

**From:** Tateiwa, Kenji  
**Sent:** 12 Sep 2015 18:16:13 +0900  
**To:** Nicholson, Thomas  
**Cc:** 'Jacoff, Adam  
S.';kamel.saidi@nist.gov;philip.mattson@hq.dhs.gov;andrew.Szilagyi@em.doe.gov;judd@nuvisi  
oneng.com;Gilbertson, Anders;Marksberry, Don;Parrott, Jack;Bernardo, Robert;Burton,  
Thomas;'Buckingham, Rob';'Zeng, Zhao Chang';Abu-Eid, Bobby;Coyne, Kevin;Correia,  
Richard;Sangimino, Donna-Marie;Rini, Brett;West, Steven;Flory, Shirley;Holonich, Joseph;'ITO  
SHINTARO';'TOYOTA TAKASHI';arahata.taichiro@tepco.co.jp;kondo.yuichi@tepco.co.jp;'?' '??  
??';'?? ??';'?? ??'  
**Subject:** [External\_Sender] [NIST Robotics Workshop] TEPCO Presenters

Tom,

Good talking to you and the team during the teleconference on Sept. 9.

Please find below names of presenters from TEPCO and tentative title of their presentations.

**Taichiro ARAHATA** (first name / last name)

Engineer, Research Planning Group

Fukushima Daiichi D&D Engineering Company

**"Deployment of Robotics at Fukushima Daiichi Nuclear Power Station"**

**Yuichi KONDO**

Engineer, Fuel Group

Fukushima Daiichi D&D Engineering Company

**"Challenges and Future Needs for Robotics at Fukushima Daiichi Nuclear Power Station"**

All the best,

Kenji

-----

Kenji Tateiwa

Safety Engineering Group Manager

Fukushima Daiichi D&D Engineering Company

Tokyo Electric Power Company, Inc.

1-1-3 Uchisaiwai-cho, Chiyoda-ku

Tokyo, Japan

office: +81-3-6373-4751

(b)(6)

tateiwa.kenji@tepco.co.jp

-----Original Appointment-----

**From:** Nicholson, Thomas [mailto:Thomas.Nicholson@nrc.gov]

**Sent:** Friday, September 11, 2015 7:36 AM

**To:** 'Jacoff, Adam S.'; kamel.saidi@nist.gov; Tateiwa, Kenji; 原 貴; philip.mattson@hq.dhs.gov; andrew.Szilagyi@em.doe.gov; judd@nuvisioneng.com; Gilbertson, Anders; Marksberry, Don; Parrott, Jack; Bernardo, Robert; Burton, Thomas; Buckingham, Rob; Zeng, Zhao Chang; Abu-Eid, Bobby; Coyne, Kevin; Correia, Richard; Sangimino, Donna-Marie; Rini, Brett; West, Steven; Flory, Shirley; Holonich, Joseph

**Subject:** Organizational Meeting at NIST on September 9, 2015 @9:00 a.m. at the Robot Test Facility building

**When:** 2015年10月1日木曜日 9:00-12:00 (UTC-05:00) 東部標準時 (米国およびカナダ)

**Where:** NIST Robot Test Facility, Gaithersburg, MD

Adam, Andy, Laurie, Kenji, Takashi, Phil, Charles, Anders, Don, Jack, Robert, Tom, and Rob:

Our next organizational meeting is scheduled for **Thursday, October 1st @9:00 a.m. EDT** at the NIST Robot Test Facility, building 207 (please see attached NIST directions).

The meeting will focus on further development of our draft workshop program with tentative agenda.

We will discuss potential presenters and panelists for the sessions. Please see the attached **revised draft workshop program and agenda** that we developed on Wednesday, September 9th.

For those planning to attend the subject meeting in person, **you need to send Kam Saidi, NIST your name, organization and citizenship** for him to pre-register for the security access by **September 28th**.

To participate in the meeting remotely, please call:



U.S. callers: 1-888-677-0358 with (b)(6)

International callers: 1-210-234-7539 with (b)(6)

To facilitate communications to those outside of our committee, I placed the workshop prospectus in our electronic retrievable library called ADAMS.

The link to the workshop prospectus is in the hypertext Workshop Prospectus .

Anders Gilbertson and I are preparing a two-page summary of the prospectus for posting on the NIST events web site.

Also attached is a directory of our organizing committee. Please review and edit where necessary.

Thanks ..... Tom

\*\*\*\*\*

Thomas J. Nicholson, Senior Technical Advisor

U.S. Nuclear Regulatory Commission

Office of Nuclear Regulatory Research

Mail Stop TWFN 10-A12

11555 Rockville Pike

Rockville, MD 20852

Tel: (301) 415-2471

Fax: (301) 415-6671

E-mail: [Thomas.Nicholson@nrc.gov](mailto:Thomas.Nicholson@nrc.gov)

\*\*\*\*\*

<< File: Directory.docx >> << File: Directions to NIST Robot Test Facility (v2013 1).pdf >> <<  
File: WorkshopAgenda.draft 2.docx >> << File: WorkshopProspectus.final.Aug 20-2015.docx >>

**From:** Tateiwa, Kenji  
**Sent:** 18 Jul 2015 14:26:05 +0900  
**To:** 'Jacoff, Adam S.'  
**Cc:** Nicholson, Thomas; yasutaka.denda@tepco.co.jp; ?? ??  
**Subject:** [External\_Sender] [Robotics Workshop] Telecon on Tue, July 28 at 9 am EDT

Adam,

Denda-san and I plan to join the next organizational meeting for the Robotics Workshop at NIST via teleconference.

Please join the call as follows:

[date/time]  
Tue, July 28 at 9 am EDT  
(same day at 10 pm JST)

[call-in information]  
call number: 718-354-1184 (NY)  
+81 3 6328 1974 (Tokyo)

(b)(6)

All the best,  
Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751

(b)(6)

[tateiwa.kenji@tepco.co.jp](mailto:tateiwa.kenji@tepco.co.jp)

**From:** Jacoff, Adam S. [mailto:adam.jacoff@nist.gov]  
**Sent:** Friday, July 17, 2015 8:05 AM  
**To:** [tateiwa.kenji@tepco.co.jp](mailto:tateiwa.kenji@tepco.co.jp)  
**Cc:** [yasutaka.denda@tepco.co.jp](mailto:yasutaka.denda@tepco.co.jp)  
**Subject:** RE: Request for NIST-TEPCO Teleconference on Robotics Workshop

Okay. Sure.

I might have been a bit screwed up in my day/date/time having just arrived in China.

I believe we're doing the meeting at NIST on the 28th. Maybe bring him into that for a bit?  
We'll all be together anyway.

-Adam

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

From: "Tateiwa, Kenji" <[tateiwa.kenji@tepco.co.jp](mailto:tateiwa.kenji@tepco.co.jp)>

Date: Fri, July 17, 2015 6:42 AM +0800

To: "Jacoff, Adam S." <[adam.jacoff@nist.gov](mailto:adam.jacoff@nist.gov)>

CC: '傳田 康貴' <[yasutaka.denda@tepco.co.jp](mailto:yasutaka.denda@tepco.co.jp)>

Subject: RE: Request for NIST-TEPCO Teleconference on Robotics Workshop

Adam,

Thank you for your reply and sorry for not being able to call you directly last night.

We wanted to talk to Tom Nicholson as well and decided to do a teleconference.  
I will try to coordinate a call with you and my colleague sometime after the week of July 27.

Hope all is well in China.

All the best,  
Kenji

**From:** Jacoff, Adam S. [<mailto:adam.jacoff@nist.gov>]

**Sent:** Thursday, July 16, 2015 11:39 AM

**To:** Tateiwa, Kenji

**Cc:** 傳田 康貴

**Subject:** RE: Request for NIST-TEPCO Teleconference on Robotics Workshop

Yes. Can you call my international phone at that time. I'm running game a RoboCupRescue Championship competition in Hefei, China. So my international phone number is

+1 202 841 2386

-Adam

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

From: "Tateiwa, Kenji" <[tateiwa.kenji@tepco.co.jp](mailto:tateiwa.kenji@tepco.co.jp)>

Date: Wed, July 15, 2015 6:02 AM +0800

To: "Jacoff, Adam S." <[adam.jacoff@nist.gov](mailto:adam.jacoff@nist.gov)>

CC: 傳田 康貴 <[yasutaka.denda@tepco.co.jp](mailto:yasutaka.denda@tepco.co.jp)>

Subject: RE: Request for NIST-TEPCO Teleconference on Robotics Workshop

Adam,

Do you have time to talk with me and my colleague in Tokyo about the workshop?  
Thu, July 16th sometime between 7 am and 10 am EDT would be best.  
Let me know what works for you.

All the best,

Kenji

**From:** Tateiwa, Kenji [<mailto:tateiwa.kenji@tepcoco.jp>]  
**Sent:** Thursday, July 9, 2015 11:52 AM  
**To:** Jacoff, Adam S.  
**Cc:** 傳田 康貴  
**Subject:** Request for NIST-TEPCO Teleconference on Robotics Workshop

Adam,  
Cc: Denda-san,

It was a pleasure talking with you over the phone yesterday during the organizing committee meeting for the International Workshop on Use of Robotics at Nuclear Facilities.

I spoke with my colleagues at TEPCO' HQ, Yasutaka Denda, who is in charge of R&D and robotics for Fukushima Daiichi about the workshop.  
He is interested but need more ammunition to convince TEPCO's senior management that we should be part of this workshop.

Would you be available for a call between you, Denda-san, and myself to discuss how TEPCO can benefit from participating in this workshop?

How about the morning of Thu, July 16<sup>th</sup> sometime between 7 am and 10 am EDT?

Looking forward to hearing from you.

All the best,  
Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751  
(b)(6)  
[tateiwa.kenji@tepcoco.jp](mailto:tateiwa.kenji@tepcoco.jp)

-----Original Appointment-----

From: Nicholson, Thomas  
Sent: Wednesday, July 08, 2015 11:41 AM  
To: Nicholson, Thomas; [judd@nuvisioneng.com](mailto:judd@nuvisioneng.com); 'Tateiwa, Kenji';  
[andrew.Szilagyi@em.doe.gov](mailto:andrew.Szilagyi@em.doe.gov); Jacoff, Adam S.; [jrenshaw@epri.com](mailto:jrenshaw@epri.com);  
'philip.mattson@hq.dhs.gov'; 'kamel.saidi@nist.gov'; Marksberry, Don; Bernardo, Robert;  
Csontos, Aladar; Parrott, Jack; 'koi@k.u-tokyo.ac.jp'; West, Steven; Rini, Brett;  
Sangimino, Donna-Marie; Abu-Eid, Boby; Price, Drew R. (ARC-VE)[WYLE LABS]  
([drew.price@nasa.gov](mailto:drew.price@nasa.gov)); 'jason.averill@nist.gov'; Rinker, Michael; 'Buckingham, Rob';  
Correia, Richard; Coyne, Kevin; 'Awad, Raoul'; 'Tavasoli, Vali'; 'V.Michal@iaea.org';

Ibrahim, Eman; Vucetic, Jasmina; El Dabaghi, Nadine; [YongChang.Liu@cnsc-ccsn.gc.ca](mailto:YongChang.Liu@cnsc-ccsn.gc.ca);  
[Zhaochang.Zeng@cnsc-ccsn.gc.ca](mailto:Zhaochang.Zeng@cnsc-ccsn.gc.ca)

Subject: Ad Hoc Committee to fully define Workshop Prospectus

When: Tuesday, July 28, 2015 9:00 AM-5:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: NIST Robot Test Facility

Adam Jacoff, Phil Mattson, Andy Szilagyi, Laurie Judd, Kenji Tateiwa, Kam Saidi, and Don Marksberry:

This morning, we agreed to have an Ad Hoc committee (you are its members) meet at NIST on Tuesday, July 28th to fully define the Workshop prospectus.

We will begin our meeting at 9:00 a.m. EDT and continue until the draft prospectus is accomplished.

Please send your personal information (e.g., name, organization, e-mail address, office telephone number including citizenship) to Adam Jacoff this week to arrange for access to NIST.

I will revise the prospectus based upon today's discussions, which will be reviewed and further revised at our July 28th meeting.

For the July 28th meeting, I have reserved a teleconference bridge:

U.S. and Canada call-in at 1-888-677-0358 with (b)(6)

International call-in at 1-210-234-7539 with (b)(6)

In consultation with Adam Jacoff and others, I will draft an agenda for the July 28th meeting and mail it to you by July 21st.

Thanks for your interest and commitment to meet on July 28th at NIST to finalize the prospectus.

Thanks ..... Tom

\*\*\*\*\*  
Thomas J. Nicholson, Senior Technical Advisor  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
Mail Stop TWFN 10-A12  
11555 Rockville Pike  
Rockville, MD 20852  
Tel: (301) 415-2471  
Fax: (301) 415-6671  
E-mail: [Thomas.Nicholson@nrc.gov](mailto:Thomas.Nicholson@nrc.gov)  
\*\*\*\*\*

**From:** Tateiwa, Kenji  
**Sent:** 16 Jul 2015 12:30:23 +0900  
**To:** 'Jacoff, Adam S.'; Nicholson, Thomas  
**Cc:** '?? ??'  
**Subject:** [External\_Sender] [Robotics Workshop Telecon between NRC/NIST/TEPCO] Thu, July 16 at 8 am DC time, 8 pm China time, 9 pm Japan time

Tom (in Rockville) and Adam (in China),  
Cc: Denda-san (in Tokyo),

Thank you for agreeing to talk with my colleague, Denda-san, who is in charge of R&D and robotics for 1F decommissioning.  
Please find below call in information.

[date/time] Thu, July 16, 2015 at 8 am DC time, 8 pm China time, 9 pm Japan time

[call-in information]  
call number: 718-354-1184 (NY)  
+852 3002 1676 (Hong Kong: sorry, no number of main land China available)  
+81 3 6328 1974 (Tokyo)

(b)(6)

The purpose of the call is to inform Denda-san of the purpose of this workshop and to provide him with ammunition to convince TEPCO's senior management that we should be part of this workshop.

I have shared the latest prospectus of the workshop, so I would appreciate if you could focus on NRC's and NIST's perspectives on why it is important for TEPCO to participate.

Talk to you later.

All the best,  
Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751

(b)(6)

tateiwa.kenji@tepcoco.jp

**From:** Tateiwa, Kenji  
**Sent:** 28 Aug 2015 23:21:53 +0900  
**To:** 'Tateiwa, Kenji'  
**Subject:** [External\_Sender] [TEPCO Fukushima Update Call] Mon, Aug. 31, 2015 at 9 am EDT/10 pm JST

Friends and Colleagues,

Greetings from Tokyo.

Please find below information for the next Fukushima Update Call.

**[Date/time]**

**Mon, August 31, 2015 at 9 am U.S. Eastern Daylight Time**

(Next call: **Mon, Oct. 5** at 9 am EDT.)

**[call-in information]** (Please record your name and organization when joining the call.)

call number (New York): 718-354-1184

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

**[Major topics]**

**1. Nuclear Reform Monitoring Committee (8/24/2015)**

(English)

[http://www.nrmc.jp/en/report/detail/1258279\\_5233.html](http://www.nrmc.jp/en/report/detail/1258279_5233.html)

**1-1. Current status of Fukushima Daiichi**

[http://www.nrmc.jp/en/report/detail/\\_icsFiles/afieldfile/2015/08/24/E2.pdf](http://www.nrmc.jp/en/report/detail/_icsFiles/afieldfile/2015/08/24/E2.pdf)

**1-2. Overview of Nuclear Safety Reform Plan Progress Report**

[http://www.nrmc.jp/en/report/detail/\\_icsFiles/afieldfile/2015/08/24/E6.pdf](http://www.nrmc.jp/en/report/detail/_icsFiles/afieldfile/2015/08/24/E6.pdf)

**2. On-Site Coordination Meeting on Decommissioning & Contaminated Water Issues**

**(8/25/2015)**

(Japanese)

**2-1. Seawater and Ground Water Sampling Results (10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_03-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_03-j.pdf)

**2-2. Unit 1 Reactor Building Cover Dismantling Work**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_04-j.pdf)

**2-3. Unit 3 SFP Large Rubble Removal Work**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_05-j.pdf)

(video clip)

<http://photo.tepco.co.jp/en/date/2015/201508-e/150804-01e.html>

**2-4. Action Plan for Offsite Impact Risks**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_06-j.pdf)

**2-5. Disclosure of All Radiation-related Data**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_09-j.pdf)

(related website)

<http://www.tepco.co.jp/decommission/planaction/monitoring2/index-j.html>



**2-6. Progress on Contaminated Water Issues (15 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_13-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_13-j.pdf)

**3. Working-level Meeting of Decommissioning & Contaminated Water Issues Team (8/27/2015)**

(Japanese)

**3-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_04-j.pdf)

**3-2. Summary Status of Decommissioning Roadmap (file size: 9 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_05-j.pdf)

(English translation as of 7/30/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150730\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150730_01-e.pdf)

**3-3. Contaminated Water Issues (file size: 23 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_06-j.pdf)

**3-4. Spent Fuel Pool Issues**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_07-j.pdf)

**3-5. Preparation for Fuel Debris Removal**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_08-j.pdf)

**3-6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_09-j.pdf)

**3-7. Circulating Water Core Cooling System**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_10-j.pdf)

**3-8. Environmental Radiation Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_11-j.pdf)

*\* If you cannot display Japanese characters, please install the following font packs:*

<http://www.adobe.com/support/downloads/detail.jsp?ftpID=4881>

*\*\* Let me know if any of your colleagues or friends would like to be added to this distribution list.*

All the best,

Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751

(b)(6)

[tateiwa.kenji@tepco.co.jp](mailto:tateiwa.kenji@tepco.co.jp)

**From:** Tateiwa, Kenji [mailto:tateiwa.kenji@tepcoco.jp]  
**Sent:** Friday, July 31, 2015 10:47 PM  
**To:** tateiwa.kenji@tepcoco.jp  
**Subject:** Please reply to sign up [TEPCO Fukushima Update Call] Mon, Aug. 3, 2015 at 9am EDT/10pm JST

Friends and Colleagues,

I hope this email finds you well.

A month has passed since I made the transition from TEPCO's Washington DC office to the Tokyo HQ as Safety Engineering Group Manager of Fukushima Daiichi D&D Engineering Company.

I intend to resume the "Fukushima Update Call" that I had been hosting on a weekly-basis since early 2012 to update interested professionals (from the industry, government sector, academia, etc.) on the latest situation at Fukushima Daiichi.

I will be sending out email notification to participants prior to the call with links to the most important topics that I will verbally cover during the call.  
I endeavor to host future calls on a monthly basis, with a target duration of about 30 minutes, including Q&A.  
(Attached, FYI, is an email that I sent out last month from DC.)

**Please reply to this email if you and/or your colleagues would like to be included in the distribution list for future calls.**

Feel free to join the call whenever you find topics of interest to you.  
I would also be happy to answer any questions separate from the call.

**[Date/time]**

**Mon, August 3, 2015 at 9 am U.S. Eastern Daylight Time**  
(Next call: Mon, Aug. 31 at 9 am EDT.)

**[call-in information]** (Please record your name and organization when joining the call.)  
call number (New York): 718-354-1184

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

**[Major topics]**

**1. Contaminated Water Treatment Committee (7/29/2015)**

(only in Japanese)

**1-1. Plant Status**

[http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/c150729\\_03-j.pdf](http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/c150729_03-j.pdf)

**1-2. Progress of Contaminated Water Treatment and Risk Map**

[http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/c150729\\_04-j.pdf](http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/c150729_04-j.pdf)

**1-3. Frozen Soil Wall Taskforce**

[http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/c150729\\_05-j.pdf](http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/c150729_05-j.pdf)

**1-4. High-Performance ALPS Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_06-j.pdf)

**1-5. Tritiated Water Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_07-j.pdf)

**2. Working-level Meeting of Decommissioning & Contaminated Water Issues Team (7/30/2015)**

(only in Japanese)

**2-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_04-j.pdf)

**2-2. Summary Status of Decommissioning Roadmap (file size: 11 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_05-j.pdf)

(English translation as of 6/25/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150625\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150625_01-e.pdf)

**2-3. Contaminated Water Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_06-j.pdf)

**2-4. Spent Fuel Pool Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_07-j.pdf)

**2-5. Preparation for Fuel Debris Removal**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_08-j.pdf)

**2-6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_09-j.pdf)

**2-7. Circulating Water Core Cooling System**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_10-j.pdf)

**2-8. Environmental Radiation Issues (file size: 15 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_11-j.pdf)

**2-9. Work Environment Improvement**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_12-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_12-j.pdf)

**2-10. Summary of 1<sup>st</sup> Decommissioning R&D Collaboration Council (file size: 28 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_15-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_15-j.pdf)

**3. Completion of Removal of Highly-Contaminated Water from Seawater Piping Trenches (7/30/2015)**

[http://www.tepco.co.jp/en/press/corp-com/release/2015/1256382\\_6844.html](http://www.tepco.co.jp/en/press/corp-com/release/2015/1256382_6844.html)

**4. 160-page Presentation on Fukushima Accident (6/15/2015@Harvard University)**

<https://drive.google.com/file/d/0B3xzjqQbkug9aU9tX0FJS2pPenM/view?usp=sharing>

All the best,  
Kenji



**From:** Tateiwa, Kenji  
**Sent:** 30 Oct 2015 20:07:09 +0900  
**To:** 'Tateiwa, Kenji'  
**Subject:** [External\_Sender] [TEPCO Fukushima Update Call] Mon, Nov. 2, 2015 at 8 am EST/1 pm GMT/10 pm JST

Friends and Colleagues,

Greetings from Tokyo.

Please find below information for the next Fukushima Update Call.

**[Date/time]**

**Mon, Nov. 2, 2015 at 8 am U.S. Eastern Standard Time**  
**1 pm Greenwich Mean Time**  
**10 pm Japan Standard Time**

(Next call: **Mon, Nov. 30** at 8 am EST/1 pm GMT/10 pm JST.)

**[call-in information]** (Please record your name and organization when joining the call.)  
call number

(New York): 718-354-1184

(London) 020-7365-4166

(Tokyo) 03-6328-1974

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

**[Major topics]** *I will be focusing primarily on safety-related topics, but feel free to contact me for any questions.*

**Working-level Meeting of Decommissioning & Contaminated Water Issues Team (10/29/2015)**  
(Japanese)

**1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_04-j.pdf)

**2. Summary Status of Decommissioning Roadmap**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_05-j.pdf)

(English translation as of 10/1/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d151001\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d151001_01-e.pdf)

**3. Contaminated Water Issues**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_06-j.pdf)

**4. Preparation for Fuel Removal from Spent Fuel Pools**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_07-j.pdf)

(pages 12/29-17/29) Investigation plan for Unit 1 reactor building refueling floor

**5. Preparation for Fuel Debris Removal**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_08-j.pdf)

(pages 4/45-16/45) Investigation results inside Unit 1 reactor building TIP room

(pages 17/45-22/45) Investigation results of contamination in front of Unit 2 reactor building X-6 penetration

(pages 23/45-37/45) Investigation results inside Unit 3 drywell

**6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_09-j.pdf)

**7. Circulating Water Core Cooling System**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_10-j.pdf)

**8. Environmental Radiation Issues**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_11-j.pdf)

**9. Inspection Results of Units-1/2 Main Exhaust Stack**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_15-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_15-j.pdf)

**10. Opening of the Naraha Remote Technology Development Center**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_13-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_13-j.pdf)

(English article by JAIF)

<http://www.jaif.or.jp/en/jaeas-naraha-remote-technology-development-center-opens-with-prime-minister-attending/>

**[Reference] TEPCO Decommissioning Website**

<http://www.tepco.co.jp/en/decommision/index-e.html>

*\* If you cannot display Japanese characters, please install the following font packs:*

<http://www.adobe.com/support/downloads/detail.jsp?ftplID=4881>

*\*\* Let me know if any of your colleagues or friends would like to be added to this distribution list.*

All the best,

Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751  
(b)(6)  
tateiwa.kenji@tepco.co.jp

**From:** Tateiwa, Kenji [mailto:tateiwa.kenji@tepco.co.jp]

**Sent:** Friday, October 2, 2015 10:09 PM

**To:** 'Tateiwa, Kenji'

**Subject:** [TEPCO Fukushima Update Call] Mon, Oct. 5, 2015 at 9 am EDT/2 pm BST/10 pm JST

Friends and Colleagues,

Greetings from Tokyo.

Please find below information for the next Fukushima Update Call.

[Date/time]

**Mon, Oct. 5, 2015 at 9 am U.S. Eastern Daylight Time**  
**2 pm British Summer Time**  
**10 pm Japan Standard Time**

(Next call: **Mon, Nov. 2** at 8 am EST/1 pm GMT/10 pm JST.)

**[call-in information]** (Please record your name and organization when joining the call.)

call number

(New York): 718-354-1184

(London) 020-7365-4166

(Tokyo) 03-6328-1974

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

**[Major topics]**

**1. On-Site Coordination Meeting on Decommissioning & Contaminated Water Issues**  
**(9/28/2015)**

(Japanese)

**1-1. Seawater and Ground Water Sampling Results (8 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928\\_03-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928_03-j.pdf)

**1-2. Unit 1 Reactor Building Cover Dismantling Work**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928_04-j.pdf)

**1-3. Solid Radioactive Waste Storage**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928_09-j.pdf)

**1-4. Progress on Contaminated Water Issues (14 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928\\_13-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928_13-j.pdf)

**2. Working-level Meeting of Decommissioning & Contaminated Water Issues Team**  
**(10/1/2015)**

(Japanese)

**2-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_04-j.pdf)

**2-2. Summary Status of Decommissioning Roadmap (file size: 8 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_05-j.pdf)

(English translation as of 8/27/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150827\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150827_01-e.pdf)

**2-3. Contaminated Water Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_06-j.pdf)

**2-4. Preparation for Fuel Removal from Spent Fuel Pools (15 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_07-j.pdf)

**2-5. Preparation for Fuel Debris Removal (5 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_08-j.pdf)

**2-6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_09-j.pdf)



## 2-7. Circulating Water Core Cooling System

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_10-j.pdf)

## 2-8. Environmental Radiation Issues (file size: 17 MB)

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_11-j.pdf)

## 3. "A Study of the Fukushima Daiichi Nuclear Accident Process"

English translation of a book written by Dr. Michio Ishikawa, a world-renowned nuclear safety expert.

Although TEPCO does not necessarily agree with all of his hypotheses in this book, we believe it provides valuable insights.

<http://www.springer.com/us/book/9784431555421>

## [Reference] TEPCO Decommissioning Website

<http://www.tepco.co.jp/en/decommission/index-e.html>

*\* If you cannot display Japanese characters, please install the following font packs:*

<http://www.adobe.com/support/downloads/detail.jsp?ftpID=4881>

*\*\* Let me know if any of your colleagues or friends would like to be added to this distribution list.*

All the best,

Kenji

**From:** Tateiwa, Kenji [<mailto:tateiwa.kenji@tepco.co.jp>]

**Sent:** Friday, August 28, 2015 11:22 PM

**To:** 'Tateiwa, Kenji'

**Subject:** [TEPCO Fukushima Update Call] Mon, Aug. 31, 2015 at 9 am EDT/10 pm JST

Friends and Colleagues,

Greetings from Tokyo.

Please find below information for the next Fukushima Update Call.

### [Date/time]

**Mon, August 31**, 2015 at **9 am U.S. Eastern Daylight Time**

(Next call: **Mon, Oct. 5** at 9 am EDT.)

**[call-in information]** (Please record your name and organization when joining the call.)

call number (New York): 718-354-1184

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

### [Major topics]

#### 1. Nuclear Reform Monitoring Committee (8/24/2015)

(English)

[http://www.nrmc.jp/en/report/detail/1258279\\_5233.html](http://www.nrmc.jp/en/report/detail/1258279_5233.html)

##### 1-1. Current status of Fukushima Daiichi

[http://www.nrmc.jp/en/report/detail/\\_icsFiles/afieldfile/2015/08/24/E2.pdf](http://www.nrmc.jp/en/report/detail/_icsFiles/afieldfile/2015/08/24/E2.pdf)

##### 1-2. Overview of Nuclear Safety Reform Plan Progress Report

[http://www.nrmc.jp/en/report/detail/\\_icsFiles/afieldfile/2015/08/24/E6.pdf](http://www.nrmc.jp/en/report/detail/_icsFiles/afieldfile/2015/08/24/E6.pdf)

**2. On-Site Coordination Meeting on Decommissioning & Contaminated Water Issues  
(8/25/2015)**

(Japanese)

**2-1. Seawater and Ground Water Sampling Results (10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_03-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_03-j.pdf)

**2-2. Unit 1 Reactor Building Cover Dismantling Work**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_04-j.pdf)

**2-3. Unit 3 SFP Large Rubble Removal Work**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_05-j.pdf)

(video clip)

<http://photo.tepco.co.jp/en/date/2015/201508-e/150804-01e.html>

**2-4. Action Plan for Offsite Impact Risks**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_06-j.pdf)

**2-5. Disclosure of All Radiation-related Data**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_09-j.pdf)

(related website)

<http://www.tepco.co.jp/decommision/planaction/monitoring2/index-j.html>

**2-6. Progress on Contaminated Water Issues (15 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_13-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_13-j.pdf)

**3. Working-level Meeting of Decommissioning & Contaminated Water Issues Team  
(8/27/2015)**

(Japanese)

**3-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_04-j.pdf)

**3-2. Summary Status of Decommissioning Roadmap (file size: 9 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_05-j.pdf)

(English translation as of 7/30/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150730\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150730_01-e.pdf)

**3-3. Contaminated Water Issues (file size: 23 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_06-j.pdf)

**3-4. Spent Fuel Pool Issues**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_07-j.pdf)

**3-5. Preparation for Fuel Debris Removal**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_08-j.pdf)

**3-6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_09-j.pdf)

**3-7. Circulating Water Core Cooling System**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_10-j.pdf)

**3-8. Environmental Radiation Issues (file size: 10 MB)**



[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_11-j.pdf)

All the best,  
Kenji

**From:** Tateiwa, Kenji [<mailto:tateiwa.kenji@tepco.co.jp>]

**Sent:** Friday, July 31, 2015 10:47 PM

**To:** [tateiwa.kenji@tepco.co.jp](mailto:tateiwa.kenji@tepco.co.jp)

**Subject:** Please reply to sign up [TEPCO Fukushima Update Call] Mon, Aug. 3, 2015 at 9am EDT/10pm JST

Friends and Colleagues,

I hope this email finds you well.

A month has passed since I made the transition from TEPCO's Washington DC office to the Tokyo HQ as Safety Engineering Group Manager of Fukushima Daiichi D&D Engineering Company.

I intend to resume the "Fukushima Update Call" that I had been hosting on a weekly-basis since early 2012 to update interested professionals (from the industry, government sector, academia, etc.) on the latest situation at Fukushima Daiichi.

I will be sending out email notification to participants prior to the call with links to the most important topics that I will verbally cover during the call.

I endeavor to host future calls on a monthly basis, with a target duration of about 30 minutes, including Q&A.

(Attached, FYI, is an email that I sent out last month from DC.)

**Please reply to this email if you and/or your colleagues would like to be included in the distribution list for future calls.**

Feel free to join the call whenever you find topics of interest to you.

I would also be happy to answer any questions separate from the call.

**[Date/time]**

**Mon, August 3, 2015 at 9 am U.S. Eastern Daylight Time**

(Next call: Mon, Aug. 31 at 9 am EDT.)

**[call-in information]** (Please record your name and organization when joining the call.)  
call number (New York): 718-354-1184

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

**[Major topics]**

**1. Contaminated Water Treatment Committee (7/29/2015)**

(only in Japanese)

**1-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_03-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_03-j.pdf)

**1-2. Progress of Contaminated Water Treatment and Risk Map**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_04-j.pdf)

**1-3. Frozen Soil Wall Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_05-j.pdf)

**1-4. High-Performance ALPS Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_06-j.pdf)

**1-5. Tritiated Water Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_07-j.pdf)

**2. Working-level Meeting of Decommissioning & Contaminated Water Issues Team (7/30/2015)**

(only in Japanese)

**2-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_04-j.pdf)

**2-2. Summary Status of Decommissioning Roadmap (file size: 11 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_05-j.pdf)

(English translation as of 6/25/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150625\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150625_01-e.pdf)

**2-3. Contaminated Water Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_06-j.pdf)

**2-4. Spent Fuel Pool Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_07-j.pdf)

**2-5. Preparation for Fuel Debris Removal**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_08-j.pdf)

**2-6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_09-j.pdf)

**2-7. Circulating Water Core Cooling System**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_10-j.pdf)

**2-8. Environmental Radiation Issues (file size: 15 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_11-j.pdf)

**2-9. Work Environment Improvement**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_12-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_12-j.pdf)

**2-10. Summary of 1<sup>st</sup> Decommissioning R&D Collaboration Council (file size: 28 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_15-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_15-j.pdf)

**3. Completion of Removal of Highly-Contaminated Water from Seawater Piping Trenches (7/30/2015)**

[http://www.tepco.co.jp/en/press/corp-com/release/2015/1256382\\_6844.html](http://www.tepco.co.jp/en/press/corp-com/release/2015/1256382_6844.html)

**4. 160-page Presentation on Fukushima Accident (6/15/2015@Harvard University)**

<https://drive.google.com/file/d/0B3xzjqQbkug9aU9tX0FJS2pPenM/view?usp=sharing>

All the best,  
Kenji

**From:** Tateiwa, Kenji  
**Sent:** 27 Nov 2015 23:44:08 +0900  
**To:** 'Tateiwa, Kenji'  
**Subject:** [External\_Sender] [TEPCO Fukushima Update Call] Mon, Nov. 30, 2015 at 8 am EST/1 pm GMT/10 pm JST

Friends and Colleagues,

Greetings from Tokyo.

Please find below information for the next Fukushima Update Call.

**[Date/time]**

**Mon, Nov. 30,** 2015 at **8 am U.S. Eastern Standard Time**  
**1 pm Greenwich Mean Time**  
**10 pm Japan Standard Time**

(Next call: **Mon, Jan. 4, 2016** at 8 am EST/1 pm GMT/10 pm JST.)

**[call-in information]** (Please record your name and organization when joining the call.)  
call number

(New York): 718-354-1184

(London) 020-7365-4166

(Tokyo) 03-6328-1974

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

**[Major topics]** *I will be focusing primarily on safety-related topics, but feel free to contact me for any questions.*

**1. Working-level Meeting of Decommissioning & Contaminated Water Issues Team**

(11/26/2015)

(Japanese)

**1-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126_04-j.pdf)

**1-2. Summary Status of Decommissioning Roadmap**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126_05-j.pdf)

(English translation as of 10/29/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d151029\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d151029_01-e.pdf)

**1-3. Contaminated Water Issues**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126_06-j.pdf)

**1-4. Preparation for Fuel Removal from Spent Fuel Pools**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126_07-j.pdf)

(pages 10-27/57) Unit 2 reactor building upper part dismantling plan

(pages 28-43/57) Unit 3 refueling floor gamma spectroscopy results

**1-5. Preparation for Fuel Debris Removal**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126_08-j.pdf)

(pages 3-10/19) Unit 3 PCV equipment hatch investigation plan by a compact robot

(pages 11-19/19) Unit 2 PCV internal investigation preparation status (decontamination near X-6 penetration)



**1-6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126_09-j.pdf)

**1-7. Circulating Water Core Cooling System**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126_10-j.pdf)  
(pages 3-6/6) Unit 3 PCV permanent instrumentation installation plan

**1-8. Environmental Radiation Issues**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151126_11-j.pdf)

**2. Unit 3 PCV equipment hatch investigation results by a compact robot (11/27/2015)**  
(Japanese)

[http://www.tepco.co.jp/nu/fukushima-np/handouts/2015/images/handouts\\_151127\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/handouts/2015/images/handouts_151127_08-j.pdf)

[Video clip]

[http://www.tepco.co.jp/tepconews/library/archive-j.html?video\\_uuid=mzmm5d4k&catid=61699](http://www.tepco.co.jp/tepconews/library/archive-j.html?video_uuid=mzmm5d4k&catid=61699)

**[Reference] TEPCO Decommissioning Website**

<http://www.tepco.co.jp/en/decommision/index-e.html>

*\* If you cannot display Japanese characters, please install the following font packs:*

<http://www.adobe.com/support/downloads/detail.jsp?ftplID=4881>

*\*\* Let me know if any of your colleagues or friends would like to be added to this distribution list.*

All the best,  
Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751  
(b)(6)  
[tateiwa.kenji@tepco.co.jp](mailto:tateiwa.kenji@tepco.co.jp)

**From:** Tateiwa, Kenji [mailto:tateiwa.kenji@tepco.co.jp]

**Sent:** Friday, October 30, 2015 8:07 PM

**To:** 'Tateiwa, Kenji'

**Subject:** [TEPCO Fukushima Update Call] Mon, Nov. 2, 2015 at 8 am EST/1 pm GMT/10 pm JST

Friends and Colleagues,

Greetings from Tokyo.

Please find below information for the next Fukushima Update Call.

**[Date/time]**

**Mon, Nov. 2, 2015 at 8 am U.S. Eastern Standard Time**  
**1 pm Greenwich Mean Time**

**10 pm Japan Standard Time**

(Next call: **Mon, Nov. 30** at 8 am EST/1 pm GMT/10 pm JST.)

**[call-in information]** (Please record your name and organization when joining the call.)

call number

(New York): 718-354-1184

(London) 020-7365-4166

(Tokyo) 03-6328-1974

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

**[Major topics]** *I will be focusing primarily on safety-related topics, but feel free to contact me for any questions.*

**Working-level Meeting of Decommissioning & Contaminated Water Issues Team  
(10/29/2015)**

(Japanese)

**1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_04-j.pdf)

**2. Summary Status of Decommissioning Roadmap**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_05-j.pdf)

(English translation as of 10/1/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d151001\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d151001_01-e.pdf)

**3. Contaminated Water Issues**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_06-j.pdf)

**4. Preparation for Fuel Removal from Spent Fuel Pools**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_07-j.pdf)

(pages 12/29-17/29) Investigation plan for Unit 1 reactor building refueling floor

**5. Preparation for Fuel Debris Removal**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_08-j.pdf)

(pages 4/45-16/45) Investigation results inside Unit 1 reactor building TIP room

(pages 17/45-22/45) Investigation results of contamination in front of Unit 2 reactor building X-6 penetration

(pages 23/45-37/45) Investigation results inside Unit 3 drywell

**6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_09-j.pdf)

**7. Circulating Water Core Cooling System**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_10-j.pdf)

**8. Environmental Radiation Issues**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_11-j.pdf)

**9. Inspection Results of Units-1/2 Main Exhaust Stack**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_15-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_15-j.pdf)

**10. Opening of the Naraha Remote Technology Development Center**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029\\_13-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151029_13-j.pdf)

(English article by JAIF)

<http://www.jaif.or.jp/en/jaeas-naraha-remote-technology-development-center-opens-with-prime-minister-attending/>

**[Reference] TEPCO Decommissioning Website**

<http://www.tepco.co.jp/en/decommision/index-e.html>

All the best,  
Kenji

**From:** Tateiwa, Kenji [<mailto:tateiwa.kenji@tepco.co.jp>]

**Sent:** Friday, October 2, 2015 10:09 PM

**To:** 'Tateiwa, Kenji'

**Subject:** [TEPCO Fukushima Update Call] Mon, Oct. 5, 2015 at 9 am EDT/2 pm BST/10 pm JST

Friends and Colleagues,

Greetings from Tokyo.

Please find below information for the next Fukushima Update Call.

**[Date/time]**

**Mon, Oct. 5, 2015 at 9 am U.S. Eastern Daylight Time**  
**2 pm British Summer Time**  
**10 pm Japan Standard Time**

(Next call: **Mon, Nov. 2** at 8 am EST/1 pm GMT/10 pm JST.)

**[call-in information]** (Please record your name and organization when joining the call.)

call number

(New York): 718-354-1184

(London) 020-7365-4166

(Tokyo) 03-6328-1974

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

**[Major topics]**

**1. On-Site Coordination Meeting on Decommissioning & Contaminated Water Issues (9/28/2015)**

(Japanese)

**1-1. Seawater and Ground Water Sampling Results (8 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928\\_03-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928_03-j.pdf)

**1-2. Unit 1 Reactor Building Cover Dismantling Work**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928_04-j.pdf)

**1-3. Solid Radioactive Waste Storage**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928_09-j.pdf)

**1-4. Progress on Contaminated Water Issues (14 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928\\_13-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928_13-j.pdf)



**2. Working-level Meeting of Decommissioning & Contaminated Water Issues Team  
(10/1/2015)**

(Japanese)

**2-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_04-j.pdf)

**2-2. Summary Status of Decommissioning Roadmap (file size: 8 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_05-j.pdf)

(English translation as of 8/27/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150827\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150827_01-e.pdf)

**2-3. Contaminated Water Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_06-j.pdf)

**2-4. Preparation for Fuel Removal from Spent Fuel Pools (15 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_07-j.pdf)

**2-5. Preparation for Fuel Debris Removal (5 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_08-j.pdf)

**2-6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_09-j.pdf)

**2-7. Circulating Water Core Cooling System**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_10-j.pdf)

**2-8. Environmental Radiation Issues (file size: 17 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_11-j.pdf)

**3. "A Study of the Fukushima Daiichi Nuclear Accident Process"**

English translation of a book written by Dr. Michio Ishikawa, a world-renowned nuclear safety expert.

Although TEPCO does not necessarily agree with all of his hypotheses in this book, we believe it provides valuable insights.

<http://www.springer.com/us/book/9784431555421>

**[Reference] TEPCO Decommissioning Website**

<http://www.tepco.co.jp/en/decommision/index-e.html>

*\* If you cannot display Japanese characters, please install the following font packs:*

<http://www.adobe.com/support/downloads/detail.jsp?ftpID=4881>

*\*\* Let me know if any of your colleagues or friends would like to be added to this distribution list.*

All the best,

Kenji

**From:** Tateiwa, Kenji [<mailto:tateiwa.kenji@tepco.co.jp>]

**Sent:** Friday, August 28, 2015 11:22 PM

**To:** 'Tateiwa, Kenji'

**Subject:** [TEPCO Fukushima Update Call] Mon, Aug. 31, 2015 at 9 am EDT/10 pm JST

Friends and Colleagues,



Greetings from Tokyo.

Please find below information for the next Fukushima Update Call.

**[Date/time]**

**Mon, August 31, 2015 at 9 am U.S. Eastern Daylight Time**

(Next call: **Mon, Oct. 5** at 9 am EDT.)

**[call-in information]** (Please record your name and organization when joining the call.)

call number (New York): 718-354-1184

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

**[Major topics]**

**1. Nuclear Reform Monitoring Committee (8/24/2015)**

(English)

[http://www.nrmc.jp/en/report/detail/1258279\\_5233.html](http://www.nrmc.jp/en/report/detail/1258279_5233.html)

**1-1. Current status of Fukushima Daiichi**

[http://www.nrmc.jp/en/report/detail/\\_icsFiles/afiedfile/2015/08/24/E2.pdf](http://www.nrmc.jp/en/report/detail/_icsFiles/afiedfile/2015/08/24/E2.pdf)

**1-2. Overview of Nuclear Safety Reform Plan Progress Report**

[http://www.nrmc.jp/en/report/detail/\\_icsFiles/afiedfile/2015/08/24/E6.pdf](http://www.nrmc.jp/en/report/detail/_icsFiles/afiedfile/2015/08/24/E6.pdf)

**2. On-Site Coordination Meeting on Decommissioning & Contaminated Water Issues (8/25/2015)**

(Japanese)

**2-1. Seawater and Ground Water Sampling Results (10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_03-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_03-j.pdf)

**2-2. Unit 1 Reactor Building Cover Dismantling Work**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_04-j.pdf)

**2-3. Unit 3 SFP Large Rubble Removal Work**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_05-j.pdf)

(video clip)

<http://photo.tepco.co.jp/en/date/2015/201508-e/150804-01e.html>

**2-4. Action Plan for Offsite Impact Risks**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_06-j.pdf)

**2-5. Disclosure of All Radiation-related Data**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_09-j.pdf)

(related website)

<http://www.tepco.co.jp/decommision/planaction/monitoring2/index-j.html>

**2-6. Progress on Contaminated Water Issues (15 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_13-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_13-j.pdf)

**3. Working-level Meeting of Decommissioning & Contaminated Water Issues Team (8/27/2015)**

(Japanese)

**3-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_04-j.pdf)

**3-2. Summary Status of Decommissioning Roadmap (file size: 9 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_05-j.pdf)

(English translation as of 7/30/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150730\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150730_01-e.pdf)

**3-3. Contaminated Water Issues (file size: 23 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_06-j.pdf)

**3-4. Spent Fuel Pool Issues**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_07-j.pdf)

**3-5. Preparation for Fuel Debris Removal**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_08-j.pdf)

**3-6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_09-j.pdf)

**3-7. Circulating Water Core Cooling System**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_10-j.pdf)

**3-8. Environmental Radiation Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_11-j.pdf)

All the best,  
Kenji

**From:** Tateiwa, Kenji [<mailto:tateiwa.kenji@tepco.co.jp>]

**Sent:** Friday, July 31, 2015 10:47 PM

**To:** [tateiwa.kenji@tepco.co.jp](mailto:tateiwa.kenji@tepco.co.jp)

**Subject:** Please reply to sign up [TEPCO Fukushima Update Call] Mon, Aug. 3, 2015 at 9am EDT/10pm JST

Friends and Colleagues,

I hope this email finds you well.

A month has passed since I made the transition from TEPCO's Washington DC office to the Tokyo HQ as Safety Engineering Group Manager of Fukushima Daiichi D&D Engineering Company.

I intend to resume the "Fukushima Update Call" that I had been hosting on a weekly-basis since early 2012 to update interested professionals (from the industry, government sector, academia, etc.) on the latest situation at Fukushima Daiichi.

I will be sending out email notification to participants prior to the call with links to the most important topics that I will verbally cover during the call.

I endeavor to host future calls on a monthly basis, with a target duration of about 30 minutes, including Q&A.

(Attached, FYI, is an email that I sent out last month from DC.)

**Please reply to this email if you and/or your colleagues would like to be included in the distribution list for future calls.**

Feel free to join the call whenever you find topics of interest to you.  
I would also be happy to answer any questions separate from the call.

**[Date/time]**

**Mon, August 3, 2015 at 9 am U.S. Eastern Daylight Time**

(Next call: Mon, Aug. 31 at 9 am EDT.)

**[call-in information]** (Please record your name and organization when joining the call.)  
call number (New York): 718-354-1184

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

**[Major topics]**

**1. Contaminated Water Treatment Committee (7/29/2015)**

(only in Japanese)

**1-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_03-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_03-j.pdf)

**1-2. Progress of Contaminated Water Treatment and Risk Map**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_04-j.pdf)

**1-3. Frozen Soil Wall Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_05-j.pdf)

**1-4. High-Performance ALPS Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_06-j.pdf)

**1-5. Tritiated Water Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_07-j.pdf)

**2. Working-level Meeting of Decommissioning & Contaminated Water Issues Team (7/30/2015)**

(only in Japanese)

**2-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_04-j.pdf)

**2-2. Summary Status of Decommissioning Roadmap (file size: 11 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_05-j.pdf)

(English translation as of 6/25/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150625\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150625_01-e.pdf)

**2-3. Contaminated Water Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_06-j.pdf)

**2-4. Spent Fuel Pool Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_07-j.pdf)

**2-5. Preparation for Fuel Debris Removal**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_08-j.pdf)



**2-6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_09-j.pdf)

**2-7. Circulating Water Core Cooling System**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_10-j.pdf)

**2-8. Environmental Radiation Issues (file size: 15 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_11-j.pdf)

**2-9. Work Environment Improvement**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_12-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_12-j.pdf)

**2-10. Summary of 1<sup>st</sup> Decommissioning R&D Collaboration Council (file size: 28 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_15-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_15-j.pdf)

**3. Completion of Removal of Highly-Contaminated Water from Seawater Piping Trenches (7/30/2015)**

[http://www.tepco.co.jp/en/press/corp-com/release/2015/1256382\\_6844.html](http://www.tepco.co.jp/en/press/corp-com/release/2015/1256382_6844.html)

**4. 160-page Presentation on Fukushima Accident (6/15/2015@Harvard University)**

<https://drive.google.com/file/d/0B3xzjqQbkug9aU9tX0FJS2pPenM/view?usp=sharing>

All the best,  
Kenji

**From:** Tateiwa, Kenji  
**Sent:** 2 Oct 2015 22:08:33 +0900  
**To:** 'Tateiwa, Kenji'  
**Subject:** [External\_Sender] [TEPCO Fukushima Update Call] Mon, Oct. 5, 2015 at 9 am EDT/2 pm BST/10 pm JST

Friends and Colleagues,

Greetings from Tokyo.  
Please find below information for the next Fukushima Update Call.

**[Date/time]**

**Mon, Oct. 5, 2015 at 9 am U.S. Eastern Daylight Time**  
**2 pm British Summer Time**  
**10 pm Japan Standard Time**

(Next call: **Mon, Nov. 2** at 8 am EST/1 pm GMT/10 pm JST.)

**[call-in information]** (Please record your name and organization when joining the call.)  
call number

(New York): 718-354-1184

(London) 020-7365-4166

(Tokyo) 03-6328-1974

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

**[Major topics]**

**1. On-Site Coordination Meeting on Decommissioning & Contaminated Water Issues**  
**(9/28/2015)**

(Japanese)

**1-1. Seawater and Ground Water Sampling Results (8 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928\\_03-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928_03-j.pdf)

**1-2. Unit 1 Reactor Building Cover Dismantling Work**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928_04-j.pdf)

**1-3. Solid Radioactive Waste Storage**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928_09-j.pdf)

**1-4. Progress on Contaminated Water Issues (14 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928\\_13-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150928_13-j.pdf)

**2. Working-level Meeting of Decommissioning & Contaminated Water Issues Team**  
**(10/1/2015)**

(Japanese)

**2-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_04-j.pdf)

**2-2. Summary Status of Decommissioning Roadmap (file size: 8 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_05-j.pdf)

(English translation as of 8/27/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150827\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150827_01-e.pdf)

**2-3. Contaminated Water Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_06-j.pdf)

**2-4. Preparation for Fuel Removal from Spent Fuel Pools (15 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_07-j.pdf)

**2-5. Preparation for Fuel Debris Removal (5 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_08-j.pdf)

**2-6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_09-j.pdf)

**2-7. Circulating Water Core Cooling System**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_10-j.pdf)

**2-8. Environmental Radiation Issues (file size: 17 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d151001_11-j.pdf)

**3. "A Study of the Fukushima Daiichi Nuclear Accident Process"**

English translation of a book written by Dr. Michio Ishikawa, a world-renowned nuclear safety expert.

Although TEPCO does not necessarily agree with all of his hypotheses in this book, we believe it provides valuable insights.

<http://www.springer.com/us/book/9784431555421>

**[Reference] TEPCO Decommissioning Website**

<http://www.tepco.co.jp/en/decommission/index-e.html>

*\* If you cannot display Japanese characters, please install the following font packs:*

<http://www.adobe.com/support/downloads/detail.jsp?ftplID=4881>

*\*\* Let me know if any of your colleagues or friends would like to be added to this distribution list.*

All the best,

Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751  
(b)(6)  
[tateiwa.kenji@tepco.co.jp](mailto:tateiwa.kenji@tepco.co.jp)

**From:** Tateiwa, Kenji [mailto:tateiwa.kenji@tepco.co.jp]

**Sent:** Friday, August 28, 2015 11:22 PM

**To:** 'Tateiwa, Kenji'

**Subject:** [TEPCO Fukushima Update Call] Mon, Aug. 31, 2015 at 9 am EDT/10 pm JST

Friends and Colleagues,



Greetings from Tokyo.

Please find below information for the next Fukushima Update Call.

**[Date/time]**

**Mon, August 31, 2015 at 9 am U.S. Eastern Daylight Time**

(Next call: **Mon, Oct. 5** at 9 am EDT.)

**[call-in information]** (Please record your name and organization when joining the call.)  
call number (New York): 718-354-1184

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

**[Major topics]**

**1. Nuclear Reform Monitoring Committee (8/24/2015)**

(English)

[http://www.nrmc.jp/en/report/detail/1258279\\_5233.html](http://www.nrmc.jp/en/report/detail/1258279_5233.html)

**1-1. Current status of Fukushima Daiichi**

[http://www.nrmc.jp/en/report/detail/\\_icsFiles/afildfile/2015/08/24/E2.pdf](http://www.nrmc.jp/en/report/detail/_icsFiles/afildfile/2015/08/24/E2.pdf)

**1-2. Overview of Nuclear Safety Reform Plan Progress Report**

[http://www.nrmc.jp/en/report/detail/\\_icsFiles/afildfile/2015/08/24/E6.pdf](http://www.nrmc.jp/en/report/detail/_icsFiles/afildfile/2015/08/24/E6.pdf)

**2. On-Site Coordination Meeting on Decommissioning & Contaminated Water Issues (8/25/2015)**

(Japanese)

**2-1. Seawater and Ground Water Sampling Results (10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_03-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_03-j.pdf)

**2-2. Unit 1 Reactor Building Cover Dismantling Work**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_04-j.pdf)

**2-3. Unit 3 SFP Large Rubble Removal Work**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_05-j.pdf)

(video clip)

<http://photo.tepco.co.jp/en/date/2015/201508-e/150804-01e.html>

**2-4. Action Plan for Offsite Impact Risks**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_06-j.pdf)

**2-5. Disclosure of All Radiation-related Data**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_09-j.pdf)

(related website)

<http://www.tepco.co.jp/decommission/planaction/monitoring2/index-j.html>

**2-6. Progress on Contaminated Water Issues (15 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825\\_13-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/l150825_13-j.pdf)

**3. Working-level Meeting of Decommissioning & Contaminated Water Issues Team (8/27/2015)**

(Japanese)

**3-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_04-j.pdf)

**3-2. Summary Status of Decommissioning Roadmap (file size: 9 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_05-j.pdf)

(English translation as of 7/30/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150730\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150730_01-e.pdf)

**3-3. Contaminated Water Issues (file size: 23 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_06-j.pdf)

**3-4. Spent Fuel Pool Issues**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_07-j.pdf)

**3-5. Preparation for Fuel Debris Removal**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_08-j.pdf)

**3-6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_09-j.pdf)

**3-7. Circulating Water Core Cooling System**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_10-j.pdf)

**3-8. Environmental Radiation Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150827_11-j.pdf)

All the best,  
Kenji

**From:** Tateiwa, Kenji [<mailto:tateiwa.kenji@tepco.co.jp>]

**Sent:** Friday, July 31, 2015 10:47 PM

**To:** [tateiwa.kenji@tepco.co.jp](mailto:tateiwa.kenji@tepco.co.jp)

**Subject:** Please reply to sign up [TEPCO Fukushima Update Call] Mon, Aug. 3, 2015 at 9am EDT/10pm JST

Friends and Colleagues,

I hope this email finds you well.

A month has passed since I made the transition from TEPCO's Washington DC office to the Tokyo HQ as Safety Engineering Group Manager of Fukushima Daiichi D&D Engineering Company.

I intend to resume the "Fukushima Update Call" that I had been hosting on a weekly-basis since early 2012 to update interested professionals (from the industry, government sector, academia, etc.) on the latest situation at Fukushima Daiichi.

I will be sending out email notification to participants prior to the call with links to the most important topics that I will verbally cover during the call.

I endeavor to host future calls on a monthly basis, with a target duration of about 30 minutes, including Q&A.

(Attached, FYI, is an email that I sent out last month from DC.)



Please reply to this email if you and/or your colleagues would like to be included in the distribution list for future calls.

Feel free to join the call whenever you find topics of interest to you.  
I would also be happy to answer any questions separate from the call.

**[Date/time]**

**Mon, August 3, 2015 at 9 am U.S. Eastern Daylight Time**

(Next call: Mon, Aug. 31 at 9 am EDT.)

**[call-in information]** (Please record your name and organization when joining the call.)

call number (New York): 718-354-1184

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

**[Major topics]**

**1. Contaminated Water Treatment Committee (7/29/2015)**

(only in Japanese)

**1-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_03-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_03-j.pdf)

**1-2. Progress of Contaminated Water Treatment and Risk Map**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_04-j.pdf)

**1-3. Frozen Soil Wall Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_05-j.pdf)

**1-4. High-Performance ALPS Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_06-j.pdf)

**1-5. Tritiated Water Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_07-j.pdf)

**2. Working-level Meeting of Decommissioning & Contaminated Water Issues Team (7/30/2015)**

(only in Japanese)

**2-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_04-j.pdf)

**2-2. Summary Status of Decommissioning Roadmap (file size: 11 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_05-j.pdf)

(English translation as of 6/25/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150625\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150625_01-e.pdf)

**2-3. Contaminated Water Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_06-j.pdf)

**2-4. Spent Fuel Pool Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_07-j.pdf)

**2-5. Preparation for Fuel Debris Removal**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_08-j.pdf)

**2-6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_09-j.pdf)

**2-7. Circulating Water Core Cooling System**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_10-j.pdf)

**2-8. Environmental Radiation Issues (file size: 15 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_11-j.pdf)

**2-9. Work Environment Improvement**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_12-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_12-j.pdf)

**2-10. Summary of 1<sup>st</sup> Decommissioning R&D Collaboration Council (file size: 28 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_15-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_15-j.pdf)

**3. Completion of Removal of Highly-Contaminated Water from Seawater Piping Trenches (7/30/2015)**

[http://www.tepco.co.jp/en/press/corp-com/release/2015/1256382\\_6844.html](http://www.tepco.co.jp/en/press/corp-com/release/2015/1256382_6844.html)

**4. 160-page Presentation on Fukushima Accident (6/15/2015@Harvard University)**

<https://drive.google.com/file/d/0B3xzjqQbkug9aU9tX0FJS2pPenM/view?usp=sharing>

All the best,  
Kenji

**From:** Tateiwa, Kenji  
**Sent:** 3 Sep 2015 16:15:30 +0900  
**To:** Nicholson, Thomas;Gilbertson, Anders;Burton, Thomas;Marksberry, Don;Bernardo, Robert;andrew.Szilagyi@em.doe.gov;kamel.saidi@nist.gov;'Jacoff, Adam S.';judd@nuvisioneng.com;'Buckingham, Rob';Parrott, Jack;Abu-Eid, Bobby;'? ?'  
**Subject:** [External\_Sender] ANS D&RS and IEEE ICRA

Tom and all,

I was invited to speak at the last ANS Decommissioning and Remote Systems (D&RS) Conference held in June 2014 and gave a presentation on the use of robotics at Fukushima Daiichi.

I also gave a presentation at the IEEE International Conference on Robotics and Automation (ICRA) "Symposium on Robotic Solutions Toward Nuclear Decommission" back in May 2012.  
<http://www.icra2012.org/program/events.php>

You may want to reach out to both professional organizations.  
(Jim Byrne and Sue Aggarwal are key personnel for the ANS D&RS and I know both of them.)

All the best,  
Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751  
(b)(6)  
tateiwa.kenji@tepcoco.jp

Outside of Scope

Page 1258 of 2257

Withheld pursuant to exemption

Outside of Scope

of the Freedom of Information and Privacy Act

**From:** Tateiwa, Kenji  
**Sent:** 17 Sep 2015 07:09:44 +0900  
**To:** Nicholson, Thomas;'ITO SHINTARO';hirohisa-kuwabara@irid.or.jp  
**Cc:** Stahl, Eric;Sangimino, Donna-Marie;Gilbertson, Anders;andrew.Szilagyi@em.doe.gov;kamel.saidi@nist.gov;kamel.saidi@nist.gov;'Jacoff, Adam S.';??  
**Subject:** [External\_Sender] IRID Contact: About Session 2 of International Workshop on the Use of Robotics and their Application at Nuclear Facilities

Tom and Ito-san,  
Cc: Kuwabara-san (IRID),

Kuwabara-san is General Manager of Development Planning at IRID.

He is currently seconded to IRID from TEPCO and had been working at Fukushima Daiichi prior to his current position, so naturally, he is extremely well-versed with the situation at the site.

I will inquire with Kuwabara-san if he or anyone else from IRID will be interested in making a presentation and chairing the session.

Please allow to write in Japanese below:

IRID 桑原様

お世話になっております。  
突然の英文メールで失礼いたします。

来年2月にワシントンDC郊外のNIST(米国立標準技術研究所)施設で開催予定の国際ロボットワークショップで、1Fにおけるロボット活用・開発状況等についてのセッションが企画されています。

弊社からは、2件の発表を行う予定ですが、IRID殿からも発表とできればセッション・チェアをお願いできないか、という要望が米国側主催者(NIST, NRC, DOE他)から上がっています。

詳細については、別途ご連絡いたします。  
まずは頭出しまで。

-----  
東京電力(株)  
福島第一廃炉推進カンパニー  
プロジェクト計画部  
安全技術グループマネージャー  
立岩 健二  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751

(b)(6)

[tateiwa.kenji@tepc.co.jp](mailto:tateiwa.kenji@tepc.co.jp)

Outside of Scope



Page 1261 of 2257

Withheld pursuant to exemption

Outside of Scope

of the Freedom of Information and Privacy Act

Page 1262 of 2257

Withheld pursuant to exemption

Outside of Scope

of the Freedom of Information and Privacy Act



Page 1263 of 2257

Withheld pursuant to exemption

Outside of Scope

of the Freedom of Information and Privacy Act

Outside of Scope

---

**From:** Nicholson, Thomas [<mailto:Thomas.Nicholson@nrc.gov>]

**Sent:** Wednesday, August 26, 2015 10:29 AM

**To:** 原 貴; Tateiwa, Kenji

**Cc:** ITO SHINTARO; Stahl, Eric; Sangimino, Donna-Marie; [andrew.Szilagyi@em.doe.gov](mailto:andrew.Szilagyi@em.doe.gov)

**Subject:** FW: About Session 2 of International Workshop on the Use of Robotics and their Application at Nuclear Facilities

Takashi:

Thanks for the note. In response to your question, Mr. Ito simply wanted details on our expectations for Japanese involvement in Session 2.

I mentioned that you and Kenji were on our workshop organizing committee, so TEPCO was already informed and cooperating on the workshop.

I informed him that we would like to coordinate with him invitations to the Japanese Nuclear Regulatory Authority (NRA); the Japanese Atomic Energy Agency (JAEA); and the Japanese International Research Institute for Nuclear Decommissioning (IRID). We would like technical specialists from those organizations along with TEPCO to participate in the workshop, specifically Session 2. I also expressed an interest in having him help us identify co-chairs for Session 2 if possible.

Thanks ..... Tom

Outside of Scope

**From:** Tateiwa, Kenji  
**Sent:** 31 Jul 2015 22:47:05 +0900  
**To:** tateiwa.kenji@tepc.co.jp  
**Subject:** [External\_Sender] Please reply to sign up [TEPCO Fukushima Update Call]  
Mon, Aug. 3, 2015 at 9am EDT/10pm JST  
**Attachments:** Fukushima Update Call.pdf

Friends and Colleagues,

I hope this email finds you well.

A month has passed since I made the transition from TEPCO's Washington DC office to the Tokyo HQ as Safety Engineering Group Manager of Fukushima Daiichi D&D Engineering Company.

I intend to resume the "Fukushima Update Call" that I had been hosting on a weekly-basis since early 2012 to update interested professionals (from the industry, government sector, academia, etc.) on the latest situation at Fukushima Daiichi.

I will be sending out email notification to participants prior to the call with links to the most important topics that I will verbally cover during the call.

I endeavor to host future calls on a monthly basis, with a target duration of about 30 minutes, including Q&A.

(Attached, FYI, is an email that I sent out last month from DC.)

**Please reply to this email if you and/or your colleagues would like to be included in the distribution list for future calls.**

Feel free to join the call whenever you find topics of interest to you.

I would also be happy to answer any questions separate from the call.

**[Date/time]**

**Mon, August 3, 2015 at 9 am U.S. Eastern Daylight Time**

(Next call: Mon, Aug. 31 at 9 am EDT.)

**[call-in information]** (Please record your name and organization when joining the call.)  
call number (New York): 718-354-1184

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

**[Major topics]**

**1. Contaminated Water Treatment Committee (7/29/2015)**

(only in Japanese)

**1-1. Plant Status**

[http://www.tepc.co.jp/nu/fukushima-np/roadmap/images/c150729\\_03-j.pdf](http://www.tepc.co.jp/nu/fukushima-np/roadmap/images/c150729_03-j.pdf)

**1-2. Progress of Contaminated Water Treatment and Risk Map**

[http://www.tepc.co.jp/nu/fukushima-np/roadmap/images/c150729\\_04-j.pdf](http://www.tepc.co.jp/nu/fukushima-np/roadmap/images/c150729_04-j.pdf)



**1-3. Frozen Soil Wall Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_05-j.pdf)

**1-4. High-Performance ALPS Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_06-j.pdf)

**1-5. Tritiated Water Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_07-j.pdf)

**2. Working-level Meeting of Decommissioning & Contaminated Water Issues Team (7/30/2015)**

(only in Japanese)

**2-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_04-j.pdf)

**2-2. Summary Status of Decommissioning Roadmap (file size: 11 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_05-j.pdf)

(English translation as of 6/25/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150625\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150625_01-e.pdf)

**2-3. Contaminated Water Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_06-j.pdf)

**2-4. Spent Fuel Pool Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_07-j.pdf)

**2-5. Preparation for Fuel Debris Removal**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_08-j.pdf)

**2-6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_09-j.pdf)

**2-7. Circulating Water Core Cooling System**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_10-j.pdf)

**2-8. Environmental Radiation Issues (file size: 15 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_11-j.pdf)

**2-9. Work Environment Improvement**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_12-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_12-j.pdf)

**2-10. Summary of 1<sup>st</sup> Decommissioning R&D Collaboration Council (file size: 28 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_15-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_15-j.pdf)

**3. Completion of Removal of Highly-Contaminated Water from Seawater Piping Trenches (7/30/2015)**

[http://www.tepco.co.jp/en/press/corp-com/release/2015/1256382\\_6844.html](http://www.tepco.co.jp/en/press/corp-com/release/2015/1256382_6844.html)

**4. 160-page Presentation on Fukushima Accident (6/15/2015@Harvard University)**

<https://drive.google.com/file/d/0B3xzjqQbkug9aU9tX0FJS2pPenM/view?usp=sharing>

*\* If you cannot display Japanese characters, please install the following font packs:*  
<http://www.adobe.com/support/downloads/detail.jsp?ftplD=4881>

All the best,  
Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751  
(b)(6)  
tateiwa.kenji@tepcoco.jp

## Tateiwa, Kenji

---

差出人: Tateiwa, Kenji  
送信日時: 2015年6月19日金曜日 11:35  
宛先: Tateiwa, Kenji  
件名: Last Call from DC [TEPCO Weekly Fukushima Update Call] Fri, June 19, 2015 at 2pm EDT

Nuclear Industry Colleagues,

Tomorrow will mark the last Weekly Fukushima Update Call that I will conduct from DC.

After spending almost 4 years, I will be departing DC on June 27 and start working at TEPCO's Tokyo HQ on July 1 as **Safety Engineering Group Manager of Fukushima Daiichi D&D Engineering Company**.

I will endeavor to continue this call from Tokyo, albeit at a less frequent basis.  
I will send out a notice for the next call once I settled into my new position.

Thank you for your continued support to TEPCO and for your interest in the progress at Fukushima Daiichi.  
I look forward to keeping in touch.

### [Date/time]

**Fri, June 19**, 2015 at 2 pm Eastern Daylight Time  
(**Date/time of next call to be determined.**)

[call-in information] (Please record your name and organization when joining the call.)  
call number: 718-354-1184

(b)(6)

### [Major topics]

**1. Cabinet-Level Meeting on Decommissioning and Contaminated Water Issues (6/12/2015)**  
(only in Japanese)

**1-1. Outline of Revised Mid-and-Long-Term Roadmap**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/t150612\\_03-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/t150612_03-j.pdf)

**1-2. Revised Mid-and-Long-Term Roadmap**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/t150612\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/t150612_05-j.pdf)

**1-3. Revised Schedule for Defueling of Units 1-3 SFPs**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/t150612\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/t150612_04-j.pdf)

**2. Summary Progress at Units 1-4 (6/12/2015)**

[http://www.tepco.co.jp/nu/fukushima-np/handouts/2015/images/handouts\\_150612\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/handouts/2015/images/handouts_150612_04-j.pdf)

**3. Transition of Different Types of Contaminated Water Stored in Tank Farms (6/12/2015)**

[http://www.tepco.co.jp/nu/fukushima-np/handouts/2015/images/handouts\\_150612\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/handouts/2015/images/handouts_150612_05-j.pdf)

\* If you cannot display Japanese characters, please install the following font packs:

<http://www.adobe.com/support/downloads/detail.jsp?ftplD=4881>

(Feel free to forward this email to your colleagues or have them contact me to be added to the distribution list.)

All the best,  
Kenji

-----  
Kenji Tateiwa  
Manager, Nuclear Power Programs



Tokyo Electric Power Company  
Washington Office  
2121 K Street, NW Suite 910  
Washington, DC 20037  
tel: +1-202-457-0790 (ext.) 116

(b)(6)

[tateiwa.kenji@tepcoco.jp](mailto:tateiwa.kenji@tepcoco.jp)

(Email address will remain unchanged after my transition to Tokyo.)

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

**From:** [Tateiwa, Kenji](#)

**To:** [Tateiwa, Kenji](#)

**Sent:** Thursday, June 04, 2015 10:18 PM

**Subject:** [TEPCO Weekly Fukushima Update Call] Fri, June 5, 2015 at 2pm EDT

Nuclear Industry Colleagues,

Please find below information for tomorrow's Weekly Fukushima Update Call.

**[Date/time]**

**Fri, June 5,** 2015 at 2 pm Eastern Daylight Time

**(No Call Next Week.** Next call will be on **Fri, June 19** at 2 pm EDT.)

**[call-in information]** (Please record your name and organization when joining the call.)

call number: 718-354-1184

(b)(6)

**[Major topics]**

**1. NRA Special Facilities Monitoring and Evaluation Committee (5/22/2015)**

(only in Japanese)

**1-1. Closure of Seawater Piping Trenches of Units 2, 3, 4**

<http://www.nsr.go.jp/data/000107869.pdf>

**1-2. Water Collected on Lid of High-Intensity Container Inside a Box Culvert**

<http://www.nsr.go.jp/data/000108101.pdf>

**1-3. Groundwater Inflow Mitigation Measures and Water Level Management**

<http://www.nsr.go.jp/data/000107730.pdf>

**2. On-Site Coordination Meeting on Decommissioning & Contaminated Water Issues (5/25/2015)**

(only in Japanese)

**2-1. Water Contamination Monitoring Status**

[http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/l150525\\_03-j.pdf](http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/l150525_03-j.pdf)

**2-2. Status of Unit 1 Reactor Building Cover Dismantling**

[http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/l150525\\_04-j.pdf](http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/l150525_04-j.pdf)

**2-3. Status Report on Identification of Risk Factors Related to Off-site Radiological Impact**

[http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/l150525\\_07-j.pdf](http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/l150525_07-j.pdf)

**2-4. Preparation for Disclosure of All Radiological Data**

[http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/l150525\\_08-j.pdf](http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/l150525_08-j.pdf)

**2-5. Status Report on Various Issues (146 pages, 19 MB)**

[http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/l150525\\_13-j.pdf](http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/l150525_13-j.pdf)

**3. Working-level Meeting of Decommissioning & Contaminated Water Issues Team (5/28/2015)**

(only in Japanese)

**3-1. Plant Status**

[http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/d150528\\_04-j.pdf](http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/d150528_04-j.pdf)

**3-2. Summary Status of Decommissioning Roadmap**

[http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/d150528\\_05-j.pdf](http://www.tepcoco.jp/nu/fukushima-np/roadmap/images/d150528_05-j.pdf)

(English translation as of 4/30/2015)



[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150430\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150430_01-e.pdf)

**3-3. Unit 1 Drywell Water Level Measurement**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150528\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150528_06-j.pdf)

**3-4. Contaminated Water Treatment (file size: 11 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150528\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150528_07-j.pdf)

**3-5. Environmental Radiation Issues (file size: 15 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150528\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150528_08-j.pdf)

**3-6. Spent Fuel Pool Issues**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150528\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150528_10-j.pdf)

**3-7. Preparation for Fuel Debris Removal**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150528\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150528_11-j.pdf)

**3-8. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150528\\_12-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150528_12-j.pdf)

**3-9. Draft Revision of Mid-to-Long Term Decommissioning Roadmap**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150528\\_13-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150528_13-j.pdf)

**4. Leakage of Contaminated Water from Transfer Hose (6/1/2015)**

(only in Japanese)

[http://www.tepco.co.jp/nu/fukushima-np/handouts/2015/images/handouts\\_150601\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/handouts/2015/images/handouts_150601_06-j.pdf)

All the best,  
Kenji

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

**From:** [Tateiwa, Kenji](#)

**To:** [Tateiwa, Kenji](#)

**Sent:** Thursday, May 21, 2015 9:13 PM

**Subject:** [TEPCO Weekly Fukushima Update Call] Fri, May 22, 2015 at 2pm EDT

Nuclear Industry Colleagues,

Please find below information for tomorrow's Weekly Fukushima Update Call.

**[Date/time]**

**Fri, May 22**, 2015 at 2 pm Eastern Daylight Time

(**No Call Next Week**. Next call will be on **Fri, June 5** at 2 pm EDT.)

**[call-in information]** (Please record your name and organization when joining the call.)

call number: 718-354-1184

(b)(6)

**[Major topics]**

**1. IAEA Peer Review Mission Report #3 (5/14/2015)**

[http://www.tepco.co.jp/en/nu/fukushima-np/handouts/2015/images/handouts\\_150514\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/handouts/2015/images/handouts_150514_01-e.pdf)

"IAEA Issues Report on Fukushima Decommissioning Review" (IAEA Press Release)

<https://www.iaea.org/newscenter/pressreleases/iaea-issues-report-fukushima-decommissioning-review>

**2. Fukushima Nuclear Accident Unresolved Issues Progress Report # 3 (5/20/2015)**

[http://www.tepco.co.jp/en/press/corp-com/release/2015/1250927\\_6844.html](http://www.tepco.co.jp/en/press/corp-com/release/2015/1250927_6844.html)

**(English Summary)**

[http://www.tepco.co.jp/en/press/corp-com/release/betu15\\_e/images/150520e0101.pdf](http://www.tepco.co.jp/en/press/corp-com/release/betu15_e/images/150520e0101.pdf)

**(Japanese Full Report: 503 pages, 27 MB)**

[http://www.tepco.co.jp/cc/press/betu15\\_j/images/150520j0102.pdf](http://www.tepco.co.jp/cc/press/betu15_j/images/150520j0102.pdf)

### 3. High-Level Meeting of Decommissioning & Contaminated Water Issues Team (5/21/2015)

(only in Japanese)

#### 3-1. Basic Policy regarding the Mid-and-Long-Term Decommissioning Roadmap

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/t150521\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/t150521_05-j.pdf)

#### 3-2. Straw Man for the Mid-and-Long-Term Decommissioning Roadmap

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/t150521\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/t150521_06-j.pdf)

#### 3-3. Enhanced Coordination on R&D Activities for Decommissioning and Contaminated Water Issues

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/t150521\\_03-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/t150521_03-j.pdf)

All the best,

Kenji

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

**From:** [Tateiwa, Kenji](#)

**To:** [Tateiwa, Kenji](#)

**Sent:** Thursday, May 07, 2015 9:04 PM

**Subject:** [TEPCO Weekly Fukushima Update Call] Fri, May 8, 2015 at 2pm EDT

Nuclear Industry Colleagues,

Please find below information for tomorrow's Weekly Fukushima Update Call.

#### [Date/time]

**Fri, May 8**, 2015 at 2 pm Eastern Daylight Time

(**No Call Next Week**. Next call will be on **Fri, May 22** at 2 pm EDT.)

[call-in information] (Please record your name and organization when joining the call.)

call number: 718-354-1184

(b)(6)

#### [Major topics]

#### 1. Unit 1 Drywell Internal Investigation by Transforming Robots: Summary of Findings (4/30/2015)

(only in Japanese)

[http://www.tepco.co.jp/nu/fukushima-np/handouts/2015/images/handouts\\_150430\\_01-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/handouts/2015/images/handouts_150430_01-j.pdf)

#### 2. Working-level Meeting of Decommissioning & Contaminated Water Issues Team (4/30/2015)

(only in Japanese)

##### 2-1. Plant Status

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430_04-j.pdf)

##### 2-2. Summary Status of Decommissioning Roadmap

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430_05-j.pdf)

(English translation as of 3/26/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150326\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150326_01-e.pdf)

##### 2-3. Contaminated Water Treatment (file size: 14 MB)

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430_07-j.pdf)

##### 2-4. Environmental Radiation Issues (file size: 17 MB)

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430_08-j.pdf)

##### 2-5. Spent Fuel Pool Issues

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430_10-j.pdf)

##### 2-6. Preparation for Fuel Debris Removal

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430_11-j.pdf)

##### 2-7. Radioactive Waste Processing

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430\\_12-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430_12-j.pdf)

##### 2-8. NDF's 2015 Technical Strategy Plan in Preparation for Revising the Mid-to-Long Term Decommissioning Roadmap (file size: 18 MB)

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430\\_14-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430_14-j.pdf)

**2-9. Identification of Risk Factors Related to Off-site Radiological Impact**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430\\_15-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430_15-j.pdf)

**2-10. Preparation for Disclosing All Radiological Data**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430\\_16-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430_16-j.pdf)

**2-11. Government-Funded Demonstration Testing Results for 5 Contaminated Water Treatment Systems**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430\\_17-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150430_17-j.pdf)

**3. Test Operation of Brine Circulation for Frozen Soil Wall (4/30/2015)**

<http://photo.tepco.co.jp/en/date/2015/201504-e/150430-02e.html>

All the best,  
Kenji



Outside of Scope

---

**From:** Tateiwa, Kenji [<mailto:tateiwa.kenji@tepcoco.jp>]

**Sent:** Friday, July 31, 2015 09:47 AM

**To:** [tateiwa.kenji@tepcoco.jp](mailto:tateiwa.kenji@tepcoco.jp) <[tateiwa.kenji@tepcoco.jp](mailto:tateiwa.kenji@tepcoco.jp)>

**Subject:** [External\_Sender] Please reply to sign up [TEPCO Fukushima Update Call] Mon, Aug. 3, 2015 at 9am EDT/10pm JST

Friends and Colleagues,

I hope this email finds you well.

A month has passed since I made the transition from TEPCO's Washington DC office to the Tokyo HQ as Safety Engineering Group Manager of Fukushima Daiichi D&D Engineering Company.



I intend to resume the "Fukushima Update Call" that I had been hosting on a weekly-basis since early 2012 to update interested professionals (from the industry, government sector, academia, etc.) on the latest situation at Fukushima Daiichi.

I will be sending out email notification to participants prior to the call with links to the most important topics that I will verbally cover during the call.  
I endeavor to host future calls on a monthly basis, with a target duration of about 30 minutes, including Q&A.  
(Attached, FYI, is an email that I sent out last month from DC.)

**Please reply to this email if you and/or your colleagues would like to be included in the distribution list for future calls.**

Feel free to join the call whenever you find topics of interest to you.  
I would also be happy to answer any questions separate from the call.

**[Date/time]**

**Mon, August 3, 2015 at 9 am U.S. Eastern Daylight Time**

(Next call: Mon, Aug. 31 at 9 am EDT.)

**[call-in information]** (Please record your name and organization when joining the call.)  
call number (New York): 718-354-1184

(b)(6)

*Please let me know if any of you would like to join the call from other countries.*

**[Major topics]**

**1. Contaminated Water Treatment Committee (7/29/2015)**

(only in Japanese)

**1-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_03-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_03-j.pdf)

**1-2. Progress of Contaminated Water Treatment and Risk Map**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_04-j.pdf)

**1-3. Frozen Soil Wall Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_05-j.pdf)

**1-4. High-Performance ALPS Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_06-j.pdf)

**1-5. Tritiated Water Taskforce**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/c150729_07-j.pdf)

**2. Working-level Meeting of Decommissioning & Contaminated Water Issues Team (7/30/2015)**

(only in Japanese)

**2-1. Plant Status**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_04-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_04-j.pdf)

**2-2. Summary Status of Decommissioning Roadmap (file size: 11 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_05-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_05-j.pdf)

(English translation as of 6/25/2015)

[http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150625\\_01-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/roadmap/images/d150625_01-e.pdf)

**2-3. Contaminated Water Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_06-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_06-j.pdf)

**2-4. Spent Fuel Pool Issues (file size: 10 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_07-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_07-j.pdf)

**2-5. Preparation for Fuel Debris Removal**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_08-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_08-j.pdf)

**2-6. Radioactive Waste Processing**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_09-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_09-j.pdf)

**2-7. Circulating Water Core Cooling System**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_10-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_10-j.pdf)

**2-8. Environmental Radiation Issues (file size: 15 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_11-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_11-j.pdf)

**2-9. Work Environment Improvement**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_12-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_12-j.pdf)

**2-10. Summary of 1<sup>st</sup> Decommissioning R&D Collaboration Council (file size: 28 MB)**

[http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730\\_15-j.pdf](http://www.tepco.co.jp/nu/fukushima-np/roadmap/images/d150730_15-j.pdf)

**3. Completion of Removal of Highly-Contaminated Water from Seawater Piping Trenches (7/30/2015)**

[http://www.tepco.co.jp/en/press/corp-com/release/2015/1256382\\_6844.html](http://www.tepco.co.jp/en/press/corp-com/release/2015/1256382_6844.html)

**4. 160-page Presentation on Fukushima Accident (6/15/2015@Harvard University)**

<https://drive.google.com/file/d/0B3xzjqQbkug9aU9tX0FJS2pPenM/view?usp=sharing>

*\* If you cannot display Japanese characters, please install the following font packs:*

<http://www.adobe.com/support/downloads/detail.jsp?ftpID=4881>

All the best,  
Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan

office: +81-3-6373-4751

(b)(6)

[tateiwa.kenji@tepco.co.jp](mailto:tateiwa.kenji@tepco.co.jp)

Outside of Scope

-----Original Appointment-----

**From:** Nicholson, Thomas [<mailto:Thomas.Nicholson@nrc.gov>]

**Sent:** Thursday, July 9, 2015 12:41 AM

**To:** judd@nuvisioneng.com; 'Tateiwa, Kenji'; andrew.Szilagyi@em.doe.gov; Jacoff, Adam S.; jrenshaw@epri.com; 'philip.mattson@hq.dhs.gov'; 'kamel.saidi@nist.gov'; Marksberry, Don; Bernardo, Robert; Csontos, Aladar; Parrott, Jack; 'koi@k.u-tokyo.ac.jp'; West, Steven; Rini, Brett; Sangimino, Donna-Marie; Abu-Eid, Bobby; Price,

Drew R. (ARC-VE)[WYLE LABS] (drew.price@nasa.gov); 'jason.averill@nist.gov'; Rinker, Michael; 'Buckingham, Rob'; Correia, Richard; Coyne, Kevin; 'Awad, Raoul'; 'Tavasoli, Vali'; 'V.Michal@iaea.org'; Ibrahim, Eman; Vucetic, Jasmina; El Dabaghi, Nadine; YongChang.Liu@cnsccsn.gc.ca; Zhaochang.Zeng@cnsccsn.gc.ca

**Subject:** Ad Hoc Committee to fully define Workshop Prospectus

**When:** 2015年7月28日火曜日 9:00-17:00 (UTC-05:00) 東部標準時 (米国およびカナダ)

**Where:** NIST Robot Test Facility

Adam Jacoff, Phil Mattson, Andy Szilagyi, Laurie Judd, Kenji Tateiwa, Kam Saidi, and Don Marksberry:

This morning, we agreed to have an Ad Hoc committee (you are its members) meet at NIST on Tuesday, July 28<sup>th</sup> to fully define the Workshop prospectus.

We will begin our meeting at 9:00 a.m. EDT and continue until the draft prospectus is accomplished.

Please send your personal information (e.g., name, organization, e-mail address, office telephone number including citizenship) to Adam Jacoff this week to arrange for access to NIST.

I will revise the prospectus based upon today's discussions, which will be reviewed and further revised at our July 28<sup>th</sup> meeting.

For the July 28<sup>th</sup> meeting, I have reserved a teleconference bridge:

**U.S. and Canada call-in at 1-888-677-0358 with**

(b)(6)

**International call-in at 1-210-234-7539 with**

(b)(6)

In consultation with Adam Jacoff and others, I will draft an agenda for the July 28<sup>th</sup> meeting and mail it to you by July 21<sup>st</sup>.

Thanks for your interest and commitment to meet on July 28<sup>th</sup> at NIST to finalize the prospectus.



Thanks ..... Tom

\*\*\*\*\*

Thomas J. Nicholson, Senior Technical Advisor

U.S. Nuclear Regulatory Commission

Office of Nuclear Regulatory Research

Mail Stop TWFN 10-A12

11555 Rockville Pike

Rockville, MD 20852

Tel: (301) 415-2471

Fax: (301) 415-6671

E-mail: [Thomas.Nicholson@nrc.gov](mailto:Thomas.Nicholson@nrc.gov)

\*\*\*\*\*

**From:** Tateiwa, Kenji  
**Sent:** 11 Aug 2015 07:41:42 +0900  
**To:** Nicholson, Thomas  
**Subject:** [External\_Sender] RE: final workshop prospectus

Tom,

Thank you for your note.

1. Please remove my name as co-chair and leave both TEPCO and JAEA blank without individual names at this moment.
2. Please replace my name as organizing committee member with "Takashi Hara", who will be replacing me as DC rep. when he obtains his visa.
3. TEPCO senior management is willing to support this workshop by sending one or two engineers from Tokyo, who are versed in the development and use of robotics at 1F.

If you are having a meeting at NIST on Tue, Aug. 25, I would like to suggest that we talk over teleconference.

(Preferably, between 8-10 am EDT.)

All the best,  
Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751  
(b)(6)  
tateiwa.kenji@tepcoco.jp

**From:** Nicholson, Thomas [mailto:Thomas.Nicholson@nrc.gov]  
**Sent:** Tuesday, August 11, 2015 4:39 AM  
**To:** Tateiwa, Kenji  
**Subject:** final workshop prospectus

Kenji:

I hope all is well with you.

Can we leave your name as co-chair of session 2?

Should we leave the co-chair from JAEA as blank or do you have a person to list?

I need to prepare a final workshop prospectus for distribution to NRC upper management and to our international program office very soon.

Thanks ..... Tom

\*\*\*\*\*  
Thomas J. Nicholson, Senior Technical Advisor  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research

Mail Stop TWFN 10-A12

11555 Rockville Pike

Rockville, MD 20852

Tel: (301) 415-2471

Fax: (301) 415-6671

E-mail: [Thomas.Nicholson@nrc.gov](mailto:Thomas.Nicholson@nrc.gov)

\*\*\*\*\*

**From:** Tateiwa, Kenji  
**Sent:** 17 Jul 2015 07:06:32 +0900  
**To:** Nicholson, Thomas  
**Cc:** West, Steven; Gilbertson, Anders; Bernardo, Robert; Parrott, Jack; Marksberry, Don; Csontos, Aladar; ?? ??; ?? ??  
**Subject:** [External\_Sender] RE: Follow-Up to Teleconference Discussions Regarding the Proposed "International Workshop on the Use of Robotics at Nuclear Facilities"

Tom,

Thank you for joining the early-morning teleconference with my colleague, Yasutaka Denda, and I.

Your verbal explanation and the detailed follow-up note will certainly help us convince TEPCO's senior management of the importance of our involvement in the Robotics Workshop.

I will keep you posted with how things go in TEPCO.

All the best,  
Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751  
(b)(6)  
tateiwa.kenji@tepcoco.jp

**From:** Nicholson, Thomas [mailto:Thomas.Nicholson@nrc.gov]  
**Sent:** Friday, July 17, 2015 1:16 AM  
**To:** tateiwa.kenji@tepcoco.jp  
**Cc:** West, Steven; Gilbertson, Anders; Bernardo, Robert; Parrott, Jack; Marksberry, Don; Csontos, Aladar  
**Subject:** Follow-Up to Teleconference Discussions Regarding the Proposed "International Workshop on the Use of Robotics at Nuclear Facilities"

Kenji:

I enjoyed our discussions this morning with you and your colleague, Denda-san, who is in charge of R&D and robotics for 1F decommissioning at TEPCO.

At the conclusion of our teleconference, you requested that I provide you a list of ideas which we began discussing on how robotics can be useful during routine operations and decommissioning at nuclear facilities.

The following list of ideas was developed with an understanding that robotics are highly useful and in some cases essential for gaining access to challenging environments such as confined spaces, extreme temperatures, high-levels of radiation, low-oxygen conditions, presence of hazardous gases (both radioactive and non-radioactive), under-water environments, and other adverse industrial environments potentially hazardous to workers:



- Robotics can be used for conducting radiological surveys both inside and outside nuclear structures, systems, and components (SSC); for example, accessing areas that significantly affect worker safety such as in tanks, excavations, pipelines, pipe chases, conduits, etc.
- Robotics can be useful in monitoring SSCs during operations for detecting and identifying the location of leaks in spent fuel pools/radwaste tanks/condensate tanks and pipelines, etc.; and for providing detailed information useful in corrective action decisions.
- Robotics can be used to collect real-time data on temperatures, radioactivity, gases, water chemistry and other indicators of performance.
- Robotics can be part of a surveillance campaign, when gauges indicate abnormal conditions, to provide real-time data for decision-making.
- Robotics can provide a platform for sensors involving non-destructive evaluation (NDE) and non-destructive testing (NDT).
- Robotic technology can inform decision-makers on where and how to collect samples such as concrete and other materials that may be degraded by biochemical processes.
- Robots can facilitate subsurface monitoring in soil and ground-water systems to detect, sample and perform in-situ assessments of hazardous contaminants and their pathways.
- Robotic technology can monitor dry-cast storage containers and other safeguarded materials using NDE sensors for visual, eddy-current testing, ultrasonic testing, guided waves, acoustic emission, x-ray, penetrating radar, thermography evaluations and other NDEs.
- Databases on robotic technologies which includes their design and applications in various challenging environments could be useful in identifying and selecting robotic technologies for future nuclear facility monitoring, surveillance and sampling.

Based upon discussions with other U.S. and international nuclear and non-nuclear organizations (e.g., OECD/NEA/CNSI, CNSC, UK NDA, IAEA, U.S. DOE, NIST, U.S. Department of Homeland Security, etc.), there is very a strong interest in learning about the development and application of robotic technologies at the Fukushima Daiichi site.

Thanks ..... Tom

\*\*\*\*\*  
 Thomas J. Nicholson, Senior Technical Advisor  
 U.S. Nuclear Regulatory Commission  
 Office of Nuclear Regulatory Research  
 Mail Stop TWFN 10-A12  
 11555 Rockville Pike  
 Rockville, MD 20852  
 Tel: (301) 415-2471  
 Fax: (301) 415-6671  
 E-mail: [Thomas.Nicholson@nrc.gov](mailto:Thomas.Nicholson@nrc.gov)  
 \*\*\*\*\*

**From:** Tateiwa, Kenji  
**Sent:** 29 Jul 2015 20:01:58 +0900  
**To:** Nicholson, Thomas  
**Cc:** judd@nuvisioneng.com; andrew.Szilagyi@em.doe.gov; 'Jacoff, Adam S.'; Abu-Eid, Bobby; Marksberry, Don; Gilbertson, Anders; 'Saidi, Kamel S.'; Zhaochang.Zeng@cnscccsn.gc.ca; '?? ??'  
**Subject:** [External\_Sender] RE: July 28, 2015 draft Workshop Prospectus for review and updating

Tom and all,

It was nice talking with you last night (Japan time.)  
Sorry for missing your call this morning.

Thank you for sharing with me the updated prospectus.  
I will be talking with TEPCO's senior management next Tuesday and this prospectus will be very useful in convincing him of the importance of TEPCO's involvement.

I will let you know how it went.

All the best,  
Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751  
(b)(6)  
tateiwa.kenji@tepcoco.jp

**From:** Nicholson, Thomas [mailto:Thomas.Nicholson@nrc.gov]  
**Sent:** Wednesday, July 29, 2015 9:12 AM  
**To:** Tateiwa, Kenji  
**Cc:** judd@nuvisioneng.com; andrew.Szilagyi@em.doe.gov; Jacoff, Adam S.; Abu-Eid, Bobby; Marksberry, Don; Gilbertson, Anders; Saidi, Kamel S.; Zhaochang.Zeng@cnscccsn.gc.ca  
**Subject:** July 28, 2015 draft Workshop Prospectus for review and updating

Kenji:

Thank you so much for participating in today's *ad hoc* meeting to help finalize the workshop prospectus. We are hoping to complete the missing information such as the new date for the workshop, and possible additional sponsors before we circulate the workshop prospectus. We plan one last review of the workshop prospectus next week before agreeing to circulate.

I am forwarding the attached draft developed today which will be completed by next Tuesday, August 4th. We made significant modifications such as the new "Key Outcomes" which we hope will assist you in convincing TEPCO and JAEA to participate.

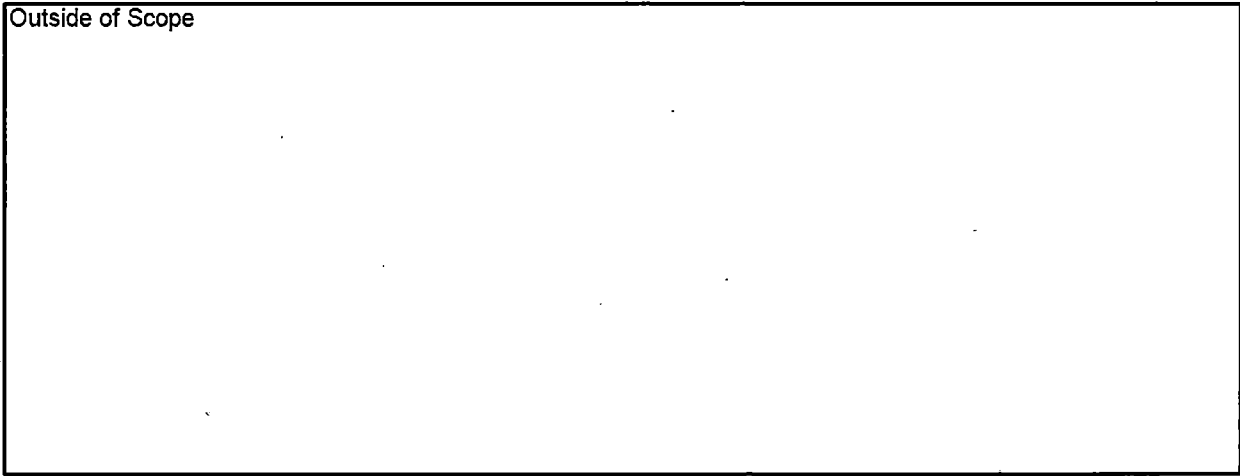
We began developing the workshop agenda. Please note our modifications to Session 2 which focuses on the lessons learned from the deployment of robots at Fukushima Daiichi. We are requesting you to consider being the co-chair of Session 2, and to identify a colleague in JAEA to be your co-chair. If

needed, please make modifications to the questions in Session 2 to help motivate TEPCO and JAEA participation.

We will keep you informed as we move forward.

Thanks ..... Tom

Outside of Scope



**From:** Tateiwa, Kenji  
**Sent:** 29 Aug 2015 11:34:25 +0900  
**To:** Nicholson, Thomas; 'Jacoff, Adam S.'; kamel.saidi@nist.gov; '?'; philip.mattson@hq.dhs.gov; andrew.Szilagy@em.doe.gov; judd@nuvisioneng.com; Gilbertson, Anders; Marksberry, Don; Parrott, Jack; Bernardo, Robert; Burton, Thomas; 'Buckingham, Rob'; 'Zeng, Zhao Chang'; Sangimino, Donna-Marie; Rini, Brett; Abu-Eid, Bobby  
**Subject:** [External\_Sender] RE: Organizational Meeting at NIST on September 9, 2015 @9:00 a.m. at the Robot Test Facility building

Tom,

Thank you for the invite.  
I will participate via teleconference.

All the best,  
Kenji

Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751  
(b)(6)  
tateiwa.kenji@tepco.co.jp

**From:** Nicholson, Thomas [mailto:Thomas.Nicholson@nrc.gov]  
**Sent:** Saturday, August 29, 2015 2:12 AM  
**To:** 'Jacoff, Adam S.'; kamel.saidi@nist.gov; Tateiwa, Kenji; 原 貴; philip.mattson@hq.dhs.gov; andrew.Szilagy@em.doe.gov; judd@nuvisioneng.com; Gilbertson, Anders; Marksberry, Don; Parrott, Jack; Bernardo, Robert; Burton, Thomas; 'Buckingham, Rob'; Zeng, Zhao Chang  
**Cc:** Sangimino, Donna-Marie; Rini, Brett; Abu-Eid, Bobby  
**Subject:** Organizational Meeting at NIST on September 9, 2015 @9:00 a.m. at the Robot Test Facility building

Adam, Andy, Laurie, Kenji, Takashi, Phil, Charles, Anders, Don, Jack, Robert, Tom, and Rob:

Our next organizational meeting is scheduled for **Wednesday, September 9<sup>th</sup> @9:00 a.m. EDT** at the NIST Robot Test Facility, building 207 (please see attached NIST directions).

The meeting will focus on development of the workshop agenda. We need to decide on the session co-chairs and candidates for presentations.

For those planning to attend the subject meeting in person, **you need to send Kamel Saidi, NIST, your name, organization and citizenship** for him to pre-register you for security access by **September 3<sup>rd</sup>** (since September 7<sup>th</sup> is a U.S. holiday, Labor Day).

To participate in the meeting remotely, please call:

**U.S. callers: 1-888-677-0358 with** (b)(6)

**International callers: 1-210-234-7539 with** (b)(6)



To facilitate communications to those outside our committee, I placed the workshop prospectus in our electronic retrievable library called ADAMS.

The link to the workshop prospectus is in the hypertext [Workshop Prospectus](#) .

Thanks ..... Tom

P.S. I earlier sent a meeting appointment scheduler to you but it seems to have failed to go through. Sorry if there is a repeated message.

\*\*\*\*\*

Thomas J. Nicholson, Senior Technical Advisor  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
Mail Stop TWFN 10-A12  
11555 Rockville Pike  
Rockville, MD 20852  
Tel: (301) 415-2471  
Fax: (301) 415-6671  
E-mail: [Thomas.Nicholson@nrc.gov](mailto:Thomas.Nicholson@nrc.gov)

\*\*\*\*\*

**From:** Tateiwa, Kenji  
**Sent:** 12 Aug 2015 19:14:05 +0900  
**To:** Nicholson, Thomas; takashi.hara@tepco.co.jp  
**Cc:** andrew.Szilagyi@em.doe.gov; 'Jacoff, Adam S.'; kamel.saidi@nist.gov; philip.mattson@hq.dhs.gov; judd@nuvisioneng.com; 'Zeng, Zhao Chang'  
**Subject:** [External\_Sender] RE: RE: final workshop prospectus

Tom,

Hara-san's email address is [takashi.hara@tepco.co.jp](mailto:takashi.hara@tepco.co.jp) and I have copied him in this email. Please include him in future correspondence and also copy me so that I can support the transition.

All the best,  
Kenji

**From:** Nicholson, Thomas [mailto:Thomas.Nicholson@nrc.gov]  
**Sent:** Wednesday, August 12, 2015 3:12 AM  
**To:** Tateiwa, Kenji  
**Cc:** andrew.Szilagyi@em.doe.gov; Jacoff, Adam S.; kamel.saidi@nist.gov; philip.mattson@hq.dhs.gov; judd@nuvisioneng.com; Zeng, Zhao Chang  
**Subject:** RE: RE: final workshop prospectus

Kenji:

Thanks for responding.

Yes, I will follow your suggestions.

What is Takashi Hara's e-mail address, so that I can keep him informed on the workshop developments?

Yes, I will revise the workshop prospectus as you suggested. Great news, our Canadian colleagues are now sponsors. I plan to have a final workshop prospectus by Thursday for everyone's review and approval.

I am checking with NIST and DOE on the time for the August 25<sup>th</sup> meeting.

Thanks ..... Tom

**From:** Tateiwa, Kenji [mailto:tateiwa.kenji@tepco.co.jp]  
**Sent:** Monday, August 10, 2015 6:42 PM  
**To:** Nicholson, Thomas  
**Subject:** [External\_Sender] RE: final workshop prospectus

Tom,

Thank you for your note.

1. Please remove my name as co-chair and leave both TEPCO and JAEA blank without individual names at this moment.
2. Please replace my name as organizing committee member with "Takashi Hara", who will be replacing me as DC rep. when he obtains his visa.
3. TEPCO senior management is willing to support this workshop by sending one or two engineers from Tokyo, who are versed in the development and use of robotics at 1F.

If you are having a meeting at NIST on Tue, Aug. 25, I would like to suggest that we talk over teleconference.

(Preferably, between 8-10 am EDT.)

All the best,  
Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751  
(b)(6)  
[tateiwa.kenji@tepcoco.jp](mailto:tateiwa.kenji@tepcoco.jp)

**From:** Nicholson, Thomas [<mailto:Thomas.Nicholson@nrc.gov>]  
**Sent:** Tuesday, August 11, 2015 4:39 AM  
**To:** Tateiwa, Kenji  
**Subject:** final workshop prospectus

Kenji:

I hope all is well with you.

Can we leave your name as co-chair of session 2?

Should we leave the co-chair from JAEA as blank or do you have a person to list?

I need to prepare a final workshop prospectus for distribution to NRC upper management and to our international program office very soon.

Thanks ..... Tom

\*\*\*\*\*  
Thomas J. Nicholson, Senior Technical Advisor  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
Mail Stop TWFN 10-A12  
11555 Rockville Pike  
Rockville, MD 20852  
Tel: (301) 415-2471  
Fax: (301) 415-6671  
E-mail: [Thomas.Nicholson@nrc.gov](mailto:Thomas.Nicholson@nrc.gov)  
\*\*\*\*\*

**From:** Tateiwa, Kenji  
**Sent:** 17 Jul 2015 07:46:47 +0900  
**To:** Nicholson, Thomas  
**Cc:** ?? ??;?? ??  
**Subject:** [External\_Sender] RE: Revised Workshop Prospectus draft July 15, 2015

Tom,

Thank you for sharing this information.

All the best,  
Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company, Inc.  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751

(b)(6)  
tateiwa.kenji@tepcoco.jp

**From:** Nicholson, Thomas [mailto:Thomas.Nicholson@nrc.gov]  
**Sent:** Friday, July 17, 2015 1:21 AM  
**To:** tateiwa.kenji@tepcoco.jp  
**Subject:** FW: Revised Workshop Prospectus draft July 15, 2015

Kenji:

Some additional information.

Thanks ..... Tom

Outside of Scope

Outside of Scope

---

**From:** Nicholson, Thomas

**Sent:** Wednesday, July 15, 2015 7:09 PM

**To:** tateiwa.kenji@tepco.co.jp; judd@nuvisioneng.com; andrew.Szilagyi@em.doe.gov; Jacoff, Adam S.; 'philip.mattson@hq.dhs.gov'; 'kamel.saidi@nist.gov'; Marksberry, Don; Gilbertson, Anders

**Cc:** Bernardo, Robert; Csontos, Aladar; Parrott, Jack; West, Steven; Rini, Brett; Sangimino, Donna-Marie; Abu-Eid, Bobby; Correia, Richard; Coyne, Kevin

**Subject:** Revised Workshop Prospectus draft July 15, 2015

Kenji, Laurie, Andy, Adam, Phil, Kam, Don and Anders:

I am forwarding the attached revised workshop prospectus.

These revisions are based upon our July 8<sup>th</sup> teleconference discussions, and recent input from Laurie Judd and Andy Szilagyi.

<< File: WorkshopProspectus.July15-2015.docx >>

Please review. It will be further reviewed and revised at our July 28<sup>th</sup> meeting at NIST.



Thanks ..... Tom

\*\*\*\*\*  
Thomas J. Nicholson, Senior Technical Advisor  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
Mail Stop TWFN 10-A12  
11555 Rockville Pike  
Rockville, MD 20852  
Tel: (301) 415-2471  
Fax: (301) 415-6671  
E-mail: [Thomas.Nicholson@nrc.gov](mailto:Thomas.Nicholson@nrc.gov)  
\*\*\*\*\*

**From:** Tateiwa, Kenji  
**Sent:** 5 Jul 2015 12:47:56 +0900  
**To:** Nicholson, Thomas  
**Subject:** [External\_Sender] RE: Thank you: [Transition from DC to Tokyo] New Role in Decommissioning Safety

Tom,

Thank you for your reply.  
Hope you are enjoying the Fourth of July weekend.

All the best,  
Kenji

**From:** Nicholson, Thomas [mailto:Thomas.Nicholson@nrc.gov]  
**Sent:** Friday, July 3, 2015 7:59 AM  
**To:** Tateiwa, Kenji  
**Subject:** RE: Thank you: [Transition from DC to Tokyo] New Role in Decommissioning Safety

Kenji:

I am pleased to hear from you. I hope your travel was pleasant.

The international toll number becomes active 5 minutes prior to the teleconference.

Yes, we look forward to continued cooperation with you in the decommissioning arena.

Thanks ..... Tom

\*\*\*\*\*  
Thomas J. Nicholson, Senior Technical Advisor  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
Mail Stop TWFN 10-A12  
11555 Rockville Pike  
Rockville, MD 20852  
Tel: (301) 415-2471  
Fax: (301) 415-6671  
E-mail: [Thomas.Nicholson@nrc.gov](mailto:Thomas.Nicholson@nrc.gov)  
\*\*\*\*\*

**From:** Tateiwa, Kenji [mailto:tateiwa.kenji@tepcoco.jp]  
**Sent:** Thursday, July 02, 2015 6:37 PM  
**To:** Nicholson, Thomas  
**Cc:** Marksberry, Don; Aird, David; West, Steven; Parrott, Jack; Ford, William; Bernardo, Robert

**Subject:** [External\_Sender] Thank you: [Transition from DC to Tokyo] New Role in Decommissioning Safety

Tom and NRC friends,

Hello from muggy Tokyo (even inside the office!)

Thank you for your very kind note.

Apologies for my belated reply—I started working at TEPCO's HQ on Wed, July 1 and am still catching up with the hundreds of emails.

It has been a true pleasure and honor having had the opportunity to work with you and your colleagues at the NRC.

As I will be in charge of overall safety of Fukushima Daiichi decommissioning, I am sure there will be more opportunities for us to collaborate and to learn from each other in the future.

I plan to join the teleconference on the robotics workshop next week.

I tested the international number (1-210-234-7539) in your notification email, but got an automatic message saying the number is currently not in use. Could you check if there is a valid international number?

If not, no worries, I will call the U.S. number.

All the best,  
Kenji

-----  
Kenji Tateiwa  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
office: +81-3-6373-4751

(b)(6)  
[tateiwa.kenji@tepcoco.jp](mailto:tateiwa.kenji@tepcoco.jp)

**From:** Nicholson, Thomas [<mailto:Thomas.Nicholson@nrc.gov>]

**Sent:** Saturday, June 27, 2015 9:56 AM

**To:** Tateiwa, Kenji

**Cc:** Marksberry, Don; Aird, David; West, Steven; Parrott, Jack; Ford, William; Bernardo, Robert

**Subject:** RE: [Transition from DC to Tokyo] New Role in Decommissioning Safety

Kenji:

It was one year ago that you presented an unforgettable research seminar on tackling water issues at Fukushima Daiichi to the NRC Chair, NRC Commissioner, senior NRC management and technical staff, EPA assistant administrator, White House senior technical advisor, and EPA and DOE staff in the NRC auditorium.

Earlier that year you presented at our 2014 RIC session on remediation of ground-water systems.

I am indebted to you for your ability and dedication to provide an ongoing open exchange of information on Fukushima Daiichi remediation activities over the past 3 years. We have learned a great deal from you, and are very appreciative.

Your ability to understand the difficult issues and ongoing clean-up activities at Fukushima, and to communicate it to us in clear and simple terminology is remarkable.

I hope you will continue to help us in developing the "Workshop on the Use of Robotics at Nuclear Facilities" scheduled for December 1-3, 2015 at NIST.

Thanks so very much ..... Tom

(Postscript: Please notice below my new telephone and fax numbers, and address. We moved from Church Street, Rockville, MD to NRC Headquarters Campus last week.)

\*\*\*\*\*  
Thomas J. Nicholson, Senior Technical Advisor  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
Mail Stop TWFN 10-A12  
11555 Rockville Pike  
Rockville, MD 20852  
Tel: (301) 415-2471  
Fax: (301) 415-6671  
E-mail: [Thomas.Nicholson@nrc.gov](mailto:Thomas.Nicholson@nrc.gov)  
\*\*\*\*\*

**From:** Tateiwa, Kenji [<mailto:tateiwa.kenji@tepcoco.jp>]  
**Sent:** Friday, June 26, 2015 7:55 PM  
**To:** [tateiwa.kenji@tepcoco.jp](mailto:tateiwa.kenji@tepcoco.jp)  
**Subject:** [External\_Sender] [Transition from DC to Tokyo] New Role in Decommissioning Safety

Dear Friends and Colleagues,

Today will be my last day working out of the Washington DC Office of TEPCO.

After spending 4 productive years in DC, I will be departing the U.S. on Sat, June 27 and start working at TEPCO's Tokyo HQ on July 1 as Safety Engineering Group Manager of Fukushima Daiichi Decontamination & Decommissioning Engineering Company.

Thank you for your continued support to TEPCO after the Fukushima Daiichi accident in March 2011.

We could not have made it thus far without all your support.

For your information, you can find my latest interview on the online Nuclear Plant Journal describing the current status of Fukushima Daiichi.  
<http://digitaleditions.nuclearplantjournal.com/MJ15/#32>

Feel free to contact me should you have any questions related to Fukushima.  
I look forward to keeping in touch.

All the best,  
Kenji

p.s.  
Please forgive my slow response in emails for the next few weeks while I make my transition  
back to Japan.

Kenji Tateiwa  
email: [tateiwa.kenji@tepcoco.jp](mailto:tateiwa.kenji@tepcoco.jp)  
LinkedIn: <https://www.linkedin.com/in/ktateiwa>

-----]  
**(From Sep. 2011 to June 2015)**  
Manager, Nuclear Power Programs  
Tokyo Electric Power Company  
Washington Office

**(From July 2015)**  
Safety Engineering Group Manager  
Fukushima Daiichi D&D Engineering Company  
Tokyo Electric Power Company  
1-1-3 Uchisaiwai-cho, Chiyoda-ku  
Tokyo, Japan  
tel: +81-3-6373-4751



**From:** Tateiwa, Kenji  
**Sent:** 29 Jan 2015 19:59:46 -0500  
**To:** Uhle, Jennifer; Witt, Kevin  
**Cc:** Norton, Charles; Marksberry, Don; Nicholson, Thomas; Bernardo, Robert  
**Subject:** [NAS Fukushima Phase 2] TEPCO Presentation (1/29/2015)  
**Attachments:** Fukushima Spent Fuel Issues@NAS\_01292015.pdf  
**Importance:** Normal

Jennifer and Kevin,

It was nice seeing you at the NAS Fukushima Phase 2 meeting this afternoon.

Per Kevin's request, I am sending you a copy of my presentation.  
Feel free to share it with your colleagues at NRC or anyone interested in the topic.

Please let me know if you have any questions.

All the best,  
Kenji

-----  
Kenji Tateiwa  
Manager, Nuclear Power Programs  
Tokyo Electric Power Company  
Washington Office  
2121 K Street, NW Suite 910  
Washington, DC 20037  
tel: +1-202-457-0790 (ext.)116

(b)(6)

**From:** Tateiwa, Kenji  
**Sent:** 20 Feb 2015 09:12:46 -0500  
**To:** 'Jacoff, Adam S.';kamel.saidi@nist.gov;philip.mattson@hq.dhs.gov;Nicholson, Thomas;West, Steven;Parrott, Jack;Madden, Patrick;Aird, David;andrew.Szilagyi@em.doe.gov;koi@k.u-tokyo.ac.jp  
**Subject:** [NIST Robot Test Facility Visit on Feb. 19] TEPCO Presentation and Reference Materials  
**Attachments:** Fukushima Accident@NIST\_02192015.pdf, TEPCO Weekly Fukushima Update Call.pdf  
**Importance:** Normal

Adam and all,

Thank you for providing us with an excellent tour of NIST's Robot Test Facility yesterday. The following candid discussion with all of the participants was also very valuable.

Please find attached for your reference, my presentation on the Fukushima accident and use of robots.

Also attached is a notification email for my Weekly Fukushima Update Call that I have been hosting the past 3 years to inform interested experts on the current status of Fukushima Daiichi. If any of you are interested, I would be happy to add you to the distribution list.

Below are additional information that you may find interesting.

**[TEPCO's website on Robotics]**

<http://photo.tepco.co.jp/en/cat3/04-e.html>

<http://www.tepco.co.jp/en/decommission/principles/robot/index-e.html>

[http://www.tepco.co.jp/en/news/library/archive-e.html?video\\_uid=raf8si47&catid=61795](http://www.tepco.co.jp/en/news/library/archive-e.html?video_uid=raf8si47&catid=61795)

**[IRID Workshop]**

<http://irid.or.jp/en/reports/symposium/>

(Presentation material on "Status of R&D Projects Related to Fuel Debris Retrieval" would be of most interest to you.)

Feel free to share any of the material in this email with your colleagues and do not hesitate to contact me should you have any questions.

Tom,  
Thank you for making this tour and meeting happen.

All the best,  
Kenji

-----  
Kenji Tateiwa  
Manager, Nuclear Power Programs  
Tokyo Electric Power Company  
Washington Office  
2121 K Street, NW Suite 910  
Washington, DC 20037  
tel: +1-202-457-0790 (ext.)116

(b)(6)

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

**From:** Tateiwa, Kenji

**To:** 'Jacoff, Adam S.' ; Nicholson, Thomas ; West, Steven ; Parrott, Jack ; Madden, Patrick ; Aird, David ; [andrew.Szilagyi@em.doe.gov](mailto:andrew.Szilagyi@em.doe.gov)

**Sent:** Friday, February 13, 2015 2:59 PM

**Subject:** [NIST Robot Test Facility Visit on Feb. 19] Update on Fukushima Daiichi D&D by TEPCO?

Tom, Adam, and all,

I look forward to visiting the NIST Robotics Lab on Feb. 19th and discussing with you ideas on the robotics workshop.

Would it be useful if I gave a brief presentation on the current status of decommissioning at Fukushima Daiichi so that participants can get a better idea of what needs there are for robotics at the site?

If so, I will bring my laptop and be prepared to show you some relevant slides.

Let me know what you all think and I will prepare accordingly.

All the best,

Kenji

-----  
Kenji Tateiwa

Manager, Nuclear Power Programs

Tokyo Electric Power Company

Washington Office

2121 K Street, NW Suite 910

Washington, DC 20037

tel: +1-202-457-0790 (ext.)116

(b)(6)

Outside of Scope

Page 1300 of 2257

Withheld pursuant to exemption

Outside of Scope

of the Freedom of Information and Privacy Act

Thanks ..... Tom

---

**From:** Jacoff, Adam S. [mailto:[adam.jacoff@nist.gov](mailto:adam.jacoff@nist.gov)]  
**Sent:** Friday, February 06, 2015 12:34 PM  
**To:** Tateiwa, Kenji; Nicholson, Thomas  
**Cc:** Moylan, Elizabeth; Virts, Ann M.; Messina, Elena  
**Subject:** Re: Possible Dates to visit NIST Robotics Laboratory

Hello Thomas and Kenji,

Since it appears you would be coordinating involvement of Japanese visitors to NIST, attached is the form they'll need to fill out. Please REPLY ALL to this email when returning so my secretary can get the names entered into our system for gate access. Everybody needs to bring solid forms of identification such as passports, drivers licenses, etc.

Best Regards,

-Adam

**Adam S. Jacoff**

Intelligent Systems Division, Engineering Laboratory  
**NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY**  
Gaithersburg, MD USA 20899 | 301-975-4235 | [Adam.Jacoff@nist.gov](mailto:Adam.Jacoff@nist.gov) |  
[RobotTestMethods@nist.gov](mailto:RobotTestMethods@nist.gov)  
<http://www.nist.gov/el/isd/ms/robottestmethods.cfm>

---

**From:** <Nicholson>, Thomas <[Thomas.Nicholson@nrc.gov](mailto:Thomas.Nicholson@nrc.gov)>  
**Date:** Friday, February 6, 2015 at 11:55 AM  
**To:** "andrew.Szilagyi@em.doe.gov" <[andrew.Szilagyi@em.doe.gov](mailto:andrew.Szilagyi@em.doe.gov)>, "Adam S. Jacoff" <[adam.jacoff@nist.gov](mailto:adam.jacoff@nist.gov)>, "Norton, Charles" <[Charles.Norton@nrc.gov](mailto:Charles.Norton@nrc.gov)>, "Tateiwa, Kenji" <[tateiwa.kenji@tepco.co.jp](mailto:tateiwa.kenji@tepco.co.jp)>  
**Cc:** "West, Steven" <[Steven.West@nrc.gov](mailto:Steven.West@nrc.gov)>, "Madden, Patrick" <[Patrick.Madden@nrc.gov](mailto:Patrick.Madden@nrc.gov)>, "Correia, Richard" <[Richard.Correia@nrc.gov](mailto:Richard.Correia@nrc.gov)>, "Rini, Brett" <[Brett.Rini@nrc.gov](mailto:Brett.Rini@nrc.gov)>  
**Subject:** Possible Dates to visit NIST Robotics Laboratory

Adam and Andrew:

Below is Kenji's availability. I suggest February 19<sup>th</sup> as a good date.

Please let us know your availability.

Thanks ..... Tom

---

**From:** Tateiwa, Kenji [mailto:[tateiwa.kenji@tepco.co.jp](mailto:tateiwa.kenji@tepco.co.jp)]  
**Sent:** Thursday, February 05, 2015 6:40 PM  
**To:** Nicholson, Thomas  
**Subject:** Re: Follow-Up to Discussions on Robotics at Nuclear Facilities

Tom,

Thank you for your call today regarding a visit to NIST.

I am available all day on the following dates (preferably in the morning):



Thu, Feb. 19  
Fri, Feb. 20  
Thu, Feb. 26

All the best,  
Kenji

-----  
Kenji Tateiwa  
Manager, Nuclear Power Programs  
Tokyo Electric Power Company  
Washington Office  
2121 K Street, NW Suite 910  
Washington, DC 20037  
tel: +1-202-457-0790 (ext.)116

(b)(6)

Outside of Scope

Page 1303 of 2257

Withheld pursuant to exemption

Outside of Scope

of the Freedom of Information and Privacy Act

Page 1304 of 2257

Withheld pursuant to exemption

Outside of Scope

of the Freedom of Information and Privacy Act

# **Fukushima Nuclear Accident**

*~A TEPCO Nuclear Engineer's Perspective~*

*National Institute of Standards and Technology*

*Gaithersburg, Maryland*

*February 19<sup>th</sup>, 2015*

*Kenji Tateiwa*

*Manager, Nuclear Power Programs*

*Tokyo Electric Power Company, Washington Office*

*tateiwa.kenji@tepcoco.jp*



# Table of Contents

---

- **My Background**
- **Overview of the Great East Japan Earthquake**
- **Accident Response at Fukushima Daiichi/Daini NPS**
- **Lessons Learned/Nuclear Safety Reform**
- **Safety Enhancement at Kashiwazaki Kariwa NPS**
- **Current Status of Fukushima Daiichi NPS**
- **Decommissioning Roadmap/Global Collaboration**
- **Personal Thoughts**

# My Background

- '90~'96: Kyoto University  
BS/MS in Nuclear Engineering
- '96~: TEPCO
  - '96~'00: Fukushima Daini NPS
  - '00~'02: Nuclear Engineering Dept., Tokyo-H/Q (severe accident analysis)
  - '02~'04: MBA, Stanford Graduate School of Business
  - '04~'05: Nuclear Engineering Dept.
  - '05~'11: International Affairs Dept.
  - Mar.~Sept.'11: Fukushima Response Int'l Team, Tokyo-H/Q
  - Sept. '11~: Washington DC Office

*TEPCO class of '96  
in Naraha-town, Fukushima  
(Jan. 2000)*



*Pursued "Nuclear  
Renaissance" in Texas  
(June 2010)*

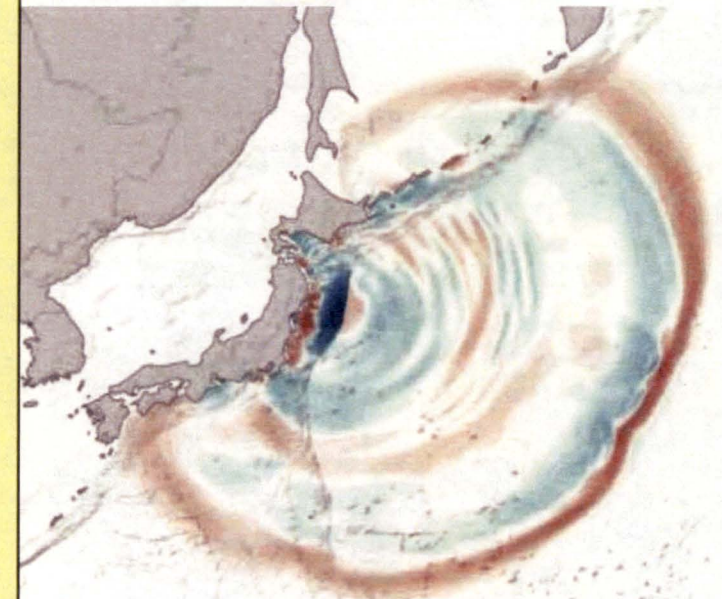




# My Background (cont'd)

- '90~'96: Kyoto University  
BS/MS in Nuclear Engineering
- '96~: TEPCO
  - '96~'00: Fukushima Daini NPS
  - '00~'02: Nuclear Engineering Dept.,  
Tokyo-H/Q (severe accident analysis)
  - '02~'04: MBA, Stanford Graduate  
School of Business
  - '04~'05: Nuclear Engineering Dept.
  - '05~'11: International Affairs Dept.
- Mar.~Sept.'11: **Fukushima  
Response Int'l Team, Tokyo-H/Q**
- Sept. '11~: **Washington DC Office**

**Then,  
everything  
changed...**



<http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=77331>

***Great East Japan  
Earthquake  
(March 11, 2011)***



TOKYO ELECTRIC POWER COMPANY

All Rights Reserved ©2015 Tokyo Electric Power Company, Inc.



# My Post-Accident Activities





# My Post-Accident Activities (cont'd)



**Preparation for IAEA Fact-Finding Mission  
(5/21/2011@Fukushima Daiichi “*Bedroom*”)**



# My Post-Accident Activities (cont'd)



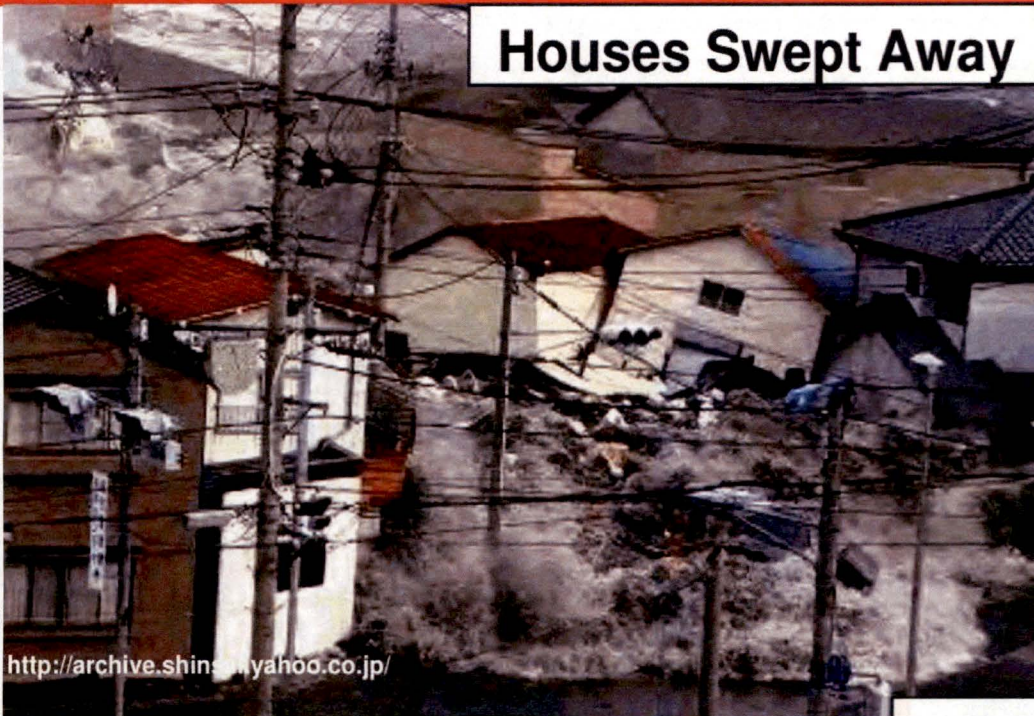
***“Nothing has been more important in my career than supporting TEPCO”***

**U.S. INPO-Led Industry Support Team  
(8/19/2011@Fukushima Daini)**

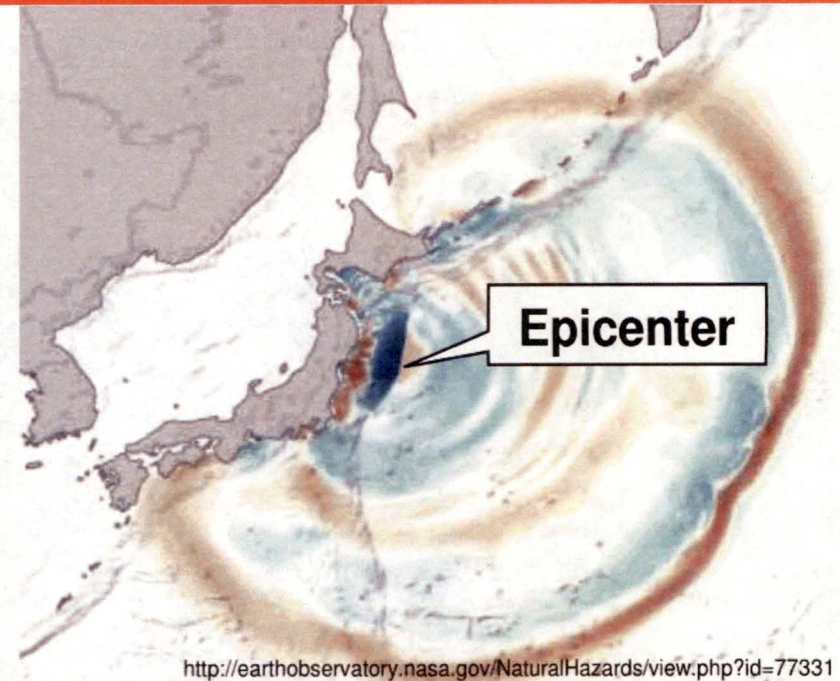


# Damage Due to Great East Japan Earthquake (GEJE)

Houses Swept Away



Epicenter



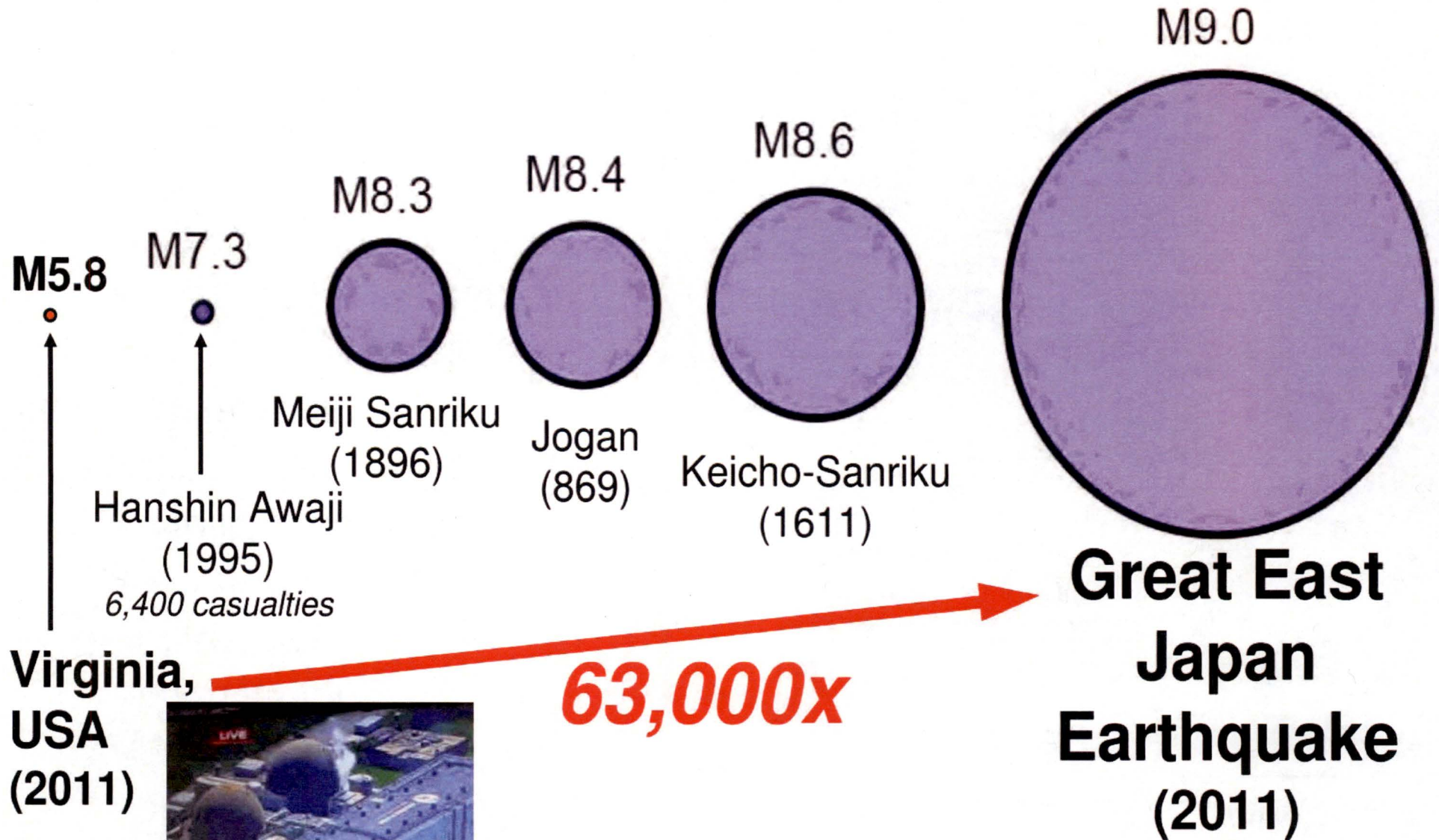
- **Largest** earthquake (M9.0) and tsunami (M9.1) in recorded history of Japan
- **20+ m** tsunami run-up in coast line spanning **200 km**
- **560 km<sup>2</sup>** flooded (**10x Manhattan**)
- **19,000 dead/missing**

Cruise Ship Stranded





# Comparison of Seismic Energy (Magnitude)



<http://wcrnews.wordpress.com/2011/08/23/5-9-earthquake-rocks-virginia-d-c/>

TOKYO ELECTRIC POWER COMPANY

All Rights Reserved ©2015 Tokyo Electric Power Company, Inc.



# Impact of GEJE to TEPCO Facilities

## Shutdown:

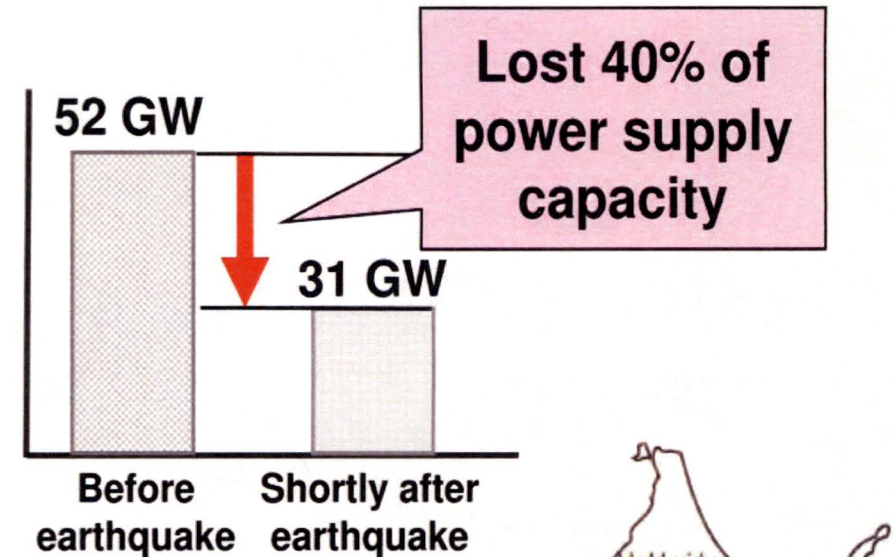
- Nuclear power: **7** units
- Thermal power: **12** units
- Hydro power: **25** units
- Substations: **8**

## Power outage:

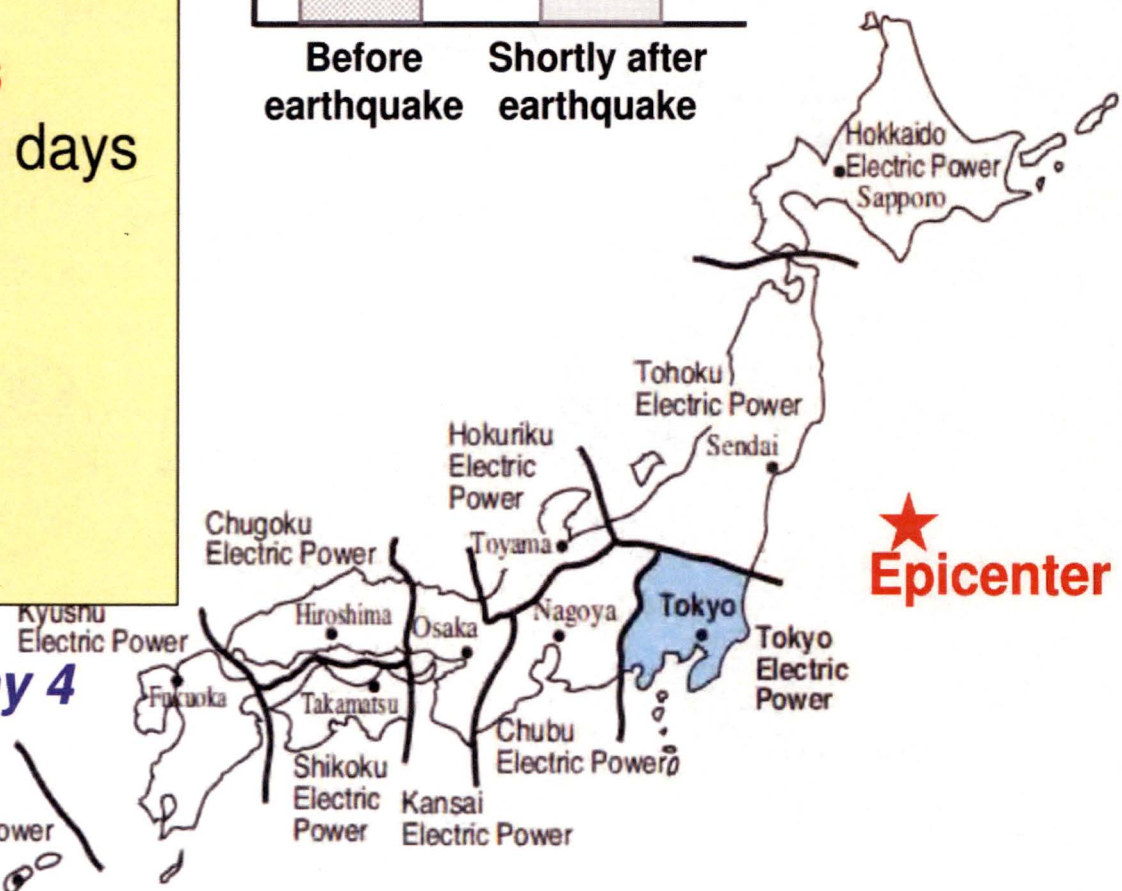
- **4 million households**
- Rolling blackout for 10 days

## Massive interruption of infrastructure:

- Public transportation
- Telecommunication
- Food/water supply



**Restored >99% of power by day 4**





# TEPCO's Nuclear Power Stations (17 BWR Units)

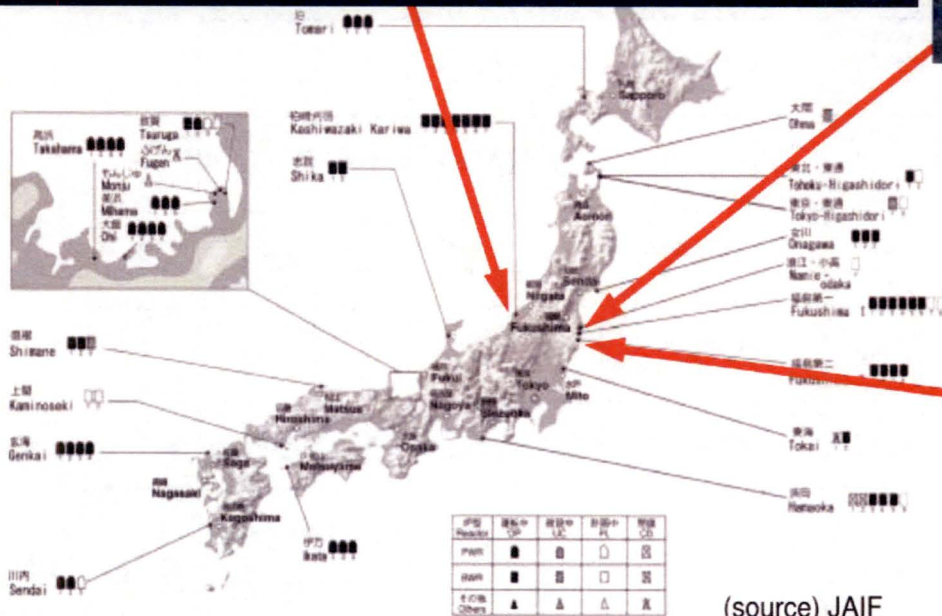
## Kashiwazaki-Kariwa (KK)



## Fukushima Daiichi (1F)



## Fukushima Daini (2F)





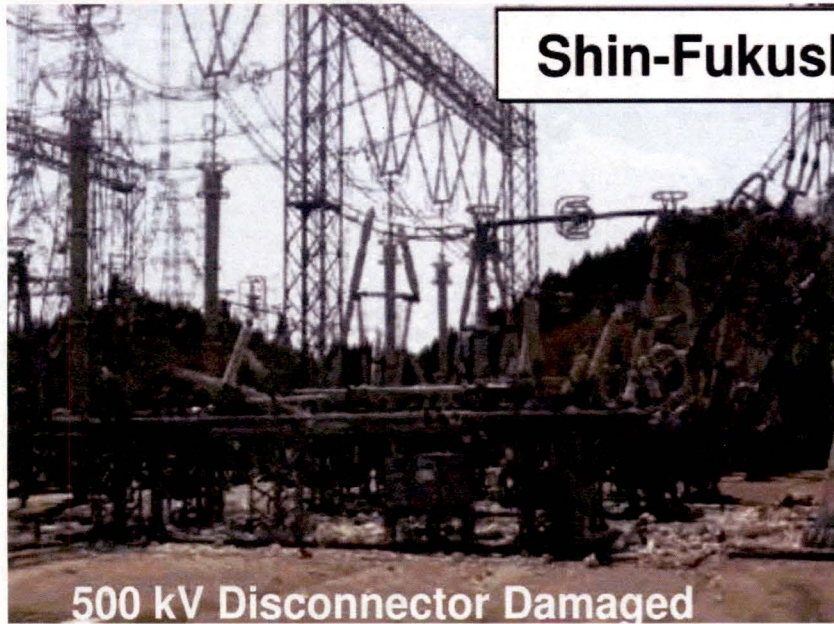
# Overview of Fukushima Daiichi/Daini NPS

Plant	Unit	Start of Operation	Reactor Type	Containment Type	Power Output (MWe)	Main Contractor	Pre-earthquake Status
1F	1	1971. 3	BWR-3	Mark-I	460	GE	Operating
	2	1974. 7	BWR-4	Mark-I	784	GE/Toshiba	Operating
	3	1976. 3	BWR-4	Mark-I	784	Toshiba	Operating
	4	1978.10	BWR-4	Mark-I	784	Hitachi	Outage Full core offloaded to spent fuel pool
	5	1978. 4	BWR-4	Mark-I	784	Toshiba	Outage
	6	1979.10	BWR-5	Mark-II	1,100	GE/Toshiba	Outage
2F	1	1982. 4	BWR-5	Mark-II	1,100	Toshiba	Operating
	2	1984. 2	BWR-5	Mark-II modified	1,100	Hitachi	Operating
	3	1985. 6	BWR-5	Mark-II modified	1,100	Toshiba	Operating
	4	1987. 8	BWR-5	Mark-II modified	1,100	Hitachi	Operating

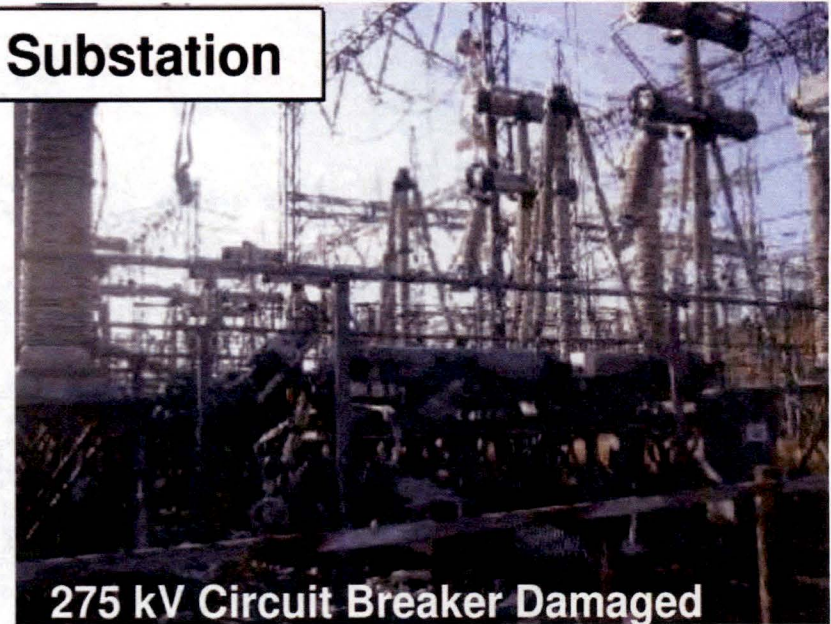


# Impact of GEJE on Off-site Power to 1F/2F

Shin-Fukushima Substation

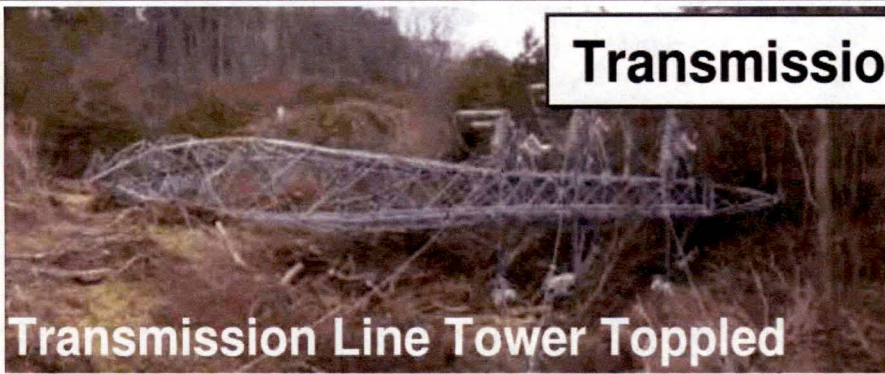


500 kV Disconnector Damaged

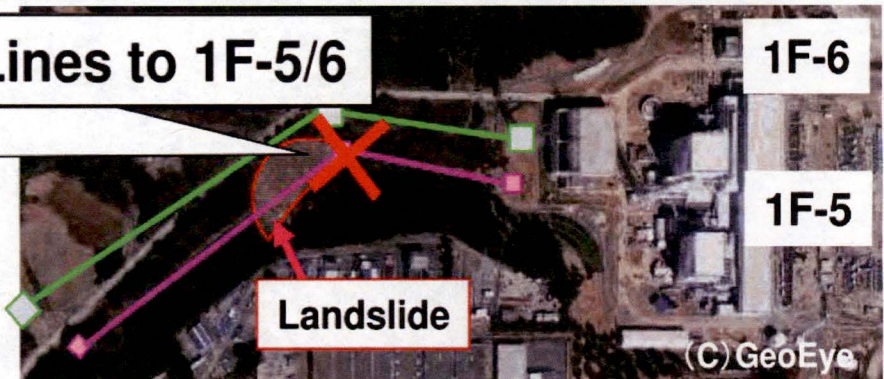


275 kV Circuit Breaker Damaged

Transmission Lines to 1F-5/6



Transmission Line Tower Toppled



Damage at substation, collapse of transmission line tower, etc. led to:

- **Loss of all off-site power at 1F**
- **Loss of all but 1 line of off-site power at 2F**

However, **all units at 1F/2F responded as designed** after the earthquake



# Tsunami at Fukushima Daiichi (1F)



**Estimated Tsunami Height:**  
**13.1 m = 43 ft. (4-Story Bldg.)**  
**4x historical-high and 2x design-basis**

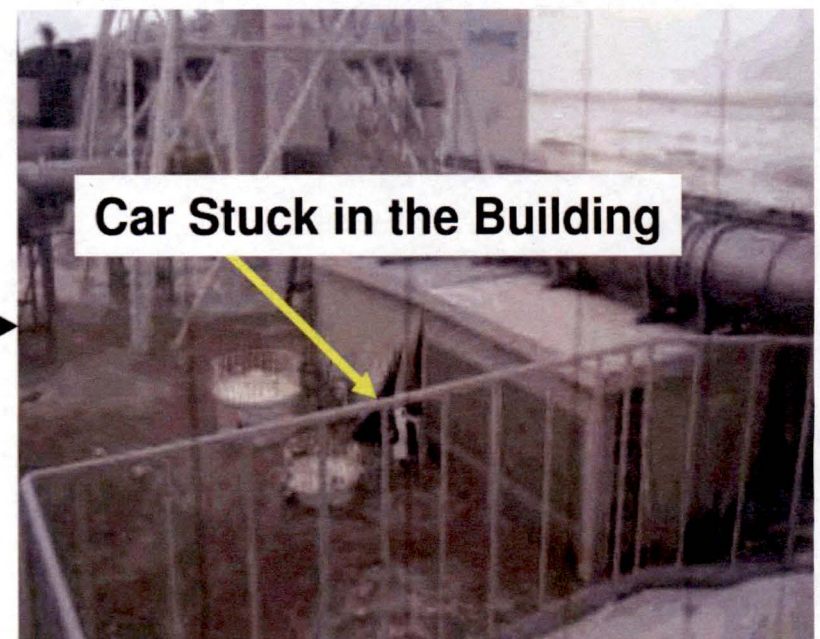
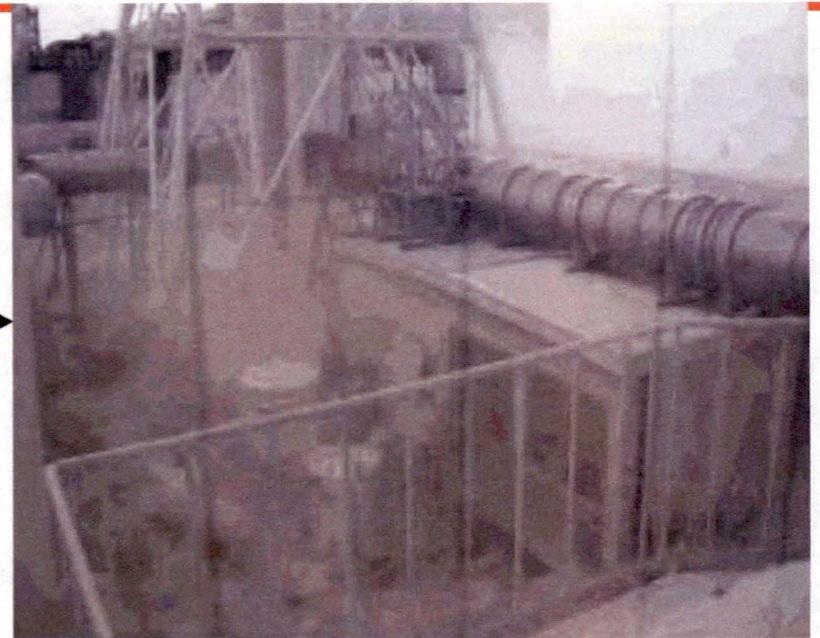
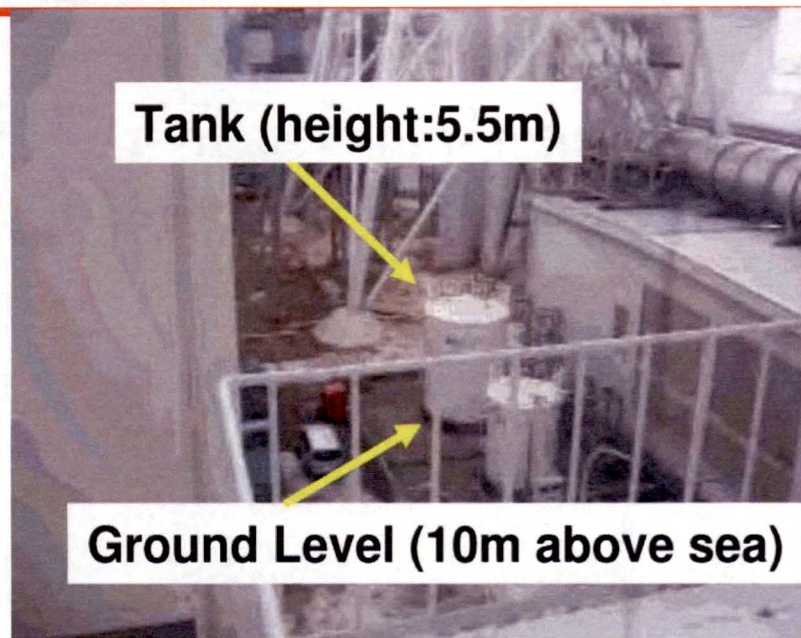


TOKYO ELECTRIC POWER COMPANY

All Rights Reserved ©2015 Tokyo Electric Power Company, Inc.

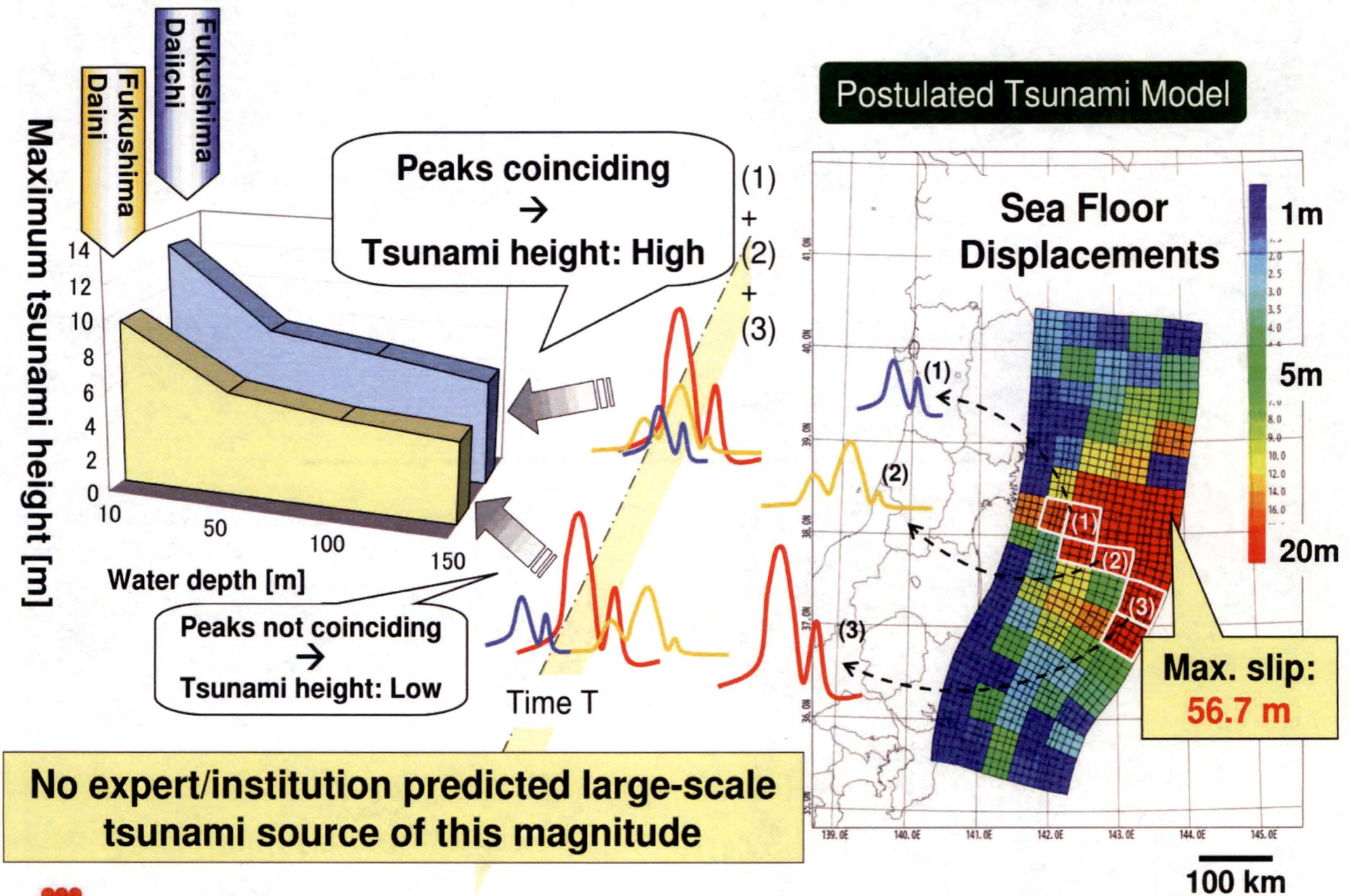


# Tsunami at 1F (cont'd)



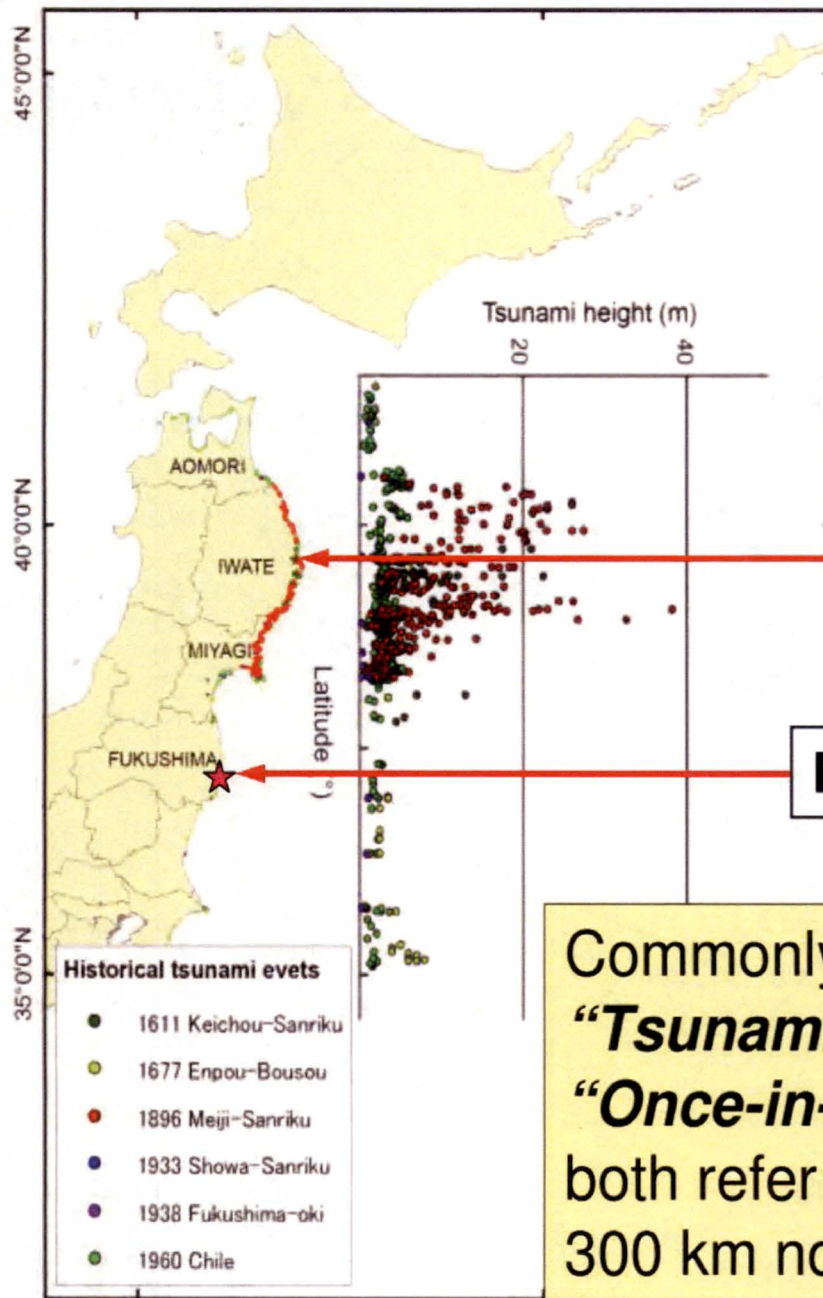


# Amplification of Multiple Tsunami Waves Due to Large-scale Earthquake





# No Historical Evidence of Huge Tsunamis Near Fukushima NPSs



**Tsunami Warning Stone  
(Miyako, Iwate Pref.)**

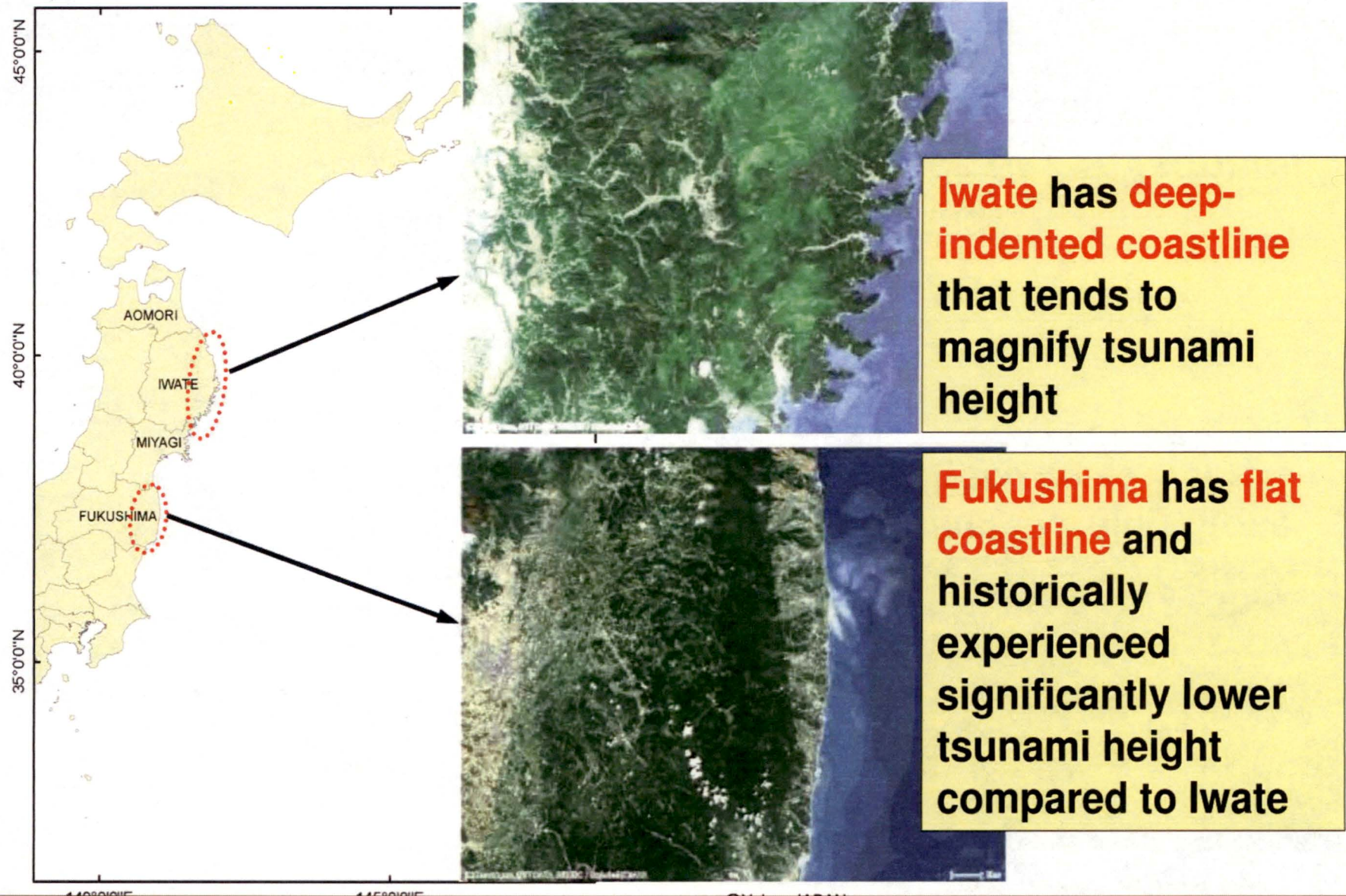
(source) <http://blog.miyakomall.jp/2012/04/>

**Fukushima NPSs**

Commonly **misquoted**  
***“Tsunami Warning Stone”*** and  
***“Once-in-400-year recurrence of 7-m tsunami”***  
both refer to **locations in Iwate Prefecture**,  
300 km north of Fukushima NPS



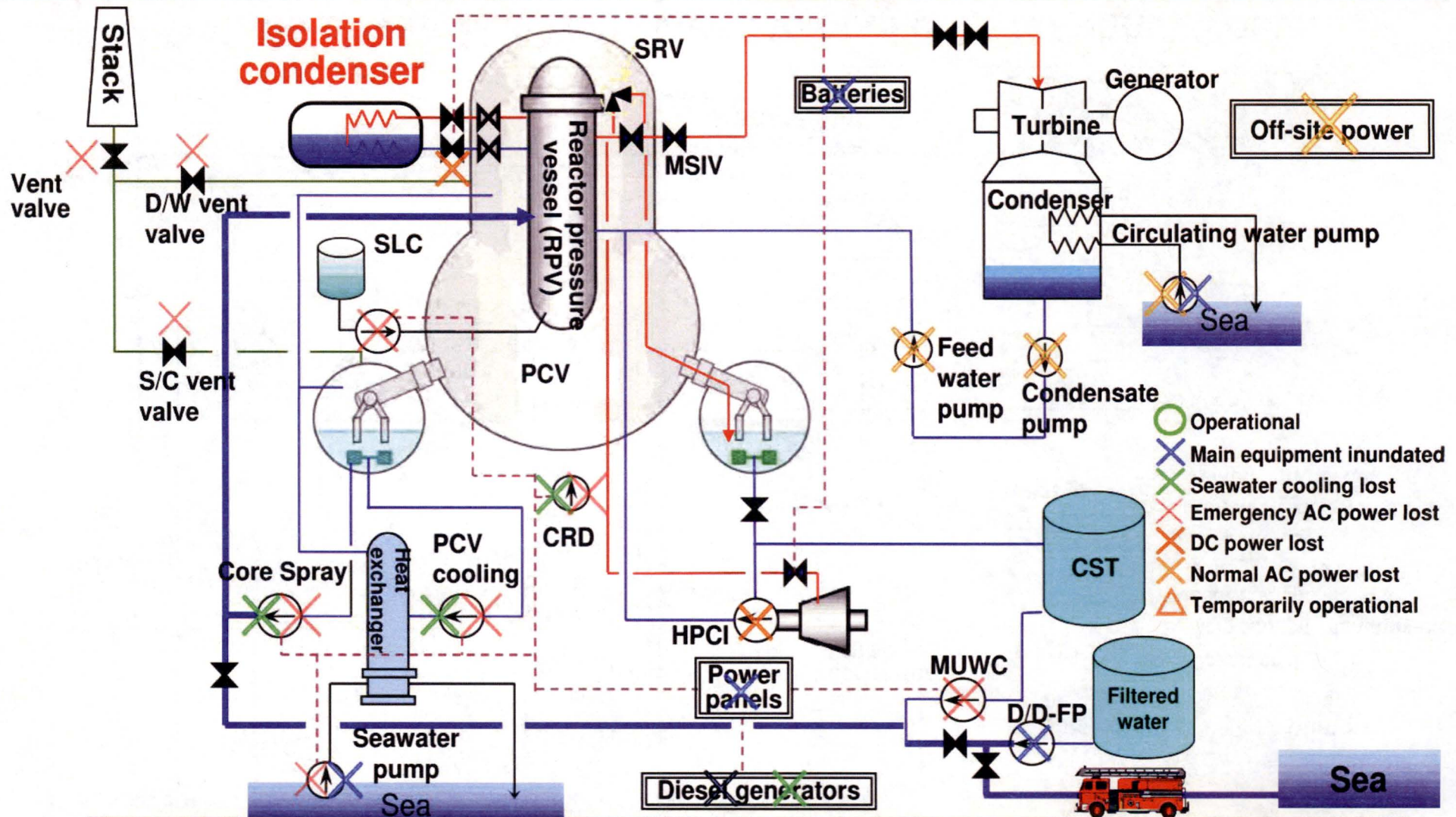
# Tsunami Height Heavily Dependent on Coastal Topography



**However, we should have been prepared for the unexpected**



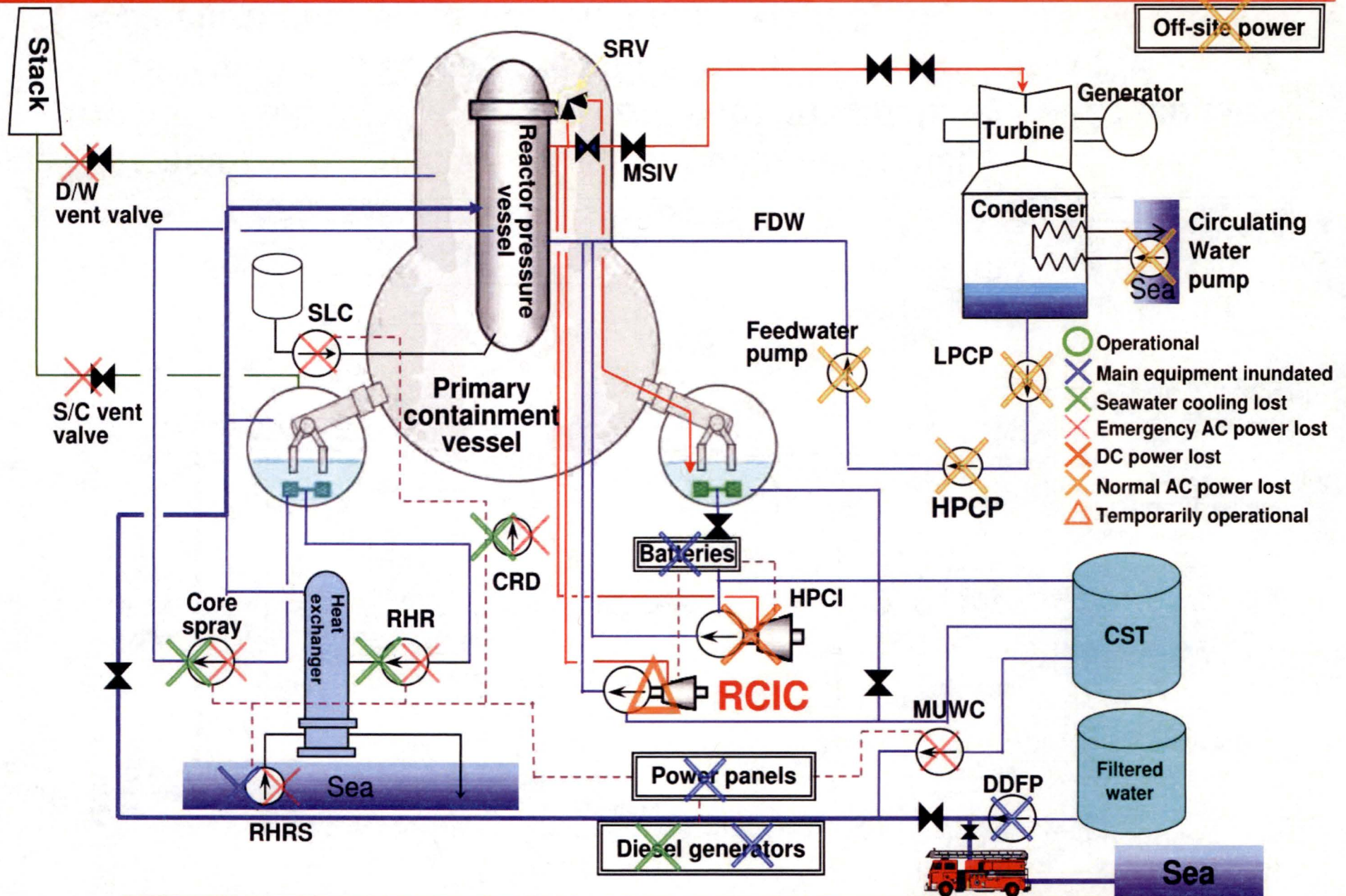
# Plant Status After Tsunami (1F Unit 1: BWR-3/Mk-I)



- Reactor **automatically shutdown** after earthquake
- **Loss of all AC/DC power** + core cooling capability due to tsunami
- Core melt and Zr-water reaction led to **H2 explosion** in R/B
- Stabilization by sea water injection via **fire trucks**



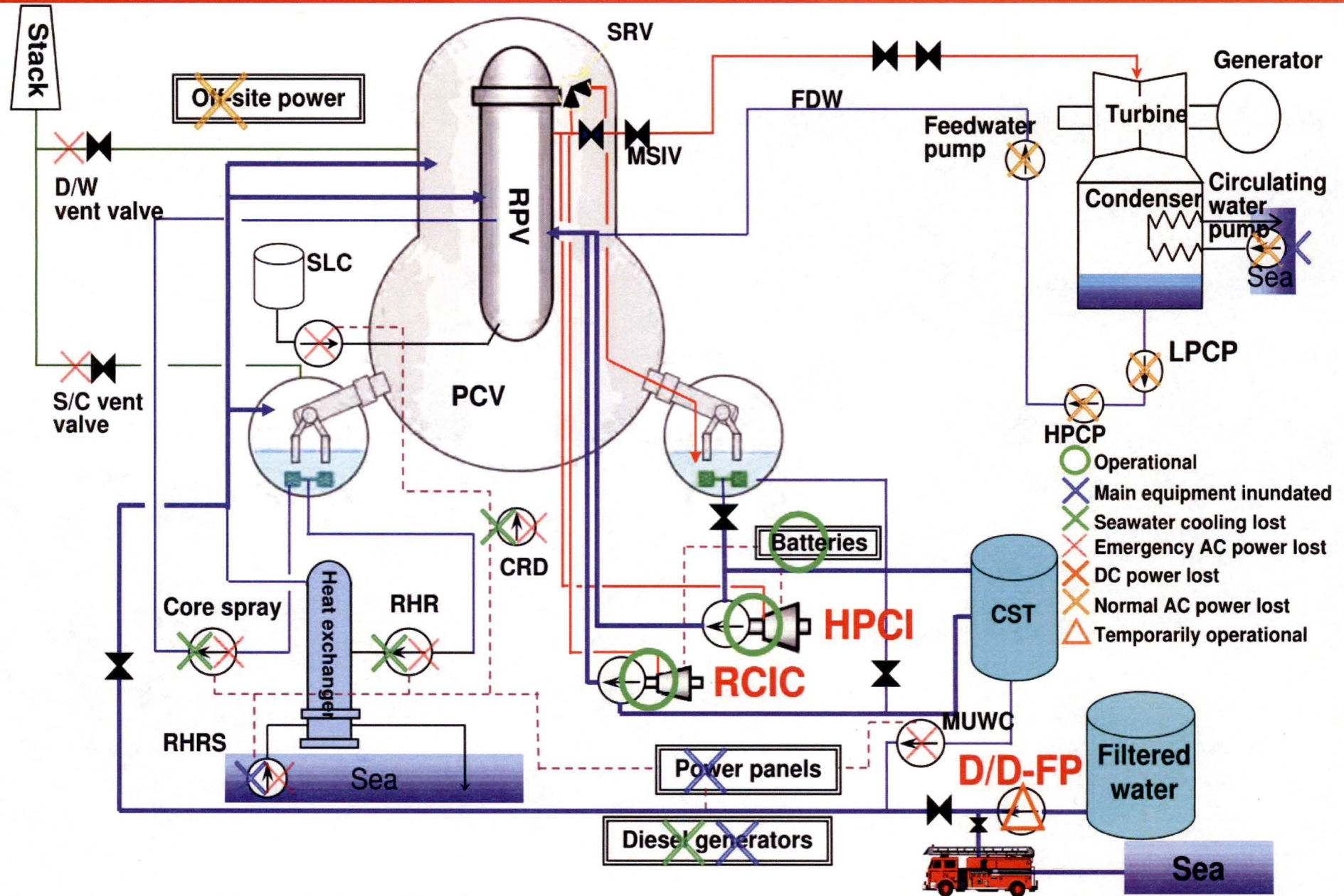
# Plant Status After Tsunami (1F Unit 2 : BWR-4/Mk-I)



**Turbine-driven RCIC continued to cool core for about 3 days**



# Plant Status After Tsunami (1F Unit 3 : BWR-4/Mk-I)



**Turbine-driven RCIC and HPCI continued to cool the core for 1.5 d**

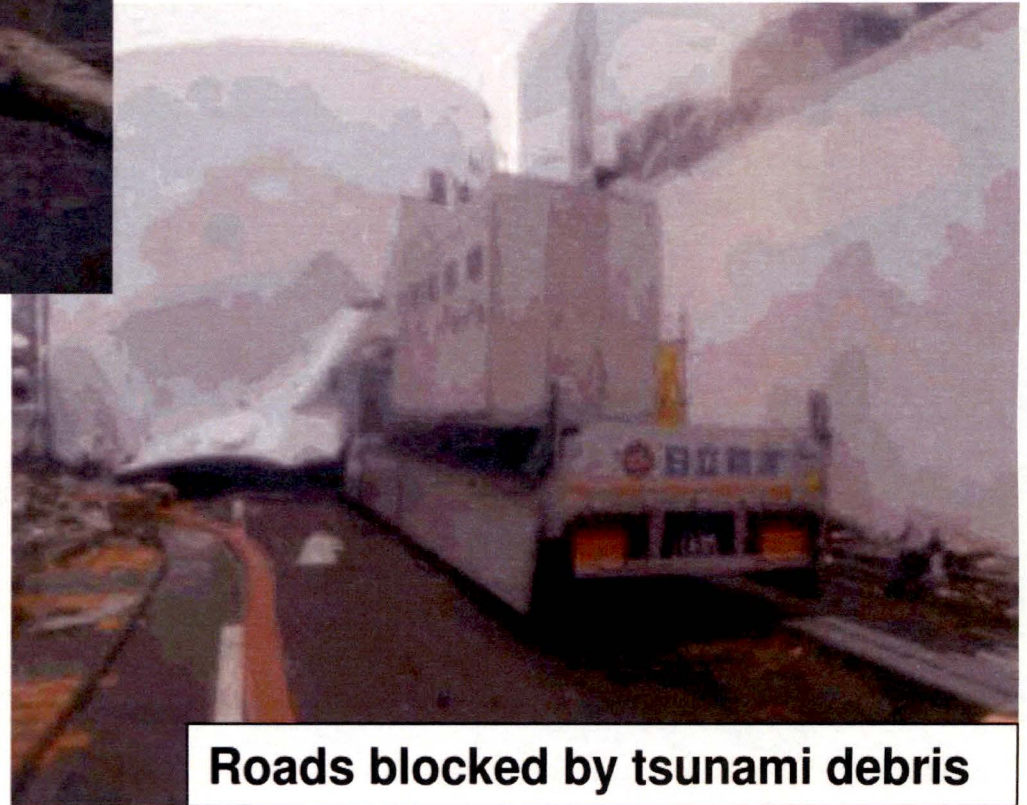


# Accident Response at 1F: In the Field



Roads damaged by earthquake

**Continual aftershocks, tsunami alerts, open manholes, etc. exacerbated the situation**



Roads blocked by tsunami debris



# Accident Response at 1F: In the Main Control Room



Checked instrumentation in near-complete darkness

Supervised operation wearing full-face mask



Brought in heavy batteries to restore instrumentations

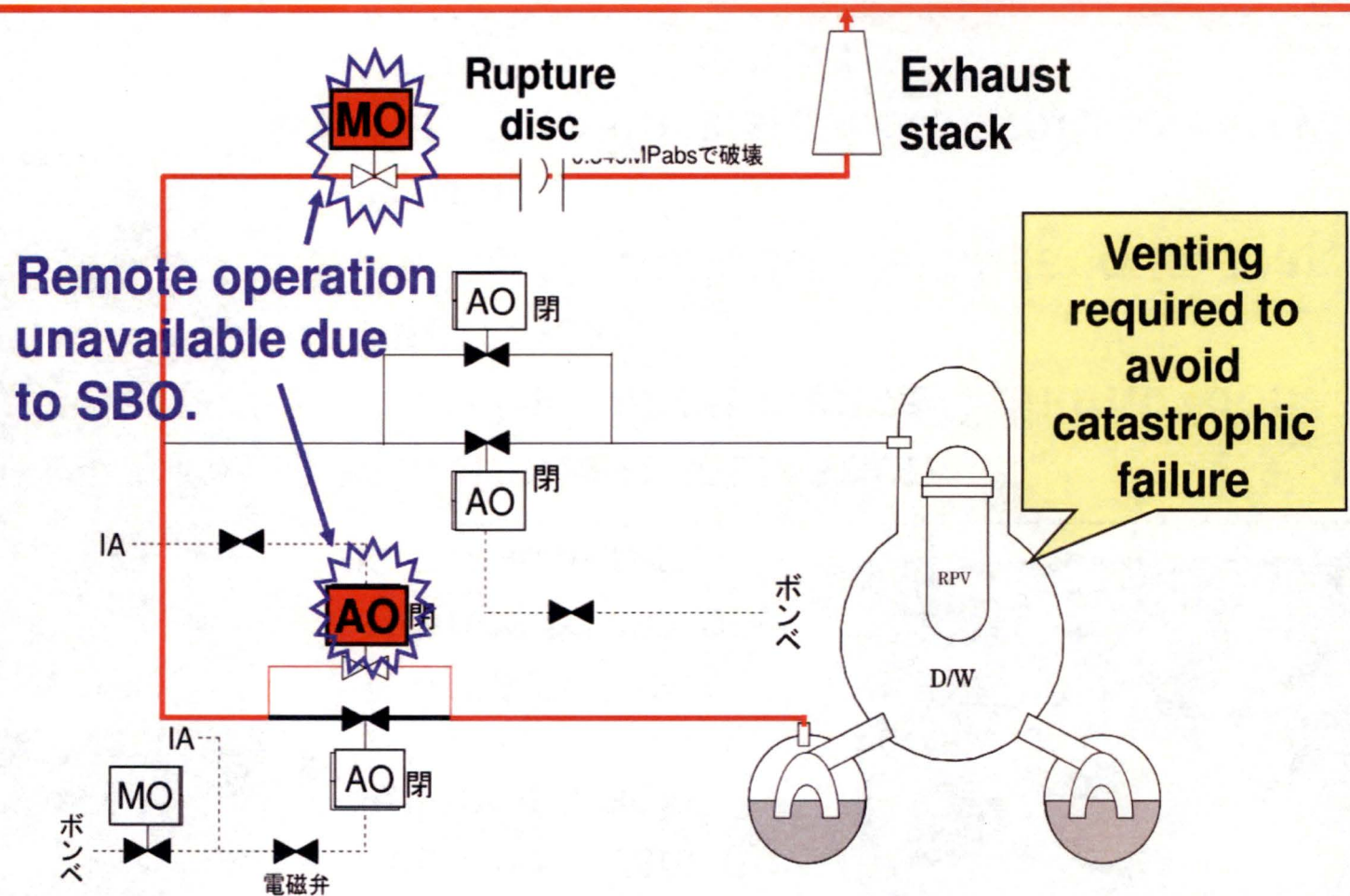


*Photos taken as "mementos"*

**Lack of:** instrumentation, communication means, lighting, food, water, sleep, ...  
**Increase in:** radiation level, fatigue, fear, despair, ...  
→ *Yet, operators stayed behind to carry through their duties*



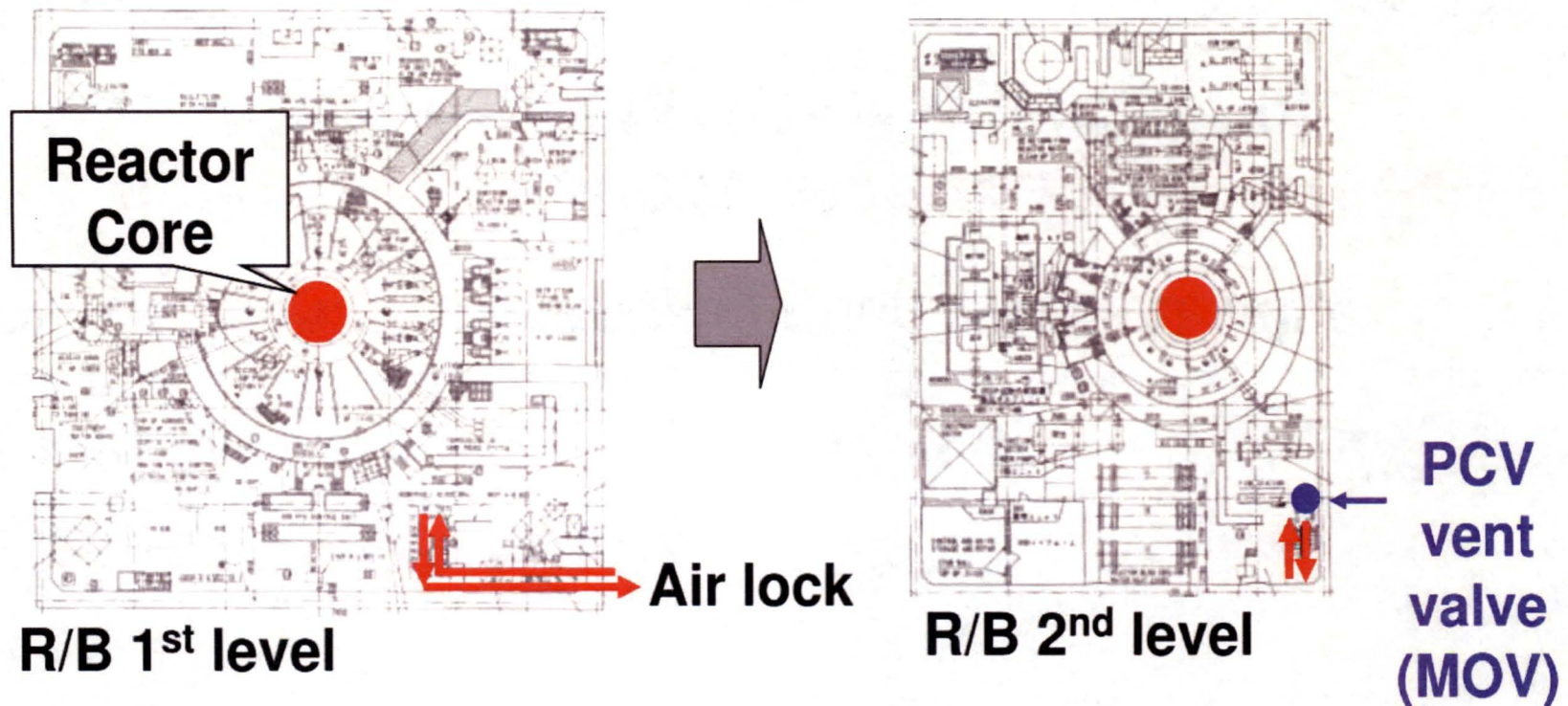
# Accident Response at 1F: Unit 1 Containment Venting



- Six men formed 3 “**last-resort teams**” to manually open 2 valves in **highly-radioactive area**
- Core damage already progressing by this time (3/12 9:04-9:30)



# Unit 1 Containment Venting (cont'd)

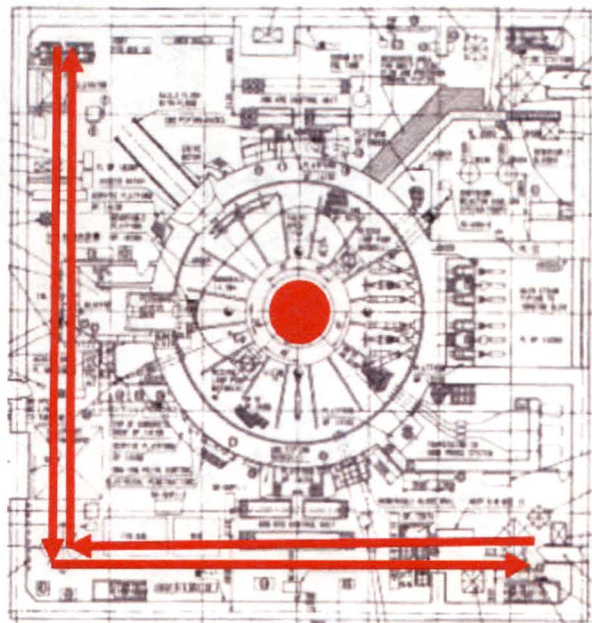


**1<sup>st</sup> team's attempt to manually open PCV vent valve:**

**→ Successful (3/12 9:15)**



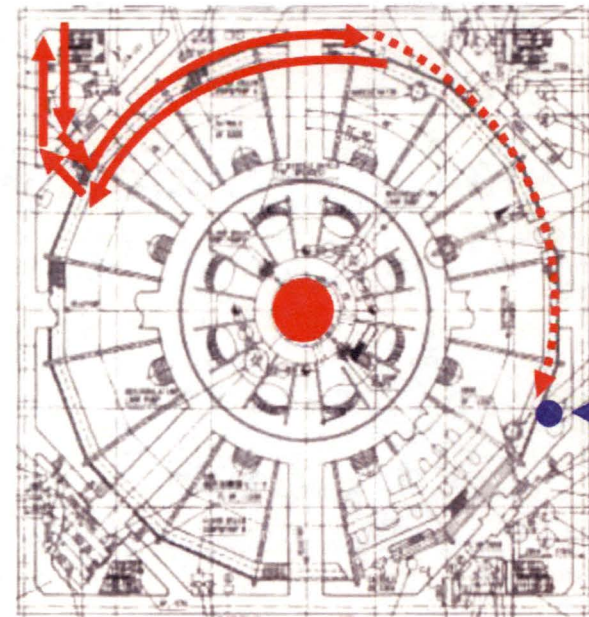
# Unit 1 Containment Venting (cont'd)



R/B 1<sup>st</sup> level



Air lock



S/C vent  
valve  
(AOV)

R/B B1F

2<sup>nd</sup> team's attempt to manually open S/C vent valve:

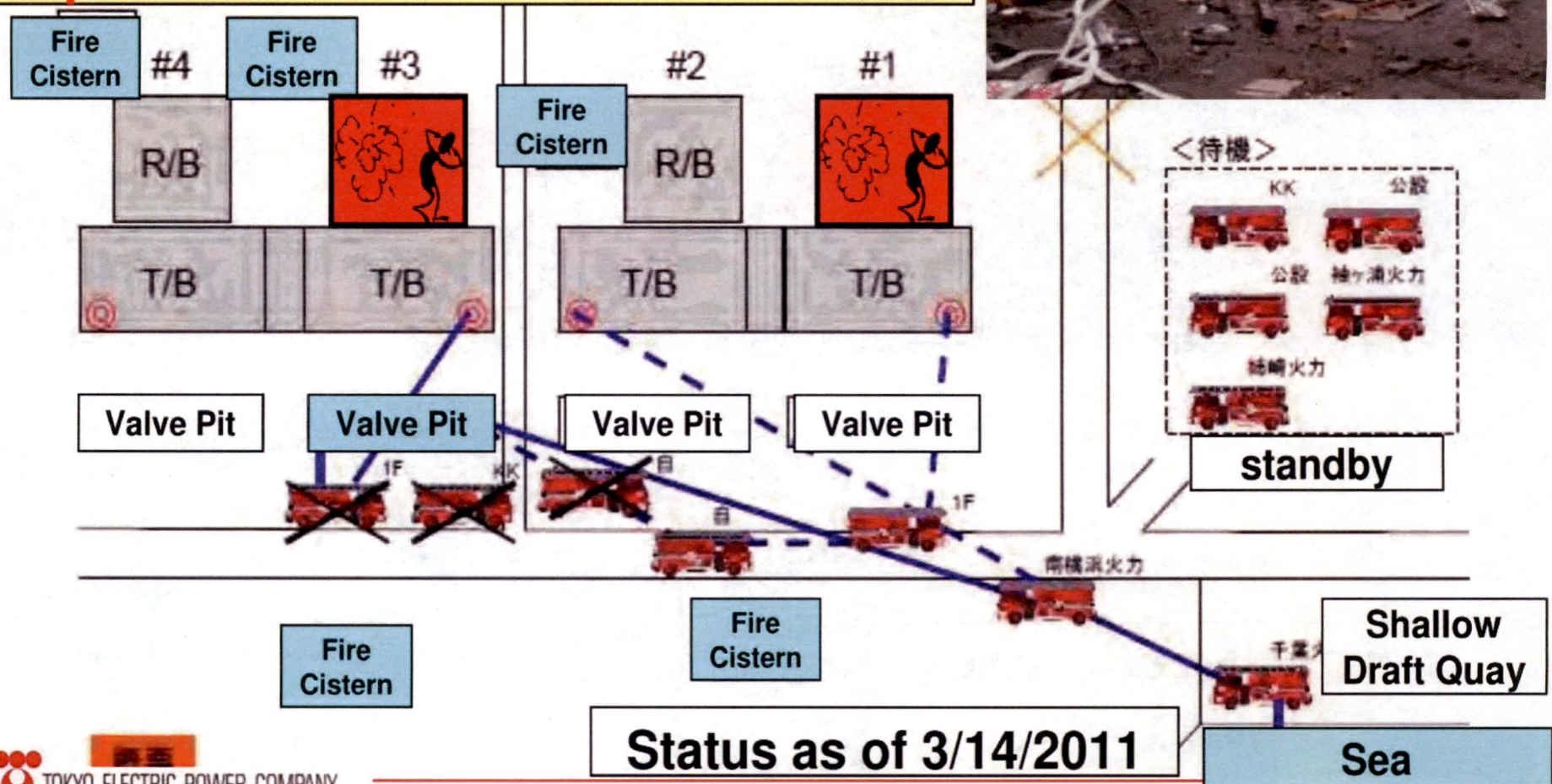
➡ **Unsuccessful due to extremely high radiation**  
Operators exposed to 100+ mSv (3/12 9:30)

***AOV eventually opened by remote operation (3/12 14:00)***



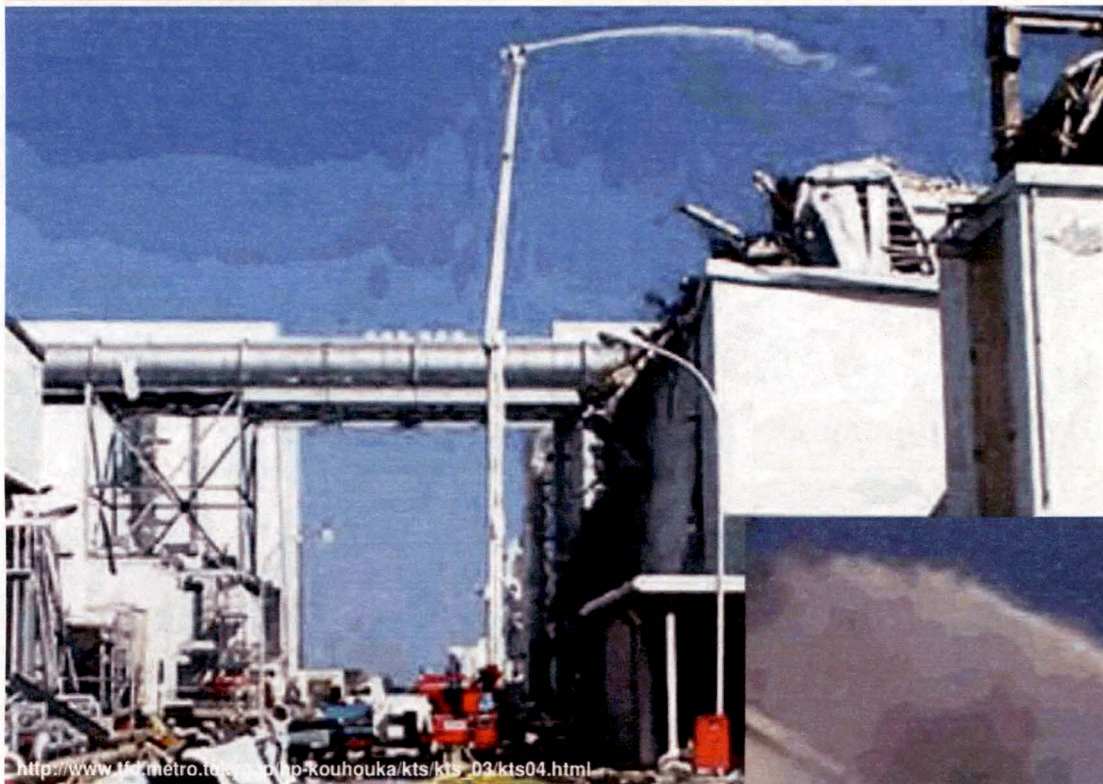
# Accident Response at 1F: Water Injection by Fire Trucks

- Fire trucks played critical role in injecting water into reactors
- Fire brigade operated fire trucks **amidst high radiation/successive explosions**





# Water Injection by Fire Trucks (Daytime)



**Fire Truck of  
Tokyo Fire Department**



**Fire Truck of  
Japan Self Defense Force**

**Complex Inter-organizational Coordination Required**



# Water Injection by Fire Trucks (Nighttime)

Fire Truck of  
Tokyo Fire Department



Fire Truck of  
Japan Self Defense Force



**Around-the-Clock Response Required**



# Accident Response at 1F: Unit 5 Shut-down SBO

Unit	COD	Reactor Type	Containment Type	Power Output (MWe)	Main Contractor	Pre-earthquake Status (3/11/2011)
1	1971. 3	BWR-3	Mark-I	460	GE	Operating
2	1974. 7	BWR-4	Mark-I	784	GE/Toshiba	Operating
3	1976. 3	BWR-4	Mark-I	784	Toshiba	Operating
4	1978.10	BWR-4	Mark-I	784	Hitachi	Outage Full core offloaded to SFP
5	1978. 4	BWR-4	Mark-I	784	Toshiba	Outage In preparation for restart
6	1979.10	BWR-5	Mark-II	1,100	GE/Toshiba	Outage

- Undergoing RPV hydrostatic testing
- RPV pressure: 7 MPa (= 1,015 psi)
- **SRVs locked-out** (unable to operate from MCR)
- Reactor water temp.: 90 C (194 F)
- SFP water temp.: 25 C (77 F)

(Source) TEPCO Internal Investigation Committee Final Report

[http://www.tepco.co.jp/en/press/corp-com/release/2012/1205638\\_1870.html](http://www.tepco.co.jp/en/press/corp-com/release/2012/1205638_1870.html)



# Unit 5 Shut-down SBO (cont'd)

## March 11 (Day 1)

- 14:46 Earthquake
- 15:27 1st Tsunami wave
- 15:40 **SBO** →
- 23:30 Field investigation in complete darkness

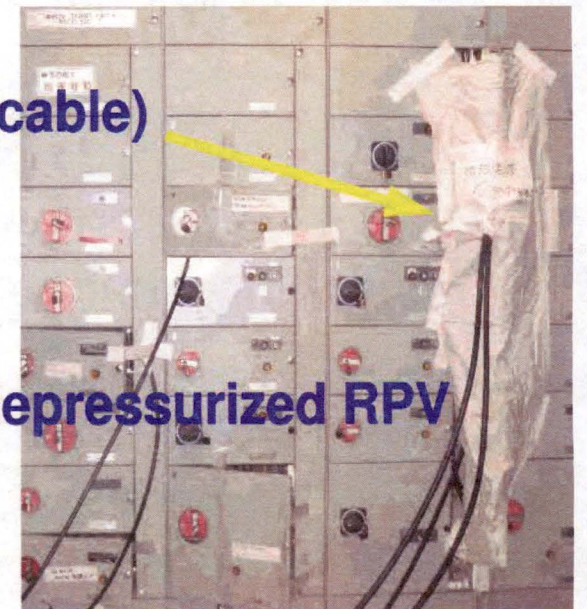


## March 12 (Day 2)

- 1:40 SRV auto-open/close; RPV pressure at 8 MPa (1,160 psi)
- 5:00 **Entered R/B**; lined-up N<sub>2</sub> line by **manually opening AOV**
- 6:06 **RPV depressurized** by opening RPV head vent
- 8:13 Unit 6 EDG → Unit 5 DC charger (via pre-installed tie-line)

## March 13 (Day 3)

- 20:48 Unit 6 EDG → Unit 5 AC bus (via temporary cable)
- 20:54 MUWC pump manual start
- 21:01 SGTS manual start



## March 14 (Day 4)

- ~5:00 **Entered D/W**; **manually reconfigured SRV**; **depressurized RPV**
- 5:30 **Reactor water injection by MUWC**
- 9:27 **SFP water injection by MUWC**



# Unit 5 Shut-down SBO (cont'd)

---

## March 15 (Day 5)

- **Temporary evacuation** to Fukushima Daini (“Fukushima Fifty” preoccupied with other units)

## March 16 (Day 6)

- Tsunami rubble removal in preparation for RHRS pump replacement
- 22:16~ SFP water partially discharged to S/C (makeup by CST water)

## March 17 (Day 7)

- RHRS pump replaced by underwater pump
- Power cable laid from power truck

## March 18 (Day 8)

- 13:30 **Drilled hole on roof of reactor building**



## March 19 (Day 9)

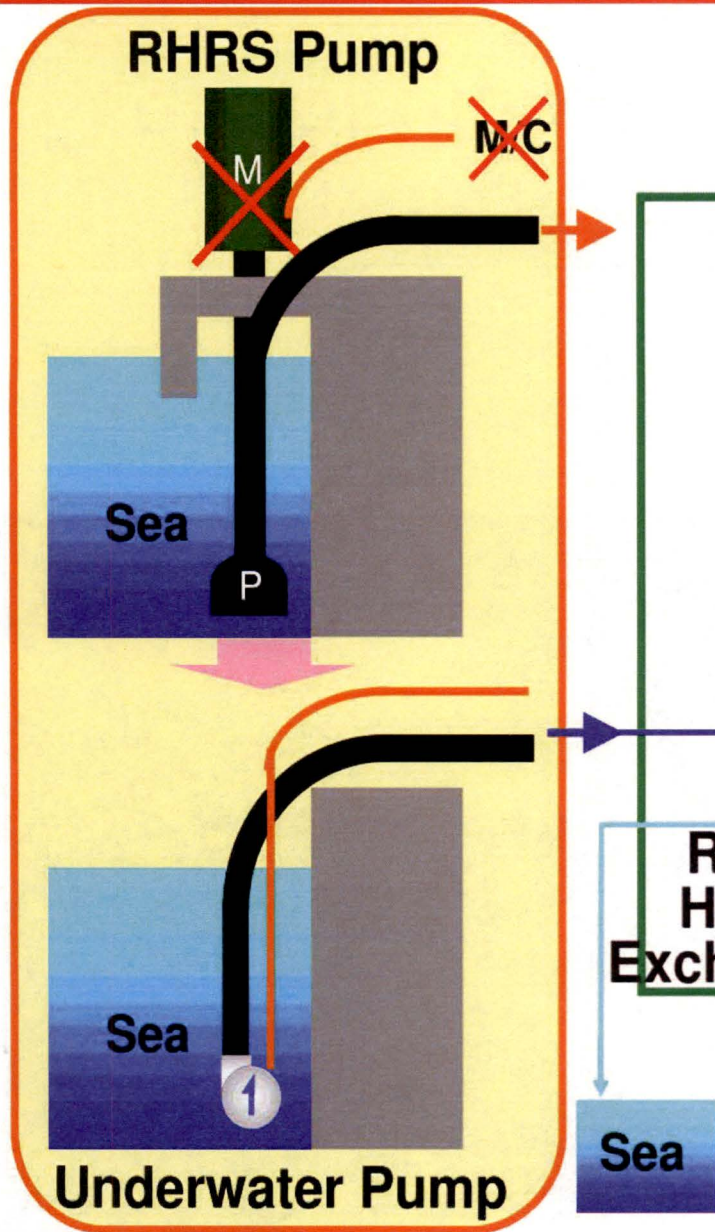
- 1:55 Underwater pump started using power truck
- 5:00 **RHR manual start** (emergency heat load mode; **SFP cooling**)

## March 20 (Day 10)

- 12:25 **RHR manual restart** (shutdown cooling mode; **core cooling**)
- 14:30 **Cold shutdown**



# Unit 5 Shut-down SBO (cont'd)



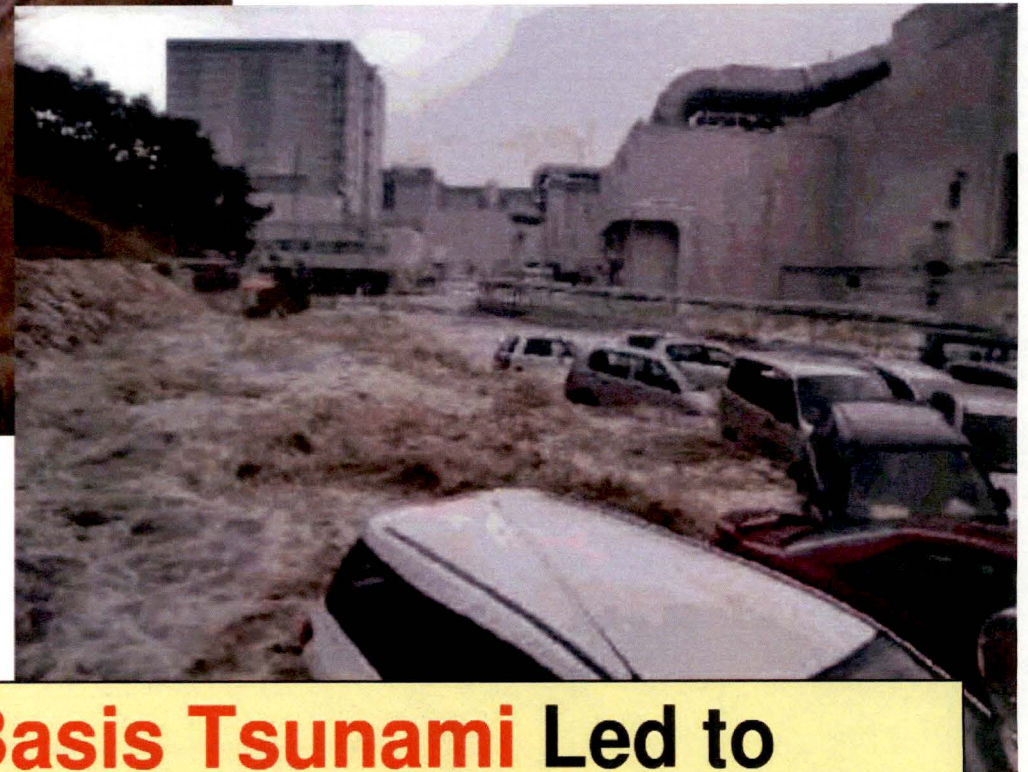
- Power supply from Unit 6 EDG/power trucks
- Replaced RHRs pump
- **Cold shutdown achieved on day 10**



# Tsunami at Fukushima Daiichi (2F)



12 meters  
above sea level



**Beyond-Design-Basis Tsunami** Led to  
**Loss of Ultimate Heat Sink** for 3 out of 4 Units



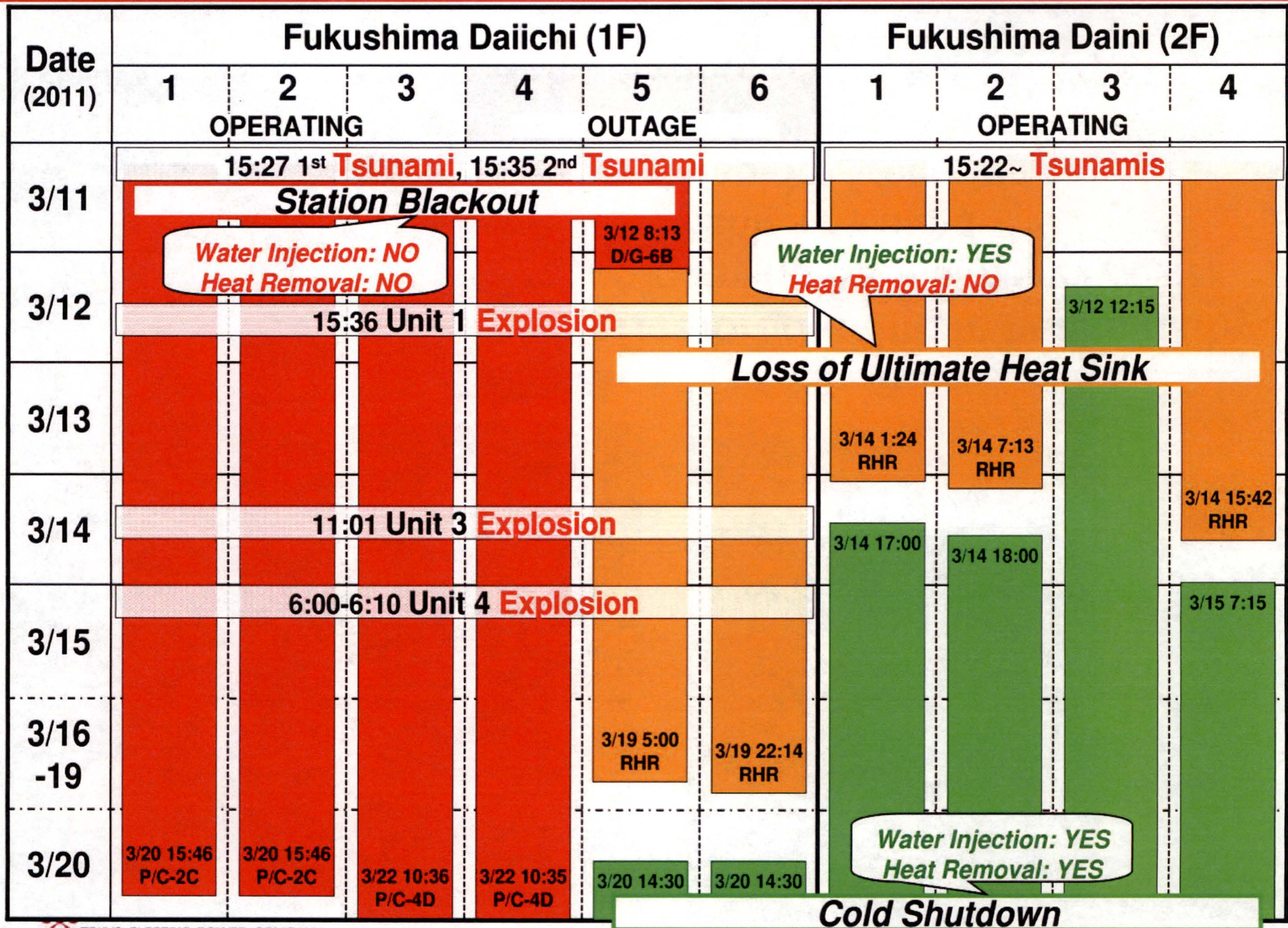
# Accident Response at 2F: Recovery from Tsunami



- Restored ultimate heat sink by:
  - ✓ Laying 9 km of heavy power cables by hand
  - ✓ Rapidly procuring and replacing motors
- Executed “**FLEX On-The-Fly**”

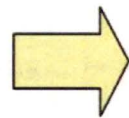
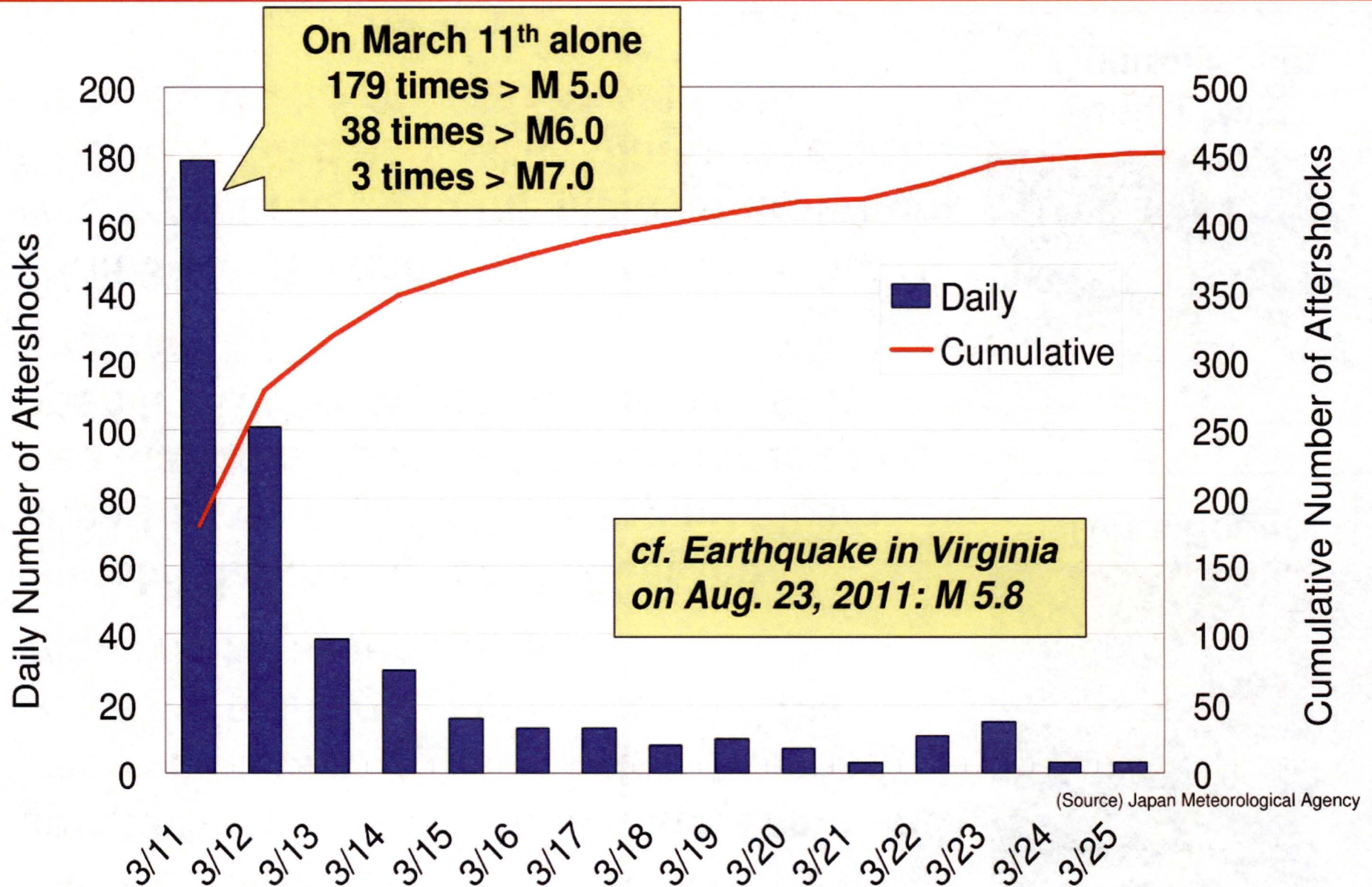


# Overview of the 10-Unit Simultaneous Accidents





# Hundreds of Aftershocks Greater than M 5.0



**Visualization of earthquakes in 2011**

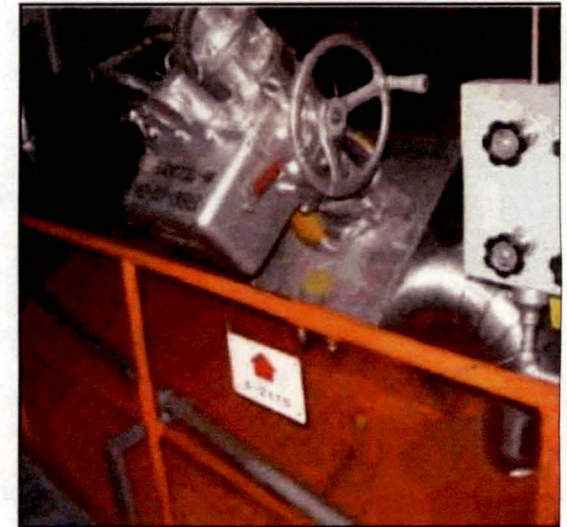
<http://www.youtube.com/watch?v=eKp5cA2sM28>



# Voices from the Field (First Responders at 1F)

---

- “In an attempt to check the status of Unit 4 D/G, I was trapped inside the security gate compartment. Soon the tsunami came and **I was minutes away from being drowned**, when my colleague smash opened the window and saved my life.”
- “In total darkness, I could hear the unearthly sound of SRV dumping steam into the torus. I stepped on the torus to open the S/C spray valve, and **my rubber boot melted.**”
- “Unit 3 could explode anytime soon, but it was my turn to go to the main control room. **I called my dad and asked him to take good care of my wife and kids should I die.**”



Torus Room



Unit 1 Main  
Control Room



# Voices from the Field (First Responders at 1F) (cont'd)

“At that time, I was conjuring up faces of fellow colleagues who would **die with me.**”  
(Masao Yoshida, Site Superintendent)



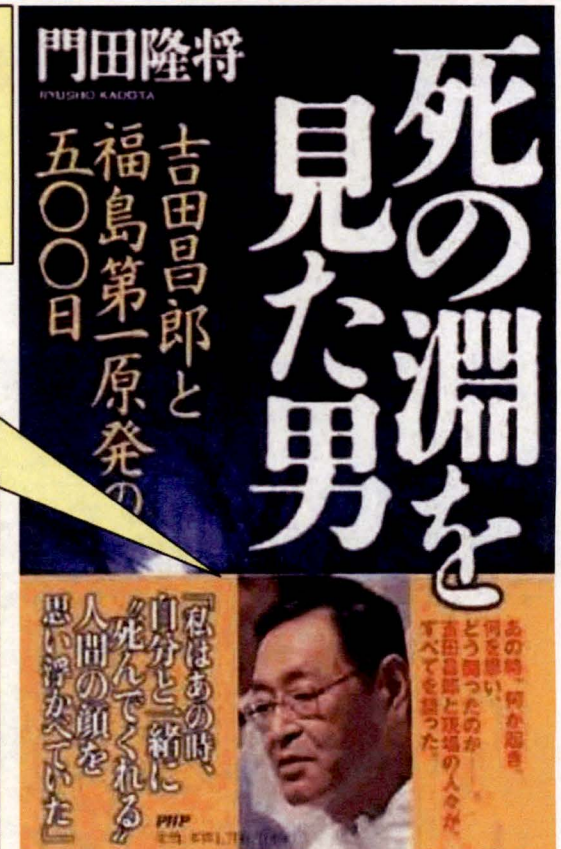
“I was determined to **stay behind to my death**; however I was resolved to **send my men back home alive.**”

(Ikuo Izawa, Shift Manager)



“Let me go and vent the containment.  
I know where the valve is and I can run fast.  
**Let me protect the unit that I love.**”

(Kazuhiro Yoshida, Deputy Shift Manager)



“On the Brink: The Inside Story of Fukushima Daiichi”

“Book reveals human drama in Fukushima No. 1 crisis”

The Japan Times 12/11/2012  
<http://www.japantimes.co.jp/news/2012/12/11/national/book-reveals-human-drama-in-fukushima-no-1-crisis/>

→Now available in English

<http://amzn.com/4902075547>



# Seismic-Isolation Building: Sole Safe Haven at 1F



- State-of-the-Art Facility
- Built in response to the 2007 NCO Earthquake
- Completed in July 2010
- ➔ *Played critical role during the 2011 accident*



# TEPCO Internal Investigation Committee Final Report

---

## ➤ Issued on June 20, 2012

[http://www.tepco.co.jp/en/press/corp-com/release/2012/1205638\\_1870.html](http://www.tepco.co.jp/en/press/corp-com/release/2012/1205638_1870.html)

### **“Tangible”**

#### **Countermeasures**

- Flood Protection
- High-pressure Injection System
- Depressurization System
- Low-pressure Injection System
- Heat Removal/Cooling System
- Power Supply for Instrumentation
- Post-Core Damage Mitigation
- Common Items
- Mid-to-Long Term Items

### **“Intangible”**

#### **Countermeasures**

- Operational Measures in Relation to Tangible Modifications
- Emergency Preparedness
- Info. Dissemination and Sharing
- Roles and Responsibilities
- Information Disclosure
- Transportation of Resources
- Access Control
- Radiological Protection
- Plant Status Recognition
- Suggestions to the Government

### **Major Lessons Learned:**

- Recognize large uncertainty in external events
- **Prepare for the unexpected**



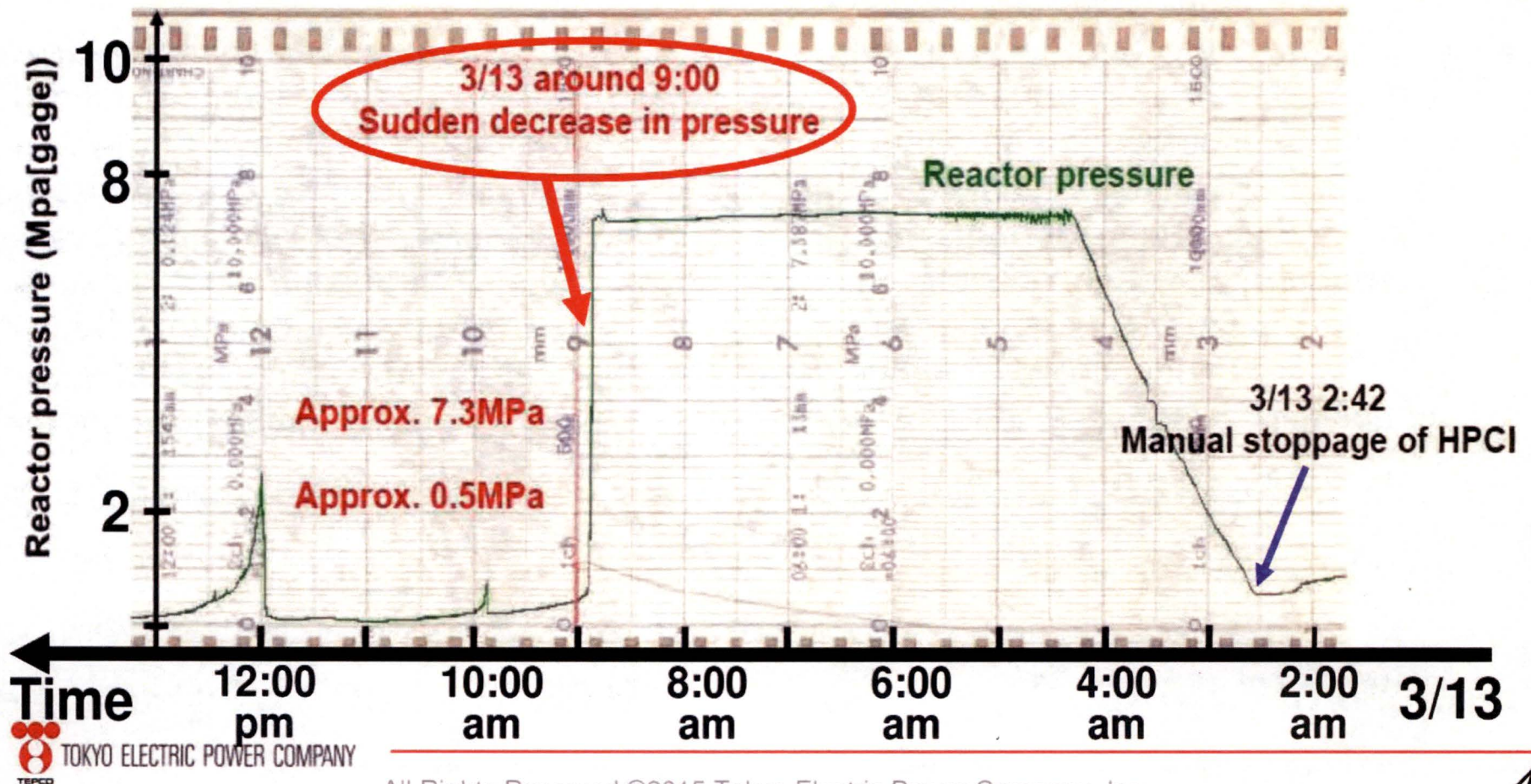
# Follow-up Study on 1F Accident Unresolved Issues

## ➤ 1st Progress Report Issued on Dec. 13, 2013

[http://www.tepco.co.jp/en/press/corp-com/release/2013/1233101\\_5130.html](http://www.tepco.co.jp/en/press/corp-com/release/2013/1233101_5130.html)

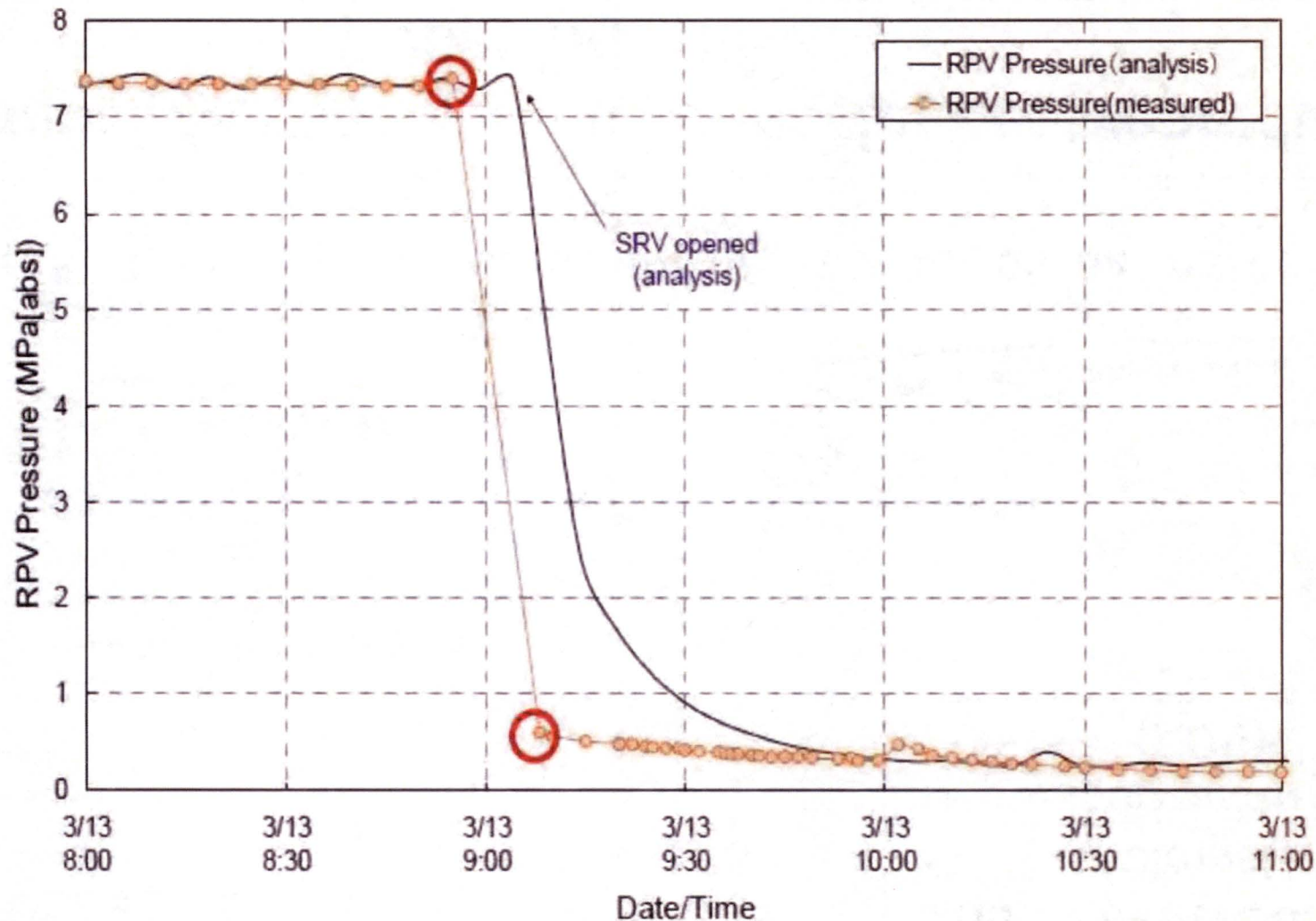
### Issue No. 3-6

## Rapid depressurization of Unit 3 reactor pressure vessel on March 13





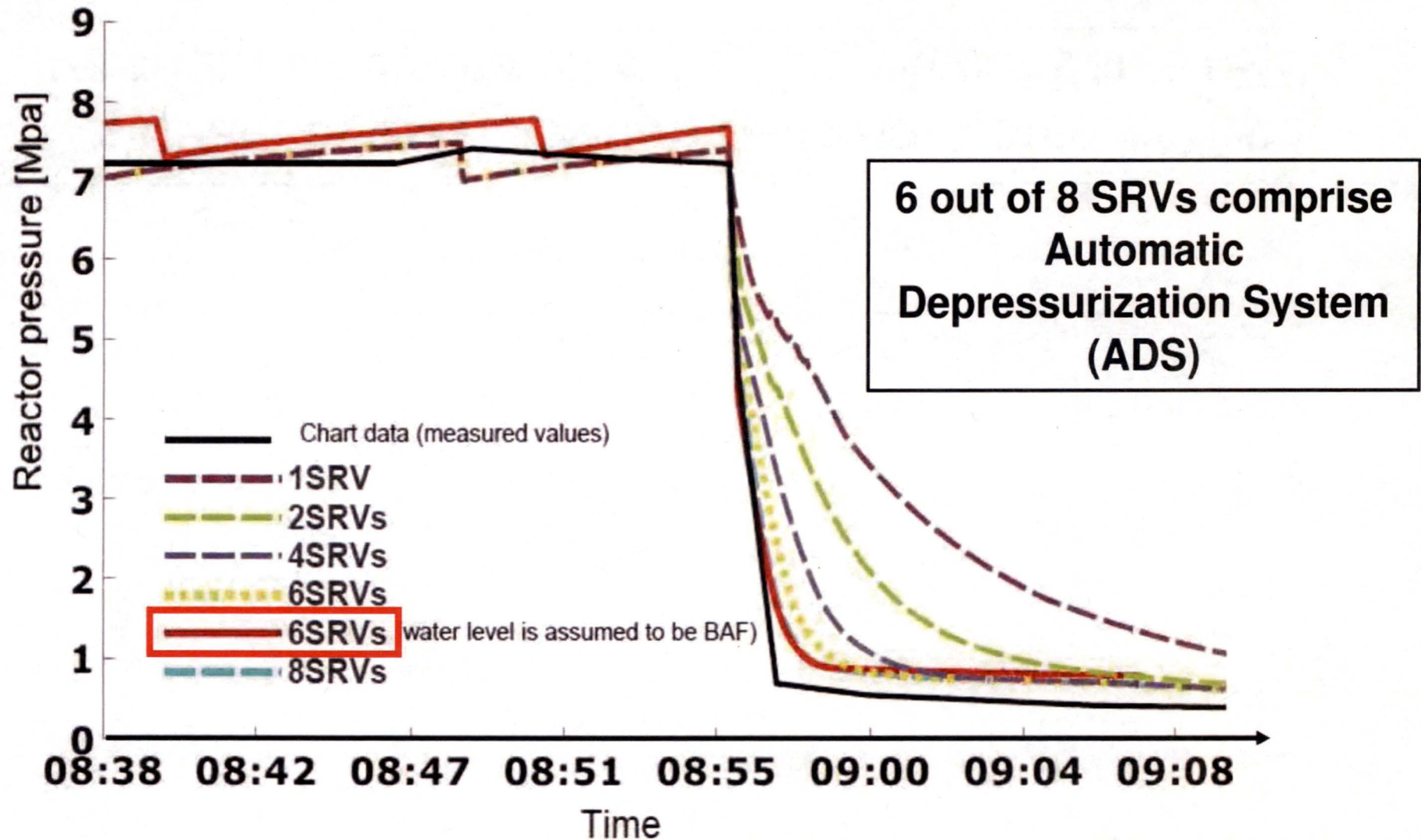
## Unit 3 Depressurization Analysis: MAAP Code (March 2012)



**Actual depressurization behavior could NOT be reproduced by opening 1 Safety Relief Valve (SRV)**

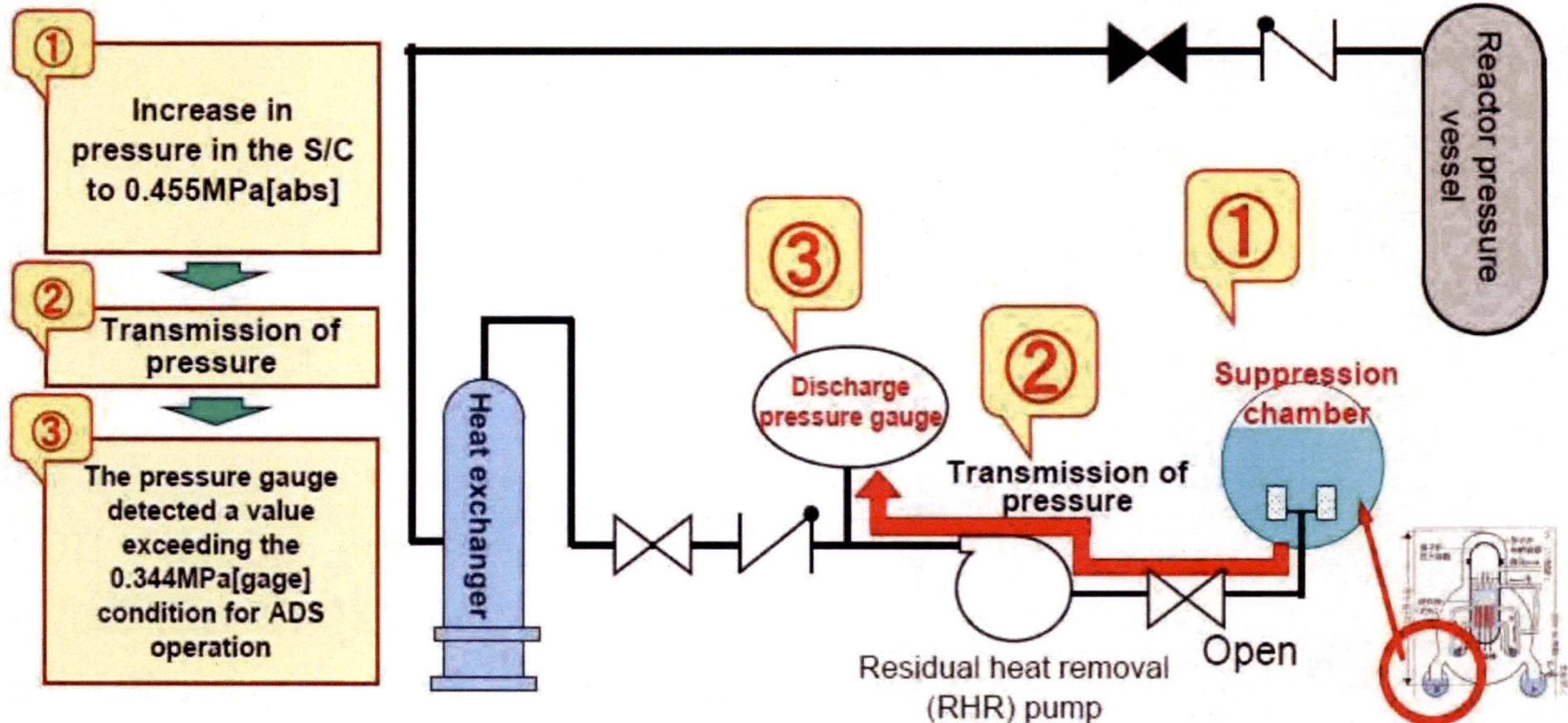


## Unit 3 Depressurization Analysis: SAMPSON Code (Dec. 2013)



**Actual depressurization behavior best reproduced  
by opening 6 SRVs (→ADS)**

# Possible Inadvertent Actuation of ADS



**Rapid depressurization of Unit 3 RPV most likely caused by **inadvertent ADS actuation**; not by RPV breach**

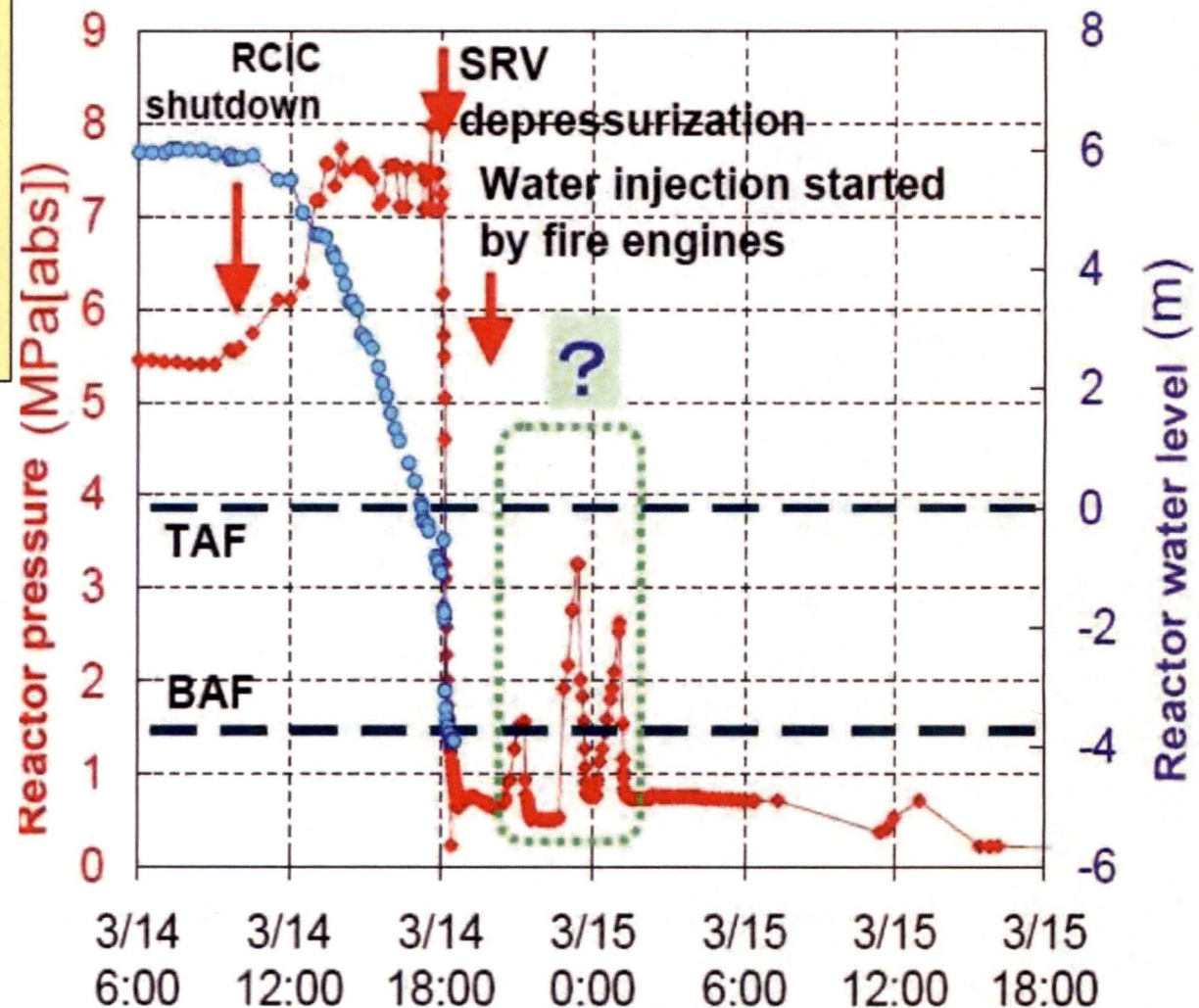


# Follow-up Study on 1F Accident Unresolved Issues (cont'd)

## ➤ 2nd Progress Report Issued on Aug. 6, 2014

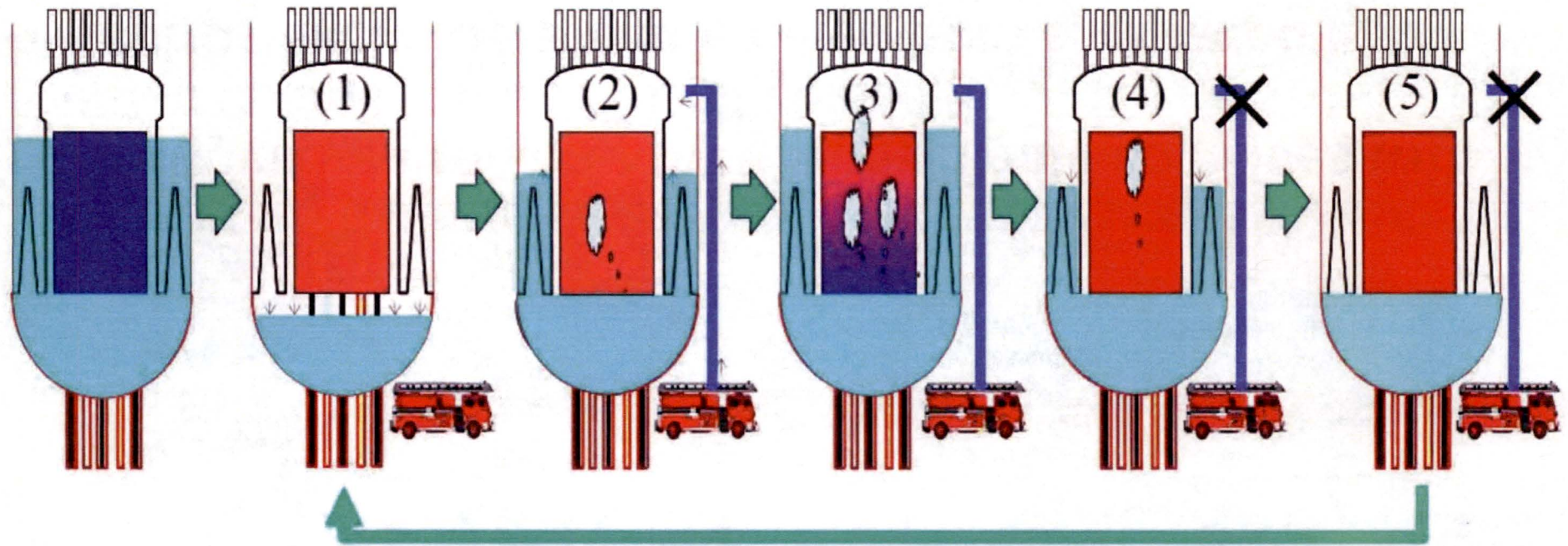
[http://www.tepco.co.jp/en/press/corp-com/release/2014/1240140\\_5892.html](http://www.tepco.co.jp/en/press/corp-com/release/2014/1240140_5892.html)

**Issue No. 2-7**  
**Unit 2 reactor**  
**pressure spikes**  
**after**  
**depressurization**  
**on March 14-15**





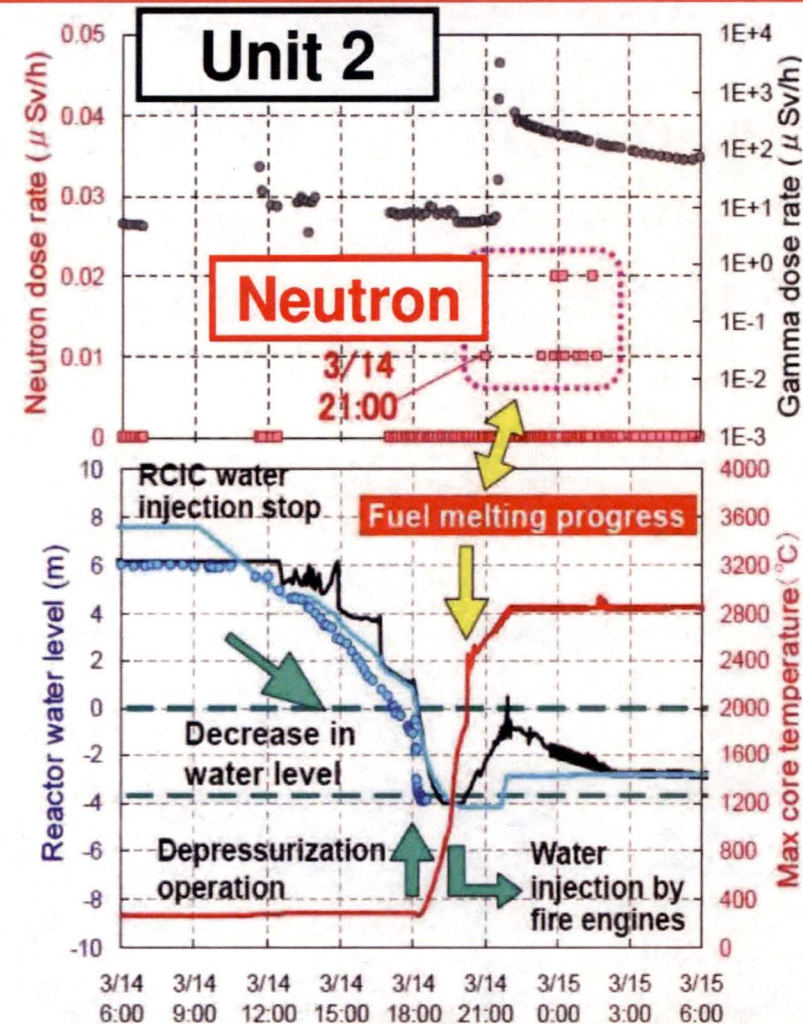
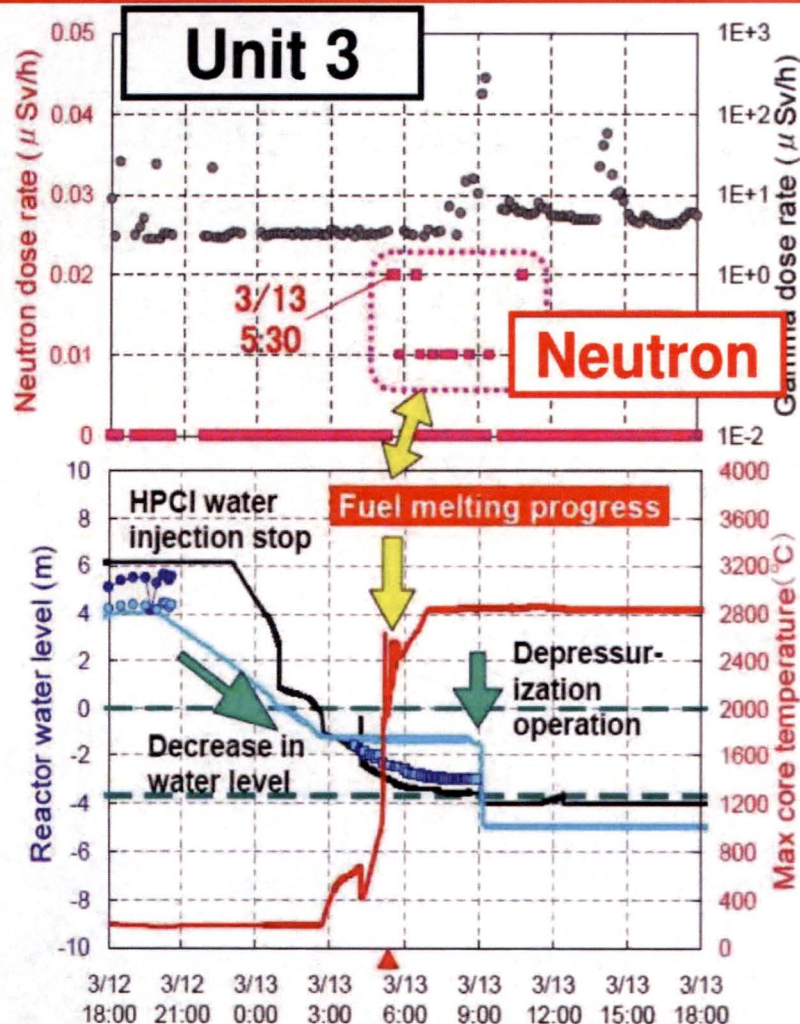
# Unit 2 Reactor Pressure Spike Presumed Scenario



1. Depressurization causes flashing and core exposure
2. **Water injection** into hot core
3. Steam generation followed by **metal-water reaction**
4. Reactor pressure increase **prohibits water injection**
5. Steam generation ceases and **pressure goes down**



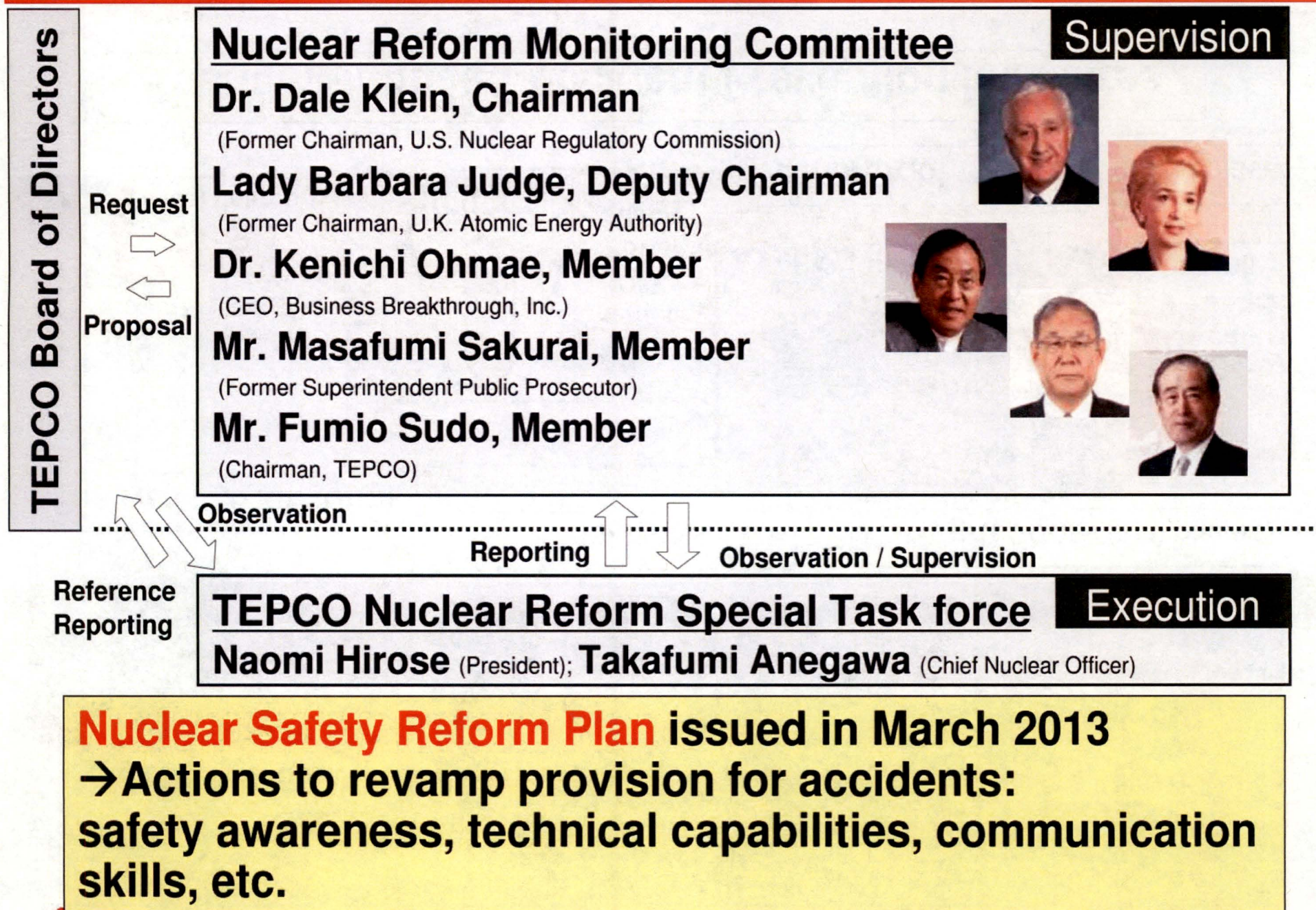
# Neutron Detected at Main Gate on March 13-14



- Timing of **neutron detection** at main gate coincides with estimated **core melt** of Units 3 and 2
- Neutron likely to have originated from **spontaneous fission of actinides** released during core melt

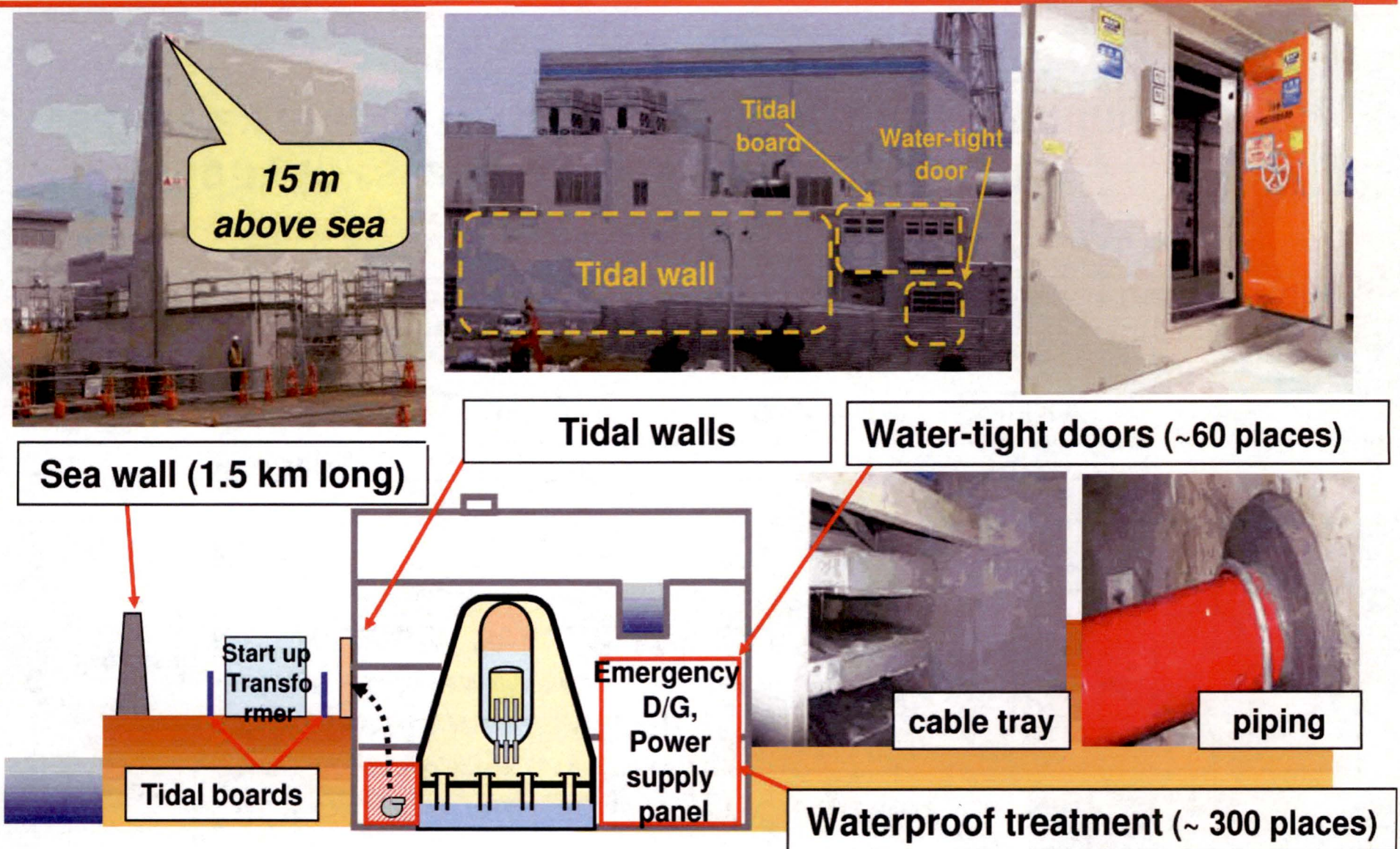


# TEPCO's Nuclear Safety Reform





# Safety Enhancement Measures at Kashiwazaki-Kariwa (KK) NPS

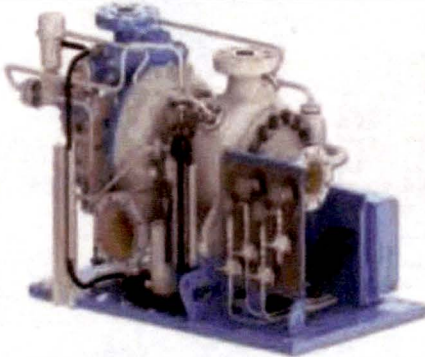


## Tsunami-induced Accident Prevention Measures



# Safety Enhancement Measures at KK NPS (cont'd)

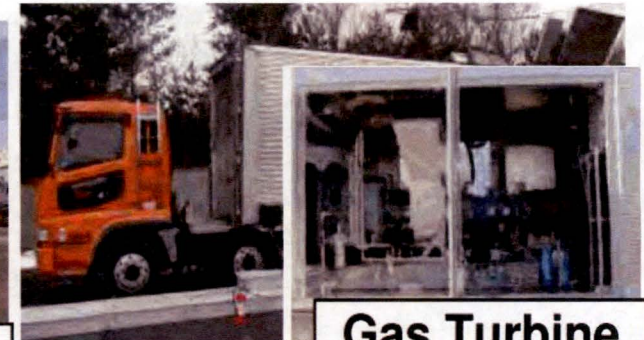
## High Pressure Alternate Cooling System



gas cylinders

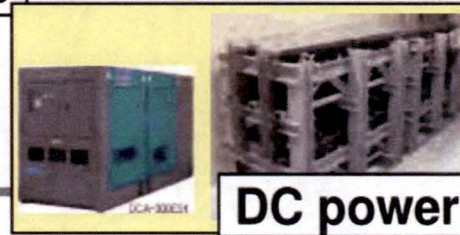


Fire engines: 8

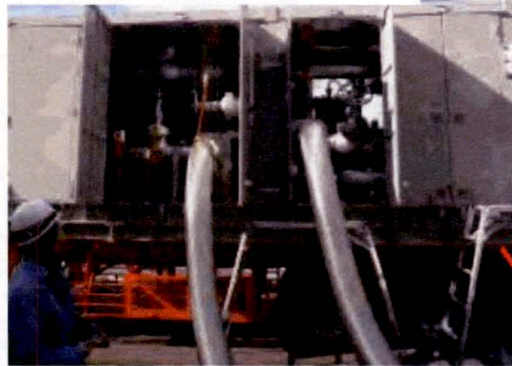


Gas Turbine Generators: 2

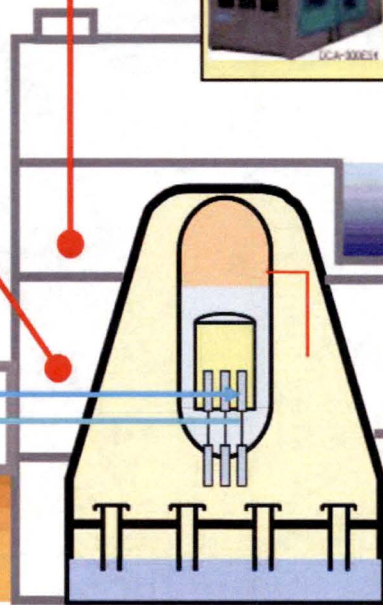
D/G trucks: 23



DC power



Alternative heat exchangers: 7



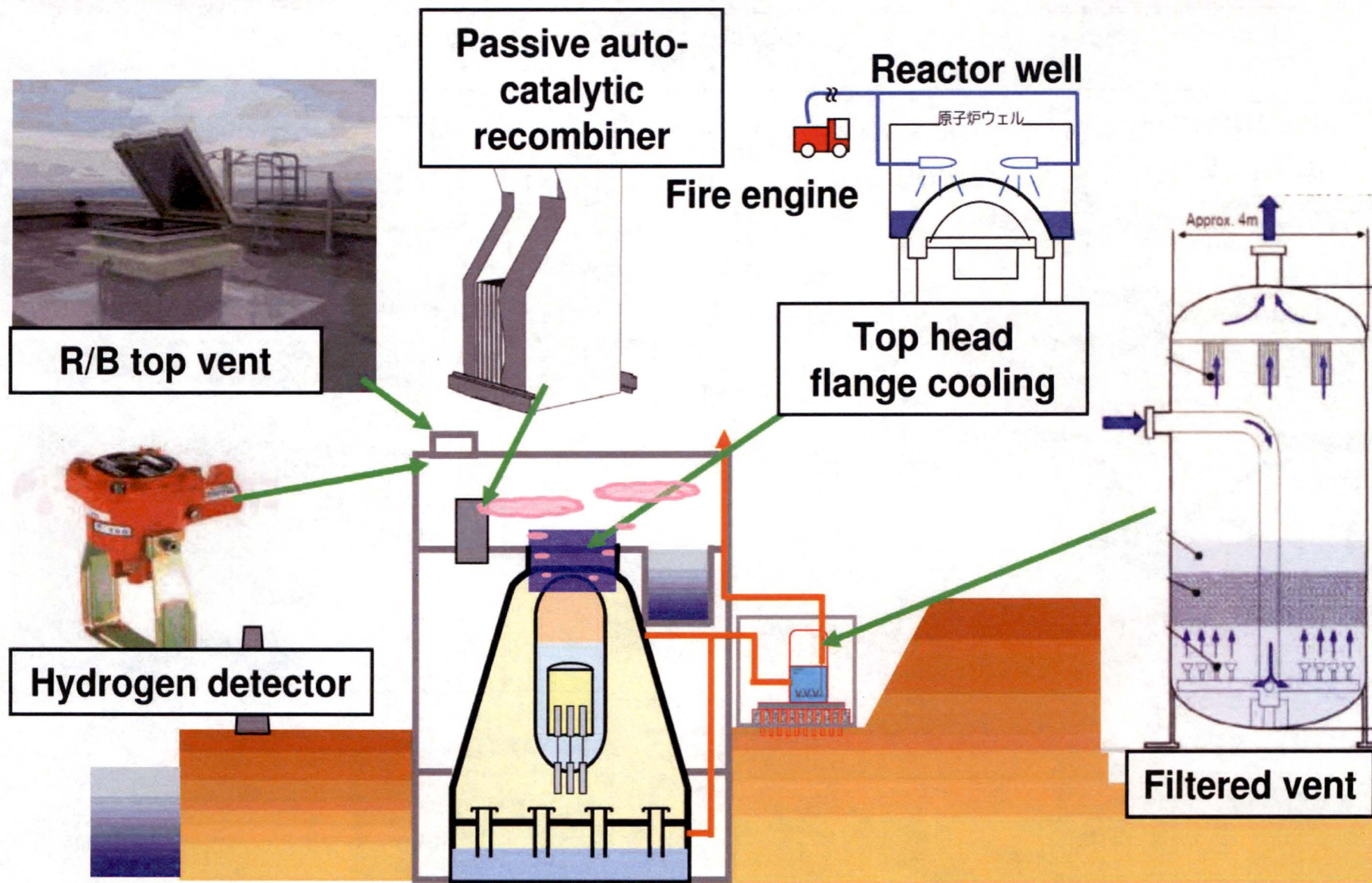
Emergency power supply

Fresh Water Reservoir: 20k ton

## Core Damage Prevention Measures



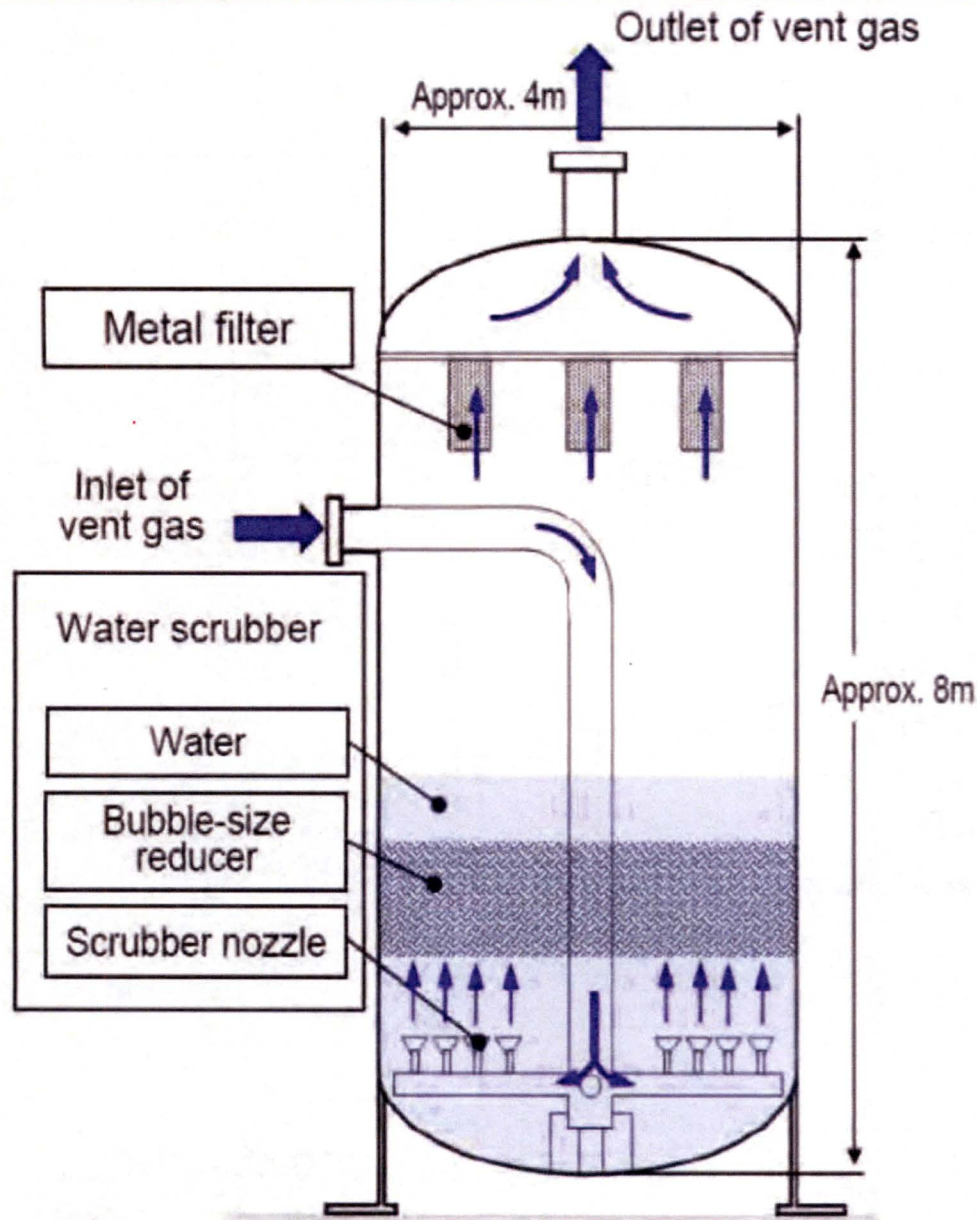
# Safety Enhancement Measures at KK NPS (cont'd)



## Post Core Damage Mitigation Measures



# Filtered Containment Venting System (FCVS) at KK NPS



## Metal Filter:

- Captures particulate when vent gas passes through the metal filter.

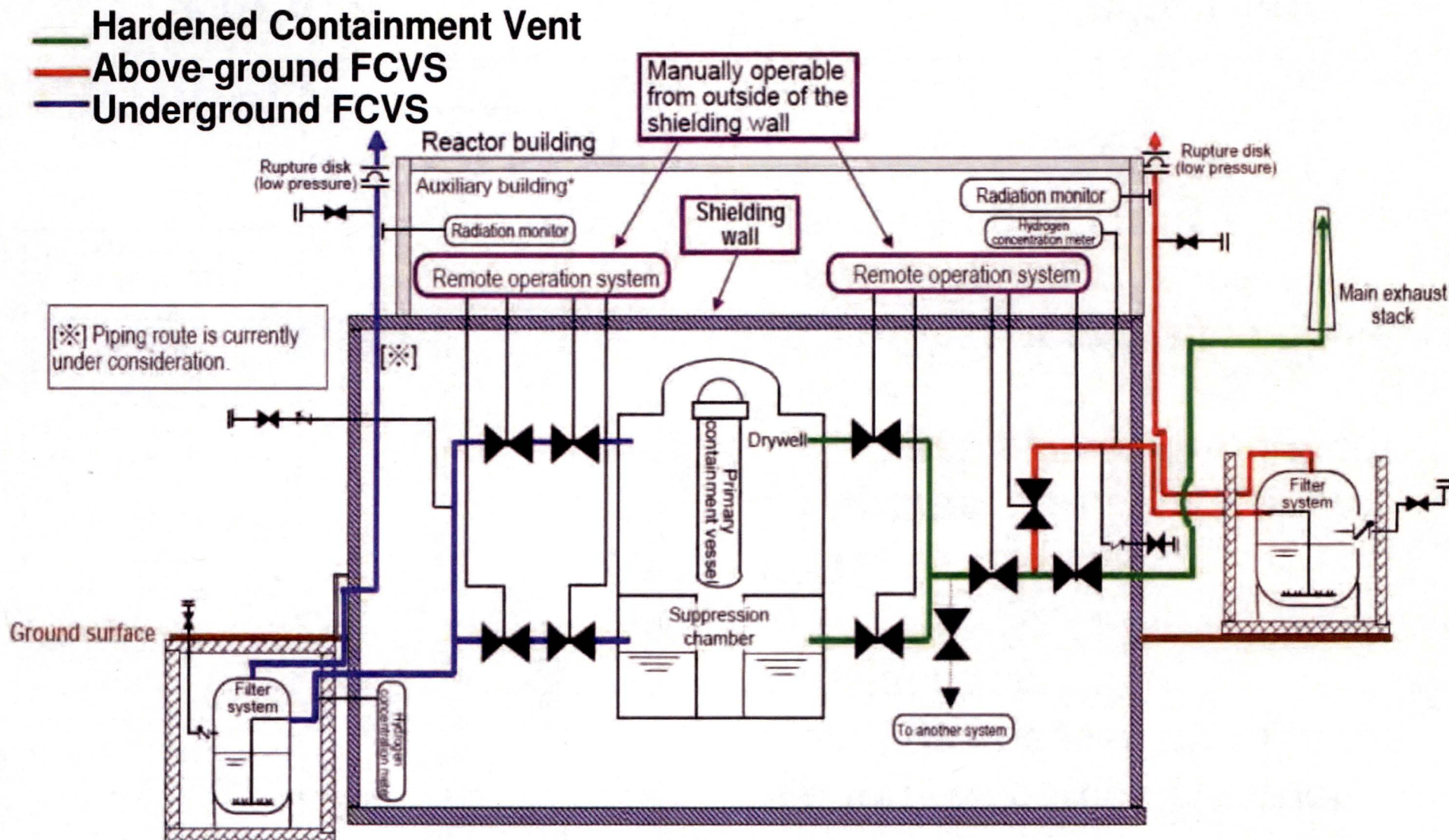
## Water Scrubber:

- Captures particulate when vent gas passes through the water.
- Scrubber nozzle and bubble-size reducer enhance scrubbing efficiency.

**Remove > 99.9% of Radioactive Particulate**



# FCVS at KK NPS (cont'd)



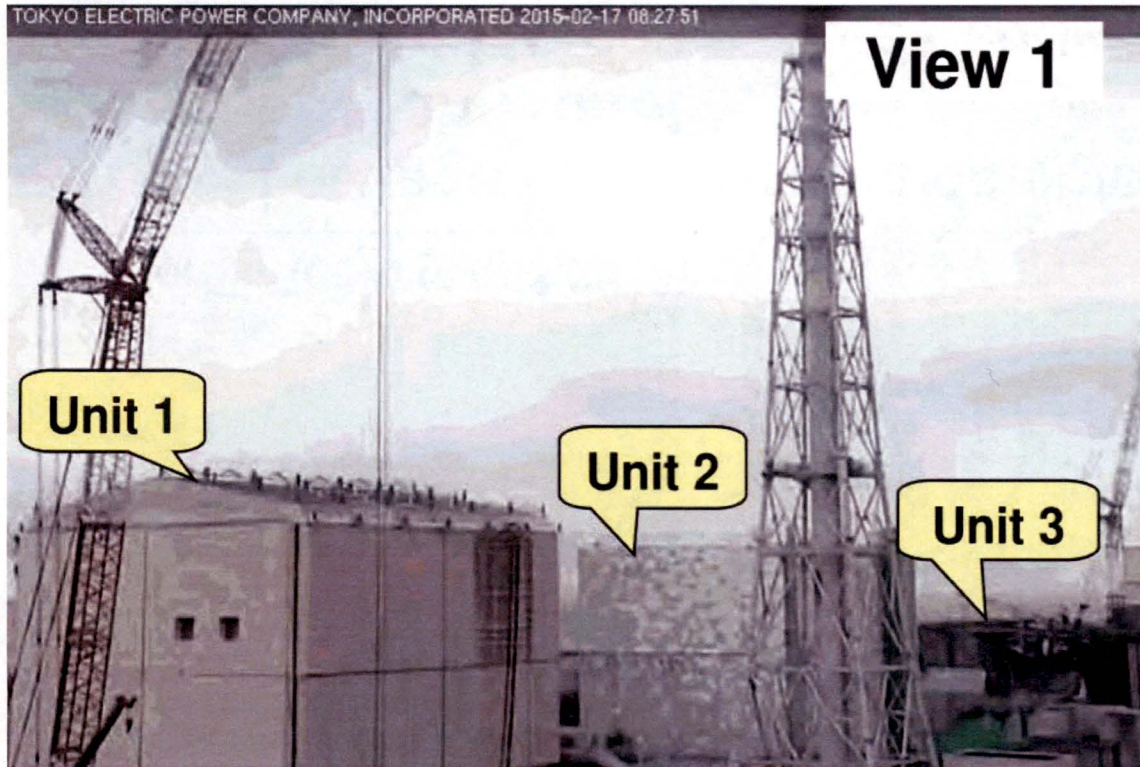
**Above-ground and underground FCVS to be installed**



# Current Status of Fukushima Daiichi (1F)

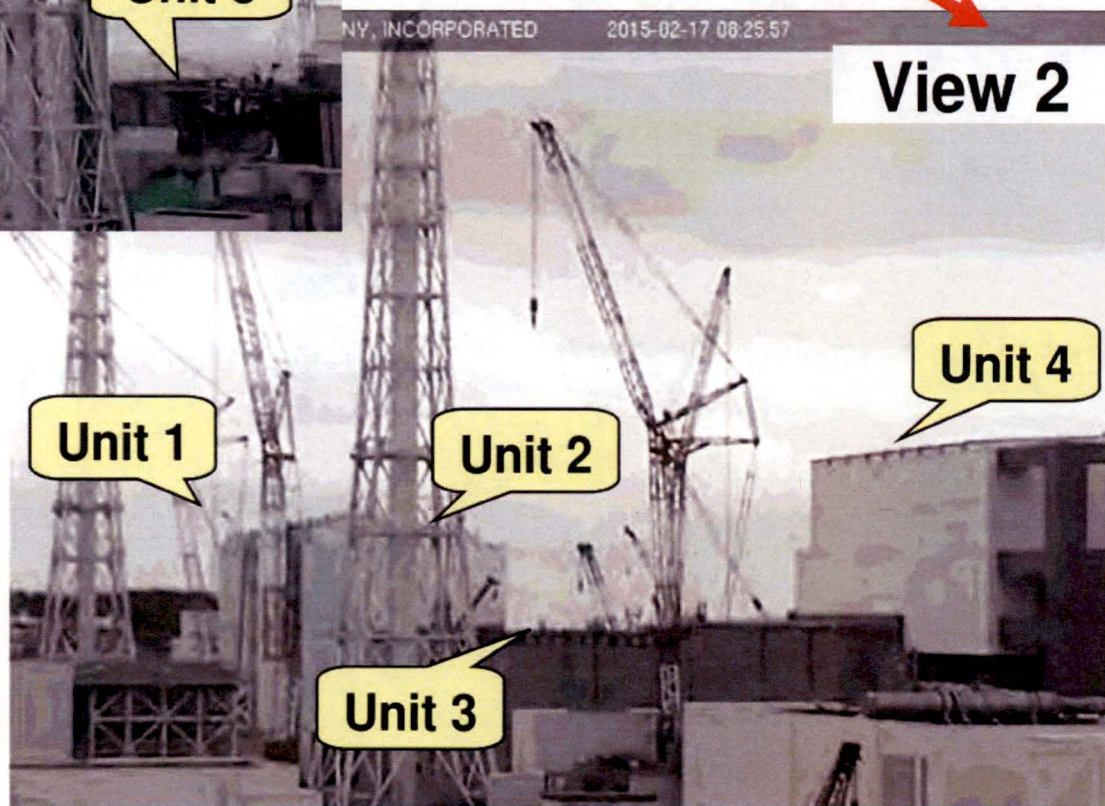
TOKYO ELECTRIC POWER COMPANY, INCORPORATED 2015-02-17 08:27:51

View 1



NY, INCORPORATED 2015-02-17 08:25:57

View 2

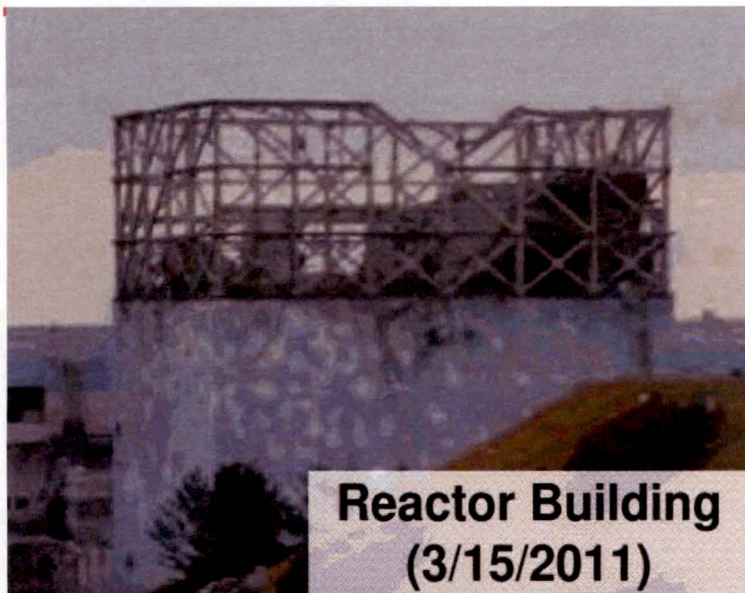


**Live Camera View  
(as of 2/17/2015)**

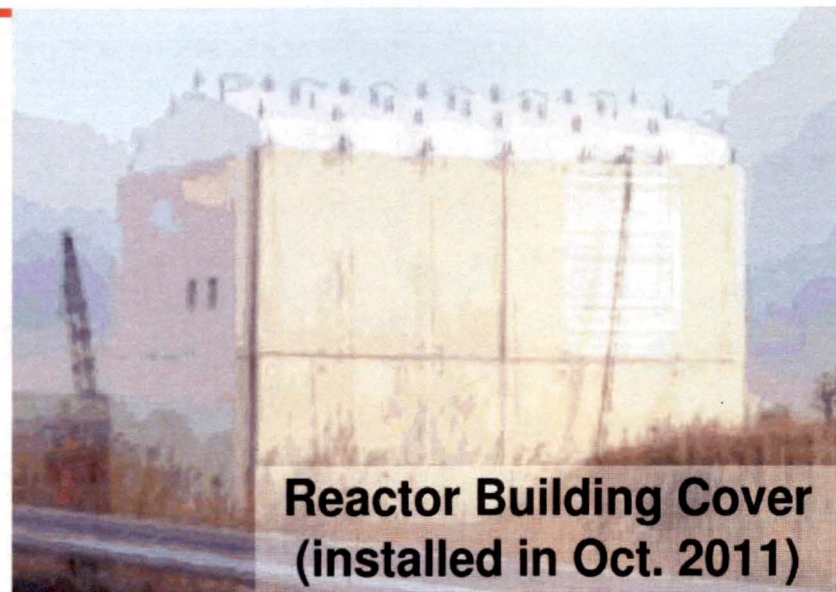
<http://www.tepco.co.jp/en/nu/f1-np/camera/index2-e.html>  
<http://www.tepco.co.jp/en/nu/f1-np/camera/index-e.html>



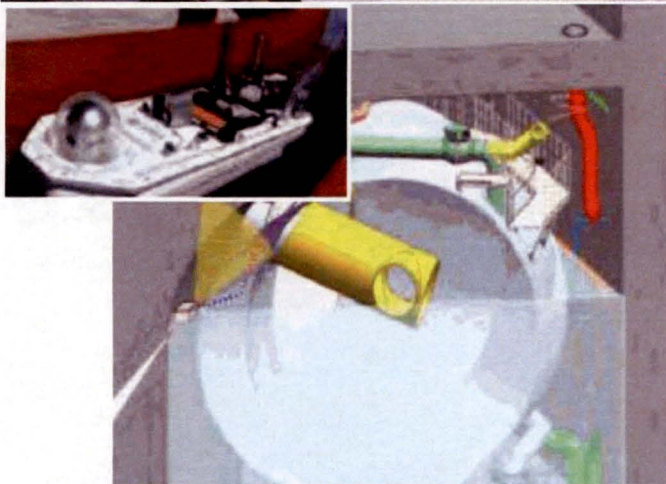
# Progress Made at 1F Unit 1



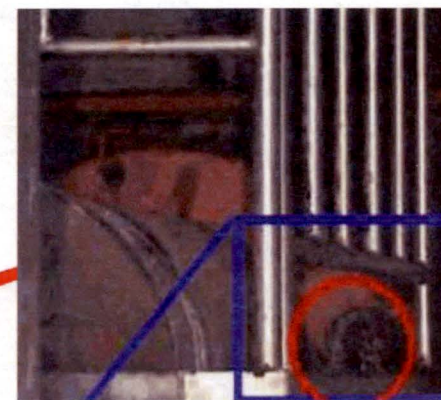
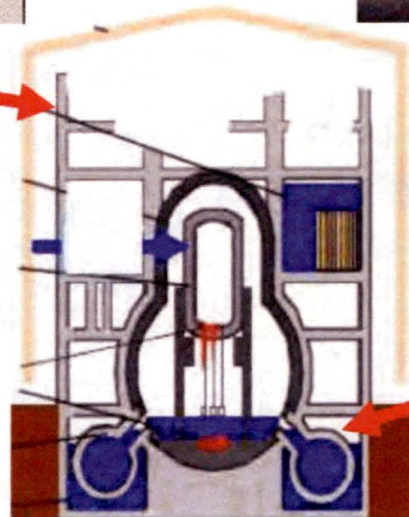
Reactor Building  
(3/15/2011)



Reactor Building Cover  
(installed in Oct. 2011)



Torus Room (11/13/2013)



Torus Room (5/27/2014)



- Leakage in torus room detected by remote-operated boat and robot
- Attempt to detect core debris by **muon tomography**

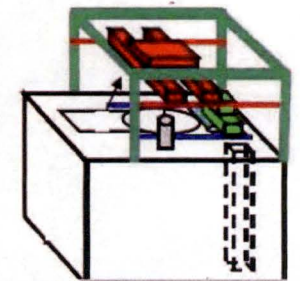
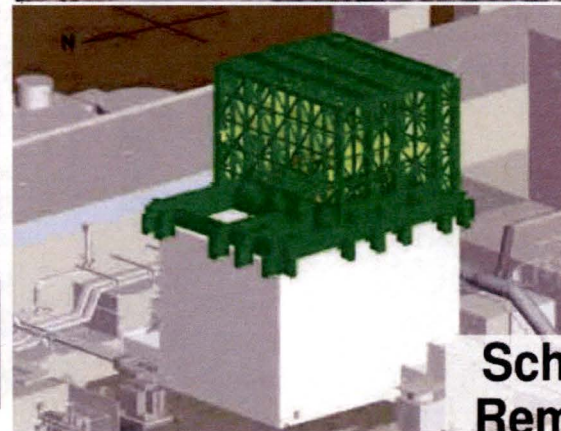


# Progress Made at 1F Unit 1 (cont'd)

**Removal of Roof of Cover  
(10/31/2014)**



**Condition of Refueling  
Floor (10/31/2014)**



**Schematic of Fuel  
Removal Structure**

**Reactor building cover to be dismantled in  
preparation for fuel removal**



TOKYO ELECTRIC POWER COMPANY

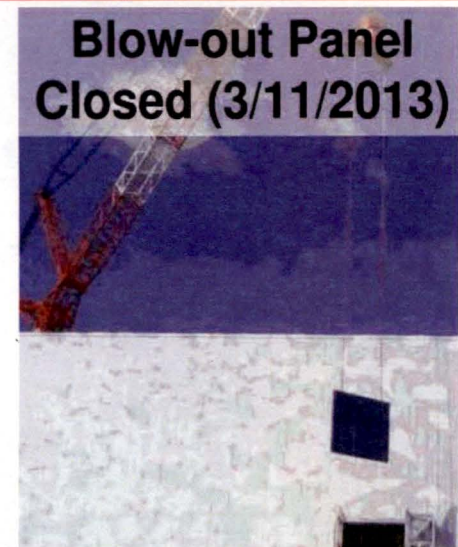
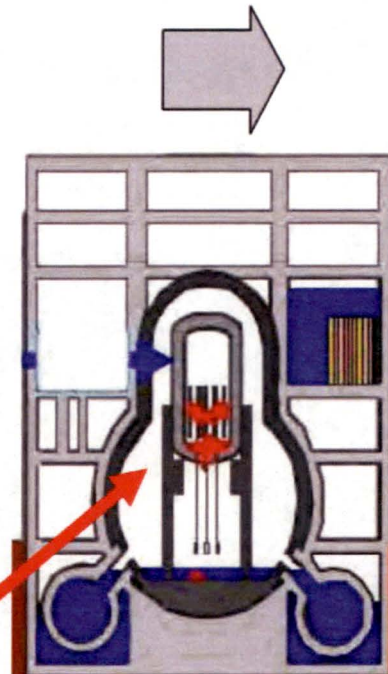
All Rights Reserved ©2015 Tokyo Electric Power Company, Inc.



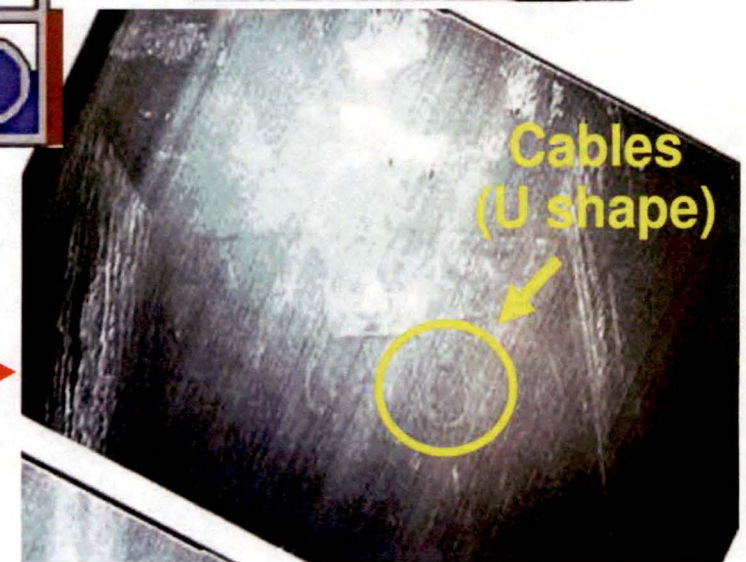
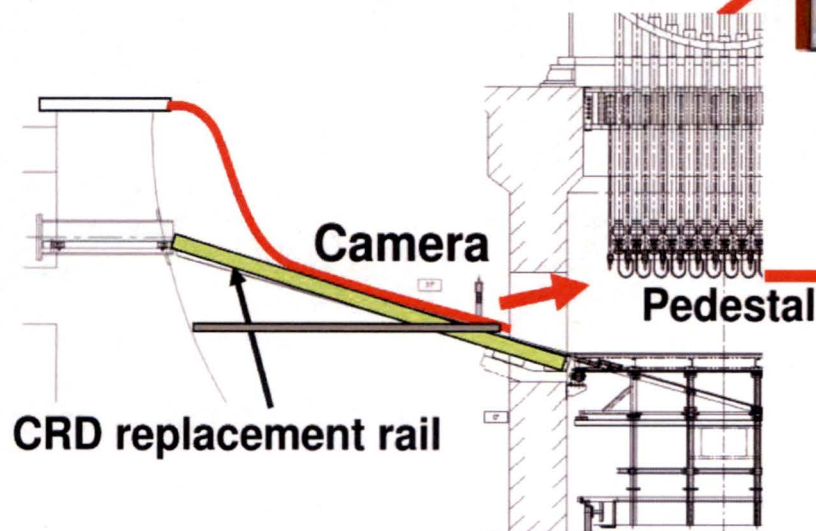
# Progress Made at 1F Unit 2



Steam Coming Out From  
Blow-out Panel (4/10/2011)



Blow-out Panel  
Closed (3/11/2013)



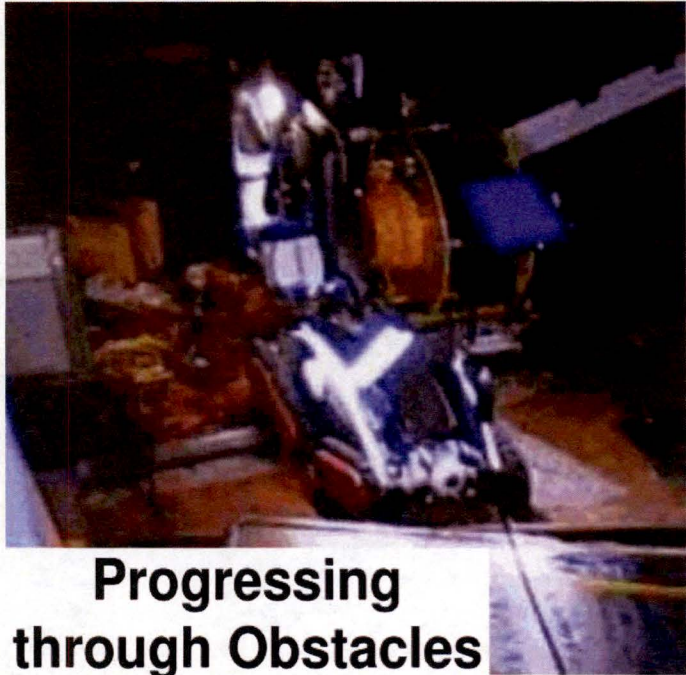
Cables  
(U shape)

Inside Containment (8/12/2013)

- Video images obtained inside primary containment
- Attempt to detect core debris by **muon tomography**



# Progress Made at 1F Unit 2 (cont'd)



**Progressing  
through Obstacles**



**Core Sampling of  
the Floor**



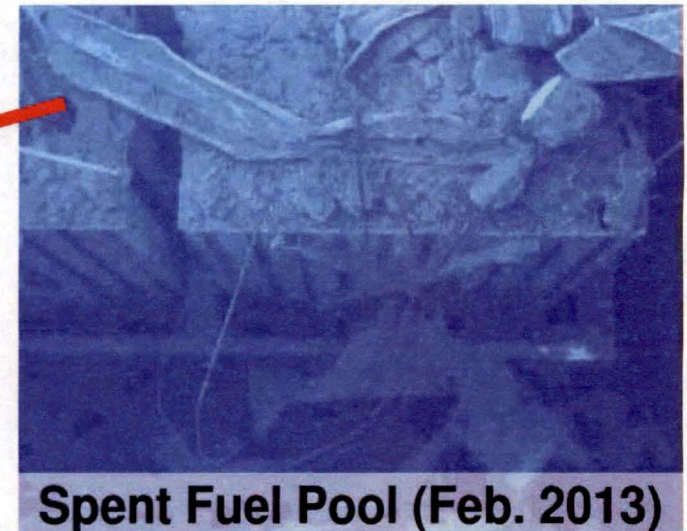
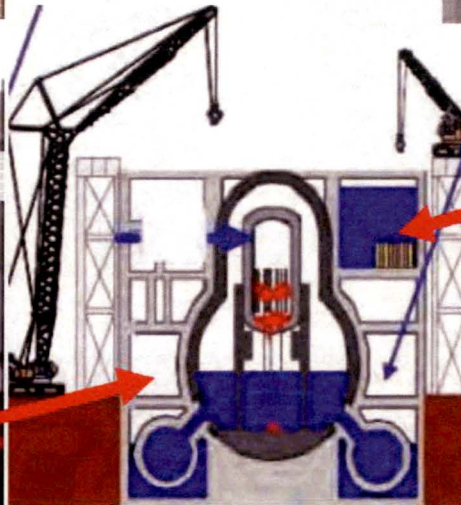
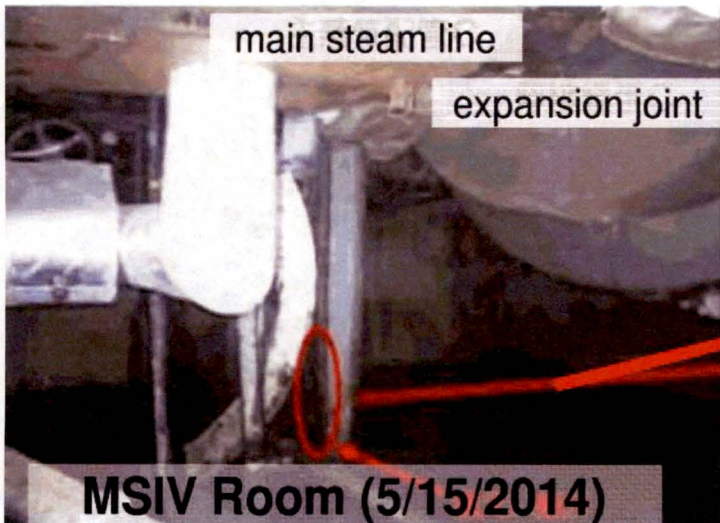
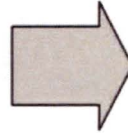
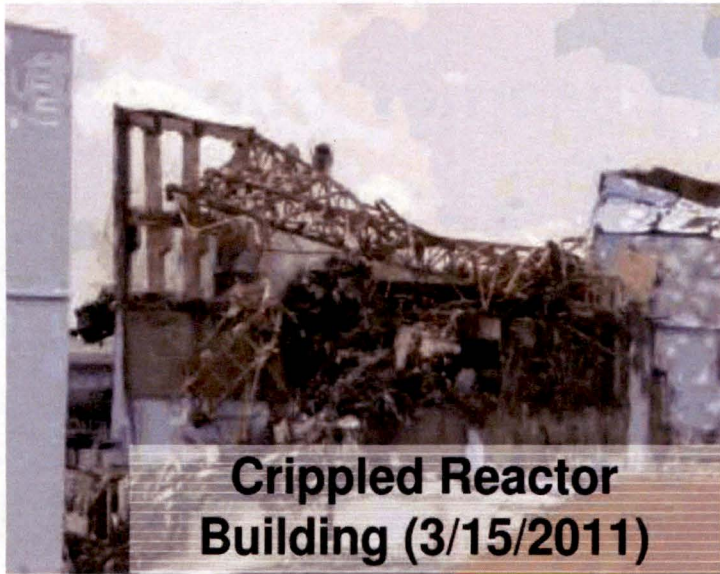
**Maneuverability  
Testing**



**Robot retrieved core samples from refueling floor  
(March 2014)**



# Progress Made at 1F Unit 3

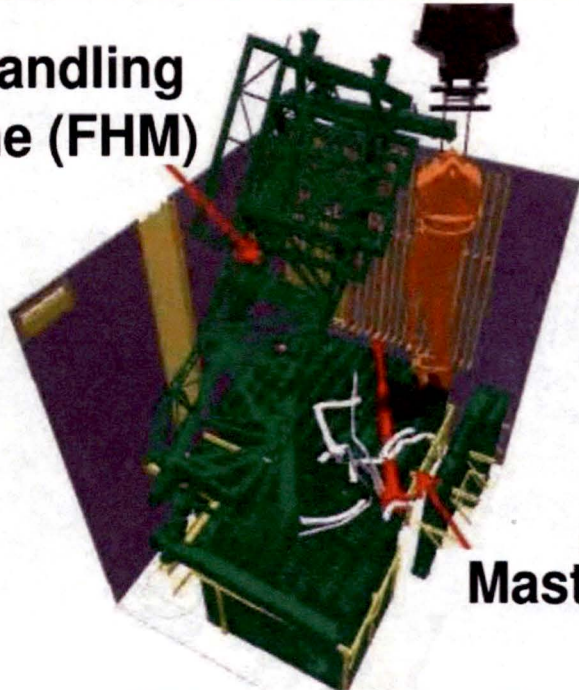


- Robot found leakage location in reactor building
- Removing rubble from SFP in **preparation for defueling**

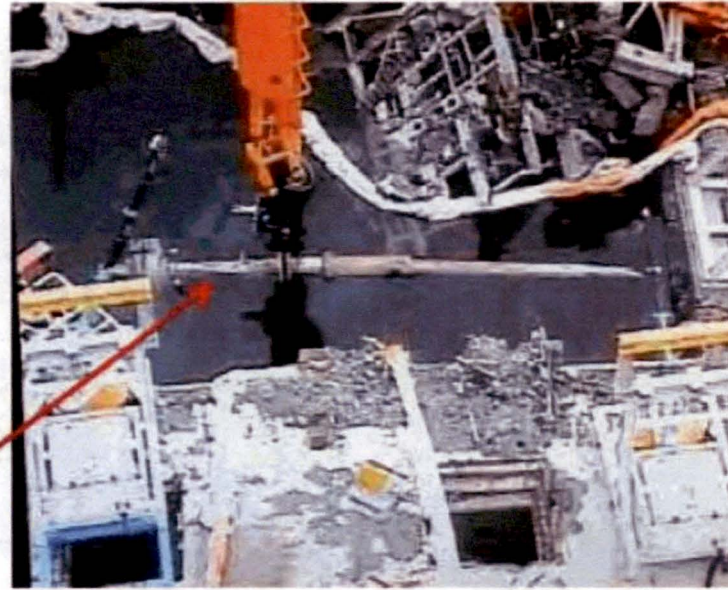


# Progress Made at 1F Unit 3 (cont'd)

Fuel Handling Machine (FHM)



Mast



Clamp



Cutter



Piece of FHM

**Rubble in spent fuel pool being removed by remote operation**



# Progress Made at 1F Unit 4



**Pre-work Condition**  
(9/22/2011)



**Drywell Head Removal**  
(8/10/2012)



**Defueling Structure Construction**  
(1/14/2013)



**Completion of Defueling Structure**  
(7/20/2013)

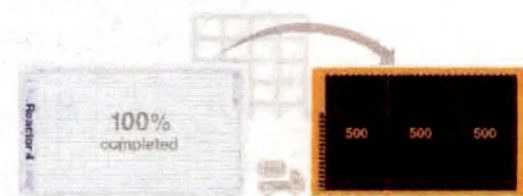


**Beginning of Defueling**  
(11/18/2013)



**Fuel Removal from Unit 4**

Unit 4 reactor building fuel removal was completed on December 27, 2014.



**Number of Transferred Assemblies** 1533/1533

\* After November 15, the core fuel assemblies are transferred to the Unit 4 spent fuel pool.

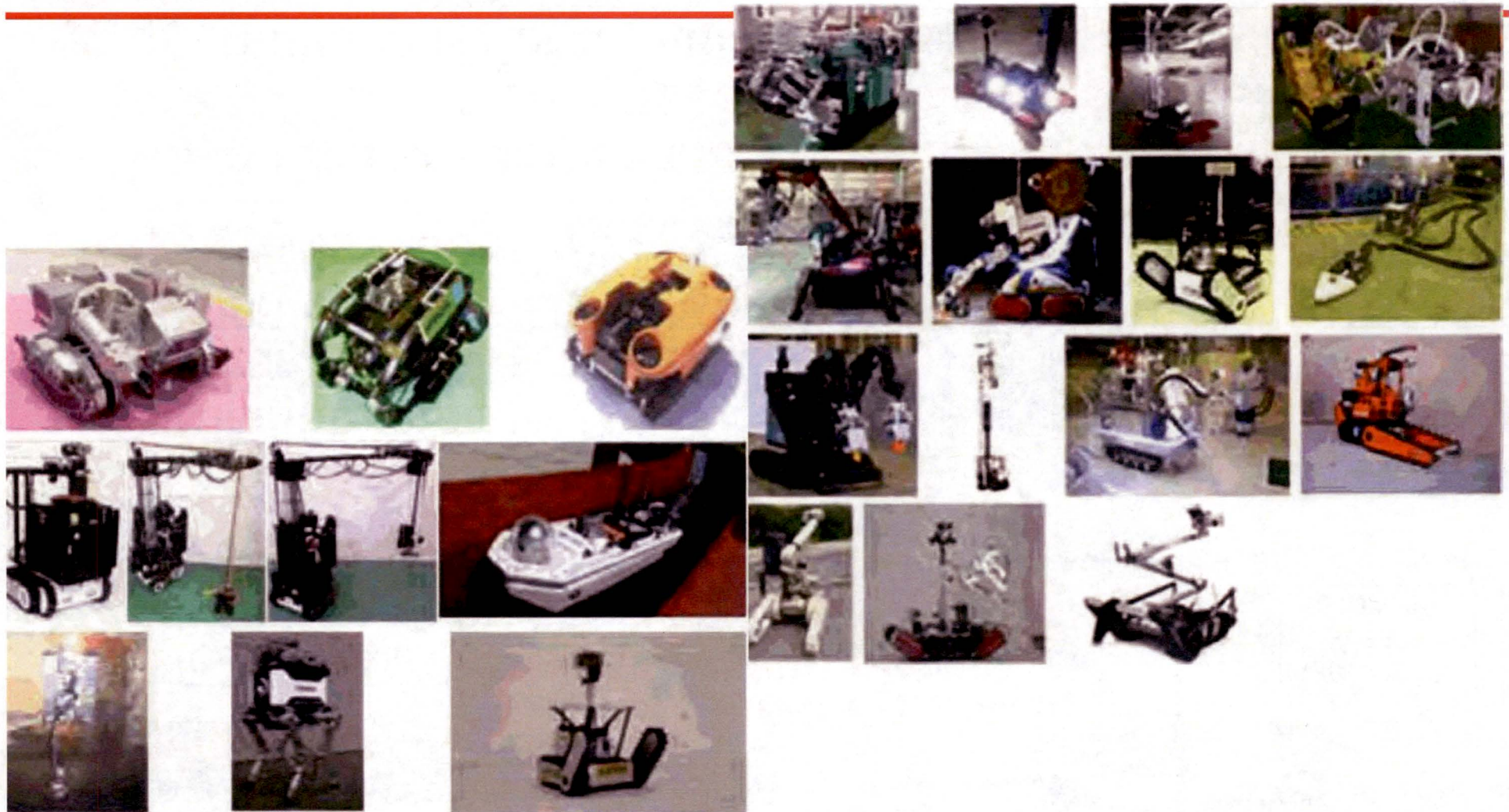
<http://www.tepco.co.jp/en/decommission/index-e.html>



**All fuels safely removed from spent fuel pool (12/12/2014)**



# Extensive Use of Robots



<http://photo.tepco.co.jp/en/cat3/04-e.html>

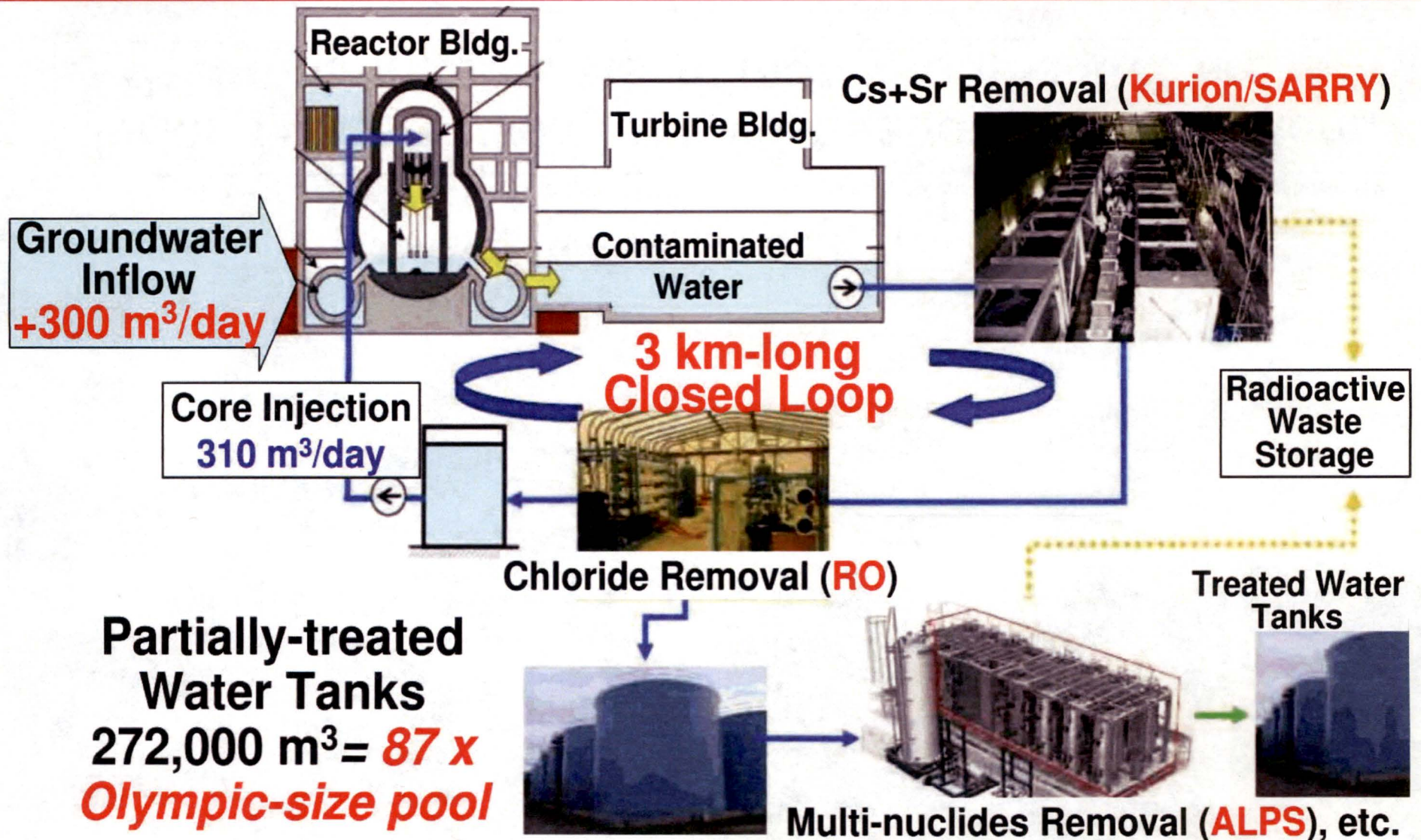
<http://www.tepco.co.jp/en/decommission/principles/robot/index-e.html>

[http://www.tepco.co.jp/en/news/library/archive-e.html?video\\_uuid=raf8si47&catid=61795](http://www.tepco.co.jp/en/news/library/archive-e.html?video_uuid=raf8si47&catid=61795)

**Various robots used for investigation, measurement, decontamination, etc. in highly radioactive areas**



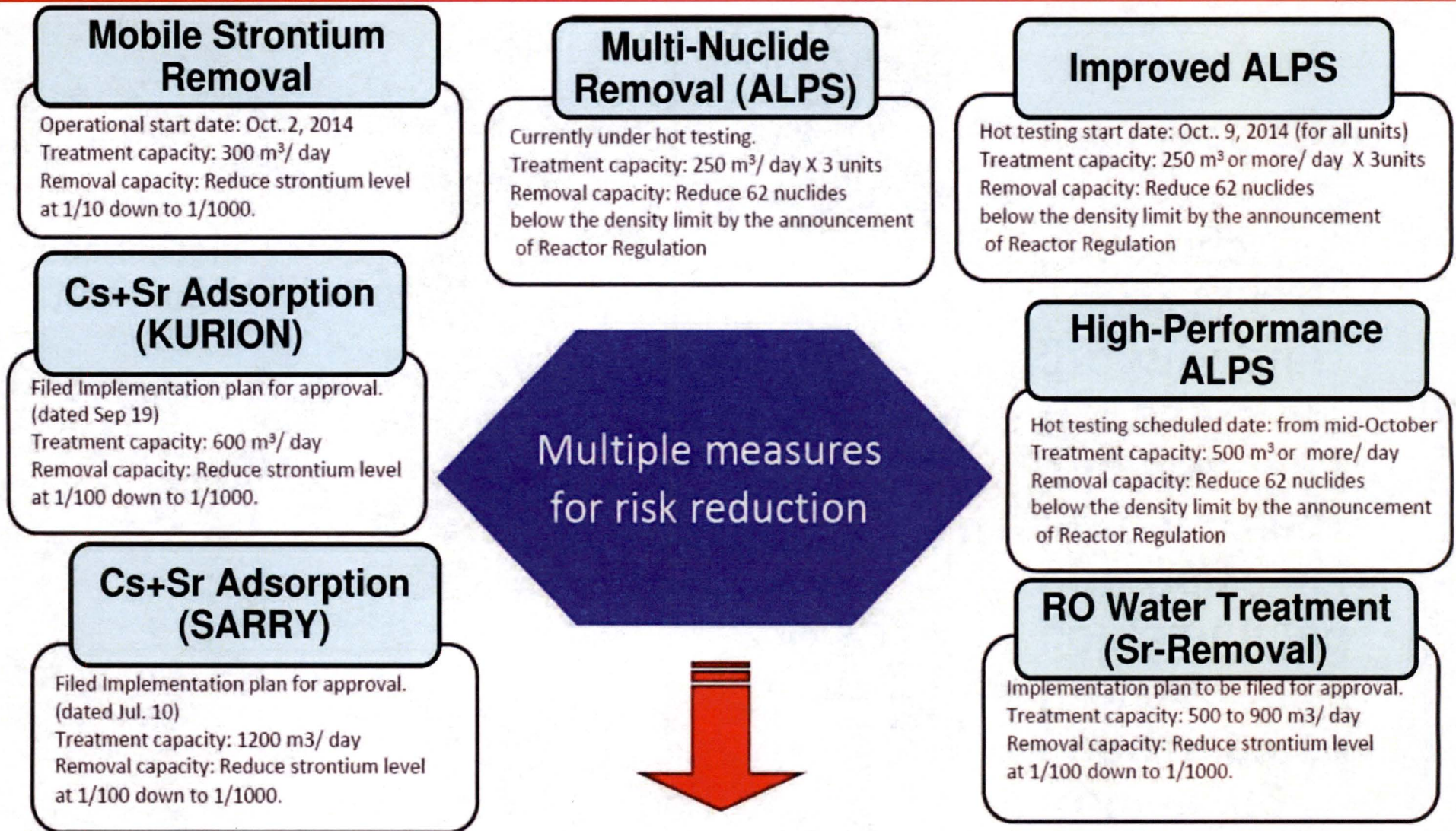
# Circulating-Water Core Cooling System



- All reactor cores **stably cooled**
- **Contaminated water steadily decreasing** using multiple water treatment systems

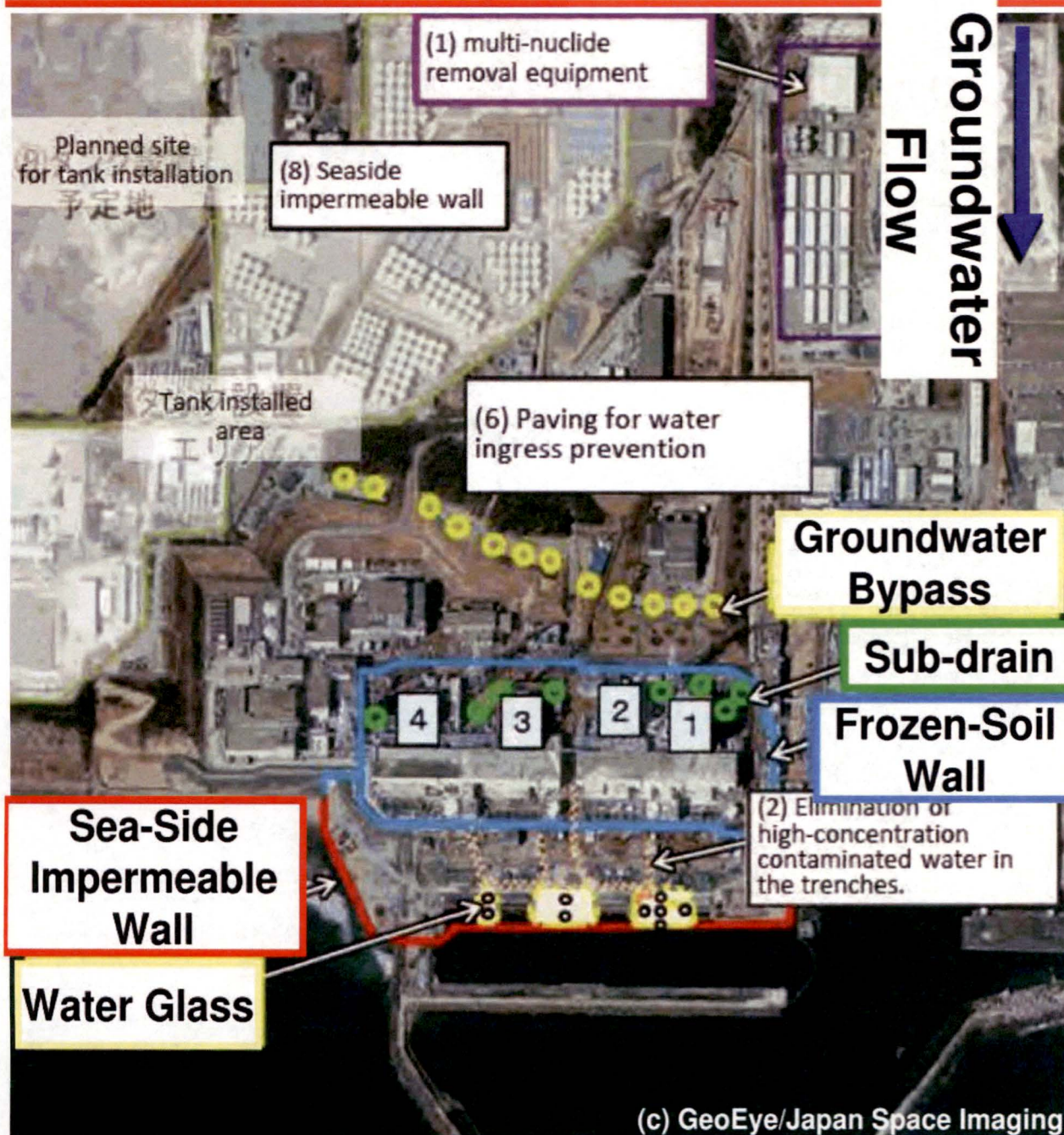


# Tackling Water Issues: “Seven Samurai”





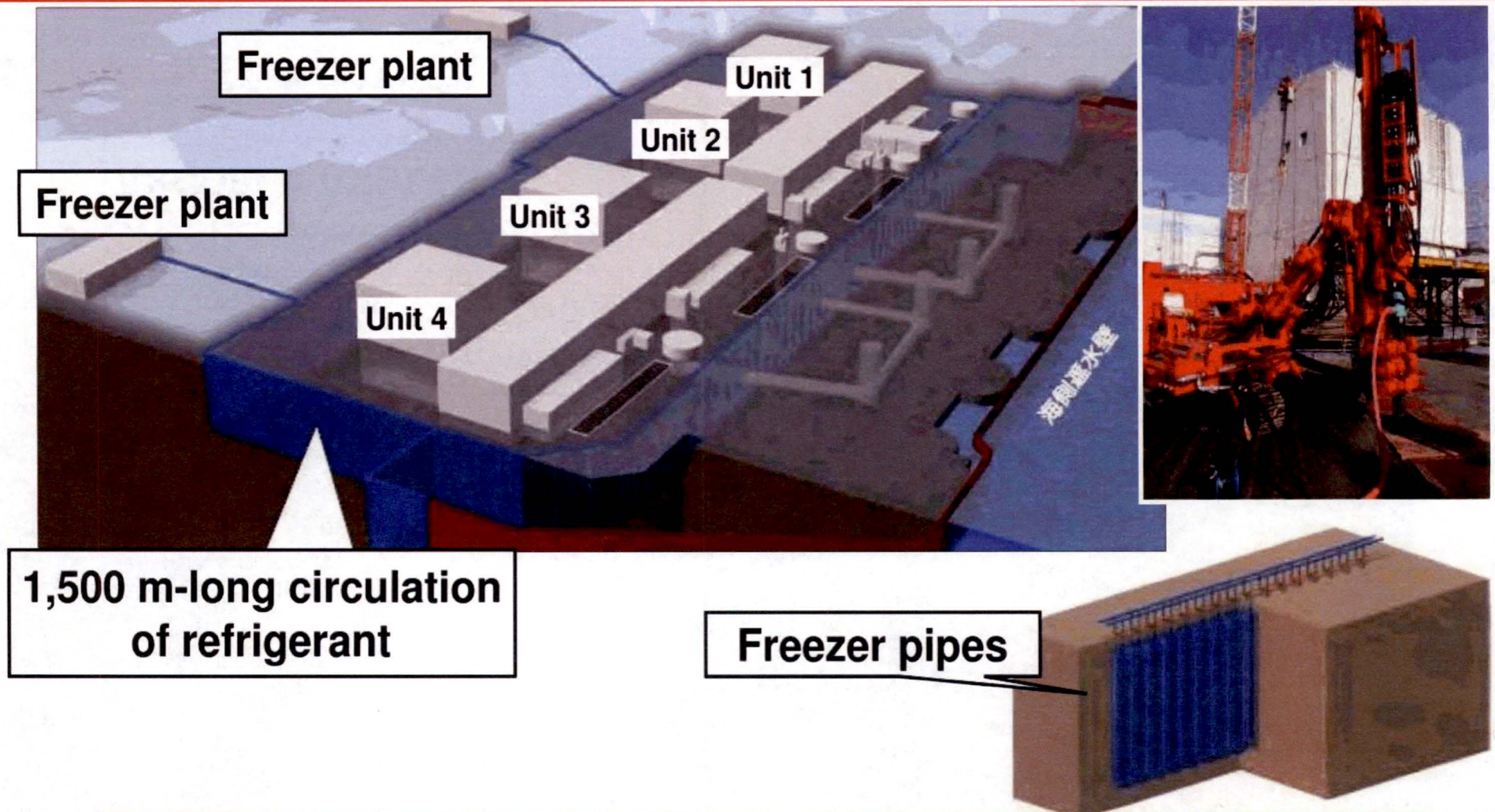
# Emergency and Fundamental Measures on Water Issues



- Prevent groundwater from being contaminated
- Prevent contaminated groundwater from flowing into sea
- Reduce groundwater inflow into buildings



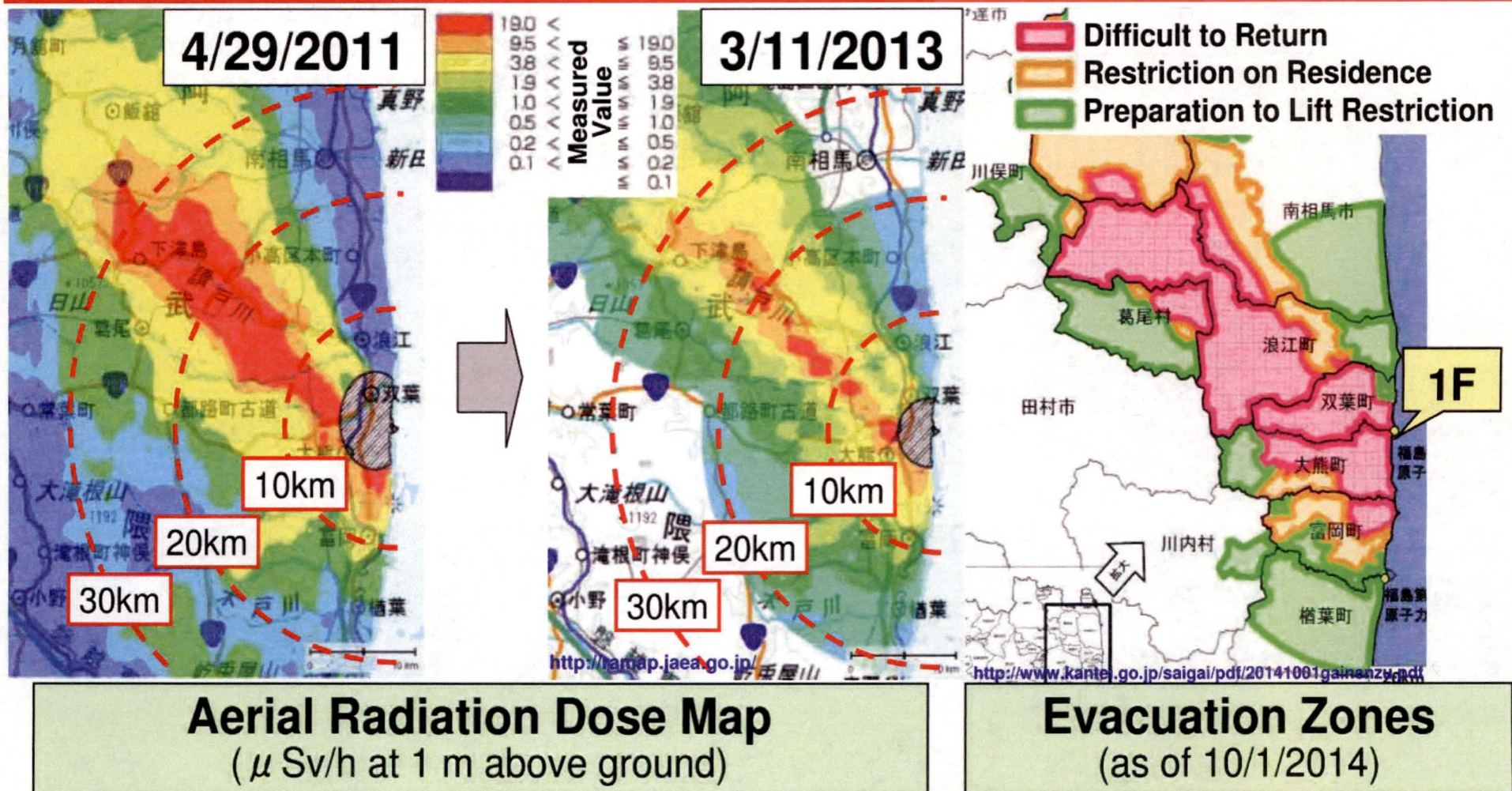
# Tackling Water Issues: Frozen-Soil Wall



- **Stop groundwater inflow by frozen-soil wall**
- **Construction work commenced: June 2014**
- **Freezer plant: 230 kW x 30 units**



# Off-site Radiation Dose and Evacuation Zones



- Off-site dose decreased significantly; evacuation zones gradually relaxed
- **Int'l consensus on health impact of low-dose radiation critical to relieve anxiety of evacuees**



# Decommissioning Roadmap for 1F

**Cold Shutdown  
Condition Achieved  
(Dec., 2011)**

**Within  
2 years**

**Within  
10 years**

**30 to  
40 years**

**Phase-1**

Begin removal of fuels  
from spent fuel pools

**Unit 4: Nov. 2013**

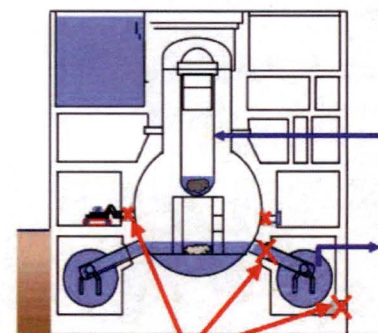
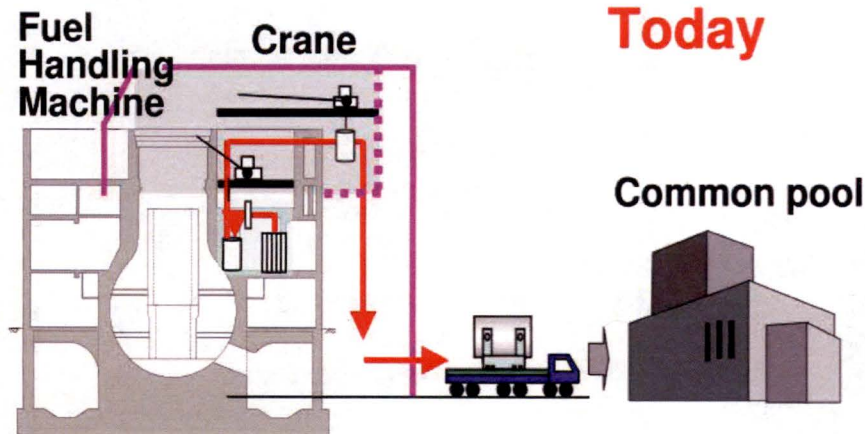
**Phase-2**

Begin retrieval of  
fuel debris

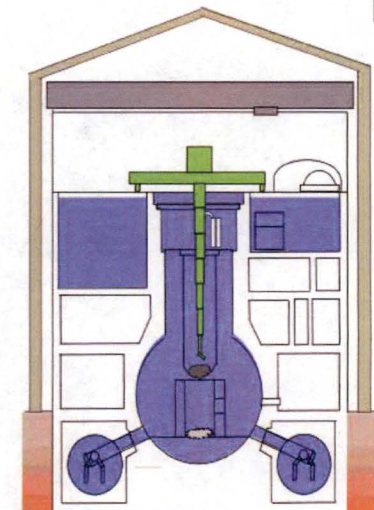
**Phase-3**

Complete  
decommissioning

**Today**



**Stop Leakage**



**Flood PCV and  
Remove Fuel Debris**

**Global collaboration vitally important to tackle  
this unprecedented undertaking**



# Global Collaboration: IAEA

## IAEA INTERNATIONAL PEER REVIEW MISSION ON MID-AND-LONG-TERM ROADMAP TOWARDS THE DECOMMISSIONING OF TEPCO'S FUKUSHIMA DAIICHI NUCLEAR POWER STATION UNITS 1-4

REPORT TO  
THE GOVERNMENT OF JAPAN

Tokyo and Fukushima Prefecture, Japan

15-22 April 2013

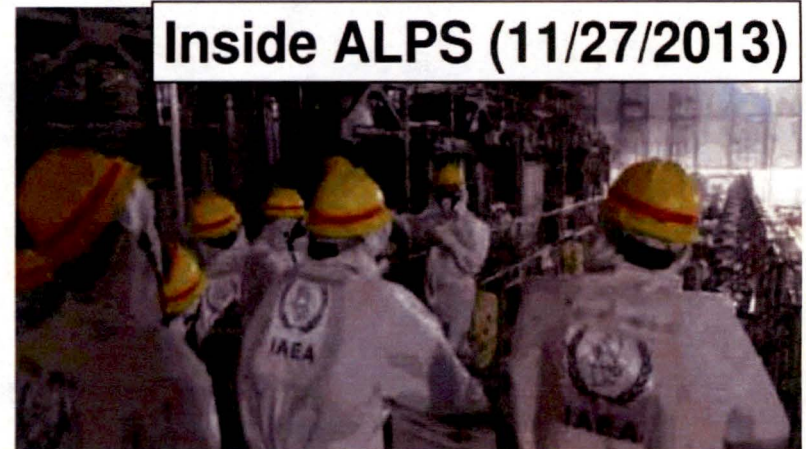


<http://www.meti.go.jp/press/2013/05/20130523001/20130523001-4.pdf>

## Unit 4 Fuel Removal (11/27/2013)



## Inside ALPS (11/27/2013)



**IAEA peer review missions on decommissioning  
roadmap (April 2013, Nov.-Dec. 2013, Feb. 2015)**



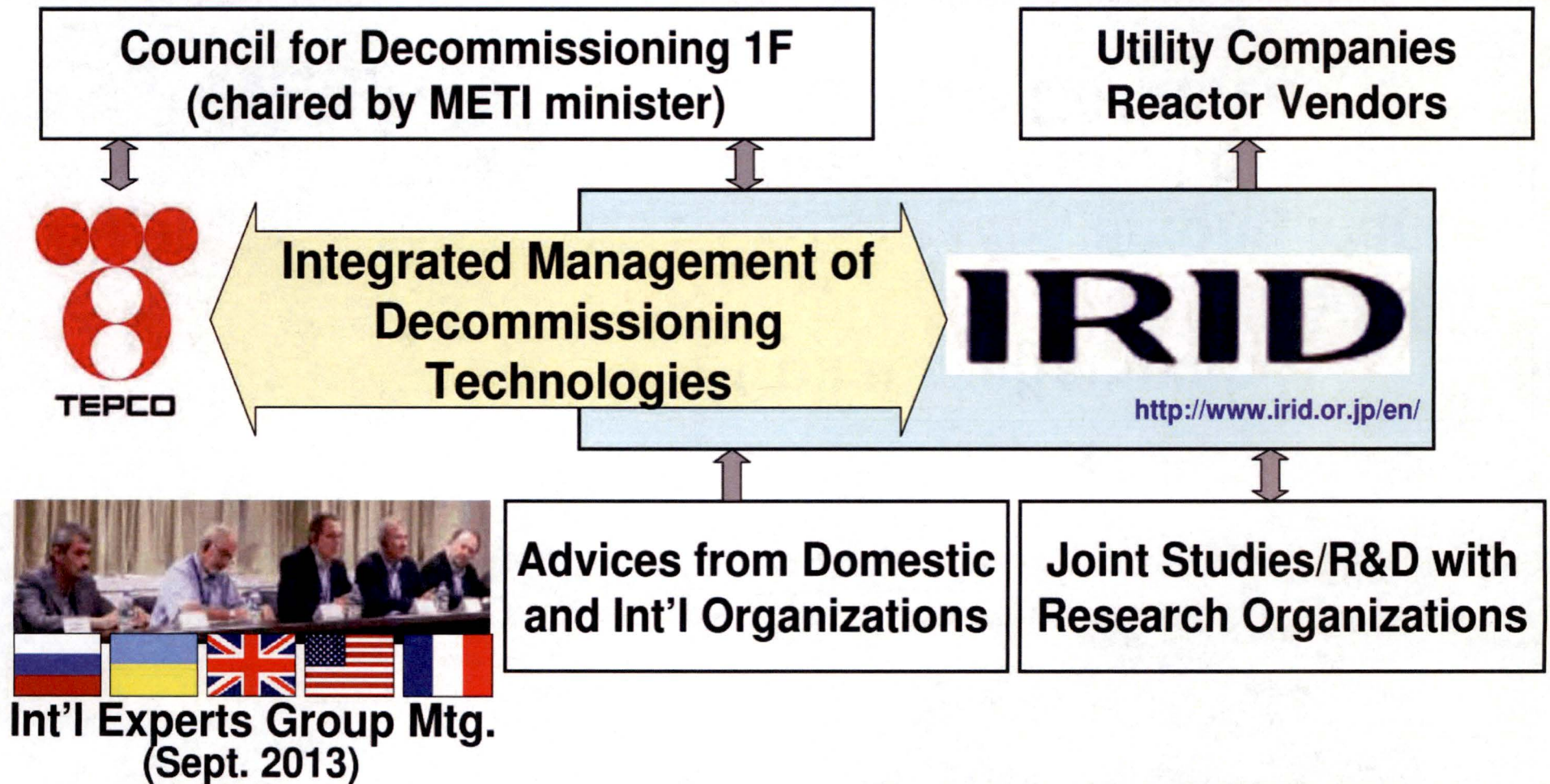
## Global Collaboration: U.S. and U.K.



**Collaboration with U.S.  
National Laboratories and U.K.  
Sellafield Ltd., among many  
others organizations on  
various D&D areas**



# Global Collaboration: Through IRID

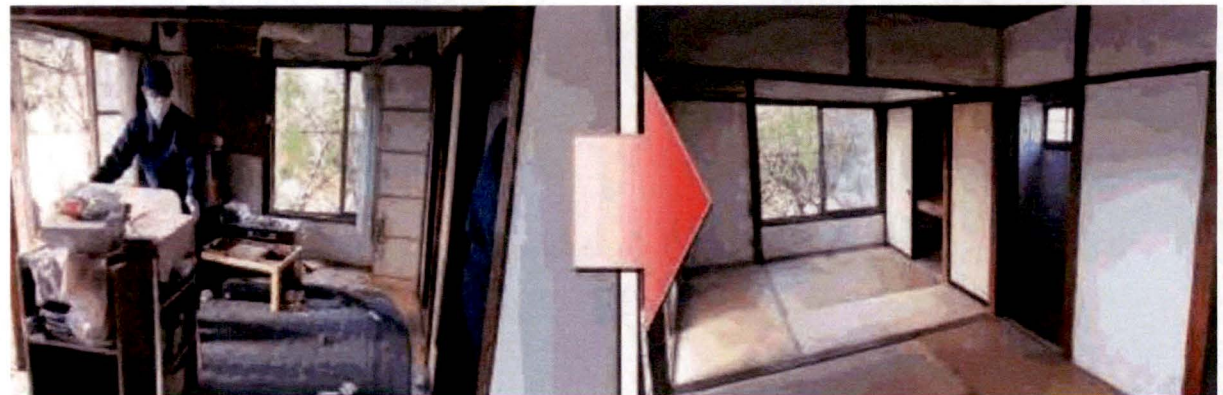


- **International Research Institute for Nuclear Decommissioning (IRID)** established in Aug. 2013
- Request for Information/Proposal on:  
**Contaminated water issues; Fuel debris retrieval**



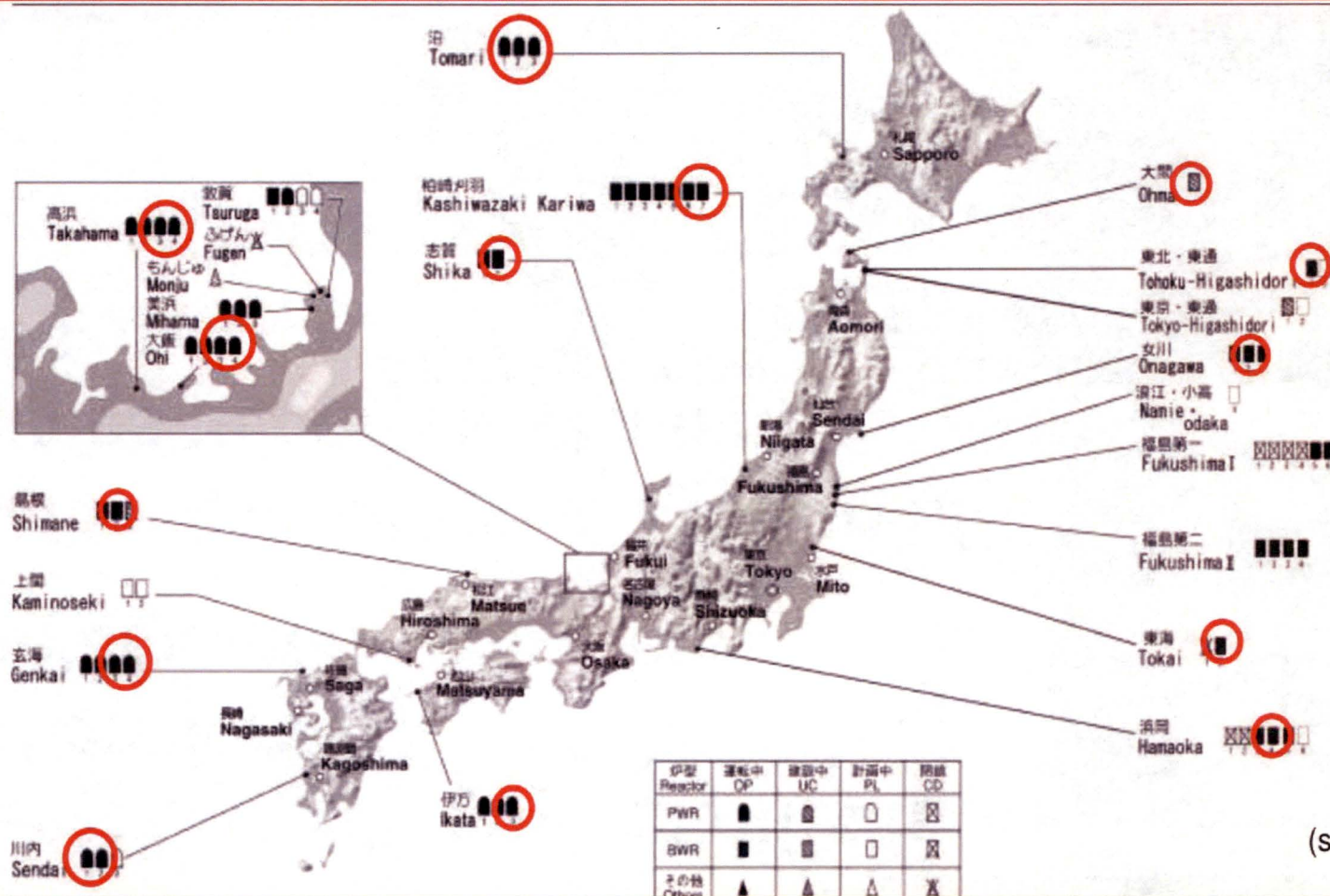
# TEPCO's Other Activities

- **Compensation** for afflicted people:  
¥4.7 trillion (approx. \$41 bil.)  
(paid out as of Feb. 2015)
- **Cooperation** with gov't in off-site radiation survey, decontamination work, etc.
- **Assistance** in temporary return of evacuees to homes, cleaning homes, etc.





# Nuclear Power Operation in Japan

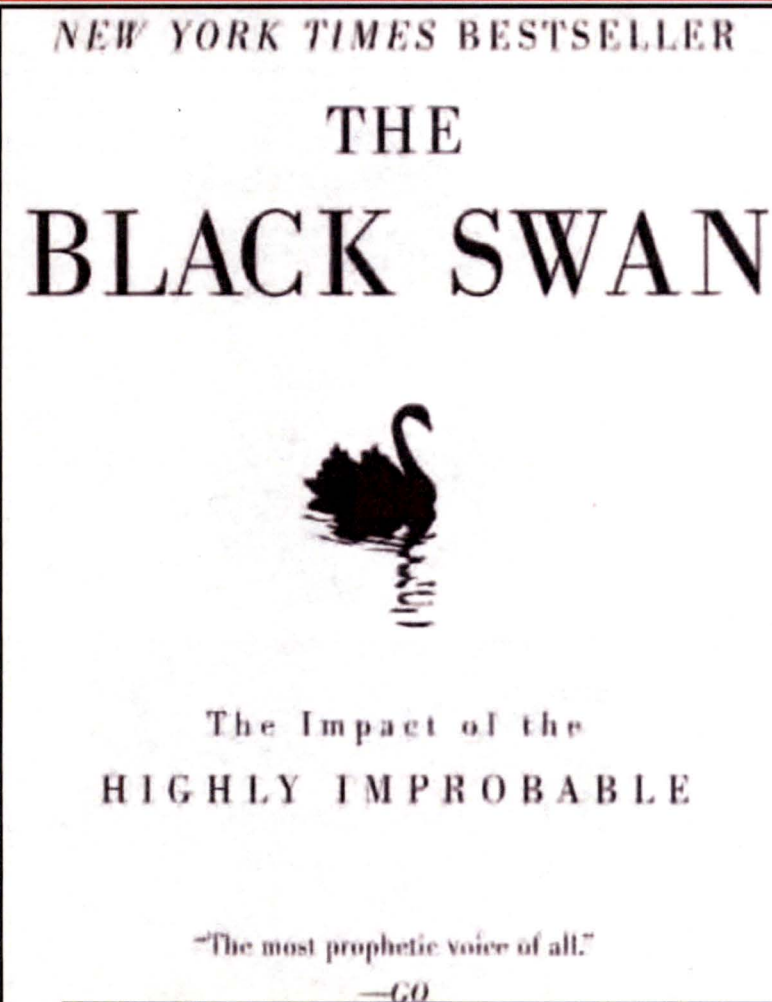


(source) JAIF

- In 2010: Nuclear provided **26%** of power (54 reactors)
- As of Feb. 2015:
  - ✓ **No reactor operating**
  - ✓ Safety review application for 21 reactors
  - ✓ 4 PWRs passed safety review



# Thoughts on Fukushima and “The Black Swan”



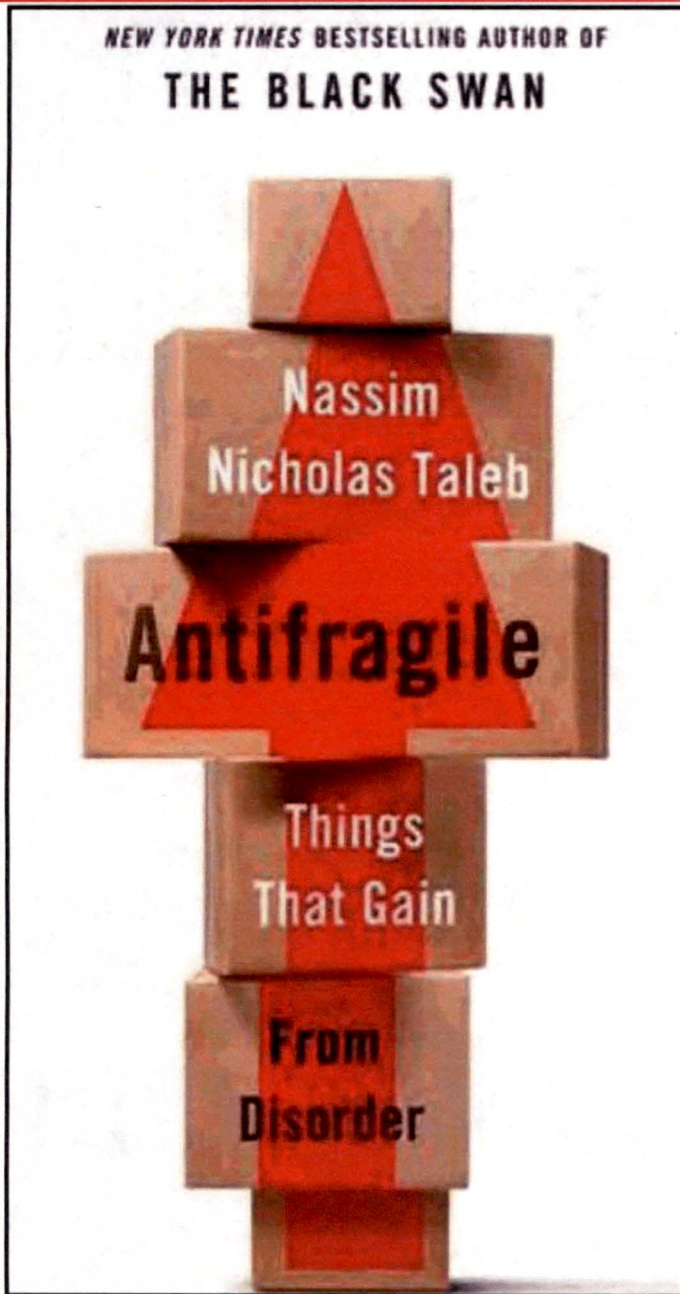
*“... Black Swan is an event with the following three attributes... rarity, extreme impact, and **retrospective (though not prospective) predictability.**”*

*“... two internal mechanisms behind our blindness to Black Swans, the **confirmation bias** and the **narrative fallacy.**”*

**Irrespective of whether Fukushima was a “Black Swan”, the nuclear industry needs to be **prepared for the unexpected****



# Thoughts on Fukushima and “Antifragility”



*“The answer to the question ‘what do you do in a world you don’t understand?’ is, simply, **work on the undesirable states of  $f(x)$ .**”*

*“**Antifragility is beyond resilience or robustness.** The resilient resists shocks and stay the same; the **antifragile gets better.**”*

**Need to strive for  
“Nuclear Antifragility”**





# TEPCO's Post-Accident Activities in the U.S.

## Nuclear Industry



## Gov't Agencies



## Global Organizations



## Academia



## Professional Organizations, Think Tanks, NPOs, Media



**Committed to sharing lessons learned; making nuclear power plants safer; carrying out decommissioning safely**  
**→ Hosting Weekly Update Teleconferences**



# References

---

## [Japan]

- **Tokyo Electric Power Company (TEPCO)**  
<http://www.tepco.co.jp/en/nu/fukushima-np/index-e.html>  
<http://www.tepco.co.jp/en/decommision/index-e.html>  
<http://www.tepco.co.jp/en/decommision/planaction/waterprocessing-e.html>
- **Nuclear Reform Monitoring Committee of TEPCO**  
<http://www.nrmc.jp/en/index-e.html>
- **Ministry of Economy, Trade and Industry (METI)**  
<http://www.meti.go.jp/english/earthquake/>
- **Nuclear Regulation Authority (NRA)**  
<http://www.nsr.go.jp/english/>
- **Japan Atomic Industrial Forum (JAIF)**  
<http://www.jaif.or.jp/english/>
- **Japan Nuclear Safety Institute (JANSI)**  
<http://www.genanshin.jp/english/index.html>

## [Media]

- **Japan Times “Lives on the Line”**  
<http://www.japantimes.co.jp/news/column/lives-on-the-line/>

## [USA]

- **Institute of Nuclear Power Operations (INPO)**  
<http://www.nei.org/Master-Document-Folder/Backgrounders/Reports-And-Studies/Lessons-Learned-from-the-Nuclear-Accident-at-the-F>
- **Electric Power Research Institute (EPRI)**  
<http://www.epri.com/Our-Work/Pages/Nuclear.aspx>
- **Nuclear Energy Institute (NEI)**  
<http://safetyfirst.nei.org/japan/>
- **National Academy of Science—Fukushima Lessons Learned Committee**  
<http://www8.nationalacademies.org/cp/projectview.aspx?key=49465>  
[http://www.nap.edu/catalog.php?record\\_id=18294](http://www.nap.edu/catalog.php?record_id=18294)

## [International]

- **International Atomic Energy Agency (IAEA)**  
<http://www.iaea.org/>
- **World Association of Nuclear Operators (WANO)**  
<http://www.wano.info/>
- **United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)**  
[http://www.unscear.org/unscear/en/publications/2013\\_1.html](http://www.unscear.org/unscear/en/publications/2013_1.html)
- **World Health Organization (WHO)**  
[http://www.who.int/mediacentre/news/releases/2013/fukushima\\_report\\_20130228/en/](http://www.who.int/mediacentre/news/releases/2013/fukushima_report_20130228/en/)