from exploding. So far this has worked. The next building from the right is Unit 3, with no roof or sides and with white smoke/steam. That plume looks like a mixture of steam and smoke. The initial white color part of the plume is likely steam from the boiling pool, because it condenses and dissipates. However the thinner, longer lasting plume may be smoke from a fire somewhere. It could be the pool or it could be something else that was ignited by an explosion. I am sure with drone sampling they will know, assuming it is still present. The last building from the right is Unit 4. You can see result of what was likely the hydrogen explosion from the pool fire. Although hard to tell, there may be smoke coming from the left side. There are other individual pictures that I have attached that show other Unit 4 damage perspectives.

Things seem to be stable up in Units 5 & 6. They are on diesel generators that are running the spent fuel pool cooling systems there. TEPCO operators drilled holes in the roofs of Units 5 & 6 to make sure that any hydrogen generated by radiolysis of water from the gamma fields dissipates without exploding. It is a normal for small amounts of hydrogen to be emitted and the fans normally exhaust it so there is no problem. But there have been no HVAC operational fans because of the power, so they put the holes in the roof a few days ago to naturally ventilate the buildings

I am getting tired of writing this, so I need to bring this to a close, but I should briefly touch on the environmental impact, and the evacuation order situation that the US government has sadly caused.

I have attached the most recent raw environmental monitoring data that I have. It indicates fairly low levels, considering all that has been happening at the plant. I suspect that, fortunately, the wind was blowing out to sea during the most intense release periods, when the Unit 4 spent fuel pool burned and Unit 4 RB exploded. Also, when most of the Unit 1, 2, & 3 primary venting periods occurred. I am sure that operators are taking wind direction into consideration when there are discretionary actions, such as primary containment pressure relief venting. Also I think that all the seawater has scrubbed a lot of the iodine, Cesium and Strontium within the plant. Regardless, off-site gamma doses are generally in the single digits, with a few in the 30 mr/hr range. As expected, environmental samples are showing Iodine in the milk and Cs on plants like spinach. The spinach readings were most newsworthy, but < 1 rem if you ate a kg of that contaminated spinach, each day for a year. This is easy to deal with, by not eating this spinach. There was also trace Cs detected in the Tokyo water supply. All this is expected and actually much lower than I would have thought, given all the terrible things happening at the plant. Of course the environmental monitoring period of public concern is just beginning, so there will be

lots of emotional contamination stories and pictures in the press.

Lastly, I need to tell you about what I think was a very unfortunate poor decision, by NRC Chairman Jaczko, to recommend that the US government order that all US persons follow an 80 km exclusion zone. In my view, this was inappropriate, because I believe they over-relied on conservative "worse case" computer models, and did not appropriately consider realistic risk, did not apparently consider that an 80 km radius virtually cut off north-south transport, and did not consider sufficiently, the duress the population there is already under, from the earthquake and lack of basic services. The way the NRC applied the 1 Rem Protective Action Guideline was overly conservative and I don't think they considered the ramifications of their actions on the Japanese people. In my professional judgment it is technically unjustifiable and caused an unnecessary extra burden on the Japanese people who are already suffering from the terrible natural disaster there. I believe the US should just follow the Japanese precautionary measures which I believe is sufficient and appropriate for the situation. When in Rome, do as the Romans do, and when in Japan do as the Japanese do, unless you have proof they are wrong. I believe the Japanese are right and the US is unrealistic, and plain wrong. It is my view, that the US government should immediately retract the 80km evacuation notice, and apologize to the Japanese people for any confusion they may have caused.

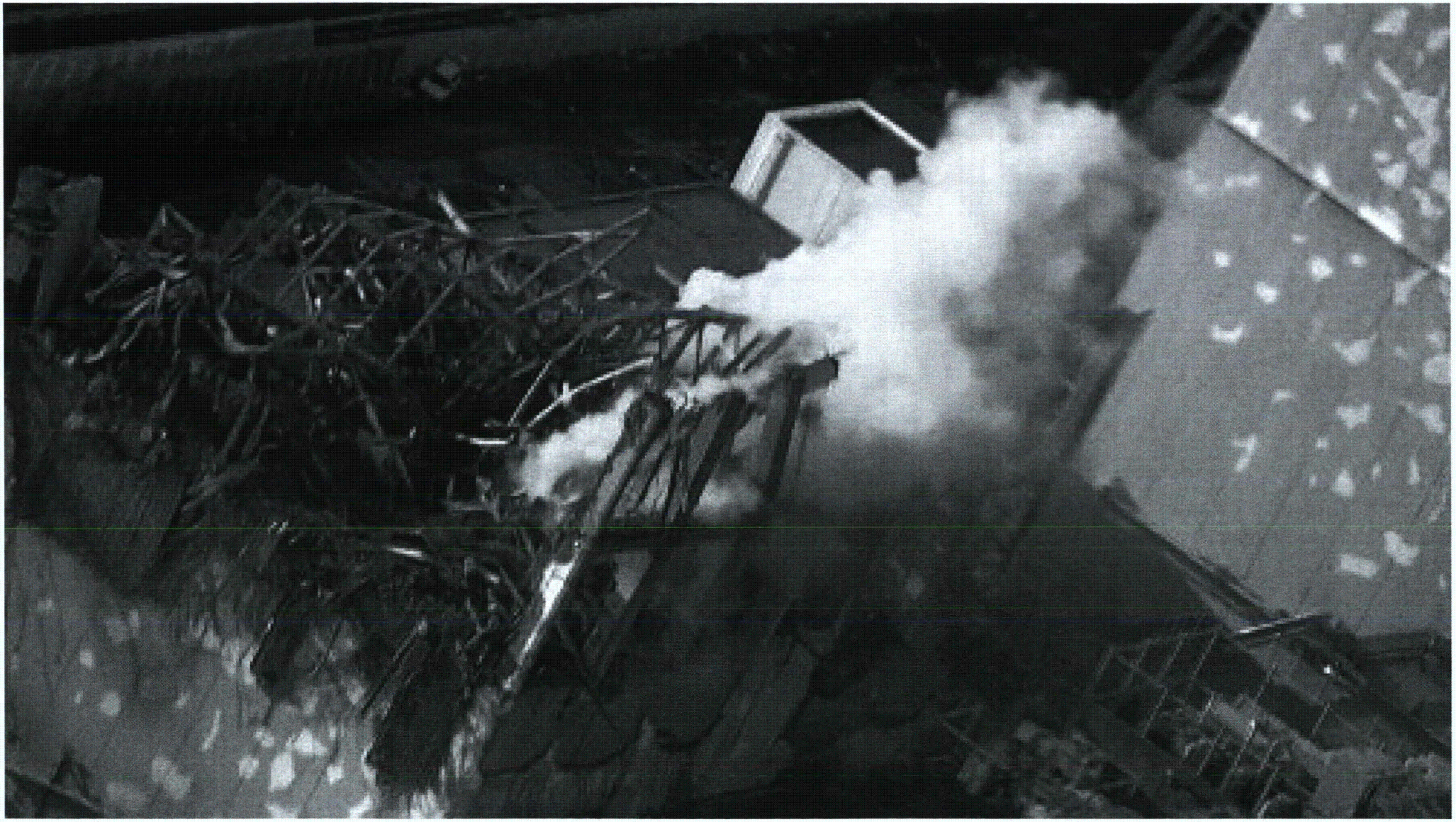
This poor judgment by the NRC/Administration, made the Japanese government mad, just as it should have. What are Japanese citizens to think if they knew that the American government stated that people in the 20 to 80 km ring were not safe being there? Fortunately, the Japanese government and press kindly did not publish the foolish American order, so that I don't think the Japanese people are aware of what the US did. It is like a when a good friend does something bad to you, it is best to just ignore the transgression and pretend that it did not happen. Such behavior could never happen in the US, if the Japanese had done this to us. But that is a cultural issue, and I won't go into it here. But let me just say, that I am ashamed of what my Government has done, and more ashamed that they have not yet corrected the inconsiderate action.

Of course the haughty Europeans were just as bad, as they panicked being first to leave the country. At least the UN World Health Organization released the following sensible statement yesterday trying to counter the US and Europeans. The said:

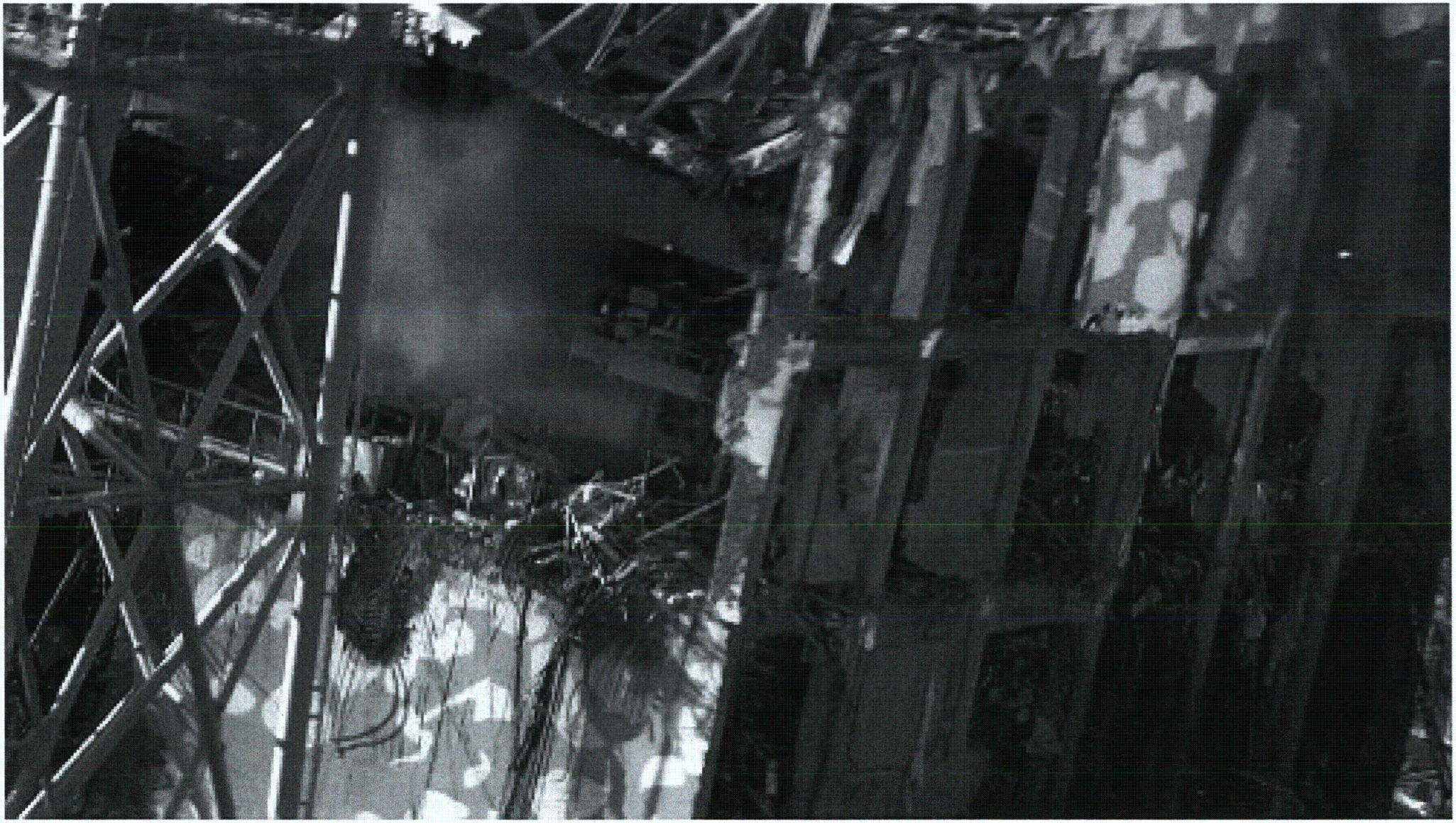
> **UPDATE AS OF 09:00 P.M. EDT, FRIDAY, MARCH 18: A World Health Organization (WHO) spokesman said that radiation levels outside the 20-kilometer (12-mile) evacuation zone around the Fukushima Daiichi nuclear plant in Japan are not harmful for human health. He said the WHO finds no public health reason to avoid travel to unaffected areas in Japan or to recommend that foreign nationals leave the country. He also said there is no risk that exported Japanese foods are contaminated with radiation.**

I think this is enough for now. The Libyan war news should now downgrade Fukushima news wise. For me that is good so I won't get called as much and I can get my chores around here done.

Lake



福島第一原子力発電所 3号機(3/16 PM撮影)



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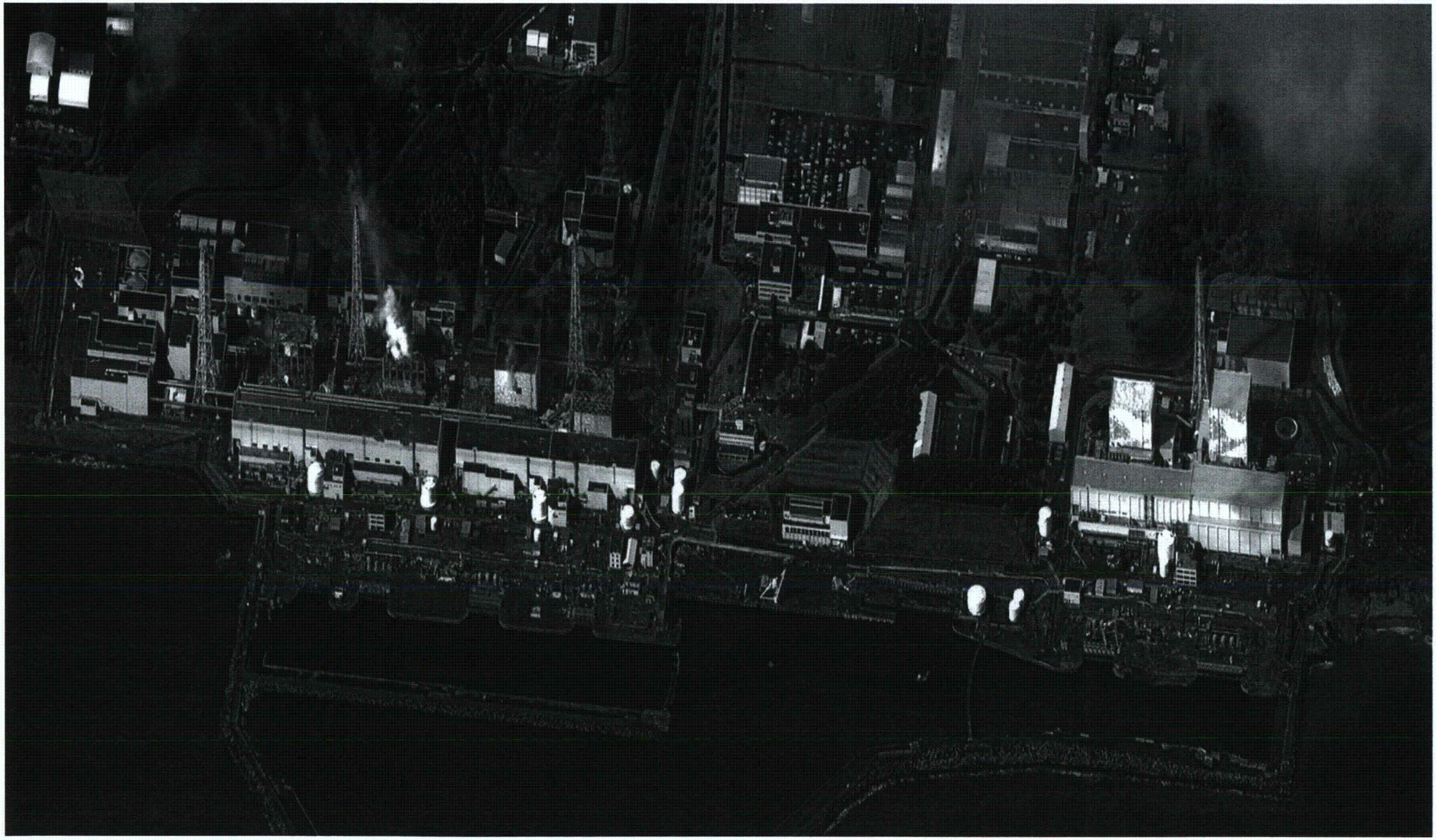


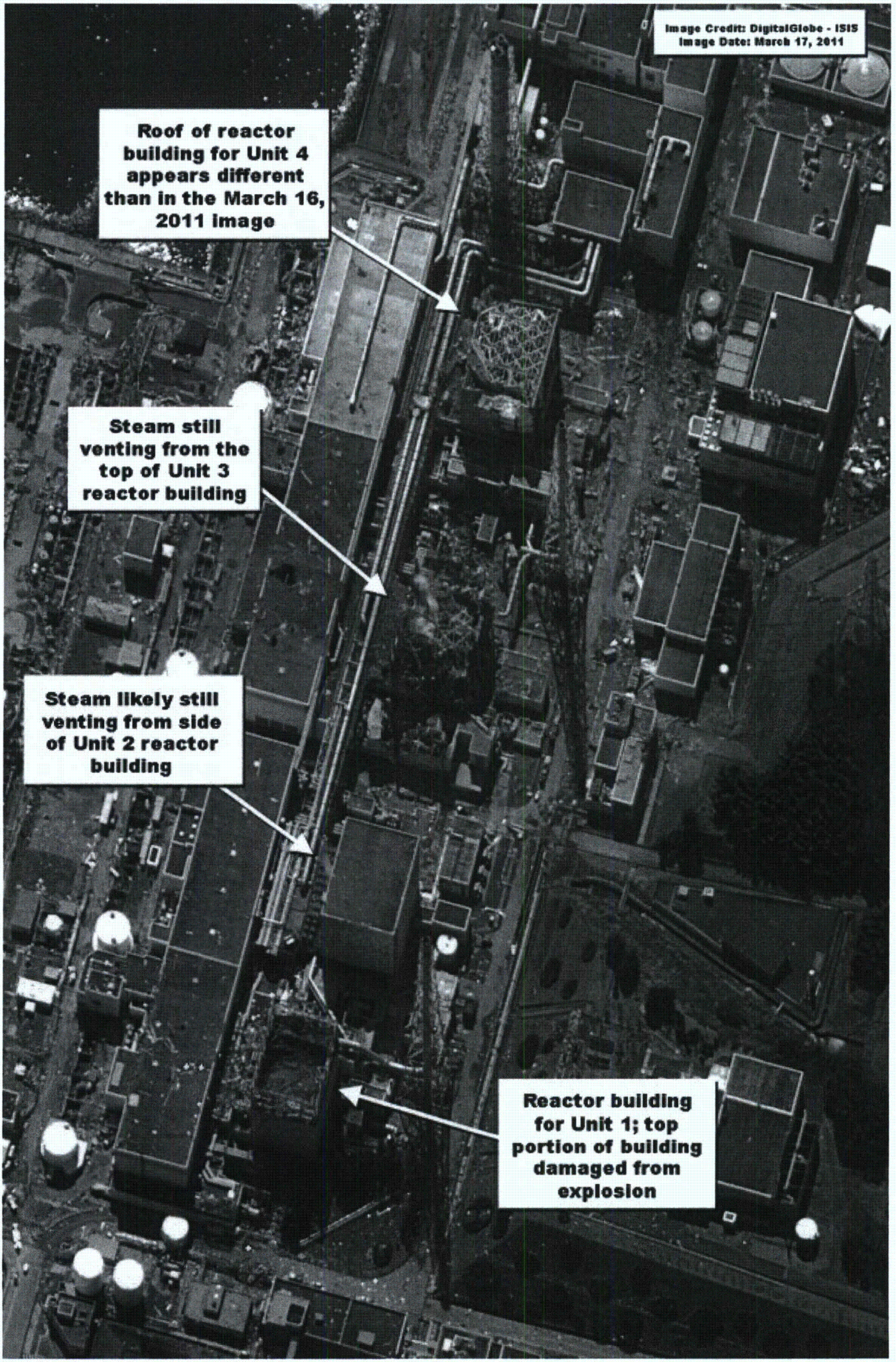
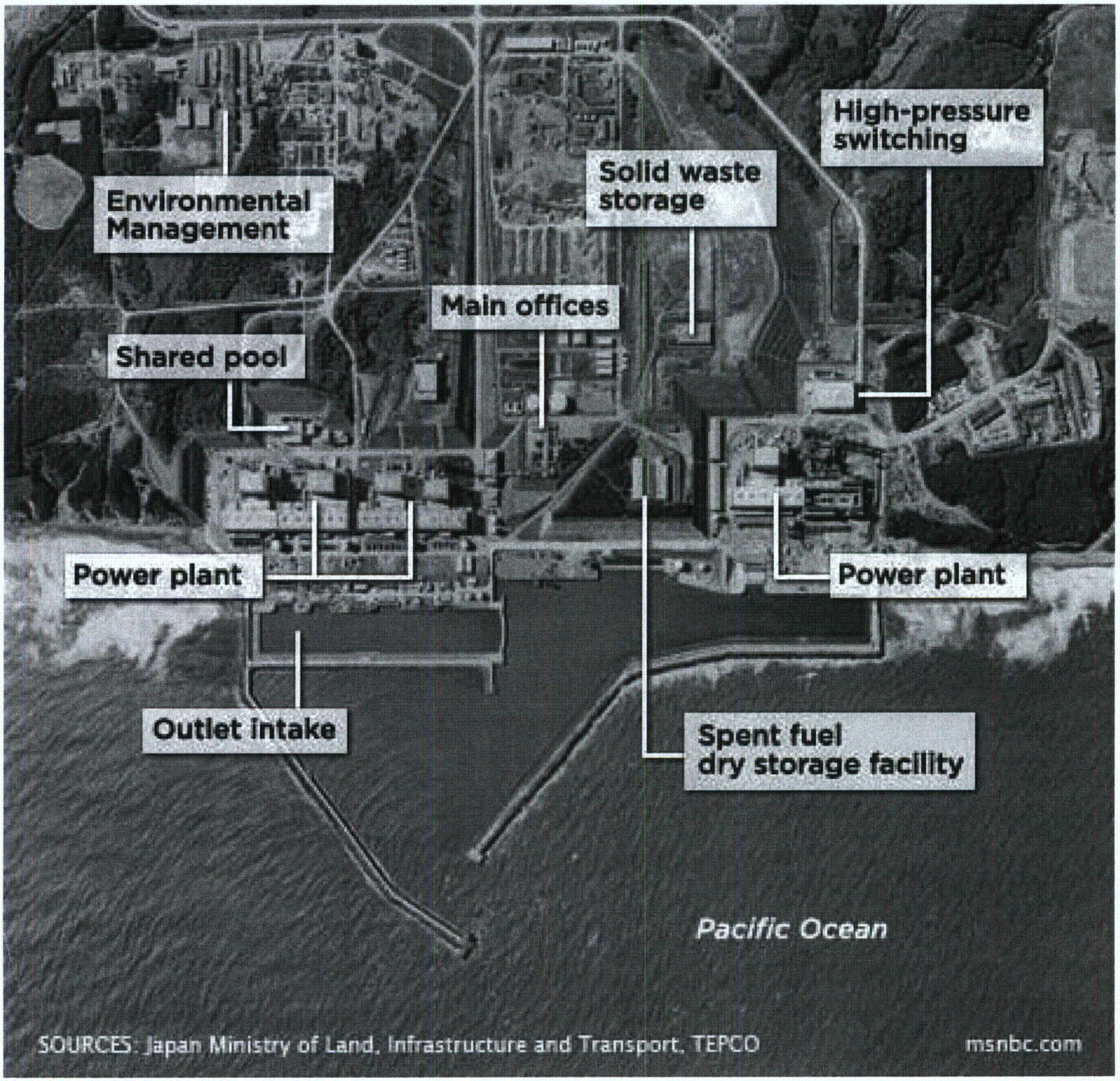
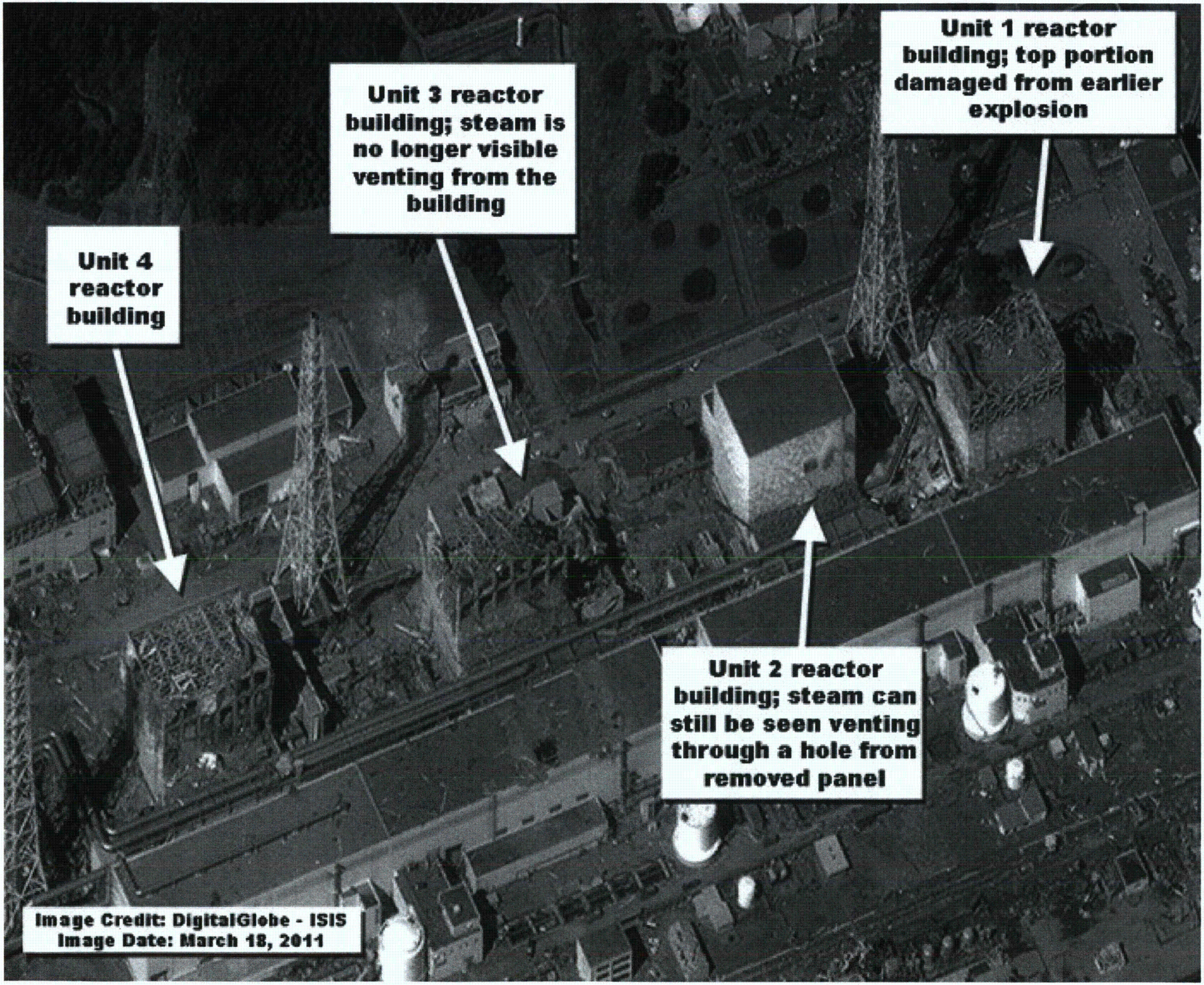


Image Credit: DigitalGlobe - ISIS
Image Date: March 17, 2011
Roof of reactor building for Unit 4 appears different than in the March 16, 2011 image
Steam still venting from the top of Unit 3 reactor building
Steam likely still venting from side of Unit 2 reactor building
Reactor building for Unit 1; top portion of building damaged from explosion

福島第一原子力発電所 4号機(3/16 PM撮影)

Fukushima Daiichi Nuclear Power Station




Unit 1 reactor building; top portion damaged from earlier explosion
Unit 3 reactor building; steam is no longer visible venting from the building
Unit 4 reactor building
Unit 2 reactor building; steam can still be seen venting through a hole from removed panel
Image Credit: DigitalGlobe - ISIS
Image Date: March 18, 2011

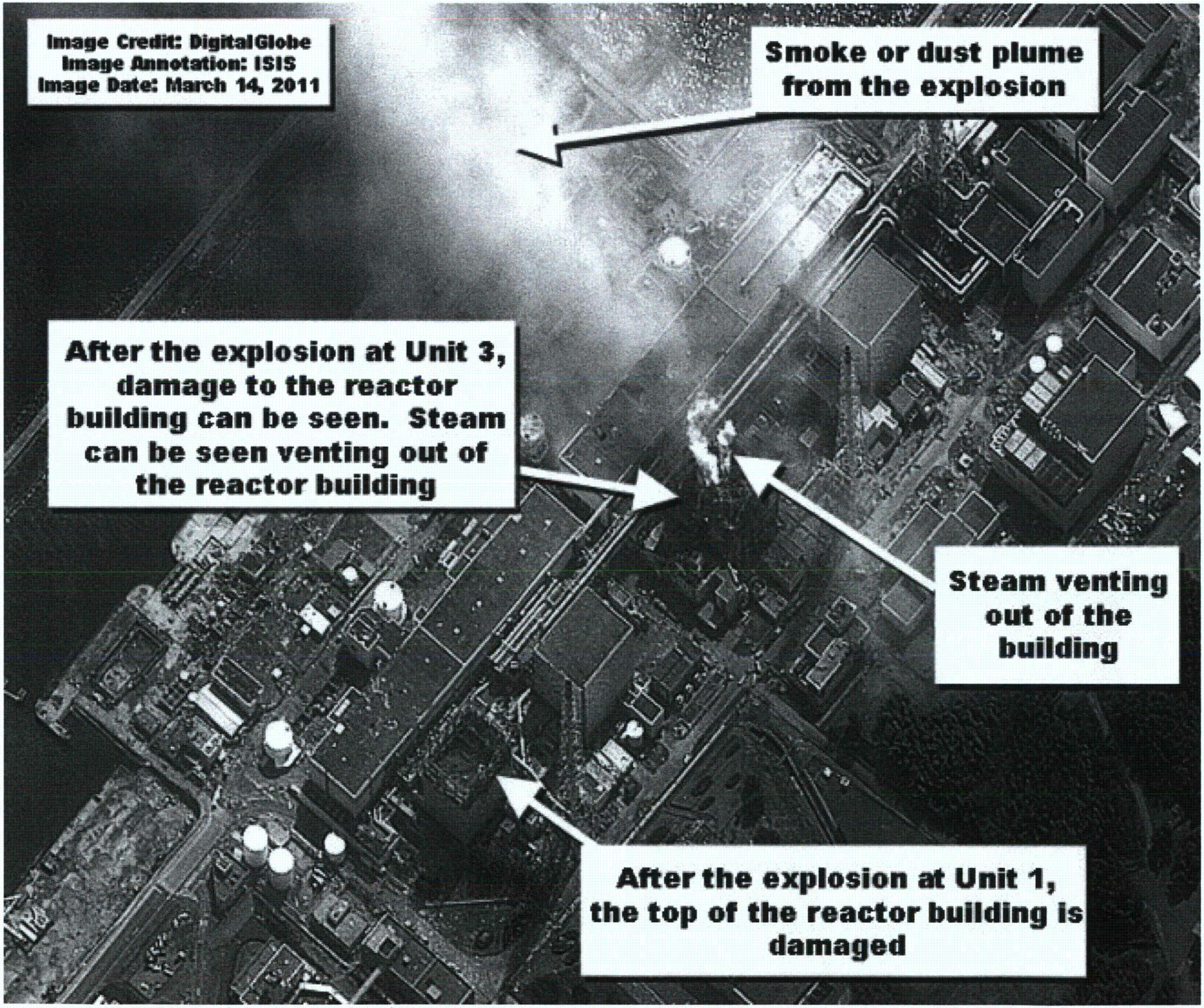


Image Credit: DigitalGlobe
Image Annotation: ISIS
Image Date: March 14, 2011
Smoke or dust plume from the explosion
After the explosion at Unit 3, damage to the reactor building can be seen. Steam can be seen venting out of the reactor building
Steam venting out of the building
After the explosion at Unit 1, the top of the reactor building is damaged

From: Huyck, Doug
To: Correia, Richard; Erlanger, Craig
Subject: Re: USNRC Earthquake-Tsunami Update 03-20.11--0600 EDT
Date: Sunday, March 20, 2011 11:14:00 PM

Friday night was busy - a lot of phone calls with our team in Japan.

Last night was fairly slow. The PMT / ET was focused on developing Rad level calculations for the Chairman and the White House.

I just arrived for Sunday night shift.

Doug

Sent from NRC blackberry

From: Correia, Richard
To: Erlanger, Craig; Huyck, Doug
Sent: Sun Mar 20 09:40:02 2011
Subject: Fw: USNRC Earthquake-Tsunami Update 03-20.11--0600 EDT

How did the night shift go? Many folks there? ET members?
Thx
Rich Correia, Director
Division of Security Policy
NSIR

From: LIA07 Hoc
Cc: LIA07 Hoc
Sent: Sun Mar 20 06:20:01 2011
Subject: USNRC Earthquake-Tsunami Update 03-20.11--0600 EDT

Attached, please find the 0600 EDT March 20, 2011 status update from the US Nuclear Regulatory Commission's Emergency Operations Center regarding the impacts of the earthquake/tsunami.

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

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

-Jim

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LIA07.HOC@nrc.gov (Operations Center)

nnn/312