OIP_ITServices Resource

From: Emche, Danielle
Sent: Monday, March 14, 2011 11:56 AM
To: Smiroldo, Elizabeth
Subject: Fw:
Attachments: Japan Reactors Final.pdf

Danielle
Sent from an NRC BlackBerry.

From: Doane, Margaret
To: Emche, Danielle
Cc: Abrams, Charlotte
Sent: Mon Mar 14 11:45:21 2011
Subject:

Here's another document

RR117

Japan Power Reactors

Reactor Status October 2007:

55 operating reactors - Fukushima-Daiichi (6), Fukushima-Daini (4), Genkai (4), Hamaoka (5), Higashi Dori (1), Ikata (3), Kashiwazaki (7), Mihama (3), Ohi (4), Onagawa (3), Sendai (2), Shika (2), Shimane (2), Takahama (4), Tokai (1), Tomari (2), Tsuruga (2)

1 reactor under construction - Tomari

3 shut down reactors - Fugen ATR, Monju FBR, Tokai

OIP_ITServices Resource

From: Larson, Emily
Sent: Monday, March 14, 2011 12:04 PM
To: Smiroldo, Elizabeth
Subject: RE: Japan Profile.docx

Mugeh just went down to the Ops Center to talk to them about what exactly they want in the book.

From: Smiroldo, Elizabeth
Sent: Monday, March 14, 2011 12:00 PM
To: Emche, Danielle
Cc: Larson, Emily
Subject: RE: Japan Profile.docx

OK!

From: Emche, Danielle
Sent: Monday, March 14, 2011 11:49 AM
To: Smiroldo, Elizabeth
Cc: Larson, Emily
Subject: Fw: Japan Profile.docx

Charlotte asked if you could start putting the briefing book together. This is the profile Margie wants us to use. Mary is working on flights and other things that I'm guessing we would include in the book is any emergency and contact information on the state/embassy pages. We have total 8 staff going from OIP and NRR.
Danielle
Sent from an NRC BlackBerry.

From: Doane, Margaret
To: Emche, Danielle
Cc: Abrams, Charlotte
Sent: Mon Mar 14 11:44:05 2011
Subject: Japan Profile.docx

Danielle,
I need you to make a book for the travelers to Japan. Here is one document to include there are others. Get the Admin staff to help.
Margie

Bonaccorso, Amy

From: Sheron, Brian
Sent: Monday, March 14, 2011 9:49 AM
To: Gibson, Kathy; Case, Michael; Scott, Michael
Cc: Uhle, Jennifer; Bonaccorso, Amy; Flory, Shirley
Subject: RE: Japanese Earthquake--Ops Center Request

Mike, did you pass on Trish's name to Kathryn?

From: Gibson, Kathy
Sent: Monday, March 14, 2011 8:46 AM
To: Case, Michael; Scott, Michael
Cc: Sheron, Brian; Uhle, Jennifer; Bonaccorso, Amy; Flory, Shirley
Subject: Re: Japanese Earthquake--Ops Center Request

The best person I know of is Trish Milligan in NSIR. Terry Brock should also have some information.

From: Case, Michael
To: Gibson, Kathy
Cc: Sheron, Brian; Uhle, Jennifer; Bonaccorso, Amy; Flory, Shirley
Sent: Mon Mar 14 08:41:08 2011
Subject: Japanese Earthquake--Ops Center Request

Hi Kathy. They are working on what if scenarios in the Ops Center. They are tasked to compare some of the dose assessment results on the Japanese plants to Chernobyl. They need someone or some information on dose results from Chernobyl. Who do you have to help? The request is specifically from Kathyrn Brock on the PMT.

RR|18

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 11:20 AM
To: Tinkler, Charles
Subject: Fw: RASCAL Runs justifying U.S. PARs
Attachments: RASCAL Run of 03152011_0251AM (used in 03162011 NRC Press Release).pdf; RASCAL Run of 03162011_1224PM (used in 03162011 NRC Press Release).pdf

Can you take a look but don't share with anybody else (except Jason, richard, mike salay on need-to-know). I'd like your advice re:source term options so I can do a credible job in the ops center this weekend.

From: Hoc, PMT12
To: Gibson, Kathy
Cc: Lee, Richard
Sent: Thu Mar 17 11:04:37 2011
Subject: FW: RASCAL Runs justifying U.S. PARs

Hi Kathy.

FYI - Here are the full RASCAL runs from the press release. We now have Richard's name and can contact him as necessary. **This info can't be shared outside NRC.** The ET confirmed for us that MACCS code will not be used to benchmark RASCAL and that RES staff should not engage further efforts to use MACCS for this event.

K. Brock

RR119

Re-run of 3/15/11 2:51 run found in press release. Ignore rundate/time on this copy.

Summary Report

Case description: Fukushima Unit 2 mid night release 14MAR
Run date/time: 2011/03/15 03:04

Maximum Dose Values (rem) - Close-In

Dist from release miles (kilometers)	0.5 (0.8)	1. (1.61)	1.5 (2.41)	2. (3.22)	3. (4.83)	5. (8.05)	7. (11.27)	10. (16.09)
Total EDE	5.4E+03	2.0E+03	1.2E+03	8.2E+02	4.8E+02	2.4E+02	1.6E+02	9.5E+01
Thyroid CDE	2.8E+04	1.1E+04	6.2E+03	4.3E+03	2.5E+03	1.3E+03	8.4E+02	5.1E+02
Inhalation CEDE	3.7E+03	1.4E+03	8.0E+02	5.6E+02	3.3E+02	1.7E+02	1.1E+02	6.7E+01
Cloudshine	1.9E+01	9.3E+00	5.8E+00	4.1E+00	2.5E+00	1.4E+00	9.7E-01	6.2E-01
4-day Groundshine	1.7E+03	6.5E+02	3.8E+02	2.6E+02	1.5E+02	7.3E+01	4.6E+01	2.8E+01
Inter Phase 1st Yr	2.4E+04	9.3E+03	5.4E+03	3.8E+03	2.2E+03	1.0E+03	6.6E+02	3.9E+02
Inter Phase 2nd Yr	1.1E+04	4.4E+03	2.6E+03	1.8E+03	1.0E+03	4.9E+02	3.1E+02	1.8E+02

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

Maximum Dose Values (rem) - To 50 mi

Dist from release miles (kilometers)	15 (24.1)	20 (32.2)	30 (48.3)	40 (64.4)	50 (80.5)
Total EDE	8.6E+01	6.3E+01	3.7E+01	1.8E+01	8.1E+00
Thyroid CDE	3.3E+02	2.7E+02	1.3E+02	5.9E+01	2.5E+01
Inhalation CEDE	3.9E+01	3.1E+01	1.3E+01	4.4E+00	1.3E+00
Cloudshine	4.5E-01	3.8E-01	1.7E-01	7.4E-02	2.9E-02
4-day Groundshine	4.7E+01	3.2E+01	2.4E+01	1.3E+01	6.7E+00
Inter Phase 1st Yr	7.1E+02	4.7E+02	3.8E+02	2.2E+02	1.3E+02
Inter Phase 2nd Yr	3.4E+02	2.3E+02	1.8E+02	1.1E+02	6.9E+01

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

Case Summary

Event Type Nuclear Power Plant

Location
Name: Fukushima Unit 2
City, county, state: <undefined>, <undefined>, <undefined>
Lat / Long / Elev: 37.4214° N, 141.0325° E, 0 m
UTC Offset: 9 hours
Population: not available

Reactor Parameters

Summary Report

Reactor power:	2350 MWt
Average fuel burn-up:	30000 MWD / MTU
Containment type:	BWR Mark I
Containment volume:	2.50E+05 ft^3
Design pressure:	60 lb/in^2
Design leak rate:	0.54 %/d
Coolant mass:	1.25E+05 kg
Assemblies in core:	550

Source Term

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

Release Pathway

Type:	BWR - Release Through Dry Well via direct, unfiltered pathway
Description:	Unit 2 mid-night release 3-14-11
Release height:	10. m

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

Meteorology

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

Summary of data at release point:	Type	Dir deg	Speed m/s	Stab class	Precip	Temp °C
2011/03/12 14:00	Obs	265	1.0	B	?	
2011/03/12 15:00	Obs	265	1.0	B	?	
2011/03/12 16:00	Obs	277	1.3	B	?	
2011/03/12 17:00	Obs	260	2.4	B	?	
2011/03/12 18:00	Obs	241	1.4	E	?	
2011/03/12 19:00	Obs	236	2.1	E	?	
2011/03/12 20:00	Obs	239	2.1	E	?	
2011/03/12 21:00	Obs	229	3.8	E	?	
2011/03/12 22:00	Obs	224	5.1	E	?	
2011/03/12 23:00	Obs	226	3.9	E	?	
2011/03/13 00:00	Obs	228	4.1	E	?	
2011/03/13 01:00	Obs	235	2.6	E	?	
2011/03/13 02:00	Obs	233	3.9	E	?	
2011/03/13 03:00	Obs	225	1.8	E	?	
2011/03/13 04:00	Obs	225	1.3	E	?	
2011/03/13 05:00	Obs	225	2.2	E	?	
2011/03/13 06:00	Obs	225	2.2	E	?	
2011/03/13 07:00	Obs	248	2.7	E	?	
2011/03/13 08:00	Obs	248	2.7	E	?	
2011/03/13 09:00	Obs	270	3.1	E	?	
2011/03/13 12:00	Obs	271	7.4	D	?	
2011/03/13 13:00	Obs	276	6.2	D	?	
2011/03/13 14:00	Obs	312	2.8	B	?	
2011/03/14 18:00	Obs	258	4.8	unk	?	
2011/03/14 19:00	Obs	268	5.0	unk	?	

Summary Report

2011/03/14 20:00	Obs	330	2.2	unk	?
2011/03/14 21:00	Fcst	337	4.6	unk	?
2011/03/14 22:00	Fcst	323	7.2	unk	?
2011/03/14 23:00	Fcst	305	6.6	unk	?
2011/03/15 00:00	Fcst	015	8.6	unk	?
2011/03/15 02:00	Fcst	002	7.5	unk	?
2011/03/15 03:00	Fcst	347	5.2	E	None
2011/03/15 04:00	Fcst	332	5.6	E	None
2011/03/15 05:00	Fcst	332	4.0	E	None
2011/03/15 06:00	Fcst	344	3.5	E	Lgt rain
2011/03/15 07:00	Fcst	026	3.8	E	Lgt rain
2011/03/15 08:00	Fcst	044	4.4	E	Lgt rain
2011/03/15 09:00	Fcst	020	4.2	E	Lgt rain
2011/03/15 10:00	Fcst	010	3.4	E	None
2011/03/15 11:00	Fcst	030	3.5	D	Lgt rain
2011/03/15 12:00	Fcst	027	3.0	D	Lgt rain
2011/03/15 13:00	Fcst	037	3.4	D	Lgt rain
2011/03/15 14:00	Fcst	053	3.7	B	None
2011/03/15 15:00	Fcst	058	3.7	B	None
2011/03/15 16:00	Fcst	067	3.2	C	Lgt rain
2011/03/15 17:00	Fcst	081	3.9	C	Lgt rain
2011/03/15 18:00	Fcst	089	4.7	B	None
2011/03/15 19:00	Fcst	085	4.4	B	None
2011/03/15 20:00	Fcst	083	4.4	B	Lgt rain
2011/03/15 21:00	Fcst	074	4.6	C	Lgt rain
2011/03/15 22:00	Fcst	054	5.0	D	Lgt rain
2011/03/15 23:00	Fcst	029	5.6	D	Rain
2011/03/16 00:00	Fcst	011	5.1	D	Lgt rain
2011/03/16 01:00	Fcst	346	4.3	C	Lgt rain
2011/03/16 02:00	Fcst	350	5.3	D	Lgt rain
2011/03/16 03:00	Fcst	323	5.6	D	Lgt rain
2011/03/16 04:00	Fcst	316	5.4	D	None
2011/03/16 05:00	Fcst	298	4.8	D	None
2011/03/16 06:00	Fcst	314	5.6	D	None
2011/03/16 07:00	Fcst	312	4.7	D	None
2011/03/16 08:00	Fcst	331	4.9	D	None
2011/03/16 09:00	Fcst	353	4.1	D	None

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

Calculations

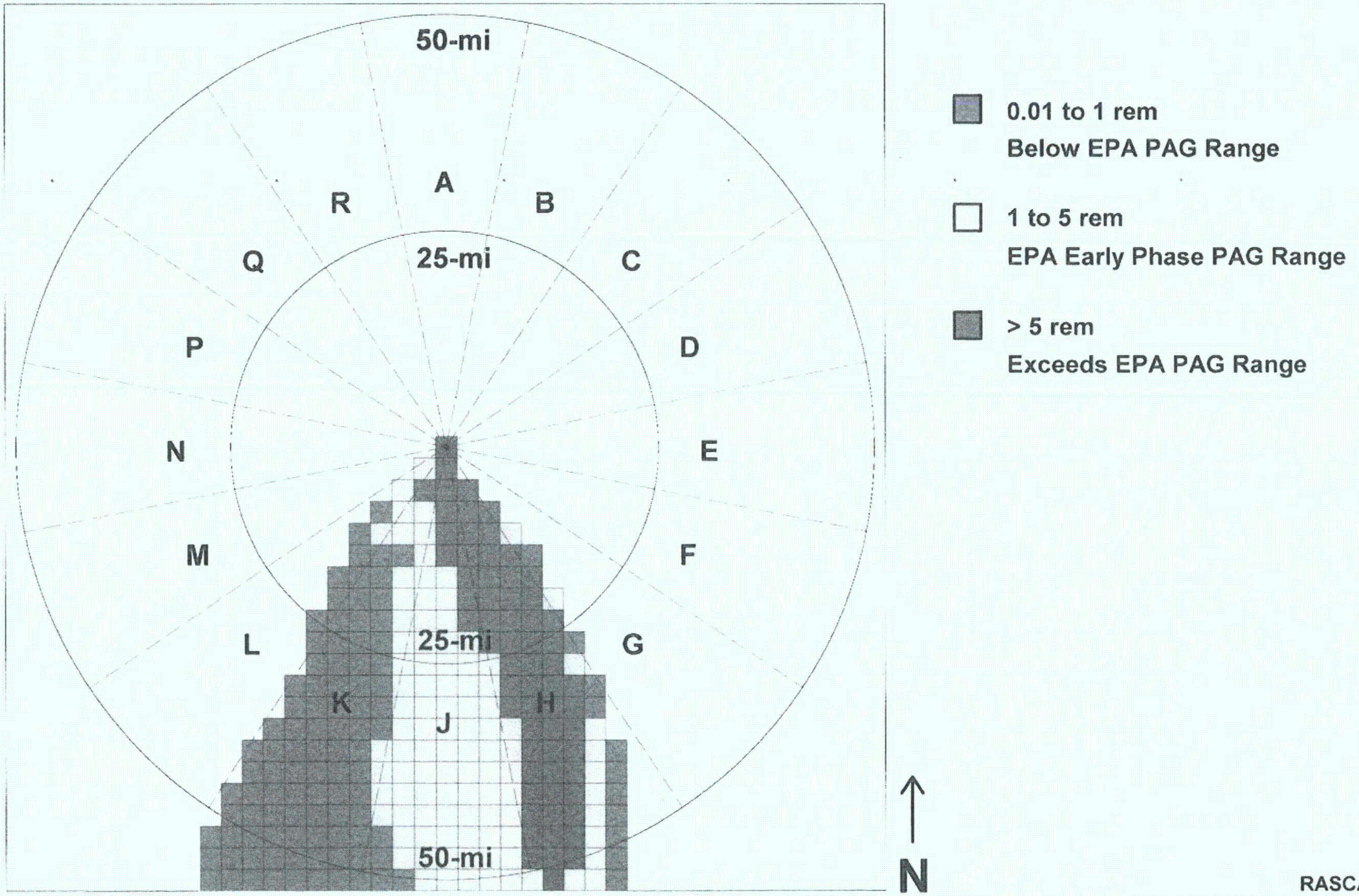
Case description: Fukushima Unit 2 mid night release 14MAR
End of calculations: 2011/03/15 16:00
Start of release to atmosphere + 16 h
Distance of calculation: Close-in + to 50 miles
Close-in distances: 0.5, 1.0, 1.5, 2.0, 3.0, 5.0, 7.0, 10.0 miles

Total Effective Dose Equivalent

Accumulated between 2011/03/15 00:00 and 2011/03/15 16:00

Fukushima Unit 2 mid night release 14MAR

Fukushima Unit 2



RASCAL v4.1

Re-run of 3/16/11 run @ 12:24pm found in press release. Ignore run date/time on this copy

Summary Report

Case description: Fukushima U2, U3 and U4 SFP approximate site release
Run date/time: 2011/03/17 08:48

Maximum Dose Values (rem) - Close-In

Dist from release miles (kilometers)	0.5 (0.8)	1. (1.61)	1.5 (2.41)	2. (3.22)	3. (4.83)	5. (8.05)	7. (11.27)	10. (16.09)
Total EDE	5.4E+03	1.5E+03	6.7E+02	3.9E+02	1.8E+02	7.5E+01	4.0E+01	1.4E+01
Thyroid CDE	2.9E+04	7.9E+03	3.6E+03	2.1E+03	9.6E+02	4.0E+02	2.1E+02	7.5E+01
Inhalation CEDE	3.8E+03	1.0E+03	4.8E+02	2.8E+02	1.3E+02	5.4E+01	2.9E+01	1.0E+01
Cloudshine	2.2E+01	8.0E+00	3.9E+00	2.3E+00	8.0E-01	2.6E-01	2.1E-01	1.1E-01
4-day Groundshine	1.5E+03	4.1E+02	1.9E+02	1.1E+02	5.0E+01	2.1E+01	1.1E+01	4.4E+00
Inter Phase 1st Yr	2.6E+04	7.0E+03	3.2E+03	1.9E+03	8.5E+02	3.5E+02	1.9E+02	7.5E+01
Inter Phase 2nd Yr	1.3E+04	3.5E+03	1.6E+03	9.2E+02	4.2E+02	1.8E+02	9.5E+01	3.8E+01

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

Maximum Dose Values (rem) - To 50 mi

Dist from release miles (kilometers)	15 (24.1)	20 (32.2)	30 (48.3)	40 (64.4)	50 (80.5)
Total EDE	1.5E+01	1.3E+01	1.1E+01	1.0E+01	9.9E+00
Thyroid CDE	8.6E+01	7.0E+01	5.2E+01	4.9E+01	4.8E+01
Inhalation CEDE	1.1E+01	9.2E+00	7.7E+00	7.6E+00	7.3E+00
Cloudshine	1.2E-01	9.7E-02	7.3E-02	7.0E-02	6.6E-02
4-day Groundshine	4.1E+00	3.4E+00	2.8E+00	2.7E+00	2.5E+00
Inter Phase 1st Yr	7.1E+01	6.0E+01	4.7E+01	4.5E+01	4.3E+01
Inter Phase 2nd Yr	3.6E+01	3.0E+01	2.3E+01	2.2E+01	2.1E+01

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

Case Summary

Event Type Nuclear Power Plant

Location
Name: Fukushima U4
City, county, state: <undefined>, <undefined>, <undefined>
Lat / Long / Elev: 37.4214° N, 141.0325° E, 0 m
UTC Offset: 9 hours
Population: not available

Reactor Parameters

Summary Report

Reactor power:	3760 MWt
Average fuel burn-up:	30000 MWD / MTU
Containment type:	BWR Mark I
Containment volume:	2.50E+05 ft³
Design pressure:	60 lb/in²
Design leak rate:	0.54 %/d
Coolant mass:	1.25E+05 kg
Assemblies in core:	917

Source Term

Type:	Time Core Is Uncovered
Shutdown:	2011/03/11 14:46
Core uncovered:	2011/03/16 19:50
Core recovered:	No

Release Pathway

Type:	BWR - Release Through Dry Well via direct, unfiltered pathway
Description:	Fukushima - U2, U3 and U4 SFP release approximation
Release height:	10. m

Release events

2011/03/16 19:50	Leak rate (% vol) Total failure
2011/03/16 19:50	Sprays Off

Meteorology

Type:	Actual Observations
Dataset name:	Fukushima 2011-03-16 0935
Dataset desc:	Obs/fcsts for Fukushima Unit 1

Summary of data at release point:	Type	Dir deg	Speed m/s	Stab class	Precip	Temp °C
2011/03/12 14:00	Obs	265	1.0	B	?	
2011/03/12 15:00	Obs	265	1.0	B	?	
2011/03/12 16:00	Obs	277	1.3	B	?	
2011/03/12 17:00	Obs	260	2.4	B	?	
2011/03/12 18:00	Obs	241	1.4	E	?	
2011/03/12 19:00	Obs	236	2.1	E	?	
2011/03/12 20:00	Obs	239	2.1	E	?	
2011/03/12 21:00	Obs	229	3.8	E	?	
2011/03/12 22:00	Obs	224	5.1	E	?	
2011/03/12 23:00	Obs	226	3.9	E	?	
2011/03/13 00:00	Obs	228	4.1	E	?	
2011/03/13 01:00	Obs	235	2.6	E	?	
2011/03/13 02:00	Obs	233	3.9	E	?	
2011/03/13 03:00	Obs	225	1.8	E	?	
2011/03/13 04:00	Obs	225	1.3	E	?	
2011/03/13 05:00	Obs	225	2.2	E	?	
2011/03/13 06:00	Obs	225	2.2	E	?	
2011/03/13 07:00	Obs	248	2.7	E	?	
2011/03/13 08:00	Obs	248	2.7	E	?	
2011/03/13 09:00	Obs	270	3.1	E	?	
2011/03/13 12:00	Obs	271	7.4	D	?	
2011/03/13 13:00	Obs	276	6.2	D	?	
2011/03/13 14:00	Obs	312	2.8	B	?	
2011/03/14 18:00	Obs	258	4.8	unk	?	
2011/03/14 19:00	Obs	268	5.0	unk	?	

Summary Report

2011/03/14 20:00	Obs	330	2.2	unk	?
2011/03/14 21:00	Fcst	337	4.6	unk	?
2011/03/14 22:00	Fcst	323	7.2	unk	?
2011/03/14 23:00	Fcst	305	6.6	unk	?
2011/03/15 00:00	Fcst	015	8.6	unk	?
2011/03/15 02:00	Fcst	002	7.5	unk	?
2011/03/15 03:00	Fcst	347	5.2	E	None
2011/03/15 04:00	Fcst	332	5.6	E	None
2011/03/15 05:00	Fcst	332	4.0	E	None
2011/03/15 06:00	Fcst	344	3.5	E	Lgt rain
2011/03/15 07:00	Fcst	026	3.8	E	Lgt rain
2011/03/15 08:00	Fcst	044	4.4	E	Lgt rain
2011/03/15 09:00	Fcst	020	4.2	E	Lgt rain
2011/03/15 10:00	Fcst	010	3.4	E	None
2011/03/15 11:00	Fcst	030	3.5	D	Lgt rain
2011/03/15 12:00	Fcst	027	3.0	D	Lgt rain
2011/03/15 13:00	Fcst	037	3.4	D	Lgt rain
2011/03/15 14:00	Fcst	053	3.7	B	None
2011/03/15 15:00	Fcst	058	3.7	B	None
2011/03/15 16:00	Fcst	067	3.2	C	Lgt rain
2011/03/15 17:00	Fcst	081	3.9	C	Lgt rain
2011/03/15 18:00	Fcst	089	4.7	B	None
2011/03/15 19:00	Fcst	085	4.4	B	None
2011/03/15 20:00	Fcst	083	4.4	B	Lgt rain
2011/03/15 21:00	Fcst	074	4.6	C	Lgt rain
2011/03/15 22:00	Fcst	054	5.0	D	Lgt rain
2011/03/15 23:00	Fcst	029	5.6	D	Rain
2011/03/16 00:00	Fcst	011	5.1	D	Lgt rain
2011/03/16 01:00	Fcst	346	4.3	C	Lgt rain
2011/03/16 02:00	Fcst	350	5.3	D	Lgt rain
2011/03/16 03:00	Fcst	323	5.6	D	Lgt rain
2011/03/16 04:00	Fcst	316	5.4	D	None
2011/03/16 05:00	Fcst	298	4.8	D	None
2011/03/16 06:00	Fcst	314	5.6	D	None
2011/03/16 07:00	Fcst	312	4.7	D	None
2011/03/16 08:00	Fcst	331	4.9	D	None
2011/03/16 09:00	Fcst	299	4.2	D	None
2011/03/16 10:00	Fcst	312	5.4	C	None
2011/03/16 11:00	Fcst	309	7.5	C	None
2011/03/16 12:00	Fcst	304	7.2	C	None
2011/03/16 13:00	Fcst	314	8.8	C	None
2011/03/16 14:00	Fcst	325	10.4	C	None
2011/03/16 15:00	Fcst	324	12.3	C	None
2011/03/16 16:00	Fcst	304	14.7	D	None
2011/03/16 17:00	Fcst	299	14.2	D	None
2011/03/16 18:00	Fcst	297	11.3	D	None
2011/03/16 19:00	Fcst	316	9.8	D	None
2011/03/16 20:00	Fcst	309	9.4	D	None
2011/03/16 21:00	Fcst	294	9.5	D	None
2011/03/16 22:00	Fcst	299	7.6	D	None
2011/03/16 23:00	Fcst	300	9.7	D	None
2011/03/17 00:00	Fcst	294	5.0	D	None
2011/03/17 01:00	Fcst	286	7.0	D	None
2011/03/17 02:00	Fcst	287	6.6	D	None
2011/03/17 03:00	Fcst	293	6.5	D	None
2011/03/17 04:00	Fcst	300	6.3	D	None
2011/03/17 05:00	Fcst	311	5.9	D	None
2011/03/17 06:00	Fcst	295	7.4	D	None

Summary Report

2011/03/17 07:00	Fcst	303	8.4	C	None
2011/03/17 08:00	Fcst	333	4.8	C	None
2011/03/17 09:00	Fcst	321	5.9	C	None
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2011/03/17 20:00	Fcst	301	11.3	D	None
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2011/03/18 07:00	Fcst	326	5.1	C	None
2011/03/18 08:00	Fcst	343	5.4	C	None
2011/03/18 09:00	Fcst	344	6.1	C	None

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

Calculations

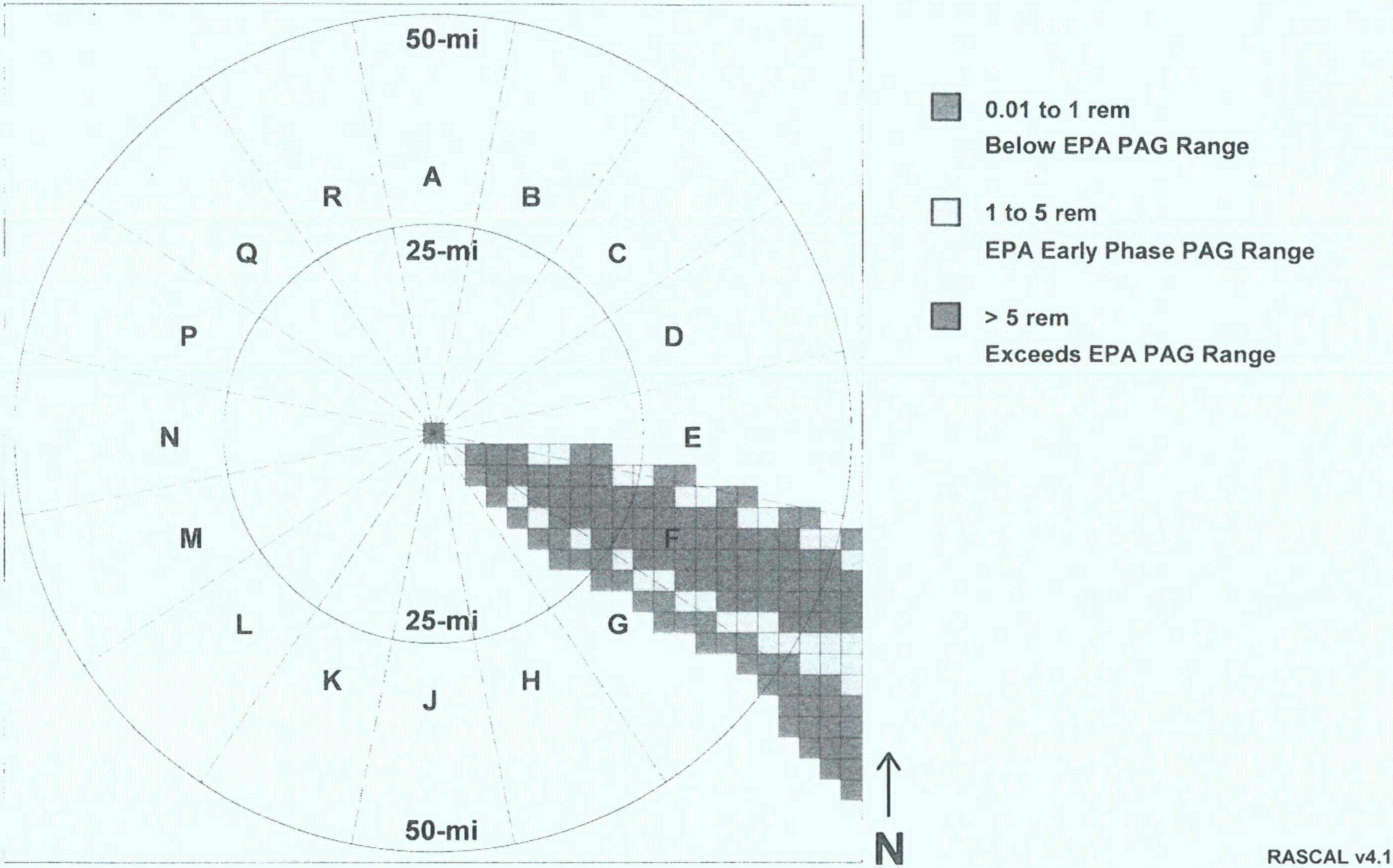
Case description: Fukushima U2, U3 and U4 SFP approximate site release
End of calculations: 2011/03/17 10:50
Start of release to atmosphere + 15 h
Distance of calculation: Close-in + to 50 miles
Close-in distances: 0.5, 1.0, 1.5, 2.0, 3.0, 5.0, 7.0, 10.0 miles

Total Effective Dose Equivalent

Accumulated between 2011/03/16 19:50 and 2011/03/17 10:50

Fukushima U2, U3 and U4 SFP approximate site release

Fukushima U4



Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 12:01 PM
To: Hoc, PMT12
Subject: Re: RASCAL Runs justifying U.S. PARs

Got it thanks. We are here if you need us. Richard is going to a meeting at DOE with Brian sheron this afternoon so if you can't get him, call me.

From: Hoc, PMT12
To: Gibson, Kathy
Cc: Lee, Richard
Sent: Thu Mar 17 11:04:37 2011
Subject: FW: RASCAL Runs justifying U.S. PARs

Hi Kathy.
FYI - Here are the full RASCAL runs from the press release. We now have Richard's name and can contact him as necessary. **This info can't be shared outside NRC**. The ET confirmed for us that MACCS code will not be used to benchmark RASCAL and that RES staff should not engage further efforts to use MACCS for this event.

K. Brock

RR/20

OIP_ITServices Resource

From: Emche, Danielle
Sent: Monday, March 14, 2011 11:57 AM
To: Smiroldo, Elizabeth
Subject: Fw:
Attachments: dosbackgroundjapan.pdf

Danielle
Sent from an NRC BlackBerry.

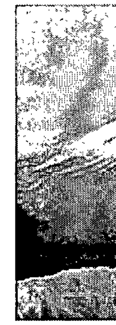
From: Doane, Margaret
To: Emche, Danielle; LIA02 Hoc; Abrams, Charlotte
Sent: Mon Mar 14 11:53:21 2011
Subject:

Another document to include

RR/1

U.S. DEPARTMENT OF STATE

DIPLOMACY IN ACTION



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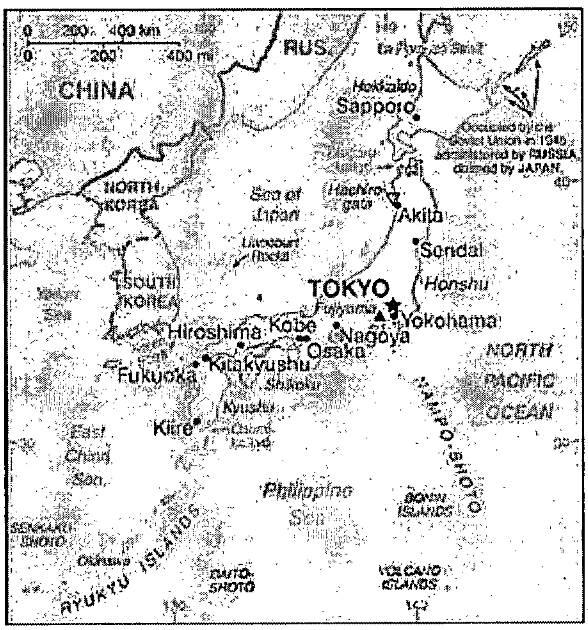
Subscr

October 6, 2010 | Bureau of East Asian and Pacific Affairs

Background Note: Japan

Official Name: Japan



PROFILE

Geography
Area: 377, 835 sq. km. (145,902 sq. mi.); slightly smaller than California.
Cities: *Capital*--Tokyo. *Other cities*--Yokohama, Osaka, Nagoya, Sapporo, Kobe, Kyoto, Fukuoka.
Terrain: Rugged, mountainous islands.
Climate: Varies from subtropical to temperate.

People

Nationality: *Noun and adjective*--Japanese.
Population (2010 est.): 127.08 million.
Population growth rate (2010 est.): -0.191%.
Ethnic groups: Japanese, Korean (0.5%), Chinese (0.4%).
Religions: Shinto and Buddhist; Christian.
Language: Japanese.
Education: *Literacy*--99%.
Health (2009 est.): *Infant mortality rate*--2.8/1,000. *Life expectancy*--males 79 yrs., females 86 yrs.
Work force (65.9 million, 2010 est.): *Services*--68%; industry--28%; *agriculture*--4%.

Government
Type: Constitutional monarchy with a parliamentary government.
Constitution: May 3, 1947.
Branches: *Executive*--prime minister (head of government). *Legislative*--bicameral Diet (House of Representatives and House of Councillors). *Judicial*--civil law system based on the model of Roman law.
Administrative subdivisions: 47 prefectures.
Political parties: Democratic Party of Japan (DPJ), Social Democratic Party (SDP), People's New Party (PNP), Liberal Democratic Party (LDP), New Clean Government Party (Komeito), Japan Communist Party (JCP).
Suffrage: Universal at 20.

Economy
GDP (2009 est.): $5.068 trillion (official exchange rate); $4.15 trillion (PPP).
Real growth rate (2009 est.): -5.3%.
Per capita GDP (2009 est. PPP): $32,700.
Natural resources: Fish and few mineral resources.
Agriculture: *Products*--rice, vegetables, fruit, milk, meat, silk, fish.
Industry: *Types*--machinery and equipment, metals and metal products, textiles, autos, chemicals, electrical and electronic equipment, textiles, processed foods.

GEOGRAPHY
Japan, a country of islands, extends along the eastern or Pacific coast of Asia. The four main islands, running from north to south, are Hokkaido, Honshu (or the mainland), Shikoku, and Kyushu. Okinawa Island is about 380 miles southwest of Kyushu. About 3,000 smaller islands are included in the archipelago. In total land area, Japan is slightly smaller than California. About 73% of the country is mountainous, with a chain running through each of the main islands. Japan's highest mountain is the world famous Mt. Fuji (12,388 feet). Since so little flat area exists, many hills and mountainsides are cultivated all the way to the summits. As Japan is situated in a volcanic zone along the Pacific depth, frequent low intensity earth tremors and occasional volcanic activity are felt throughout the islands. Destructive earthquakes occur several times a century. Hot springs are numerous and have been developed as resorts.

Temperature extremes are less pronounced than in the United States, but the climate varies considerably. Sapporo, on the northernmost main island, has warm summers and long, cold winters with heavy snowfall. Tokyo, Nagoya, Kyoto, Osaka, and Kobe, in central and western parts of the largest island of Honshu, experience relatively mild winters with little or no snowfall and hot, humid summers. Fukuoka, on the island of Kyushu, has a climate similar to that of Charleston, South Carolina, with mild winters and wet summers. Okinawa is subtropical.

PEOPLE

Japan's population, currently just over 127 million, has experienced a phenomenal growth rate during the past 100 years as a result of scientific, industrial, and sociological changes, but this has recently slowed due to falling birth rates. In 2005, Japan's population declined for the first time; 2 years earlier than predicted. High sanitary and health standards produce a life expectancy exceeding that of the United States.

Japan is an urban society with only about 4% of the labor force engaged in agriculture. Many farmers supplement their income with part-time jobs in nearby towns and cities. About 80 million of the urban population is heavily concentrated on the Pacific shore of Honshu and in northern Kyushu. Major population centers include: Metropolitan Tokyo with approximately 12.8 million; Yokohama with 3.7 million; Osaka with 2.6 million; Nagoya with 2.2 million; Sapporo with 1.8 million; Kyoto and Kobe with 1.5 million each; Kawasaki and Fukuoka with 1.4 million each, and Saitama with 1.2 million. Japan faces the same problems that confront urban industrialized societies throughout the world: overcrowded cities, congested roads, air pollution, and rising juvenile delinquency.

Shintoism and Buddhism are Japan's two principal religions. Shintoism is founded on myths and legends emanating from the early animistic worship of natural phenomena. Since it was unconcerned with problems of afterlife which dominate Buddhist thought, and since Buddhism easily accommodated itself to local faiths, the two religions comfortably coexisted, and Shinto shrines and Buddhist temples often became administratively linked. Today many Japanese are adherents of both faiths. From the 16th to the 19th century Shintoism flourished.

Adopted by the leaders of the Meiji restoration, Shintoism received state support and was cultivated as a spur to patriotic and nationalistic feelings. Following World War II, state support was discontinued, and the emperor disavowed divinity. Today Shintoism plays a more peripheral role in the life of the Japanese people. The numerous shrines are visited regularly by a few believers and, if they are historically famous or known for natural beauty, by many sightseers. Many marriages are held in the shrines, and children are taken there after birth and on certain anniversary dates; special shrine days are celebrated for certain occasions, and numerous festivals are held throughout the year. Many homes have "god shelves" where offerings can be made to Shinto deities.

Buddhism first came to Japan in the 6th century and for the next 10 centuries exerted profound influence on its intellectual, artistic, social, and political life. Most funerals are conducted by Buddhist priests, and many Japanese visit family graves and Buddhist temples to pay respects to ancestors.

Confucianism arrived with the first great wave of Chinese influence into Japan between the 6th and 9th centuries. Overshadowed by Buddhism, it survived as an organized philosophy into the late 19th century and remains today as an important influence on Japanese thought and values.

Christianity, first introduced into Japan in 1549, was virtually stamped out by the government a century later; it was reintroduced in the late 1800s and has spread slowly. Today Christianity has an estimated 3 million adherents throughout Japan.

Beyond the three traditional religions, many Japanese today are turning to a great variety of popular religious movements normally lumped together under the name "new religions." These religions draw on the concept of Shinto, Buddhism, and folk superstition and have developed in part to meet the social needs of elements of the population. The officially recognized new religions number in the hundreds, and total membership is reportedly in the tens of millions.

HISTORY

Japanese legend maintains that Japan was founded in 600 BC by the Emperor Jimmu, a direct descendant of the sun goddess and ancestor of the present ruling imperial family. In about AD 405, the Japanese court officially adopted the Chinese writing system. Together with the introduction of Buddhism in the sixth century, these two events revolutionized Japanese culture and marked the beginning of a long period of Chinese cultural influence. From the establishment of the first fixed capital at Nara in 710 until 1867, the emperors of the Yamato dynasty were the nominal rulers, but actual power was usually held by influential court nobles, regents, or "shoguns" (military governors).

Contact With the West

The first recorded contact with the West occurred in about 1542, when a Portuguese ship, blown off its course to China, landed in Japan. During the next century, traders from Portugal, the Netherlands, England, and Spain arrived, as did Jesuit, Dominican, and Franciscan missionaries. During the early part of the 17th century, Japan's shogunate suspected that the traders and missionaries were actually forerunners of a military conquest by European powers. This caused the shogunate to place foreigners under progressively tighter restrictions. Ultimately, Japan forced all foreigners to leave and barred all relations with the outside world except for severely restricted commercial contacts with Dutch and Chinese merchants at Nagasaki. This isolation lasted for 200 years, until Commodore Matthew Perry of the U.S. Navy negotiated the opening of Japan to the West with the Convention of Kanagawa in 1854.

Within several years, renewed contact with the West profoundly altered Japanese society. The shogunate resigned, and the emperor was restored to power. The "Meiji restoration" of 1868 initiated many reforms. The feudal system was abolished, and numerous Western institutions were adopted, including a Western legal and educational system and constitutional government along parliamentary lines.

In 1898, the last of the "unequal treaties" with Western powers was removed, signaling Japan's new status among the nations of the world. In a few decades, by creating modern social, educational, economic, military, and industrial systems, the Emperor Meiji's "controlled revolution" had transformed a feudal and isolated state into a world power.

Wars With China and Russia
Japanese leaders of the late 19th century regarded the Korean Peninsula as a potential threat to Japan. It was over Korea that Japan became involved in war with the Chinese Empire in 1894-95 and with Russia in 1904-05. The war with China established Japan's domination of Korea, while also giving it the Pescadores Islands and Formosa (now Taiwan). After Japan defeated Russia in 1905, the resulting Treaty of Portsmouth awarded Japan certain rights in Manchuria and in southern Sakhalin, which Russia had received in 1875 in exchange for the Kurile Islands. Both wars gave Japan a free hand in Korea, which it formally annexed in 1910.

World War I to 1952
World War I permitted Japan, which fought on the side of the victorious Allies, to expand its influence in Asia and its territorial holdings in the Pacific. The postwar era brought Japan unprecedented prosperity. Japan went to the peace conference at Versailles in 1919 as one of the great military and industrial powers of the world and received official recognition as one of the "Big Five" of the new international order. It joined the League of Nations and received a mandate over Pacific islands north of the Equator formerly held by Germany.

During the 1920s, Japan progressed toward a democratic system of government. However, parliamentary government was not rooted deeply enough to withstand the economic and political pressures of the 1930s, during which military leaders became increasingly influential.

Japan invaded Manchuria in 1931 and set up the puppet state of Manchukuo. In 1933, Japan resigned from the League of Nations. The Japanese invasion of China in 1937 followed Japan's signing of the Anti-Comintern Pact with Nazi Germany the previous year and was part of a chain of developments culminating in the Japanese attack on the United States at Pearl Harbor, Hawaii, on December 7, 1941.

After years of war, resulting in the loss of 3 million Japanese lives and the atomic bombings of Hiroshima and Nagasaki, Japan signed an instrument of surrender on the U.S.S. *Missouri* in Tokyo Harbor on September 2, 1945. As a result of World War II, Japan lost all of its overseas possessions and retained only the home islands. Manchukuo was dissolved, and Manchuria was returned to China; Japan renounced all claims to Formosa; Korea was occupied and divided by the U.S. and the U.S.S.R.; southern Sakhalin and the Kuriles were occupied by the U.S.S.R.; and the U.S. became the sole administering authority of the Ryukyu, Bonin, and Volcano Islands. The 1972 reversion of Okinawa completed the U.S. return of control of these islands to Japan.

After the war, Japan was placed under international control of the Allies through the Supreme Commander, Gen. Douglas MacArthur. U.S. objectives were to ensure that Japan would become a peaceful nation and to establish democratic self-government supported by the freely expressed will of the people. Political, economic, and social reforms were introduced, such as a freely elected Japanese Diet (legislature) and universal adult suffrage. The country's constitution took effect on May 3, 1947. The United States and 45 other Allied nations signed the Treaty of Peace with Japan in September 1951. The U.S. Senate ratified the treaty in March 1952, and under the terms of the treaty, Japan regained full sovereignty on April 28, 1952.

GOVERNMENT AND POLITICAL CONDITIONS

Japan is a constitutional monarchy with a parliamentary government. There is universal adult suffrage with a secret ballot for all elective offices. Sovereignty, previously embodied in the emperor, is vested in the Japanese people, and the Emperor is defined as the symbol of the state.

Japan's government is a parliamentary democracy, with a House of Representatives (also known as the Lower House) and a House of Councillors (sometimes called the Upper House). Executive power is vested in a cabinet composed of a prime minister and ministers of state, all of whom must be civilians. The prime minister must be a member of the Diet and is designated by his colleagues. The prime minister has the power to appoint and remove ministers, a majority of whom must be Diet members. The judiciary is independent.

The seven major political parties represented in the National Diet are the Democratic Party of Japan (DPJ), the Social Democratic Party (SDP), the People's New Party (PNP), the Liberal Democratic Party (LDP), the New Clean Government Party (Komeito), the Japan Communist Party (JCP), and Your Party (YP).

Japan's judicial system, drawn from customary law, civil law, and Anglo-American common law, consists of several levels of courts, with the Supreme Court as the final judicial authority. The Japanese constitution includes a bill of rights similar to the U.S. Bill of Rights, and the Supreme Court has the right of judicial review. Japanese courts do not use a jury system, and there are no administrative courts or claims courts. Because of the judicial system's basis, court decisions are made in accordance with legal statutes. Only Supreme Court decisions have any direct effect on later interpretation of the law.

Japan does not have a federal system, and its 47 prefectures are not sovereign entities in the sense that U.S. states are. Most depend on the central government for subsidies. Governors of prefectures, mayors of municipalities, and prefectural and municipal assembly members are popularly elected to 4-year terms.

Recent Political Developments

The post-World War II years saw tremendous economic growth in Japan, with the political system dominated by the Liberal Democratic Party (LDP). That total domination lasted until the Diet lower house elections in July 1993, in which the LDP failed for the first time to win a majority. The LDP returned to power in 1994, with majorities in both houses of the Diet. In elections in July 2007, the LDP lost its majority in the upper house. The DPJ followed up on this advance with a landslide victory in the lower house elections of August 2009, giving the DPJ a majority in the more powerful lower house and a leading coalition in the upper house, overturning the post-World War II political order. Prime Minister Yukio Hatoyama and DPJ Secretary-General Ichiro Ozawa both resigned in June 2010 due to lingering public discontent over a political finance scandal. Minister of Finance Naoto Kan was sworn in as the new Prime Minister on June 8, 2010. The DPJ did poorly in the following upper house elections, which some within the DPJ blamed on remarks by Kan that the DPJ was considering an increase in the consumption tax. Prime Minister Kan won a September 14, 2010 intra-party DPJ presidential election against former DPJ Secretary-General Ichiro Ozawa, with approximately 71% of the general population supporting Kan's victory according to a Nikkei newspaper poll.

Principal Government Officials
Head of State--Emperor Akihito
Prime Minister (Head of Government)--Naoto Kan
Minister of Foreign Affairs--Seiji Maehara
Ambassador to the United States--Ichiro Fujisaki
Permanent Representative to the UN--Tsuneo Nishida

Japan maintains an **embassy** in the United States at 2520 Massachusetts Avenue NW, Washington, DC 20008 (tel: 202-238-6700; fax: 202-328-2187).

ECONOMY

Japan's industrialized, free-market economy is the third-largest in the world. Its economy is highly efficient and competitive in areas linked to international trade, but productivity is far lower in protected areas such as agriculture, distribution, and services. Japan's reservoir of industrial leadership and technicians, well-educated and industrious work force, high savings and investment rates, and intensive promotion of industrial development and foreign trade produced a mature industrial economy. Japan has few natural resources, and trade helps it earn the foreign exchange needed to purchase raw materials for its economy.

After achieving one of the highest economic growth rates in the world from the 1960s through the 1980s, the Japanese economy slowed dramatically in the early 1990s, when the "bubble economy" collapsed, marked by plummeting stock and real estate prices. Japan eventually recovered from its worst period of economic stagnation since World War II. Real GDP in Japan grew at an average of roughly 1% yearly in the 1990s, compared to growth in the 1980s of about 4% per year. After sustaining several consecutive years of growth earlier this decade, the Japanese economy began to slow in line with global economic conditions, and the country fell into its first recession in roughly 6 years in 2008. As worldwide demand for its goods tumbled, the Bank of Japan reported real GDP growth of -5.2% in FY 2009 and has forecast minimal growth in 2010.

Agriculture, Energy, and Minerals

Less than 15% of Japan's land is arable. The agricultural economy is highly subsidized and protected. With per hectare crop yields among the highest in the world, Japan maintains an overall agricultural self-sufficiency rate of about 40% on fewer than 4.6 million cultivated hectares (14 million acres). Japan normally produces a slight surplus of rice but imports large quantities of wheat, corn, sorghum, and soybeans, primarily from the United States. Japan is the third-largest market for U.S. agricultural exports.

Given its heavy dependence on imported energy, Japan has aimed to diversify its sources and maintain high levels of energy efficiency. Since the oil shocks of the 1970s, Japan has reduced dependence on petroleum as a source of energy, from more than 75% in 1973 to less than 50% in 2009. Other important energy sources are coal, liquefied natural gas, nuclear power, and hydropower. Today Japan enjoys one of the most energy-efficient developed economies in the world.

Deposits of gold, magnesium, and silver meet current industrial demands, but Japan is dependent on foreign sources for many of the minerals essential to modern industry. Iron ore, coke, copper, and bauxite must be imported, as must many forest products.

Labor

Japan's labor force consists of some 65.9 million workers (2010 est.), 42% of whom are women. Labor union membership was estimated to be about 10 million in 2007.

FOREIGN RELATIONS

Japan is the world's third-largest economy and a major economic power both in Asia and globally. Japan has diplomatic relations with nearly all independent nations and has been an active member of the United Nations since 1956. Japanese foreign policy has aimed to promote peace and prosperity for the Japanese people by working closely with the West and supporting the United Nations.

In recent years, the Japanese public has shown a substantially greater awareness of security issues and increasing support for the Self Defense Forces. This is in part due to the Self Defense Forces' success in disaster relief, including the 2004 Indian Ocean tsunami, and its participation in peacekeeping operations in Cambodia in the early 1990s and reconstruction/stabilization efforts in Iraq in 2003-2008. However, there are still significant political and psychological constraints on strengthening Japan's security profile. Although a military role for Japan in international affairs is highly constrained by its constitution and government policy, Japanese cooperation with the United States through the 1960 U.S.-Japan Security Treaty has been important to the peace and stability of East Asia. In recent years, there have been domestic discussions about possible reinterpretation or revision of Article 9 of the Japanese constitution. All postwar Japanese governments have relied on a close relationship with the United States as the foundation of their foreign policy and have depended on the Mutual Security Treaty for strategic protection.

While maintaining its relationship with the United States, Japan has diversified and expanded its ties with other nations. Good relations with its neighbors continue to be of vital interest. After the signing of a peace and friendship treaty with China in 1978, ties between the two countries developed rapidly. Japan extended significant economic assistance to the Chinese in various modernization projects and supported Chinese membership in the World Trade Organization (WTO). In recent years, however, Chinese exploitation of gas fields in the East China Sea has raised Japanese concerns given disagreement over the demarcation of their maritime boundary. A long-running boundary dispute involving the Chinese and Taiwanese over the Senkaku (Diaoyu Tai) Islands also continues. Chinese President Hu Jintao's May 2008 visit to Tokyo, and subsequent high-level exchanges, have helped improve relations with China. Japan maintains economic and cultural but not diplomatic relations with Taiwan, with which a strong bilateral trade relationship thrives.

A surprise visit by Prime Minister Koizumi to Pyongyang, North Korea on September 17, 2002, resulted in renewed discussions on contentious bilateral issues--especially that of abductions to North Korea of Japanese citizens--and Japan's agreement to resume normalization talks in the near future. In October 2002, five abductees returned to Japan, but soon after negotiations reached a stalemate over the fate of abductees' families in North Korea. Japan's economic and commercial ties with North Korea plummeted following Kim Jong-il's 2002 admission that D.P.R.K. agents abducted Japanese citizens. Japan strongly supported the United States in its efforts to encourage Pyongyang to abide by the nuclear Non-Proliferation Treaty and its agreements with the International Atomic Energy Agency (IAEA). In 2006, Japan responded to North Korea's July missile launches and October nuclear test by imposing sanctions and working with the United Nations Security Council. The U.S., Japan, and South Korea closely coordinate and consult trilaterally on policy toward North Korea, and Japan participates in the Six-Party Talks to end North Korea's nuclear arms ambitions. Japan and North Korea reached an agreement in August 2008 in which Pyongyang promised to reinvestigate abduction cases. However, the D.P.R.K. has failed to implement the agreement. Continued North Korean missile tests and bellicose language is viewed with serious concern in Japan.

In recent years, Japan and the Republic of Korea have stepped up high-level diplomatic activity and coordination, resulting in an improved tone in their relationship. However, historical differences, including territorial disputes involving the Liancourt Rocks, complicate Japan's political relations with South Korea despite growing economic and cultural ties.

Japan's relations with Russia are hampered by the two sides' inability to resolve their territorial dispute over the islands that make up the Northern Territories (Southern Kuriles) seized by the U.S.S.R. at the end of World War II. The stalemate over territorial issues has prevented conclusion of a peace treaty formally ending the war between Japan and Russia. The United States recognizes Japanese sovereignty over the islands. During his initial meeting with Russian President Dmitriy Medvedev in September 2009, Prime Minister Yukio Hatoyama said he wanted to resolve the issue and sign a peace treaty. Despite the lack of progress in resolving the Northern Territories and other disputes, however, Japan and Russia continue to develop other aspects of the overall relationship, including two large, multi-billion dollar oil-natural gas consortium projects on Sakhalin Island.

Japan has pursued a more active foreign policy in recent years, recognizing the responsibility that accompanies its economic strength, and has expanded ties with the Middle East, which provides most of its oil. In 2006, Japan's Ground Self Defense Force completed a successful 2-year mission in Iraq. The Air Self-Defense Force's (ASDF) airlift support mission in Iraq formally ended in December 2008. In January 2010, the Diet also ended the Anti-Terrorism Special Measures Law that allowed for Japan's Maritime Self Defense Force refueling activities in support of Operation Enduring Freedom in the Indian Ocean. Since 2009, Japan has been an active partner in international counter-piracy efforts off the Horn of Africa.

Japan increasingly is active in Africa and Latin America--concluding negotiations with Mexico and Chile on an Economic Partnership Agreement (EPA) and undertaking negotiations with Peru--and has extended significant support to development projects in both regions. Japan's economic engagement with its neighbors is increasing, as evidenced by the conclusion of EPAs with Singapore, the Philippines, Thailand, Malaysia, Indonesia, Brunei, and Vietnam.

As host of the G8 Summit in July 2008, Japan focused on four themes: environment and climate change, development and Africa, the world economy, and political issues including non-proliferation. Since 2007 successive Japanese prime ministers have announced their support for initiatives to address greenhouse gas emissions and to mitigate the impact of energy consumption on climate. In September 2009, Prime Minister Hatoyama strengthened the Japanese Government's commitment to this effort by pledging to reduce Japan's greenhouse gas emissions by 25% by 2020 from 1990 levels.

U.S.-JAPAN RELATIONS

The U.S.-Japan alliance is the cornerstone of U.S. security interests in Asia and is fundamental to regional stability and prosperity. Despite the changes in the post-Cold War strategic landscape, the U.S.-Japan alliance continues to be based on shared vital interests and values. These include stability in the Asia-Pacific region, the preservation and promotion of political and economic freedoms, support for human rights and democratic institutions, and securing of prosperity for the people of both countries and the international community as a whole.

Japan provides bases and financial and material support to U.S. forward-deployed forces, which are essential for maintaining stability in the region. Under the U.S.-Japan Treaty of Mutual Cooperation and Security, Japan hosts a carrier battle group, the III Marine Expeditionary Force, the 5th Air Force, and elements of the Army's I Corps. The United States currently maintains approximately 50,000 troops in Japan, about half of whom are stationed in Okinawa.

Over the past decade the alliance has been strengthened through revised Defense Guidelines, which expand Japan's noncombatant role in a regional contingency, the renewal of our agreement on Host Nation Support of U.S. forces stationed in Japan, and an ongoing process called the Defense Policy Review Initiative (DPRI). The DPRI redefines roles, missions, and capabilities of alliance forces and outlines key realignment and transformation initiatives, including reducing the number of troops stationed in Okinawa, enhancing interoperability and communication between our respective commands, and broadening our cooperation in the area of ballistic missile defense. In February 2009 Secretary of State Hillary

Clinton and then-Foreign Minister Hirofumi Nakasone signed the Guam International Agreement (GIA) in Tokyo. The GIA commits both nations to completing the transfer of approximately 8,000 U.S. Marines from bases in Okinawa to new facilities in Guam built with the assistance of Japan. Following the 2009 election, the DPJ-led government pledged to review the existing agreement. The United States continues to work constructively with the Government of Japan to find a solution to the Okinawa basing issue.

Because of the two countries' combined economic and technological impact on the world, the U.S.-Japan relationship has become global in scope. The United States and Japan cooperate on a broad range of global issues, including development assistance, combating communicable disease such as the spread of HIV/AIDS and avian influenza, and protecting the environment and natural resources. Both countries also collaborate in science and technology in such areas as mapping the human genome, research on aging, and international space exploration. As one of Asia's most successful democracies and largest economies, Japan contributes irreplaceable political, financial, and moral support to U.S.-Japan diplomatic efforts. The United States consults closely with Japan and the Republic of Korea on policy regarding North Korea. The United States works closely with Japan and Australia under the auspices of the Trilateral Strategic Dialogue and the Security and Defense Cooperation Forum to exchange views and increase coordination on global and regional initiatives. In Southeast Asia, U.S.-Japan cooperation is vital for stability and for political and economic reform. Outside Asia, Japanese political and financial support has substantially strengthened the U.S. position on a variety of global geopolitical problems, including the Gulf, Middle East peace efforts, and the Balkans. Japan, a member of the United Nations Security Council for the 2009-2010 term, is an indispensable partner in the UN and the second-largest contributor to the UN budget. Japan broadly supports the United States on nonproliferation and nuclear issues.

Economic Relations

U.S. economic policy toward Japan is aimed at increasing access to Japan's markets and two-way investment, stimulating domestic demand-led economic growth, promoting economic restructuring, improving the climate for U.S. investors, and raising the standard of living in both the United States and Japan. The U.S.-Japan bilateral economic relationship--based on enormous flows of trade, investment, and finance--is strong, mature, and increasingly interdependent. Further, it is firmly rooted in the shared interest and responsibility of the United States and Japan to promote global growth, open markets, and a vital world trading system. In addition to bilateral economic ties, the U.S. and Japan cooperate closely in multilateral fora such as the WTO, the G20, the Organization for Economic Cooperation and Development, the World Bank, and the International Monetary Fund, and regionally in the Asia-Pacific Economic Cooperation forum (APEC). Japan is hosting APEC in 2010, followed by the United States in 2011, allowing for increased coordination between the two governments.

Japan is a major market for many U.S. products, including chemicals, pharmaceuticals, films and music, commercial aircraft, nonferrous metals, plastics, and medical and scientific supplies. Japan also is the fourth-largest foreign market for U.S. agricultural products, with total agricultural exports valued at $11.2 billion in FY 2009, an almost 15% increase over the $9.7 billion in agricultural exports recorded by the U.S. Department of Agriculture in FY 2007. Revenues from Japanese tourism to the United States reached nearly $14.6 billion in 2008.

Trade between the United States and Japan remained strong in 2009. U.S. exports to Japan reached $51.2 billion in 2009, while U.S. imports from Japan totaled $195.9 billion in 2009 ($139.2 billion in 2008).

U.S. foreign direct investment in Japan reached $101.6 billion in 2008, up from $91.8 billion in 2006, according to data compiled by the U.S. Department of Commerce's Bureau of Economic Analysis. New U.S. investment was especially significant in financial services, Internet services, and software, generating new export opportunities for U.S. firms and employment for U.S. workers.

Principal U.S. Embassy Officials
Ambassador--**John Roos**
Deputy Chief of Mission--James Zumwalt
Political Minister-Counselor--Robert Luke
Economic Minister-Counselor--Marc Wall
Consul General--Paul Fitzgerald (arrival January 2011)
Commercial Minister--John Peters
Public Affairs--Phillip Hoffmann
Defense Attache--Capt. Justin D. Cooper II, USN

The street address and the international mailing address of the U.S. Embassy in Japan is 10-5 Akasaka 1-chome, Minato-ku, Tokyo (107); tel. 81-3-3224-5000; fax 81-3-3505-1862. The APO mailing address is American Embassy Tokyo, Unit 45004, Box 258, APO AP 96337-5004. U.S. Consulates General are in **Osaka**, **Sapporo**, and **Naha**, and Consulates are in **Fukuoka** and **Nagoya**. The American Chamber of Commerce in Japan is at 7th floor, Fukide No. 2 Bldg., 1-21 Toranomon 4-chome, Minato-ku, Tokyo (105). Additional information is available on the U.S. Embassy's Internet home page: **http://tokyo.usembassy.gov**.

TRAVEL AND BUSINESS INFORMATION

The U.S. Department of State's Consular Information Program advises Americans traveling and residing abroad through Country Specific Information, Travel Alerts, and Travel Warnings. **Country Specific Information** exists for all countries and includes information on entry and exit requirements, currency regulations, health conditions, safety and security, crime, political disturbances, and the addresses of the U.S. embassies and consulates abroad. **Travel Alerts** are issued to disseminate information quickly about terrorist threats and other relatively short-term conditions overseas that pose significant risks to the security of American travelers. **Travel Warnings** are issued when the State Department recommends that Americans avoid travel to a certain country because the situation is dangerous or unstable.

For the latest security information, Americans living and traveling abroad should regularly monitor the Department's Bureau of Consular Affairs Internet web site at

http://www.travel.state.gov, where the current **Worldwide Caution**, **Travel Alerts**, and **Travel Warnings** can be found. **Consular Affairs Publications**, which contain information on obtaining passports and planning a safe trip abroad, are also available at **http://www.travel.state.gov**. For additional information on international travel, see **http://www.usa.gov/Citizen/Topics/Travel/International.shtml**.

The Department of State encourages all U.S. citizens traveling or residing abroad to register via the **State Department's travel registration** website or at the nearest U.S. embassy or consulate abroad. Registration will make your presence and whereabouts known in case it is necessary to contact you in an emergency and will enable you to receive up-to-date information on security conditions.

Emergency information concerning Americans traveling abroad may be obtained by calling 1-888-407-4747 toll free in the U.S. and Canada or the regular toll line 1-202-501-4444 for callers outside the U.S. and Canada.

The **National Passport Information Center** (NPIC) is the U.S. Department of State's single, centralized public contact center for U.S. passport information. Telephone: 1-877-4-USA-PPT (1-877-487-2778); TDD/TTY: 1-888-874-7793. Passport information is available 24 hours, 7 days a week. You may speak with a representative Monday-Friday, 8 a.m. to 10 p.m., Eastern Time, excluding federal holidays.

Travelers can check the latest health information with the U.S. Centers for Disease Control and Prevention in Atlanta, Georgia. A hotline at 800-CDC-INFO (800-232-4636) and a web site at **http://wwwn.cdc.gov/travel/default.aspx** give the most recent health advisories, immunization recommendations or requirements, and advice on food and drinking water safety for regions and countries. The CDC publication "Health Information for International Travel" can be found at **http://wwwn.cdc.gov/travel/contentYellowBook.aspx**.

Further Electronic Information

Department of State Web Site. Available on the Internet at **http://www.state.gov**, the Department of State web site provides timely, global access to official U.S. foreign policy information, including **Background Notes** and **daily press briefings** along with the directory of **key officers** of Foreign Service posts and more. The Overseas Security Advisory Council (OSAC) provides security information and regional news that impact U.S. companies working abroad through its website **http://www.osac.gov**

Export.gov provides a portal to all export-related assistance and market information offered by the federal government and provides trade leads, free export counseling, help with the export process, and more.

Back to Top

OIP_ITServices Resource

From: Emche, Danielle
Sent: Monday, March 14, 2011 3:46 PM
To: Smiroldo, Elizabeth; Abrams, Charlotte; Schwartzman, Jennifer; LIA02 Hoc; LIA03 Hoc; Mamish, Nader
Cc: Kreuter, Jane; Larson, Emily; Afshar-Tous, Mugeh
Subject: Re: Who is the head of delegation?

Would it be Monninger?
Danielle
Sent from an NRC BlackBerry.

From: Smiroldo, Elizabeth
To: Emche, Danielle; Abrams, Charlotte; Schwartzman, Jennifer; LIA02 Hoc; LIA03 Hoc
Cc: Kreuter, Jane; Larson, Emily; Afshar-Tous, Mugeh
Sent: Mon Mar 14 15:44:12 2011
Subject: RE: Who is the head of delegation?

Who would be the head of del? Or are they to be considered part of a larger State Dept delegation? If something happens, the head of delegation has certain responsibilities.

From: Emche, Danielle
Sent: Monday, March 14, 2011 2:20 PM
To: Abrams, Charlotte; Schwartzman, Jennifer; LIA02 Hoc; LIA03 Hoc
Cc: Kreuter, Jane; Larson, Emily; Smiroldo, Elizabeth; Afshar-Tous, Mugeh
Subject:

Chuck Casto, John Monninger, Tony Nakanishi, Tim Kolb, Jack Foster and Richard Devercelly are the confirmed 6 technical staff

RR/2

OIP_ITServices Resource

From: Emche, Danielle
Sent: Monday, March 14, 2011 11:56 AM
To: Smiroldo, Elizabeth
Subject: Fw:
Attachments: fukushiama unit1 .pdf

Danielle
Sent from an NRC BlackBerry.

From: Doane, Margaret
To: Emche, Danielle; LIA02 Hoc; Abrams, Charlotte
Sent: Mon Mar 14 11:52:29 2011
Subject:

Here's another doc to include

RR13

Reactor Details

Return to Results | New Basic Search | New Advanced Search

Fukushima-Daiichi-1

Current Status	Operating

Location	Japan
Area	Ohkuma-machi

DETAILS

Reactor Type	Commercial Reactor
Process	BWR
Vendor	General Electric (GE)
Owner	Tokyo Electric Power Co (TEPCO)
Operator	Tokyo Electric Power Co (TEPCO)
Capacity Net	439 MWe
Capacity Gross	460 MWe
Capacity Thermal	1380 MWt

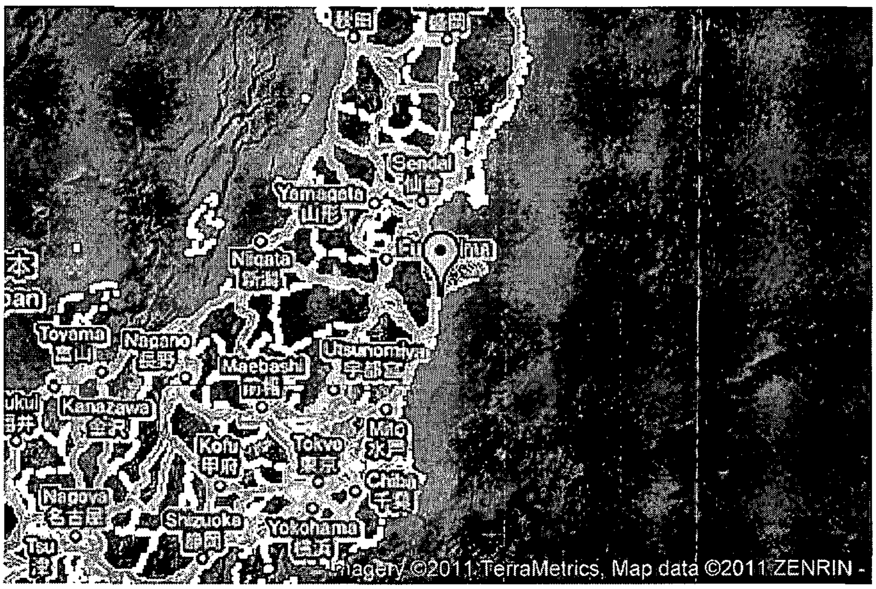
CONSTRUCTION AND OPERATION

Start Construction	31 July 1967
Criticality	10 October 1970
Grid Connection	17 November 1970

Output Latest	2637414 MWh
Output Life	76892000 MWh
Capacity Factor Latest	68.580 %
Capacity Factor Life	53.210 %

WNA Related Links	Nuclear Power in Japan, Nuclear Power Plants and Earthquakes
WNN Link	Massive earthquake hits Japan

Map



Image

Tokyo Electric Power Co's Fukushima Daiichi nuclear power plant in Fukushima Prefecture, Japan. [Image: TEPCO]

OIP_ITServices Resource

From: LIA10 Hoc
Sent: Monday, March 14, 2011 3:07 PM
To: Smiroldo, Elizabeth
Cc: Mamish, Nader
Subject: Your Ops Center Schedule

Elizabeth:

You are scheduled to work in the OPS Center on the following shifts:

Monday March 14: 11:00 pm to 7:00 am
Wednesday March 16: 11:00 pm to 7:00 am
Friday March 18: 11:00 pm to 7:00 am

Thank you.

Steve Baker

RR14

OIP_ITServices Resource

From: Smiroldo, Elizabeth
Sent: Monday, March 14, 2011 12:50 PM
To: LIA02 Hoc
Cc: Emche, Danielle; Afshar-Tous, Mugeh
Subject: RE: Japan Profile.docx

OK! I am pulling the items together...by when does it need to be ready?

From: LIA02 Hoc
Sent: Monday, March 14, 2011 12:49 PM
To: Smiroldo, Elizabeth
Cc: Emche, Danielle
Subject: FW: Japan Profile.docx

Margie is sending tons of stuff to include in briefing materials. You will need to get Emily and Daphene to help prepare books for everyone going (6 books) plus e-mail book material to Atlanta office for Chuck Casto (assuming that Chuck is really going).
I will send you addl e-mails from Margie.

From: Doane, Margaret
Sent: Monday, March 14, 2011 11:50 AM
To: LIA02 Hoc
Subject: FW: Japan Profile.docx

From: Doane, Margaret
Sent: Monday, March 14, 2011 11:44 AM
To: Emche, Danielle
Cc: Abrams, Charlotte
Subject: Japan Profile.docx

Danielle,
I need you to make a book for the travelers to Japan. Here is one document to include there are others. Get the Admin staff to help.
Margie

RR15

OIP_ITServices Resource

From: Smiroldo, Elizabeth
Sent: Monday, March 14, 2011 12:06 PM
To: Larson, Emily; Afshar-Tous, Mugeh
Subject: RE: Japan Profile.docx

Mugeh,
Great—please let us know when you get back. I'll make a cover page and start on a table of contents that we can fill in.
--E.

From: Larson, Emily
Sent: Monday, March 14, 2011 12:04 PM
To: Smiroldo, Elizabeth
Subject: RE: Japan Profile.docx

Mugeh just went down to the Ops Center to talk to them about what exactly they want in the book.

From: Smiroldo, Elizabeth
Sent: Monday, March 14, 2011 12:00 PM
To: Emche, Danielle
Cc: Larson, Emily
Subject: RE: Japan Profile.docx

OK!

From: Emche, Danielle
Sent: Monday, March 14, 2011 11:49 AM
To: Smiroldo, Elizabeth
Cc: Larson, Emily
Subject: Fw: Japan Profile.docx

Charlotte asked if you could start putting the briefing book together. This is the profile Margie wants us to use. Mary is working on flights and other things that I'm guessing we would include in the book is any emergency and contact information on the state/embassy pages. We have total 8 staff going from OIP and NRR.
Danielle
Sent from an NRC BlackBerry.

From: Doane, Margaret
To: Emche, Danielle
Cc: Abrams, Charlotte
Sent: Mon Mar 14 11:44:05 2011
Subject: Japan Profile.docx

Danielle,
I need you to make a book for the travelers to Japan. Here is one document to include there are others. Get the Admin staff to help.
Margie

RR\6

OIP_ITServices Resource

From: Smiroldo, Elizabeth
Sent: Monday, March 14, 2011 1:20 PM
To: Emche, Danielle
Subject: FW: Japan Profile.docx

Hi, Danielle,
Do you have an NRC (if not US) delegation list? I'm happy to send the files to Mr. Casto, if needed.
--E.

From: LIA02 Hoc
Sent: Monday, March 14, 2011 1:18 PM
To: Smiroldo, Elizabeth
Subject: RE: Japan Profile.docx

We also need to confirm that Chuck Casto from RII is going. You will need to have the files e-mailed to him if he is going.

From: Smiroldo, Elizabeth
Sent: Monday, March 14, 2011 1:05 PM
To: LIA02 Hoc
Subject: RE: Japan Profile.docx

That should not be a problem.

From: LIA02 Hoc
Sent: Monday, March 14, 2011 12:56 PM
To: Smiroldo, Elizabeth
Subject: RE: Japan Profile.docx

See if we can get it within the next several hours. We are going to try to get folks out on a flight that leaves around 6 today.

From: Smiroldo, Elizabeth
Sent: Monday, March 14, 2011 12:50 PM
To: LIA02 Hoc
Cc: Emche, Danielle; Afshar-Tous, Mugeh
Subject: RE: Japan Profile.docx

OK! I am pulling the items together...by when does it need to be ready?

From: LIA02 Hoc
Sent: Monday, March 14, 2011 12:49 PM
To: Smiroldo, Elizabeth
Cc: Emche, Danielle
Subject: FW: Japan Profile.docx

Margie is sending tons of stuff to include in briefing materials. You will need to get Emily and Daphene to help prepare books for everyone going (6 books) plus e-mail book material to Atlanta office for Chuck Casto (assuming that Chuck is really going).
I will send you addl e-mails from Margie.

RR\7

Lee, Richard

From: Lee, Richard
Sent: Monday, April 11, 2011 5:55 PM
To: 'Petti, Jason P'
Subject: FW: Sandia Report

Jason:

See the e-mail below. I was tracking it with Mike Case.

Richard

From: Case, Michael
Sent: Tuesday, April 05, 2011 4:17 PM
To: Lee, Richard
Subject: FW: Sandia Report

Hey Richard. Is this the same request you were asking about?

From: Richards, Stuart
Sent: Tuesday, April 05, 2011 12:55 PM
To: Hogan, Rosemary; Graves, Herman
Cc: Case, Michael
Subject: FW: Sandia Report

See below - Stu

From: Dacus, Eugene
Sent: Tuesday, April 05, 2011 10:56 AM
To: Gibson, Kathy; Richards, Stuart
Cc: Uhle, Jennifer; Sheron, Brian; Case, Michael; Scott, Michael
Subject: RE: Sandia Report

Kathy

The request is on hold. See response below. I'll let you know if and when it resurfaces.

Gene

No need to worry about it in the short term. We'll check back in at a later date if we still need it.

Alison Cassady
Senior Professional Staff
Committee on Energy and Commerce
Rep. Henry A. Waxman, Ranking Member
(202) 226-3400

RR/18

From: Dacus, Eugene [mailto:Eugene.Dacus@nrc.gov]
Sent: Monday, April 04, 2011 4:02 PM
To: Cassady, Alison; Powell, Amy
Subject: RE: Sandia Report

Alison,

I've been informed that the staff members knowledgeable about this report are, as you might anticipate, involved in a number of other Japan event related requests and would need to review the report themselves before doing a briefing. How soon do you need this briefing?

Gene

From: Gibson, Kathy
Sent: Friday, April 01, 2011 5:14 PM
To: Richards, Stuart; Dacus, Eugene
Cc: Uhle, Jennifer; Sheron, Brian; Case, Michael; Scott, Michael
Subject: Re: Sandia Report

Gene,
Herman Graves (RES/DE) and Charlie Tinkler (RES/DSA) are the knowledgeable staff for this report. As you might anticipate, they are involved in a number of other Japan event related requests. They will want to review the report themselves before doing a briefing. What timeframe were you looking for?

From: Sheron, Brian
To: Gibson, Kathy; Case, Michael; Richards, Stuart
Cc: Uhle, Jennifer
Sent: Fri Apr 01 15:51:18 2011
Subject: FW: Sandia Report

See the request below. Who is the best, most knowledgeable person to discuss this report with the hill staffers?

From: Dacus, Eugene
Sent: Friday, April 01, 2011 3:37 PM
To: Uhle, Jennifer; Sheron, Brian
Cc: Powell, Amy; Schmidt, Rebecca
Subject: FW: Sandia Report

Brian,

Can you support this request?

Gene

From: Cassady, Alison
Sent: Tuesday, March 29, 2011 4:07 PM
To: 'Powell, Amy'; Dacus, Eugene
Subject: Sandia Report

Amy & Gene,

Jeff Baran and I are interested in speaking with someone who can brief us on a report Sandia prepared for NRC, entitled *Risk Informed Assessment of Degraded Containment Vessels*, and its conclusions about the Mark 1's vulnerability to containment failure in the event of a core-melt accident.

Can you help us out?

Thanks,

Alison Cassady

Alison Cassady
Senior Professional Staff
Committee on Energy and Commerce
Rep. Henry A. Waxman, Ranking Member
(202) 226-3400

OIP_ITServices Resource

From: Smiroldo, Elizabeth
Sent: Monday, March 14, 2011 1:22 PM
To: LIA02 Hoc
Subject: RE: Japan Profile.docx

Charlotte,
Do you think these people will have time to be immunized for things like hepatitis or cholera prior to departure just in case? If I were headed into a disaster and could slip into the health center for 15 min, I would at least want to know if the option were available. Just a thought!
--E.

From: LIA02 Hoc
Sent: Monday, March 14, 2011 1:18 PM
To: Smiroldo, Elizabeth
Subject: RE: Japan Profile.docx

We also need to confirm that Chuck Casto from RII is going. You will need to have the files e-mailed to him if he is going.

From: Smiroldo, Elizabeth
Sent: Monday, March 14, 2011 1:05 PM
To: LIA02 Hoc
Subject: RE: Japan Profile.docx

That should not be a problem.

From: LIA02 Hoc
Sent: Monday, March 14, 2011 12:56 PM
To: Smiroldo, Elizabeth
Subject: RE: Japan Profile.docx

See if we can get it within the next several hours. We are going to try to get folks out on a flight that leaves around 6 today.

From: Smiroldo, Elizabeth
Sent: Monday, March 14, 2011 12:50 PM
To: LIA02 Hoc
Cc: Emche, Danielle; Afshar-Tous, Mugeh
Subject: RE: Japan Profile.docx

OK! I am pulling the items together...by when does it need to be ready?

From: LIA02 Hoc
Sent: Monday, March 14, 2011 12:49 PM
To: Smiroldo, Elizabeth
Cc: Emche, Danielle
Subject: FW: Japan Profile.docx

Margie is sending tons of stuff to include in briefing materials. You will need to get Emily and Daphene to help prepare books for everyone going (6 books) plus e-mail book material to Atlanta office for Chuck Casto (assuming that Chuck is really going).

RR19

OIP_ITServices Resource

From: Smiroldo, Elizabeth
Sent: Monday, March 14, 2011 12:00 PM
To: Emche, Danielle
Cc: Larson, Emily
Subject: RE: Japan Profile.docx

OK!

From: Emche, Danielle
Sent: Monday, March 14, 2011 11:49 AM
To: Smiroldo, Elizabeth
Cc: Larson, Emily
Subject: Fw: Japan Profile.docx

Charlotte asked if you could start putting the briefing book together. This is the profile Margie wants us to use. Mary is working on flights and other things that I'm guessing we would include in the book is any emergency and contact information on the state/embassy pages. We have total 8 staff going from OIP and NRR.
Danielle
Sent from an NRC BlackBerry.

From: Doane, Margaret
To: Emche, Danielle
Cc: Abrams, Charlotte
Sent: Mon Mar 14 11:44:05 2011
Subject: Japan Profile.docx

Danielle,
I need you to make a book for the travelers to Japan. Here is one document to include there are others. Get the Admin staff to help.
Margie

RR/10

OIP_ITServices Resource

From: LIA10 Hoc
Sent: Monday, March 14, 2011 3:50 PM
To: Mamish, Nader
Cc: Doane, Margaret; Dembek, Stephen; Wittick, Brian; Mayros, Lauren; Tobin, Jennifer; Stahl, Eric; Emche, Danielle; Smiroldo, Elizabeth; Schwartzman, Jennifer; Afshar-Tous, Mugeh; Henderson, Karen; Abrams, Charlotte; Smith, Brooke
Subject: Consolidated Schedule for Week of March 14-18

Nader:

Here are all schedules for the week of March 14-18.

Note that Thursday and Friday's schedule for 3:00pm to 11:00pm still needs staffing.

Monday March 14:
7:00 am to 3:00 pm: Charlotte/Brooke
3:00 pm to 11:00 pm: Nader/Danielle
11:00pm 7:00 am: Nancy/ Eric/Elizabeth

Tuesday March 15:
7:00 am to 3:00 pm: Margie/ Jen Schwartzman/Charlotte
3:00 pm to 11:00 pm: Steve Dembek/Eric/Jenny Tobin
11:00pm 7:00 am: Nader/ Andrea/ Lauren

Wednesday March 16:
7:00 am to 3:00 pm: Margie/Skip/Karen
3:00 pm to 11:00 pm: Steve Dembek/Danielle/Lauren
11:00pm 7:00 am: Nader/ Brian/Elizabeth

Thursday March 17:
7:00 am to 3:00 pm: Margie/Eric/Jen Schwartzman
3:00 pm to 11:00 pm: Steve Dembek/ ----
11:00pm 7:00 am: Nader/Brian/Mugeh

Friday March 18:
7:00 am to 3:00 pm: Margie/ Jen Schwartzman
3:00 pm to 11:00 pm: Steve Dembek/----
11:00pm 7:00 am: Nader/ Elizabeth

Steve Baker

RB\11

OIP_ITServices Resource

From: Emche, Danielle
Sent: Monday, March 14, 2011 4:41 PM
To: Smiroldo, Elizabeth
Subject: can we replace the reactors table with this?

	Name of Plant	Unit Number	Company	Installed Capacity (MW)	Type of Reactor	Start
1	Tomari	1	Hokkaido	579	PWR	1989.6
		2		579	PWR	1991.4
2	Higashi-Dori	1	Tohoku	1,100	BWR	2005.12
3	Onagawa	1	Tohoku	524	BWR	1984.6
		2		825	BWR	1995.7
		3		825	BWR	2002.1
4	Fukushima Daiichi	1	Tokyo	460	BWR	1971.3
		2		784	BWR	1974.7
		3		784	BWR	1976.3
		4		784	BWR	1978.10
		5		784	BWR	1978.4
		6		1,100	BWR	1979.10
5	Fukushima Daini	1	Tokyo	1,100	BWR	1982.4
		2		1,100	BWR	1984.2
		3		1,100	BWR	1985.6
		4		1,100	BWR	1987.8
6	Kashiwazaki Kariwa	1	Tokyo	1,100	BWR	1985.9
		2		1,100	BWR	1990.9
		3		1,100	BWR	1993.8
		4		1,100	BWR	1994.8
		5		1,100	BWR	1990.4
		6		1,356	ABWR	1996.11
		7		1,356	ABWR	1997.7
7	Hamaoka	1	Chubu	540	BWR	1976.3
		2		840	BWR	1978.11
		3		1,100	BWR	1987.8
		4		1,137	BWR	1993.9
		5		1,267	ABWR	2005.1
8	Shika	1	Hokuriku	540	BWR	1993.7
		2		1,358	ABWR	2006.3
9	Mihama	1	Kansai	340	PWR	1970.11
		2		500	PWR	1972.7
		3		826	PWR	1976.12
10	Takahama	1	Kansai	826	PWR	1974.11
		2		826	PWR	1975.11
		3		870	PWR	1985.1
		4		870	PWR	1985.6
11	Ohi	1	Kansai	1,175	PWR	1979.3
		2		1,175	PWR	1979.12
		3		1,180	PWR	1991.12
		4		1,180	PWR	1993.2

RR/12

OIP_ITServices Resource

From: LIA10 Hoc
Sent: Monday, March 14, 2011 4:10 PM
To: Mamish, Nader
Cc: Doane, Margaret; Dembek, Stephen; Wittick, Brian; Mayros, Lauren; Tobin, Jennifer; Stahl, Eric; Emche, Danielle; Smiroldo, Elizabeth; Schwartzman, Jennifer; Afshar-Tous, Mugeh; Henderson, Karen; Abrams, Charlotte; Smith, Brooke
Subject: REVISED Consolidated Schedule for Week of March 14-18

Nader:

Here are all schedules for the week of March 14-18.

Note that Thursday and Friday's schedule for 3:00pm to 11:00pm is now staffed. Thanks, Danielle.

Monday March 14:
7:00 am to 3:00 pm: Charlotte/Brooke
3:00 pm to 11:00 pm: Nader/Danielle
11:00pm 7:00 am: Nancy/ Eric/Elizabeth

Tuesday March 15:
7:00 am to 3:00 pm: Margie/ Jen Schwartzman/Charlotte
3:00 pm to 11:00 pm: Steve Dembek/Eric/Jenny Tobin
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Wednesday March 16:
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7:00 am to 3:00 pm: Margie/Eric/Jen Schwartzman
3:00 pm to 11:00 pm: Steve Dembek/ Danielle
11:00pm 7:00 am: Nader/Brian/Mugeh

Friday March 18:
7:00 am to 3:00 pm: Margie/ Jen Schwartzman
3:00 pm to 11:00 pm: Steve Dembek/ Danielle
11:00pm 7:00 am: Nader/ Elizabeth

Steve Baker

RR/13

OIP_ITServices Resource

From: Emche, Danielle
Sent: Monday, March 14, 2011 3:24 PM
To: Smiroldo, Elizabeth
Subject: Re: Cover page

I wonder, what about just "NRC Team of Experts, Japan, March 2011" I'm trying to make is seem as neutral as possible but maybe it doesn't matter. Let me think for a minute.
Danielle
Sent from an NRC BlackBerry.

From: Smiroldo, Elizabeth
To: Larson, Emily
Cc: Emche, Danielle
Sent: Mon Mar 14 15:17:09 2011
Subject: Cover page

Not knowing the dates of the trip or the official name of the trip, I went ahead and called it Japan Incident Response Trip, March 2011.

Here is the table of contents as well. The final step will be to make labels for the binder pages (using transparent labels with the headings from the table of contents).

RR\14

OIP_ITServices Resource

From: Abrams, Charlotte
Sent: Monday, March 14, 2011 3:45 PM
To: Smiroldo, Elizabeth; Emche, Danielle; Schwartzman, Jennifer; LIA02 Hoc; LIA03 Hoc
Cc: Kreuter, Jane; Larson,´Emily; Afshar-Tous, Mugeh
Subject: Re: Who is the head of delegation?

Chuck casto

Sent from my nrc blackberry. Charlotte Abrams 3014152933

From: Smiroldo, Elizabeth
To: Emche, Danielle; Abrams, Charlotte; Schwartzman, Jennifer; LIA02 Hoc; LIA03 Hoc
Cc: Kreuter, Jane; Larson, Emily; Afshar-Tous, Mugeh
Sent: Mon Mar 14 15:44:12 2011
Subject: RE: Who is the head of delegation?

Who would be the head of del? Or are they to be considered part of a larger State Dept delegation? If something happens, the head of delegation has certain responsibilities.

From: Emche, Danielle
Sent: Monday, March 14, 2011 2:20 PM
To: Abrams, Charlotte; Schwartzman, Jennifer; LIA02 Hoc; LIA03 Hoc
Cc: Kreuter, Jane; Larson, Emily; Smiroldo, Elizabeth; Afshar-Tous, Mugeh
Subject:

Chuck Casto, John Monninger, Tony Nakanishi, Tim Kolb, Jack Foster and Richard Devercelly are the confirmed 6 technical staff

RR/15

OIP_ITServices Resource

From: Afshar-Tous, Mugeh
Sent: Monday, March 14, 2011 3:24 PM
To: Smiroldo, Elizabeth
Subject: Please add to Background

Power reactors operating in Japan

Reactor Type	Net	capacity	Utility	Commercial Operation
Fukushima I-1	BWR	439 MWe	TEPCO	March 1971
Fukushima I-2	BWR	760 MWe	TEPCO	July 1974
Fukushima I-3	BWR	760 MWe	TEPCO	March 1976
Fukushima I-4	BWR	760 MWe	TEPCO	October 1978
Fukushima I-5	BWR	760 MWe	TEPCO	April 1978
Fukushima I-6	BWR	1067 MWe	TEPCO	October 1979
Fukushima II-1	BWR	1067 MWe	TEPCO	April 1982
Fukushima II-2	BWR	1067 MWe	TEPCO	February 1984
Fukushima II-3	BWR	1067 MWe	TEPCO	June 1985
Fukushima II-4	BWR	1067 MWe	TEPCO	August 1987

RR\16

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 12:49 PM
To: Chang, Richard; Santiago, Patricia
Cc: Lee, Richard; Tinkler, Charles; Scott, Michael; Sheron, Brian; Uhle, Jennifer
Subject: Fw: RASCAL Runs justifying U.S. PARs
Attachments: RASCAL Run of 03152011_0251AM (used in 03162011 NRC Press Release).pdf; RASCAL Run of 03162011_1224PM (used in 03162011 NRC Press Release).pdf

See bottom of this email which confirms "stop" MACCS work.

Thanks!

From: Hoc, PMT12
To: Gibson, Kathy
Cc: Lee, Richard
Sent: Thu Mar 17 11:04:37 2011
Subject: FW: RASCAL Runs justifying U.S. PARs

Hi Kathy.

FYI - Here are the full RASCAL runs from the press release. We now have Richard's name and can contact him as necessary. **This info can't be shared outside NRC**. The ET confirmed for us that MACCS code will not be used to benchmark RASCAL and that RES staff should not engage further efforts to use MACCS for this event.

K. Brock

RR/21

Re-run of 3/15/11 2:51 run found in press release. Ignore rundate/time on this copy.

Summary Report

Case description: Fukushima Unit 2 mid night release 14MAR
Run date/time: 2011/03/15 03:04

Maximum Dose Values (rem) - Close-In

Dist from release miles (kilometers)	0.5 (0.8)	1. (1.61)	1.5 (2.41)	2. (3.22)	3. (4.83)	5. (8.05)	7. (11.27)	10. (16.09)
Total EDE	5.4E+03	2.0E+03	1.2E+03	8.2E+02	4.8E+02	2.4E+02	1.6E+02	9.5E+01
Thyroid CDE	2.8E+04	1.1E+04	6.2E+03	4.3E+03	2.5E+03	1.3E+03	8.4E+02	5.1E+02
Inhalation CEDE	3.7E+03	1.4E+03	8.0E+02	5.6E+02	3.3E+02	1.7E+02	1.1E+02	6.7E+01
Cloudshine	1.9E+01	9.3E+00	5.8E+00	4.1E+00	2.5E+00	1.4E+00	9.7E-01	6.2E-01
4-day Groundshine	1.7E+03	6.5E+02	3.8E+02	2.6E+02	1.5E+02	7.3E+01	4.6E+01	2.8E+01
Inter Phase 1st Yr	2.4E+04	9.3E+03	5.4E+03	3.8E+03	2.2E+03	1.0E+03	6.6E+02	3.9E+02
Inter Phase 2nd Yr	1.1E+04	4.4E+03	2.6E+03	1.8E+03	1.0E+03	4.9E+02	3.1E+02	1.8E+02

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

Maximum Dose Values (rem) - To 50 mi

Dist from release miles (kilometers)	15 (24.1)	20 (32.2)	30 (48.3)	40 (64.4)	50 (80.5)
Total EDE	8.6E+01	6.3E+01	3.7E+01	1.8E+01	8.1E+00
Thyroid CDE	3.3E+02	2.7E+02	1.3E+02	5.9E+01	2.5E+01
Inhalation CEDE	3.9E+01	3.1E+01	1.3E+01	4.4E+00	1.3E+00
Cloudshine	4.5E-01	3.8E-01	1.7E-01	7.4E-02	2.9E-02
4-day Groundshine	4.7E+01	3.2E+01	2.4E+01	1.3E+01	6.7E+00
Inter Phase 1st Yr	7.1E+02	4.7E+02	3.8E+02	2.2E+02	1.3E+02
Inter Phase 2nd Yr	3.4E+02	2.3E+02	1.8E+02	1.1E+02	6.9E+01

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

Case Summary

Event Type Nuclear Power Plant

Location
Name: Fukushima Unit 2
City, county, state: <undefined>, <undefined>, <undefined>
Lat / Long / Elev: 37.4214° N, 141.0325° E, 0 m
UTC Offset: 9 hours
Population: not available

Reactor Parameters

Summary Report

Reactor power:	2350 MWt
Average fuel burn-up:	30000 MWD / MTU
Containment type:	BWR Mark I
Containment volume:	2.50E+05 ft^3
Design pressure:	60 lb/in^2
Design leak rate:	0.54 %/d
Coolant mass:	1.25E+05 kg
Assemblies in core:	550

Source Term

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

Release Pathway

Type:	BWR - Release Through Dry Well via direct, unfiltered pathway
Description:	Unit 2 mid-night release 3-14-11
Release height:	10. m

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

Meteorology

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

Summary of data at release point:	Type	Dir deg	Speed m/s	Stab class	Precip	Temp °C
2011/03/12 14:00	Obs	265	1.0	B	?	
2011/03/12 15:00	Obs	265	1.0	B	?	
2011/03/12 16:00	Obs	277	1.3	B	?	
2011/03/12 17:00	Obs	260	2.4	B	?	
2011/03/12 18:00	Obs	241	1.4	E	?	
2011/03/12 19:00	Obs	236	2.1	E	?	
2011/03/12 20:00	Obs	239	2.1	E	?	
2011/03/12 21:00	Obs	229	3.8	E	?	
2011/03/12 22:00	Obs	224	5.1	E	?	
2011/03/12 23:00	Obs	226	3.9	E	?	
2011/03/13 00:00	Obs	228	4.1	E	?	
2011/03/13 01:00	Obs	235	2.6	E	?	
2011/03/13 02:00	Obs	233	3.9	E	?	
2011/03/13 03:00	Obs	225	1.8	E	?	
2011/03/13 04:00	Obs	225	1.3	E	?	
2011/03/13 05:00	Obs	225	2.2	E	?	
2011/03/13 06:00	Obs	225	2.2	E	?	
2011/03/13 07:00	Obs	248	2.7	E	?	
2011/03/13 08:00	Obs	248	2.7	E	?	
2011/03/13 09:00	Obs	270	3.1	E	?	
2011/03/13 12:00	Obs	271	7.4	D	?	
2011/03/13 13:00	Obs	276	6.2	D	?	
2011/03/13 14:00	Obs	312	2.8	B	?	
2011/03/14 18:00	Obs	258	4.8	unk	?	
2011/03/14 19:00	Obs	268	5.0	unk	?	

Summary Report

2011/03/14 20:00	Obs	330	2.2	unk	?
2011/03/14 21:00	Fcst	337	4.6	unk	?
2011/03/14 22:00	Fcst	323	7.2	unk	?
2011/03/14 23:00	Fcst	305	6.6	unk	?
2011/03/15 00:00	Fcst	015	8.6	unk	?
2011/03/15 02:00	Fcst	002	7.5	unk	?
2011/03/15 03:00	Fcst	347	5.2	E	None
2011/03/15 04:00	Fcst	332	5.6	E	None
2011/03/15 05:00	Fcst	332	4.0	E	None
2011/03/15 06:00	Fcst	344	3.5	E	Lgt rain
2011/03/15 07:00	Fcst	026	3.8	E	Lgt rain
2011/03/15 08:00	Fcst	044	4.4	E	Lgt rain
2011/03/15 09:00	Fcst	020	4.2	E	Lgt rain
2011/03/15 10:00	Fcst	010	3.4	E	None
2011/03/15 11:00	Fcst	030	3.5	D	Lgt rain
2011/03/15 12:00	Fcst	027	3.0	D	Lgt rain
2011/03/15 13:00	Fcst	037	3.4	D	Lgt rain
2011/03/15 14:00	Fcst	053	3.7	B	None
2011/03/15 15:00	Fcst	058	3.7	B	None
2011/03/15 16:00	Fcst	067	3.2	C	Lgt rain
2011/03/15 17:00	Fcst	081	3.9	C	Lgt rain
2011/03/15 18:00	Fcst	089	4.7	B	None
2011/03/15 19:00	Fcst	085	4.4	B	None
2011/03/15 20:00	Fcst	083	4.4	B	Lgt rain
2011/03/15 21:00	Fcst	074	4.6	C	Lgt rain
2011/03/15 22:00	Fcst	054	5.0	D	Lgt rain
2011/03/15 23:00	Fcst	029	5.6	D	Rain
2011/03/16 00:00	Fcst	011	5.1	D	Lgt rain
2011/03/16 01:00	Fcst	346	4.3	C	Lgt rain
2011/03/16 02:00	Fcst	350	5.3	D	Lgt rain
2011/03/16 03:00	Fcst	323	5.6	D	Lgt rain
2011/03/16 04:00	Fcst	316	5.4	D	None
2011/03/16 05:00	Fcst	298	4.8	D	None
2011/03/16 06:00	Fcst	314	5.6	D	None
2011/03/16 07:00	Fcst	312	4.7	D	None
2011/03/16 08:00	Fcst	331	4.9	D	None
2011/03/16 09:00	Fcst	353	4.1	D	None

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

Calculations

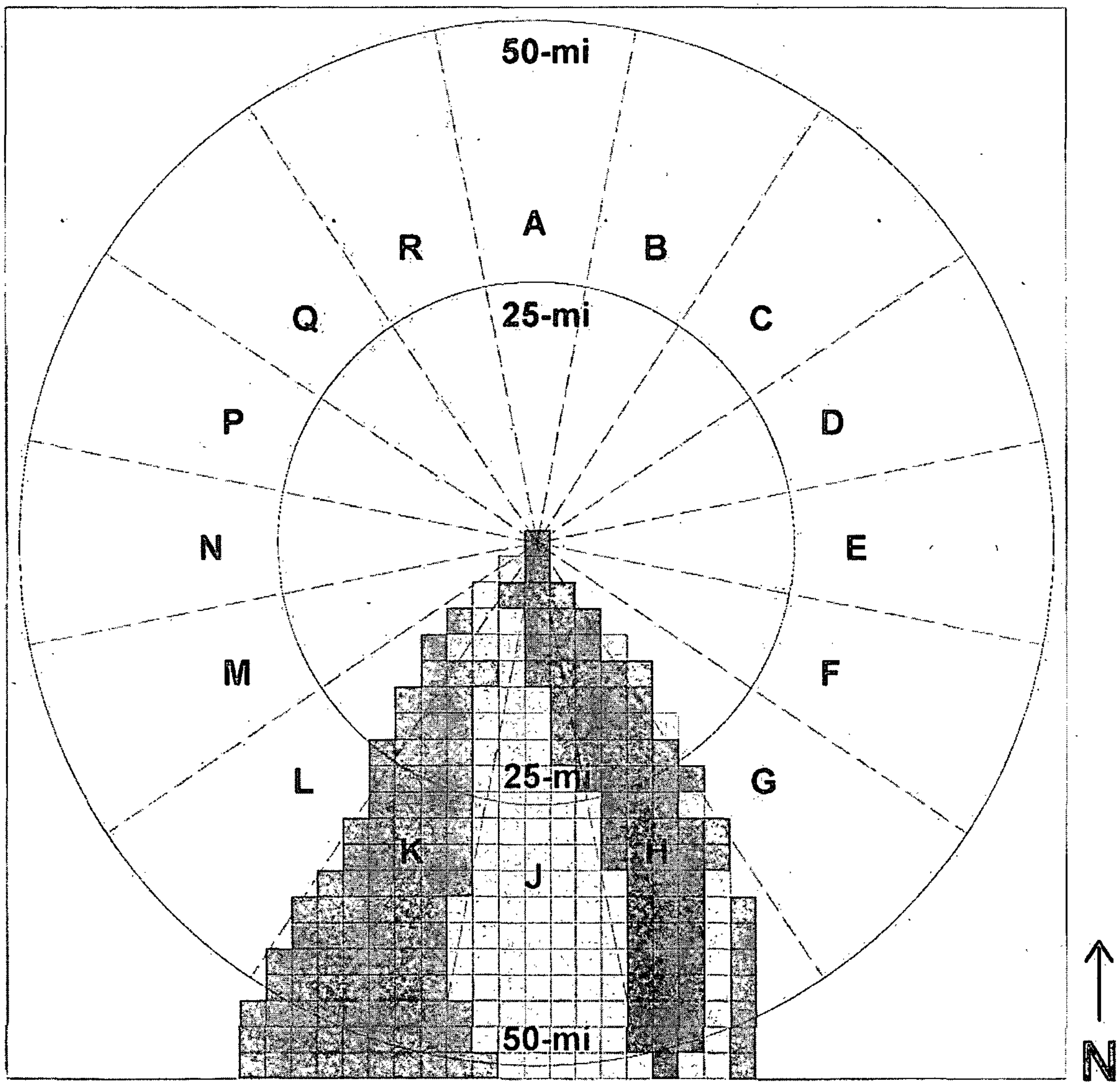
Case description: Fukushima Unit 2 mid night release 14MAR
End of calculations: 2011/03/15 16:00
Start of release to atmosphere + 16 h
Distance of calculation: Close-in + to 50 miles
Close-in distances: 0.5, 1.0, 1.5, 2.0, 3.0, 5.0, 7.0, 10.0 miles

Total Effective Dose Equivalent

Accumulated between 2011/03/15 00:00 and 2011/03/15 16:00

Fukushima Unit 2 mid night release 14MAR

Fukushima Unit 2



0.01 to 1 rem
Below EPA PAG Range

1 to 5 rem
EPA Early Phase PAG Range

> 5 rem
Exceeds EPA PAG Range

RASCAL v4.1

Re-run of 3/16/11 run @ 12:24pm found in press release. Ignore run date/time on this copy

Summary Report

Case description: Fukushima U2, U3 and U4 SFP approximate site release
Run date/time: 2011/03/17 08:48

Maximum Dose Values (rem) - Close-In

Dist from release miles (kilometers)	0.5 (0.8)	1. (1.61)	1.5 (2.41)	2. (3.22)	3. (4.83)	5. (8.05)	7. (11.27)	10. (16.09)
Total EDE	5.4E+03	1.5E+03	6.7E+02	3.9E+02	1.8E+02	7.5E+01	4.0E+01	1.4E+01
Thyroid CDE	2.9E+04	7.9E+03	3.6E+03	2.1E+03	9.6E+02	4.0E+02	2.1E+02	7.5E+01
Inhalation CEDE	3.8E+03	1.0E+03	4.8E+02	2.8E+02	1.3E+02	5.4E+01	2.9E+01	1.0E+01
Cloudshine	2.2E+01	8.0E+00	3.9E+00	2.3E+00	8.0E-01	2.6E-01	2.1E-01	1.1E-01
4-day Groundshine	1.5E+03	4.1E+02	1.9E+02	1.1E+02	5.0E+01	2.1E+01	1.1E+01	4.4E+00
Inter Phase 1st Yr	2.6E+04	7.0E+03	3.2E+03	1.9E+03	8.5E+02	3.5E+02	1.9E+02	7.5E+01
Inter Phase 2nd Yr	1.3E+04	3.5E+03	1.6E+03	9.2E+02	4.2E+02	1.8E+02	9.5E+01	3.8E+01

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

Maximum Dose Values (rem) - To 50 mi

Dist from release miles (kilometers)	15 (24.1)	20 (32.2)	30 (48.3)	40 (64.4)	50 (80.5)
Total EDE	1.5E+01	1.3E+01	1.1E+01	1.0E+01	9.9E+00
Thyroid CDE	8.6E+01	7.0E+01	5.2E+01	4.9E+01	4.8E+01
Inhalation CEDE	1.1E+01	9.2E+00	7.7E+00	7.6E+00	7.3E+00
Cloudshine	1.2E-01	9.7E-02	7.3E-02	7.0E-02	6.6E-02
4-day Groundshine	4.1E+00	3.4E+00	2.8E+00	2.7E+00	2.5E+00
Inter Phase 1st Yr	7.1E+01	6.0E+01	4.7E+01	4.5E+01	4.3E+01
Inter Phase 2nd Yr	3.6E+01	3.0E+01	2.3E+01	2.2E+01	2.1E+01

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

Case Summary

Event Type Nuclear Power Plant

Location
Name: Fukushima U4
City, county, state: <undefined>, <undefined>, <undefined>
Lat / Long / Elev: 37.4214° N, 141.0325° E, 0 m
UTC Offset: 9 hours
Population: not available

Reactor Parameters

Summary Report

Reactor power:	3760 MWt
Average fuel burn-up:	30000 MWD / MTU
Containment type:	BWR Mark I
Containment volume:	2.50E+05 ft^3
Design pressure:	60 lb/in^2
Design leak rate:	0.54 %/d
Coolant mass:	1.25E+05 kg
Assemblies in core:	917

Source Term

Type:	Time Core Is Uncovered
Shutdown:	2011/03/11 14:46
Core uncovered:	2011/03/16 19:50
Core recovered:	No

Release Pathway

Type:	BWR - Release Through Dry Well via direct, unfiltered pathway
Description:	Fukushima - U2, U3 and U4 SFP release approximation
Release height:	10. m

Release events

2011/03/16 19:50	Leak rate (% vol) Total failure
2011/03/16 19:50	Sprays Off

Meteorology

Type:	Actual Observations
Dataset name:	Fukushima 2011-03-16 0935
Dataset desc:	Obs/fcsts for Fukushima Unit 1

Summary of data at release point:	Type	Dir deg	Speed m/s	Stab class	Precip	Temp °C
2011/03/12 14:00	Obs	265	1.0	B	?	
2011/03/12 15:00	Obs	265	1.0	B	?	
2011/03/12 16:00	Obs	277	1.3	B	?	
2011/03/12 17:00	Obs	260	2.4	B	?	
2011/03/12 18:00	Obs	241	1.4	E	?	
2011/03/12 19:00	Obs	236	2.1	E	?	
2011/03/12 20:00	Obs	239	2.1	E	?	
2011/03/12 21:00	Obs	229	3.8	E	?	
2011/03/12 22:00	Obs	224	5.1	E	?	
2011/03/12 23:00	Obs	226	3.9	E	?	
2011/03/13 00:00	Obs	228	4.1	E	?	
2011/03/13 01:00	Obs	235	2.6	E	?	
2011/03/13 02:00	Obs	233	3.9	E	?	
2011/03/13 03:00	Obs	225	1.8	E	?	
2011/03/13 04:00	Obs	225	1.3	E	?	
2011/03/13 05:00	Obs	225	2.2	E	?	
2011/03/13 06:00	Obs	225	2.2	E	?	
2011/03/13 07:00	Obs	248	2.7	E	?	
2011/03/13 08:00	Obs	248	2.7	E	?	
2011/03/13 09:00	Obs	270	3.1	E	?	
2011/03/13 12:00	Obs	271	7.4	D	?	
2011/03/13 13:00	Obs	276	6.2	D	?	
2011/03/13 14:00	Obs	312	2.8	B	?	
2011/03/14 18:00	Obs	258	4.8	unk	?	
2011/03/14 19:00	Obs	268	5.0	unk	?	

Summary Report

2011/03/14 20:00	Obs	330	2.2	unk	?
2011/03/14 21:00	Fcst	337	4.6	unk	?
2011/03/14 22:00	Fcst	323	7.2	unk	?
2011/03/14 23:00	Fcst	305	6.6	unk	?
2011/03/15 00:00	Fcst	015	8.6	unk	?
2011/03/15 02:00	Fcst	002	7.5	unk	?
2011/03/15 03:00	Fcst	347	5.2	E	None
2011/03/15 04:00	Fcst	332	5.6	E	None
2011/03/15 05:00	Fcst	332	4.0	E	None
2011/03/15 06:00	Fcst	344	3.5	E	Lgt rain
2011/03/15 07:00	Fcst	026	3.8	E	Lgt rain
2011/03/15 08:00	Fcst	044	4.4	E	Lgt rain
2011/03/15 09:00	Fcst	020	4.2	E	Lgt rain
2011/03/15 10:00	Fcst	010	3.4	E	None
2011/03/15 11:00	Fcst	030	3.5	D	Lgt rain
2011/03/15 12:00	Fcst	027	3.0	D	Lgt rain
2011/03/15 13:00	Fcst	037	3.4	D	Lgt rain
2011/03/15 14:00	Fcst	053	3.7	B	None
2011/03/15 15:00	Fcst	058	3.7	B	None
2011/03/15 16:00	Fcst	067	3.2	C	Lgt rain
2011/03/15 17:00	Fcst	081	3.9	C	Lgt rain
2011/03/15 18:00	Fcst	089	4.7	B	None
2011/03/15 19:00	Fcst	085	4.4	B	None
2011/03/15 20:00	Fcst	083	4.4	B	Lgt rain
2011/03/15 21:00	Fcst	074	4.6	C	Lgt rain
2011/03/15 22:00	Fcst	054	5.0	D	Lgt rain
2011/03/15 23:00	Fcst	029	5.6	D	Rain
2011/03/16 00:00	Fcst	011	5.1	D	Lgt rain
2011/03/16 01:00	Fcst	346	4.3	C	Lgt rain
2011/03/16 02:00	Fcst	350	5.3	D	Lgt rain
2011/03/16 03:00	Fcst	323	5.6	D	Lgt rain
2011/03/16 04:00	Fcst	316	5.4	D	None
2011/03/16 05:00	Fcst	298	4.8	D	None
2011/03/16 06:00	Fcst	314	5.6	D	None
2011/03/16 07:00	Fcst	312	4.7	D	None
2011/03/16 08:00	Fcst	331	4.9	D	None
2011/03/16 09:00	Fcst	299	4.2	D	None
2011/03/16 10:00	Fcst	312	5.4	C	None
2011/03/16 11:00	Fcst	309	7.5	C	None
2011/03/16 12:00	Fcst	304	7.2	C	None
2011/03/16 13:00	Fcst	314	8.8	C	None
2011/03/16 14:00	Fcst	325	10.4	C	None
2011/03/16 15:00	Fcst	324	12.3	C	None
2011/03/16 16:00	Fcst	304	14.7	D	None
2011/03/16 17:00	Fcst	299	14.2	D	None
2011/03/16 18:00	Fcst	297	11.3	D	None
2011/03/16 19:00	Fcst	316	9.8	D	None
2011/03/16 20:00	Fcst	309	9.4	D	None
2011/03/16 21:00	Fcst	294	9.5	D	None
2011/03/16 22:00	Fcst	299	7.6	D	None
2011/03/16 23:00	Fcst	300	9.7	D	None
2011/03/17 00:00	Fcst	294	5.0	D	None
2011/03/17 01:00	Fcst	286	7.0	D	None
2011/03/17 02:00	Fcst	287	6.6	D	None
2011/03/17 03:00	Fcst	293	6.5	D	None
2011/03/17 04:00	Fcst	300	6.3	D	None
2011/03/17 05:00	Fcst	311	5.9	D	None
2011/03/17 06:00	Fcst	295	7.4	D	None

2011/03/17 07:00	Fcst	303	8.4	C	None
2011/03/17 08:00	Fcst	333	4.8	C	None
2011/03/17 09:00	Fcst	321	5.9	C	None
2011/03/17 10:00	Fcst	307	5.0	C	None
2011/03/17 11:00	Fcst	292	8.4	C	None
2011/03/17 12:00	Fcst	315	9.3	C	None
2011/03/17 13:00	Fcst	299	11.1	C	None
2011/03/17 14:00	Fcst	292	11.8	C	None
2011/03/17 15:00	Fcst	286	10.7	C	None
2011/03/17 16:00	Fcst	298	9.3	D	None
2011/03/17 17:00	Fcst	286	8.5	D	None
2011/03/17 18:00	Fcst	285	10.6	D	None
2011/03/17 19:00	Fcst	288	11.1	D	None
2011/03/17 20:00	Fcst	301	11.3	D	None
2011/03/17 21:00	Fcst	311	10.1	D	None
2011/03/17 22:00	Fcst	307	8.4	D	None
2011/03/17 23:00	Fcst	303	8.7	D	None
2011/03/18 00:00	Fcst	311	7.1	D	None
2011/03/18 01:00	Fcst	316	3.4	D	None
2011/03/18 02:00	Fcst	310	6.0	D	None
2011/03/18 03:00	Fcst	319	7.4	D	None
2011/03/18 04:00	Fcst	316	6.3	D	None
2011/03/18 05:00	Fcst	307	4.9	D	None
2011/03/18 06:00	Fcst	311	4.4	D	None
2011/03/18 07:00	Fcst	326	5.1	C	None
2011/03/18 08:00	Fcst	343	5.4	C	None
2011/03/18 09:00	Fcst	344	6.1	C	None

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

Calculations

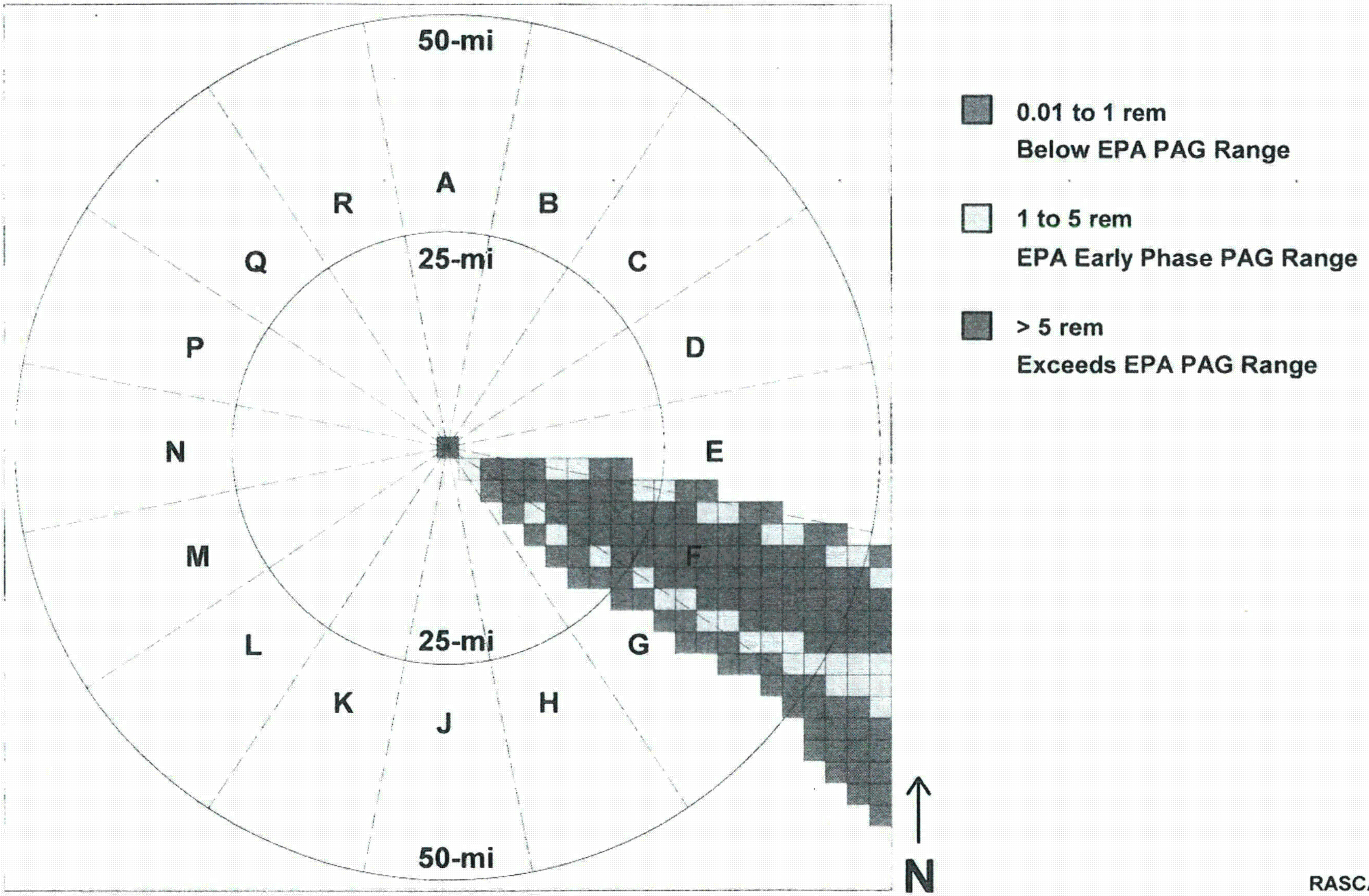
Case description: Fukushima U2, U3 and U4 SFP approximate site release
End of calculations: 2011/03/17 10:50
Start of release to atmosphere + 15 h
Distance of calculation: Close-in + to 50 miles
Close-in distances: 0.5, 1.0, 1.5, 2.0, 3.0, 5.0, 7.0, 10.0 miles

Total Effective Dose Equivalent

Accumulated between 2011/03/16 19:50 and 2011/03/17 10:50

Fukushima U2, U3 and U4 SFP approximate site release

Fukushima U4



RASCAL v4.1

Schaperow, Jason

From: Schaperow, Jason
Sent: Thursday, March 17, 2011 8:19 AM
To: Tinkler, Charles
Cc: Chang, Richard
Subject: RE: Use of sand/water for 1F4 SFP

Hi Charlie,

I am thinking about sending the following answer to Tony Nakanishi...

Hi Tony,

Eva called me last night. I was kind of groggy, but I have been thinking about the idea. I could do a much better job giving advice, if I had some information about the Unit 4 spent fuel pool design and its status.

Below is my recommendation based on the following scenario assumptions regarding the unit 4 spent fuel pool:
It is the same size as the Peach Bottom spent fuel pool.
It contains 2 cores' worth of fuel assemblies in low density racks. All fuel assemblies older than 5 years have been moved out of the pool and into casks.
The reactor shut down 105 days ago. The water in the spent fuel pool boiled off over the last few days. The pool became empty 24 hours ago. There are no leaks in the pool.

The fuel may be air coolable. It would be helpful to add water to the pool via spray. Spray would help keep the pool cool while filling it up to provide shielding. Adding fuel to the pool by just adding water (but not spraying) could be risky, because you could be cutting off air circulation under the racks and through the fuel without spraying to cool the fuel to make up for the lost in cooling from air circulation.

From: Nakanishi, Tony
Sent: Thursday, March 17, 2011 7:11 AM
To: Schaperow, Jason
Subject: Use of sand/water for 1F4 SFP

Hi Jason,
I am in Tokyo as a part of the the NRC delegation. I spoke with Eva Brown earlier. Please send me any info on the evaluating the use of sand/water for the Unit 4 SFP.
Thanks,
Tony

RR122

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 8:19 AM
To: Santiago, Patricia
Subject: Fw: MACCS run

Can you get answers to these asap so I can respond at the 8:45?

----- Original Message -----
From: Sheron, Brian
To: Gibson, Kathy
Cc: Uhle, Jennifer; Tinkler, Charles
Sent: Thu Mar 17 07:27:13 2011
Subject: RE: MACCS run

How far out can MACCS calculate? What is the limitation? Validation data?

-----Original Message-----
From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 10:46 PM
To: Sheron, Brian
Cc: Uhle, Jennifer
Subject: Re: MACCS run

It is being run beyond 50, sorry I should have said beyond. There are apparently difficulties because Nate Bixler is away teaching a MACCS class and there are questions about whether we have an appropriate spent fuel model (our models were high density and these are low density pools). However Charlie and Randy Gauntt are working it. Randy is clear we need something tomorrow and I passed on to Charlie and him Jennifer's specifications for the runs (3 reactors + 3 pools, and 3 reactors + 6 pools over 4 days).

I saw on the news that they tried dropping water from helicopters but because they were so high up they only hit the target once. But they are bringing 11 water cannon truck to the site. Also 180 staff are working rotating shifts.

Also, Jennifer, it doesn't appear that Jason talked to Sandia or Richard today. We called Jason but were unable to contact him tonight, so I will check in the morning.

----- Original Message -----
From: Sheron, Brian
To: Gibson, Kathy
Cc: Uhle, Jennifer
Sent: Wed Mar 16 21:21:06 2011
Subject: RE: MACCS run

Why are we only running it out to 50 miles. I was told Rascal calculates out to 50 miles and they already ran the RASCAL analysis in the IRC. I would think we would want to run MACCS out to further distances to see what the projected doses are and whether our (U.S.) recommendation that U.S. citizens in Japan evacuate out to 50 miles remains vali, or if we should increase the recommended evacuation zone.

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 3:09 PM
To: Sheron, Brian
Subject: MACCS run

RR123

Sandia is doing a MACCS run out to 50 miles at Jennifer's request. Charlie is on the phone with Sandia to ensure they are using the "right" source term considering multiple reactors and spent fuel pools.

OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:10 AM
To: OIP_ITServices Resource
Subject: FW: NHK news reports TEPCO started to release air from Fukushima 1 reactor

---

From: Breskovic, Clarence
Sent: Friday, March 11, 2011 7:34 PM
To: Breskovic, Clarence
Subject: NHK news reports TEPCO started to release air from Fukushima 1 reactor

This will be my last report for the time being as the regular media outlets seem to be on top of things. If you get NHK TV (Japan Broadcasting Corp.) on your cable TV service I recommend watching it.

Thanks,
Clarence

RR/24

Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 8:07 AM
To: Greenwood, Carol
Subject: Fw: Reminder: FW: WAIVER OF WORK SCHEDULE AND PAY CAP RULES FOR WORK IN RESPONSE TO THE EVENTS IN JAPAN

Would you check with the BCs and compile this list for Andrea for DsA? Thx

---

From: Valentin, Andrea
To: Gibson, Kathy; Scott, Michael; Coyne, Kevin
Sent: Fri Mar 18 08:00:34 2011
Subject: Reminder: FW: WAIVER OF WORK SCHEDULE AND PAY CAP RULES FOR WORK IN RESPONSE TO THE EVENTS IN JAPAN

This is a reminder to provide me with a list of names of staff that are performing emergency-related premium work (and the dates that the people worked) in response to the events in Japan. This applies to the IRC, OIP, OPA or wherever they are doing emergency work.

Thanks,
Andrea

From: Case, Michael
Sent: Friday, March 18, 2011 7:53 AM
To: Valentin, Andrea
Subject: RE: WAIVER OF WORK SCHEDULE AND PAY CAP RULES FOR WORK IN RESPONSE TO THE EVENTS IN JAPAN

Hi Andrea. I think the names of the DE folks working in a "response mode" would be Sapna, Annie Kammerer, myself, Brett (not really us).

From: Valentin, Andrea
Sent: Thursday, March 17, 2011 10:00 AM
To: Sheron, Brian; Coyne, Kevin; Bonaccorso, Amy; Calvo, Antony; Case, Michael; Coe, Doug; Correia, Richard; Dion, Jeanne; Gibson, Kathy; Lui, Christiana; Richards, Stuart; Rini, Brett; Sangimino, Donna-Marie; Uhle, Jennifer
Subject: RE: WAIVER OF WORK SCHEDULE AND PAY CAP RULES FOR WORK IN RESPONSE TO THE EVENTS IN JAPAN

Yes, we will collect the data.

From: Sheron, Brian
Sent: Thursday, March 17, 2011 9:55 AM
To: Coyne, Kevin; Bonaccorso, Amy; Calvo, Antony; Case, Michael; Coe, Doug; Correia, Richard; Dion, Jeanne; Gibson, Kathy; Lui, Christiana; Richards, Stuart; Rini, Brett; Sangimino, Donna-Marie; Uhle, Jennifer; Valentin, Andrea
Subject: FW: WAIVER OF WORK SCHEDULE AND PAY CAP RULES FOR WORK IN RESPONSE TO THE EVENTS IN JAPAN

Andrea, can PMDA take the lead to collect the list of names of staff that are performing emergency-related premium work and the dates that the people worked. Divisions should supply this information to Andrea. Thanks.

From: Flory, Shirley **On Behalf Of** RidsResOd Resource
Sent: Thursday, March 17, 2011 9:18 AM
To: Rini, Brett; Armstrong, Kenneth; Ibarra, Jose; Rivera-Lugo, Richard; Case, Michael; Coe, Doug; Coyne, Kevin; Gibson,

RR125

Kathy; Richards, Stuart; Sangimino, Donna-Marie; Scott, Michael; Sheron, Brian; Uhle, Jennifer; Valentin, Andrea
Subject: FW: WAIVER OF WORK SCHEDULE AND PAY CAP RULES FOR WORK IN RESPONSE TO THE EVENTS IN JAPAN

From: RidsResPmdaMail Resource
Sent: Thursday, March 17, 2011 8:50 AM
To: Valentin, Andrea; RidsResOd Resource
Cc: Donaldson, Leslie; Chan, Deborah; Isakovic, Nadja
Subject: FW: WAIVER OF WORK SCHEDULE AND PAY CAP RULES FOR WORK IN RESPONSE TO THE EVENTS IN JAPAN

Please read the following memo in response to work schedule's and pay cap for Japan response.

Thanks,
Heather

From: Khan, Charline
Sent: Thursday, March 17, 2011 7:29 AM
To: RidsAcrsAcnw_MailCTR Resource; RidsAslbpManagement Resource; RidsOgcMailCenter Resource; RidsOcaaMailCenter Resource; RidsOcfoMailCenter Resource; RidsOigMailCenter Resource; RidsOipMailCenter Resource; RidsOcaMailCenter Resource; RidsOpaMail Resource; RidsSecyMailCenter Resource; RidsSecyCorrespondenceMCTR Resource; RidsEdoMailCenter Resource; RidsAdmMailCenter Resource; RidsCsoMailCenter Resource; RidsOeMailCenter Resource; RidsFsmeOd Resource; RidsOiMailCenter Resource; RidsOIS Resource; RidsHrMailCenter Resource; RidsNroOd Resource; RidsNroMailCenter Resource; RidsNmssOd Resource; RidsNrrOd Resource; RidsNrrMailCenter Resource; RidsResOd Resource; RidsResPmdaMail Resource; RidsSbcrMailCenter Resource; RidsNsirOd Resource; RidsNsirMailCenter Resource; RidsRgn1MailCenter Resource; RidsRgn2MailCenter Resource; RidsRgn3MailCenter Resource; RidsRgn4MailCenter Resource
Cc: Davidson, Lawrence; Buchholz, Jeri; Johns, Nancy
Subject: WAIVER OF WORK SCHEDULE AND PAY CAP RULES FOR WORK IN RESPONSE TO THE EVENTS IN JAPAN

MEMORANDUM TO: Those on the Attached List

FROM: Miriam L. Cohen, Director**/RA by J. Buchholz for/**
Office of Human Resources

DATED: March 16, 2011

SUBJECT: WAIVER OF WORK SCHEDULE AND PAY CAP RULES FOR WORK IN RESPONSE TO THE EVENTS IN JAPAN

ADAMS Accession No. ML11075A003 refers

<u>NOTE: Electronic distribution only</u>

Charline Khan
Administrative Assistant (Rotation)
U.S. NUCLEAR REGULATORY COMMISSION
Office of Human Resources
P:301-492-2318
Charline.Khan@nrc.gov

Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 11:04 AM
To: Lee, Richard
Subject: Fw: GE request for NRC mateials

From: Gibson, Kathy
To: Lee, Richard; Wagner, Katie
Cc: Scott, Michael; Tinkler, Charles; Schaperow, Jason
Sent: Fri Mar 18 10:10:28 2011
Subject: Re: GE request for NRC mateials

Well done Richard thanks!

Richard, Katie - Charlie says that Sandia can email encrypted files and this may be the fastest way to transmit them to GE. If we don't have copies of the docs, please take this opportunity to get copies for NRC too. Thx

---

From: Lee, Richard
To: Wagner, Katie
Cc: Gibson, Kathy; Scott, Michael; Tinkler, Charles; Schaperow, Jason
Sent: Fri Mar 18 10:05:18 2011
Subject: *GE request for NRC mateials*

REF: Marquino, Wayne (GE) e-mail to Tinkler, Charles on March 17, 2011 requesting SNL reports.

Dear Katie:

This morning I spoke to Norm St. Amor of OIG on this matter because I could not get hold of Catherine Holzle. Norm said OUO materials can be released and asked me to consult with Russel Nichols (415-6874) or Donna Sealing (415-5804) of OIS on this matter.

I called Russel, and told him about GE requests for OUO materials to assist TEPCO (Japan) in responding and managing the crisis at Fukushima. He said once NRC made a determination on there is a need to know in carrying our official function, we can release the materials to GE.

Hence, we should proceed to instruct SNL to release the materials to GE.

Richard

RR126

Lee, Richard

From: Santiago, Patricia
Sent: Wednesday, March 23, 2011 12:33 PM
To: Gibson, Kathy; Elkins, Scott
Cc: Chang, Richard; Wilson, George; Lee, Richard; Wagner, Katie
Subject: Support to NRR on OCM Meeting.

Kathy and Scott - FYI

Brian recommended to NRR that they consider including information on SOARCA in the OCM briefing scheduled April 14th and suggested they contact us to assist?

Richard will be sending George portions of APP A for his review and we will work to assist in development of information that NRR will need.

Thanks,

Pat

Patricia A. Santiago
Chief, Special Projects Branch
Division of Systems Analysis
Office of Nuclear Regulatory Research
Phone- 301-251-7982
Fax- 301-251-7426
Patricia.Santiago@nrc.gov

RR/27

Lee, Richard

From: Farmer, Mitchell T. [farmer@anl.gov]
Sent: Friday, March 25, 2011 11:56 AM
To: 'rogaunt@sandia.gov'; Tinkler, Charles; Basu, Sudhamay; Lee, Richard
Cc: 'corradin@cae.wisc.edu'
Subject: FW: Radionuclides in Unit 3 Turbine Building Water

La, among other things, in turbine bldg. in Unit 3 also.
Mitch

-----Original Message-----
From: McCaughey, Bill [mailto:Bill.McCaughey@Nuclear.Energy.gov]
Sent: Friday, March 25, 2011 10:53 AM
To: 'David A Petti'; 'Robert W Youngblood'; McFarlane, Harold; 'Ronaldo H Szilard'; 'Joy L Rempe'; 'Nam T Dinh'; Peterson, Per; Grandy, Christopher; Busby, Jeremy Todd; 'Douglas E Burns'; Finck, Phillip; Farmer, Mitchell T.; 'gehinjc@ornl.gov'
Cc: Niyogi, Pk
Subject: Radionuclides in Unit 3 Turbine Building Water

This TEPCO press release contains a radionuclide analysis of the water the workers waded through in Unit 3 turbine building.

http://www.tepco.co.jp/en/press/corp-com/release/11032503-e.html

Bill

DOE

RR128

Hoxie, Chris

From: Hoxie, Chris
Sent: Monday, March 28, 2011 4:38 PM
To: Gibson, Kathy
Subject: Fw: Phone message from PNNL

I tried to call just to see what he wants I left a message for him to call me.

From: Harrington, Holly
To: Gibson, Kathy; Hoxie, Chris
Sent: Mon Mar 28 13:49:33 2011
Subject: FW: Phone message from PNNL

The phone message below was taken by a receptionist in OPA.

Holly

From: Royer, Deanna
Sent: Monday, March 28, 2011 1:42 PM
To: Harrington, Holly
Subject: Phone message from PNNL

Tom Michener
PNNL – DOE Laboratories in WA
509-375-2162
Re: Information regarding Japanese issues. He would like to talk with either Kathy Gibson or Chris Hoxie

Deanna Royer
Contract Secretary
Division of New Reactor Licensing
(301) 415-7158
Deanna.Royer@nrc.gov

RR/29

Hoxie, Chris

From: Hoxie, Chris
Sent: Monday, March 28, 2011 1:58 PM
To: Lee, Richard
Subject: Fw: Phone message from PNNL

Fyi

From: Harrington, Holly
To: Gibson, Kathy; Hoxie, Chris
Sent: Mon Mar 28 13:49:33 2011
Subject: FW: Phone message from PNNL

The phone message below was taken by a receptionist in OPA.

Holly

From: Royer, Deanna
Sent: Monday, March 28, 2011 1:42 PM
To: Harrington, Holly
Subject: Phone message from PNNL

Tom Michener
PNNL – DOE Laboratories in WA
509-375-2162
Re: Information regarding Japanese issues. He would like to talk with either Kathy Gibson or Chris Hoxie

Deanna Royer
Contract Secretary
Division of New Reactor Licensing
(301) 415-7158
Deanna.Royer@nrc.gov

RR|30

Lee, Richard

From: Michael Corradini [corradin@cae.wisc.edu]
Sent: Tuesday, March 29, 2011 1:12 PM
To: Basu, Sudhamay; Lee, Richard
Subject: CQ ARTICLE
Attachments: PlantStatus-3.27.11.pdf; ATT00002..htm

FOLKS -

THIS JUST CAME ON-LINE FOR CONGRESSIONAL QUARTERLY.

I ALSO HAVE INCLUDED WEBSITES AT THE BOTTOM FOR STATUS UPDATES to LIMIT TOO MANY FUTURE EMAILS.

MIKE

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Nuclear Energy Policy: A Stress Test

By Margaret Kriz Hobson and Geof Koss, CQ Staff

On March 16, Nuclear Regulatory Commission Chairman Gregory Jaczko was called to Capitol Hill to update lawmakers on the nuclear power crisis in Japan. In his opening statement, he announced that in the aftermath of the earthquake and tsunami, one of the nuclear waste pools at the Fukushima Daiichi power complex had been drained of its protective water. As a result, dangerous amounts of radiation were being released into the atmosphere. Based on that assessment, the administration recommended that American citizens living within 50 miles of the damaged plants leave the area.

The news of the worsening problems at the Japanese facility riveted the world, which was hungry for authoritative information about conditions at the complex. And Jaczko's statements were at odds with the Japanese government's decision to set a 12-mile evacuation zone around the plants.

RR131

He had focused international attention on the potential dangers of storing spent radioactive fuel at power plant sites, which happens to be what U.S. utilities do as well.

But he also exposed some of the tension in his position. There he was highlighting the hazards of nuclear power, promising action if additional controls became necessary at American plants, while serving an administration pursuing a nuclear growth strategy.

In addition, few people have played a bigger role than Jaczko over the past decade in impeding the permanent disposal site at Yucca Mountain, which is the industry's preferred solution to the nuclear waste question.

As appropriations director and science policy adviser to Senate Majority Leader Harry Reid, Jaczko coordinated the Nevada Democrat's fight against the Yucca project. Without Yucca, the waste continues to pile up in the temporary storage pools. Since his appointment to the commission in 2005, Jaczko has pressed utilities to move more of the waste from storage ponds to concrete-and-steel casks, which he suggested could safely be stored on-site for up to three centuries. The power industry has resisted, worried that it would cost too much and eliminate political pressure for the government to take custody of radioactive waste.

Jaczko's blunt assessment of the conditions at the Japan utility was not welcomed by nuclear power backers in the United States, who had been urging Americans to wait for a thorough review of the Japanese accident before reaching conclusions. The industry-backed Nuclear Energy Institute moved quickly to "clarify" the evacuation issue, releasing fact sheets that agreed the warning to U.S. citizens was "prudent" but stating that "this action should not be interpreted as a standard that should be applied to U.S. reactor emergency planning policy, specifically the use of a 50-mile zone."

Since Jaczko's Capitol Hill appearance, the five-member NRC agreed to examine the safety of America's 104 nuclear power reactors located in 31 states across the country. Those facilities also house 65,000 metric tons of radioactive waste, an estimated 76 percent of which is now warehoused in pools, according to the NEI. While federal regulators say the radioactive waste can be secured for a century at the nation's commercial nuclear generation sites, Jaczko's comments inevitably raise doubts about safety.

Despite this history of conflict with the industry, the sharpest questions for Jaczko in the aftermath of the Fukushima Daiichi disaster have come from liberals already skeptical about nuclear power.

While briefing the Senate Environment and Public Works Committee on March 16, Jaczko was scolded by Chairwoman Barbara Boxer, a California Democrat, demanding answers about the safety of two plants in her state. "I'm looking to you for more leadership than I've gotten," she lectured. Before the House Energy and Commerce Committee earlier in the day, he faced a barrage of difficult questions from Edward J. Markey, a Massachusetts Democrat for whom Jaczko once worked as a congressional science fellow.

Markey later said in a telephone interview that he thinks Jaczko is "committed to improving the NRC transparency" and "lets the science speak for itself." He credited Jaczko with being "proactive" by initiating a review of how vulnerable U.S. reactors might be to earthquakes and the electricity outages that have plagued the Japanese facility.

"I think he is doing a very good job," Markey said. "But he's working hard to question a lot of the assumptions that people have about safety in the nuclear industry."

The Nation's Fears

"In my view, you can't just quickly decide what the ultimate answer is," he said, adding that so far Jaczko "has been doing the right things."

Former NRC Chairman Richard A. Meserve, who headed the commission during the Sept. 11, 2001, terrorist attacks, said the task facing Jaczko and his fellow commissioners is "trying to understand exactly what happened at the Japanese plants, what vulnerabilities they reveal, and what things, as a result, we need to re-examine and possibly change.

Like government officials of the past who have been thrust into national crises after terrorist attacks, hurricanes or the financial market collapse, Jaczko faces the challenge of handling the nation's fears without sacrificing his own credibility. A week after the Japanese earthquake and tsunami, he said during a C-SPAN interview that the commission has "a program in place that would deal with the kinds of situations that we are seeing in Japan." But he also noted that what the Japanese are dealing with "is a very, very difficult situation and that there will be plenty of opportunity when this crisis is resolved to really figure out what happened and how we can all learn from it."

Reid's Protégé

Jaczko declined to be interviewed for this article. But his mentor Reid said he is the right man for the challenging job.

"Greg's entire career has been dedicated to applying science to public policy," Reid said in a statement. "His work in Congress and at the Nuclear Regulatory Commission has improved the safety of nuclear power plants and is based on his demonstrated commitment to bringing all stakeholders to the table."

Jaczko, 40, owes his position as the NRC chairman to Reid's political clout and stubborn persistence. Jaczko is thin and lanky, an avid cyclist who was warned against biking to work by aides who feared the potential dangers of Washington's congested traffic. He grew up in Albany, N.Y., earned a bachelor's degree from Cornell University and a doctorate in theoretical particle physics from the University of Wisconsin, Madison. He then headed to Washington to work as a congressional science fellow for Markey, one of Congress's most vocal critics of the nuclear industry.

Jaczko later joined Reid's staff and the fight against the Yucca Mountain repository. Congress in 1987 selected the location, which lies about 90 miles northwest of Las Vegas, as the permanent disposal site for the utilities' radioactive nuclear waste. Opponents say the site is geologically unsuitable to contain the waste safely for thousands of years, but at the time, Nevada lacked the political wherewithal to derail the selection.

Reid has waged a bare-knuckled political fight against the Yucca facility, using his position to whittle away the project's annual budget and to block legislative efforts to hasten its completion. After he became minority leader in 2005, Reid struck a deal with President George W. Bush to nominate Jaczko to an open seat on the five-member NRC. To twist Bush's arm, Reid stalled Senate approval of 175 presidential nominees. To ease strenuous opposition from industry and Senate Republicans, the deal limited Jaczko to a single two-year term on the commission, as well as a promise that he would recuse himself from all Yucca matters for the first year.

Senate conservatives argued that Jaczko should permanently recuse himself from Yucca matters. Jaczko refused, telling Oklahoma Republican James. M. Inhofe, then the Senate Environment and Public Works chairman, that he was determined to show impartiality.

"My hope is that within one year, I will have demonstrated that absolutely I can be fair and objective," he said in 2005. During the recusal period, Jaczko steadfastly declined to discuss Yucca publicly, even refusing to answer a question on nuclear waste from Sen. Barack Obama during a hearing.

Despite the earlier agreement to limit Jaczko to two years on the NRC, Reid used his enhanced power as majority leader in 2007 to press Bush to nominate the former aide for a full five-year term. He was confirmed in 2008. After Obama won the presidential election later that year, Reid persuaded the new president to designate Jaczko as the panel's chairman — and to put the brakes on the Yucca Mountain project by formally asking the NRC to withdraw its review of the licensing application in early 2010.

As a result, nuclear utilities found themselves appealing to the Jaczko-led NRC to prevent a shutdown of the Nevada facility. Jaczko's handling of the Yucca Mountain issue has drawn criticism from nuclear supporters in Congress, prompting bitter public charges of collusion with the administration to close the door on the project forever.

Last October, Jaczko instructed NRC staff to start closing down the Energy Department's license application for Yucca. Supporters of the project say the move was an attempt to sidestep a recommendation last June by an NRC administrative panel, which found that the Obama administration lacked legal authority to withdraw the application.

While that recommendation has given Yucca supporters faint hope that the project isn't dead, the decision is in legal limbo until the full NRC rules on it. As chairman, Jaczko decides when to issue a ruling — even though Republican commissioners publicly released their votes last fall.

The delay of a final decision by the NRC plays into the administration's hands in an ongoing federal lawsuit over whether the executive branch can cancel Yucca without congressional approval. During oral arguments last week, a panel of judges on the D.C. Circuit Court of Appeals suggested they may lack jurisdiction to decide the issue until the NRC issues a final ruling. Jaczko has given little indication of when — or even if — that may happen.

In an unusually blunt letter to Jaczko last fall, senior House Republicans suggested an "appearance of coordinated action between you" and the Energy Department. But Jaczko was largely given a pass on the Yucca flap during his Capitol Hill appearances earlier this month, when some of his biggest critics instead sought assurances about the safety of U.S. plants.

Storage Pool Concerns

A 2003 report by the Government Accountability Office noted that NRC studies found that the risk of "widespread harm to human health from spent fuel arises from the remote possibility of a sustained loss of coolant in a spent fuel pool." That could result in a fire that would "disperse radioactive material across a wide area" and result in "200 early fatalities and thousands of latent cancer fatalities," the GAO report said. It added that a "catastrophic earthquake" or "loss of electrical power, which would shut down the pool cooling system," were among the events that could cause such an accident.

While Japanese officials initially downplayed the concern voiced by Jaczko on March 16, they later conceded that water in one of the pools was heating up and in danger of boiling off. The situation that Jaczko highlighted drew new attention to the dangers that spent-fuel pools on nuclear plant sites might pose in the event of natural disasters.

Anti-nuclear advocates were quick to point out that the spent-fuel pools at the 30 or so U.S. reactors with designs similar to the stricken Japanese generators are much more densely packed, containing by some estimates four or five times as much spent fuel.

"We're talking about some of the largest concentrations of radioactivity on the planet in these pools," said Robert Alvarez, a former Energy Department official and nuclear critic at the Institute for Policy Studies.

He said that for decades the NRC has allowed nuclear plant operators to stockpile the waste in the pools on the assumption that it would ultimately be transferred to a permanent disposal site. With Yucca off the table and an alternative perhaps decades away, critics say the regulators should require utilities to offload some waste to dry storage casks, which some maintain are safer from seismic threats.

Jaczko has also called for such requirements, telling an industry conference in 2008 that moving spent fuel from pools into dry casks was "the most clear-cut example of where additional safety margins can be gained."

But NRC officials say it's premature to suggest that the commission will zero in on the safety of the industry's nuclear fuel pools or consider the future of Yucca Mountain as it responds to the Japanese situation. The commission recently announced plans to conduct a short-term staff review of U.S. nuclear plant safety.

"We will work through all of this information methodically, systematically and carefully to determine what lessons can be drawn that might be applicable for consideration for changes in the U.S. safety regulatory structure," said NRC spokesman Eliot Brenner.

Nuclear's Future

The NRC is also standing firm on its decision to allow the Vermont Yankee nuclear plant to continue operating for an additional 20 years, despite complaints by state officials and Vermont independent Sen. Bernard Sanders that the facility is unsafe. Vermont lawmakers say they will try to block the reactor's continued operations under state law.

Meanwhile, nuclear regulators say the Japanese situation will not stop them from relicensing existing nuclear plants or prompt them to slow down review of proposals to build new nuclear reactors.

U.S. nuclear industry executives predict that the NRC will beef up safety standards in response to Japan's disaster. New controls will raise the cost of operating nuclear power plants, a concern that could make utility companies rethink whether to continue operating existing nuclear plants or to move forward with plans to construct expensive new reactors.

"Let's not fool ourselves," said John Rowe, chairman of Exelon Corp., which owns more nuclear power plants than any other U.S. company. "We are going to spend a lot of money on new regulatory reviews, and we are going to face some kind of new requirements."

A week after the Japan accident, Rowe called a special phone briefing to assure his investors and the public that Exelon's reactors are safe and that he and other nuclear industry officials are taking seriously the Fukushima disaster. He ranked the episode in Japan as "clearly worse than the 1979 accident" at the Three Mile Island nuclear facility in Pennsylvania but not as bad as the 1986 nuclear disaster in Chernobyl.

Although Rowe isn't interested in building a new nuclear plant — he has long argued that it's too expensive — other industry executives are still weighing a nuclear future. All of the nation's nuclear power utilities are carefully monitoring the steps that Jaczko and the commission take to guarantee that the U.S. nuclear power fleet is safe. So far, the NRC has refused to speculate on the policy changes that might result from the Japanese accident.

Other Obama administration officials have been more forthcoming. Energy Secretary Steven Chu recently said regulators are likely to consider the safety of the Indian Point nuclear plant near New York City, owned by Entergy Corp., a power-generating company that operates 11 U.S. commercial reactors, including Vermont Yankee.

"We're going to have to look at whether this reactor should remain," Chu told Fox News, although he added: "I don't want to make any — jump to some judgment about what we should do going forward."

Chu also suggested that regulators will steer new nuclear plants away from sites near large cities, although he showed no signs that the administration is backing off its broader support for nuclear power.

"Certainly, where we site reactors going forward will be different than where we might have sited them in the past," said Chu, a Nobel Prize-winning physicist. "Any time there is a serious accident, we have to learn from those accidents and go forward."

For Further Reading: *Japanese accident's impact on U.S. nuclear industry, CQ Weekly, p. 616; alternatives to Yucca Mountain, 2009 CQ Weekly, p. 966; short-term nuclear storage dilemma, 2006 CQ Weekly, p. 1147; Yucca selected as nuclear waste site, 1987 CQ Almanac, pp. 307-308.*

Source: CQ Weekly

TEPCO Update Details:

http://www.tepco.co.jp/en/press/corp-com/release/11032503-e.html

IAEA Updates:

http://www.iaea.org/newscenter/news/tsunamiupdate01.html

MEXT Update on Radiation:

http://www.mext.go.jp/english/radioactivity_level/detail/1303986.htm

JAIF Update Status:

Lee, Richard

From: Lee, Richard
Sent: Friday, April 01, 2011 5:53 PM
To: Gibson, Kathy
Cc: Tinkler, Charles; Sheron, Brian; Jones, Cynthia; Wagner, Katie
Subject: RE: CRS draft document on Japanese event - for your awareness

Kathy:

I have Dana take a look at it. Dana works a lot on weapon systems. He said there is more than two configurations for nuclear weapons, but it is not important in the context for the article. He said it looked a pretty good lay account.

Richard

Katie: Please log in on DSA share point as completed our review.

From: Gibson, Kathy
Sent: Friday, April 01, 2011 1:38 PM
To: Lee, Richard; Tinkler, Charles
Subject: Fw: CRS draft document on Japanese event - for your awareness

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From: Sheron, Brian
To: Case, Michael; Coe, Doug; Correia, Richard; Gibson, Kathy; Richards, Stuart; Scott, Michael; Uhle, Jennifer; Valentin, Andrea
Sent: Fri Apr 01 13:35:32 2011
Subject: FW: CRS draft document on Japanese event - for your awareness

---

From: Jones, Cynthia
Sent: Friday, April 01, 2011 1:00 PM
To: Wiggins, Jim; Evans, Michele; Rothschild, Trip; Brenner, Eliot; Hayden, Elizabeth; Leeds, Eric; Boger, Bruce; Uhle, Jennifer; Sheron, Brian; Droggitis, Spiros; Merzke, Daniel; Virgilio, Martin; Weber, Michael; Burnell, Scott; McDermott, Brian; Morris, Scott
Subject: CRS draft document on Japanese event - for your awareness

FYI-

Last weekend amongst all the other requests, we (PMT and myself) were requested to review and assist the Congressional Research Service (CRS) on their draft document on the Japanese event. I just rec'd a copy from them, for your awareness.

The RST (Rx Safety Team) had no comments, but we had a lot, and I think it showed an improved production in this version. Please share with your staff (I already passed along to RST & PMT).

I expect that CRS will share with Congress shortly.

Cyndi

RR/32

From: Jonathan Medalia [mailto:JMEDALIA@crs.loc.gov]
Sent: Friday, April 01, 2011 12:01 PM
To: Jones, Cynthia
Subject: RE: your phone message on CRS draft document

I'm updating the report to add an appendix with useful links, and of course have included a couple from NRC. Thanks again for your good work.
Jon

>>> "Jones, Cynthia" <Cynthia.Jones@nrc.gov> 4/1/2011 11:59 AM >>>
Thanks Jon

From: Jonathan Medalia [mailto:JMEDALIA@crs.loc.gov]
Sent: Thursday, March 31, 2011 6:31 PM
To: Jones, Cynthia
Cc: Sun, Casper; LIA06 Hoc; Hoc, PMT12
Subject: Re: your phone message on CRS draft document

Hi Cyndi, Casper, et al.,
Thanks for your comments on my report, Cyndi. I have worked through them and now have the report in good shape. I'll be in touch if I have further questions, but for now I think I'm ok. I've attached the report. You will notice that I acknowledge assistance from NRC, which I greatly appreciate. I will update the report from time to time, so let me know if you have any thoughts, esp. things to add.
Best,
Jon

Jonathan Medalia, Ph.D.
Specialist in Nuclear Weapons Policy
Congressional Research Service
202-707-7632
jmedalia@crs.loc.gov

Lee, Richard

From: Lee, Richard
Sent: Friday, April 01, 2011 4:13 PM
To: 'Powers, Dana A'
Subject: RE: CRS draft document on Japanese event - for your awareness

Great! Thanks.

From: Powers, Dana A [mailto:dapower@sandia.gov]
Sent: Friday, April 01, 2011 4:10 PM
To: Lee, Richard
Subject: RE: CRS draft document on Japanese event - for your awareness

I didn't see anything really wrong (There are many more than two configurations for nuclear weapons, but that is not important.) It looks like a pretty good lay account. Dana

---

From: Lee, Richard [mailto:Richard.Lee@nrc.gov]
Sent: Friday, April 01, 2011 1:33 PM
To: Powers, Dana A
Subject: FW: CRS draft document on Japanese event - for your awareness

Fyi. See anything very wrong?

From: Gibson, Kathy
Sent: Friday, April 01, 2011 1:38 PM
To: Lee, Richard; Tinkler, Charles
Subject: Fw: CRS draft document on Japanese event - for your awareness

---

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To: Case, Michael; Coe, Doug; Correia, Richard; Gibson, Kathy; Richards, Stuart; Scott, Michael; Uhle, Jennifer; Valentin, Andrea
Sent: Fri Apr 01 13:35:32 2011
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Sent: Friday, April 01, 2011 1:00 PM
To: Wiggins, Jim; Evans, Michele; Rothschild, Trip; Brenner, Eliot; Hayden, Elizabeth; Leeds, Eric; Boger, Bruce; Uhle, Jennifer; Sheron, Brian; Droggitis, Spiros; Merzke, Daniel; Virgilio, Martin; Weber, Michael; Burnell, Scott; McDermott, Brian; Morris, Scott
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RR/33

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I expect that CRS will share with Congress shortly.

Cyndi

From: Jonathan Medalia [mailto:JMEDALIA@crs.loc.gov]
Sent: Friday, April 01, 2011 12:01 PM
To: Jones, Cynthia
Subject: RE: your phone message on CRS draft document

I'm updating the report to add an appendix with useful links, and of course have included a couple from NRC. Thanks again for your good work.
Jon

>>> "Jones, Cynthia" <Cynthia.Jones@nrc.gov> 4/1/2011 11:59 AM >>>
Thanks Jon

From: Jonathan Medalia [mailto:JMEDALIA@crs.loc.gov]
Sent: Thursday, March 31, 2011 6:31 PM
To: Jones, Cynthia
Cc: Sun, Casper; LIA06 Hoc; Hoc, PMT12
Subject: Re: your phone message on CRS draft document

Hi Cyndi, Casper, et al.,
Thanks for your comments on my report, Cyndi. I have worked through them and now have the report in good shape. I'll be in touch if I have further questions, but for now I think I'm ok. I've attached the report. You will notice that I acknowledge assistance from NRC, which I greatly appreciate. I will update the report from time to time, so let me know if you have any thoughts, esp. things to add.
Best,
Jon

Jonathan Medalia, Ph.D.
Specialist in Nuclear Weapons Policy
Congressional Research Service
202-707-7632
jmedalia@crs.loc.gov

C/

Esmaili, Hossein

From: Esmaili, Hossein
Sent: Monday, April 04, 2011 9:34 AM
To: Chang, Richard
Subject: RE: Fukishima Accident Progression

Richard, I will ask this afternoon.

hossein

From: Chang, Richard
Sent: Monday, April 04, 2011 7:59 AM
To: Esmaili, Hossein
Subject: Fukishima Accident Progression

Hossein,

I was wondering if there was an official NRC timeline for the fukishima accident progression?

Thanks,

Richard Chang
Program Manager
RES/DSA/SPB
301-251-7980

RR/34

OIP_ITServices Resource

From: LIA02 Hoc
Sent: Friday, April 15, 2011 9:26 PM
To: Bloom, Steven
Subject: FW: Supplemental measures to enhance outside power supply credibility

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From: Hidehiko Yamachika[SMTP:YAMACHIKA-HIDEHIKO@JNES-USA.ORG]
Sent: Friday, April 15, 2011 9:25:29 PM
To: LIA02 Hoc
Cc: aono-kenjiro@jnes-usa.org; Michael W. Chinworth
Subject: Supplemental measures to enhance outside power supply credibility
Auto forwarded by a Rule

On top of the following measures announced the other day in order to enhance power supply credibility;
i) Ensuring multiple DGs' utilization while a reactor shuts down
ii) Ensuring multiple utilization of DGs to other units in the multiple units site
iii) Deploying electric vehicle

NISA issued additional following measures on April 15;
iv) Connecting outside power lines to any units in the multiple units site
v) Enhancing transmission towers
vi) Water resistance of the high - low voltage power switch

*Official translation will be notified when it will be ready.

RR135

OIP_ITServices Resource

From: LIA02 Hoc
Sent: Friday, April 15, 2011 2:20 PM
To: Bloom, Steven
Subject: FW: HOO to Return to Normal Dosimetry Process

From: Hinson, Charles
Sent: Friday, April 15, 2011 2:19:54 PM
To: O'Donnell, John; LIA02 Hoc; Young, Francis; Administrative ServicesCenter
Cc: Pedersen, Roger; Garry, Steven; Bartlett, Matthew; Thompson, Richard; Struckmeyer, Richard; Foster, Jack; Roach, Edward
Subject: RE: HOO to Return to Normal Dosimetry Process
Auto forwarded by a Rule

Hi John

Thanks for putting together this list. One correction though. I'm not sure about the other offices, but neither the NRO or NRR internal procedures (NRO-ADM-110 or ADM-403, respectively) include a copy of the Dosimeter Authorization Form, as mentioned below. I have a number of copies of these forms in my office (TWFN 7E69) for personnel use, if needed, however.

Charlie Hinson
NRO RSO

From: O'Donnell, John
Sent: Monday, April 11, 2011 3:42 PM
To: LIA02 Hoc; Young, Francis; Administrative ServicesCenter
Cc: Pedersen, Roger; Garry, Steven; Bartlett, Matthew; Thompson, Richard; Hinson, Charles; Struckmeyer, Richard; Foster, Jack
Subject: HOO to Return to Normal Dosimetry Process

Steve and Francis,

The normal dosimetry issuance process you requested is below. This is the overview and the RSOs can provide the individuals with the details for their offices.

Obtaining an NRC Dosimeter @ HQ

1. Obtain a Dosimeter Authorization Form.
   a. The following offices have internal procedures that include this form.
      i. NRR ADM-403
      ii. NRO NRO-ADM-110
      iii. FSME ML101040309
      iv. NMSS NMSS Dosimeter Authorization
   b. The Administrative Services Center (ASC) also has dosimeter request forms available at the ASC Services Desk in the 2nd Floor Lobby of OWFN.

2. Complete the individual information requested and duties requiring a dosimeter.

3. Acknowledge that appropriate training is current.

RR/36

a. At a minimum, discuss with the RSO the radiological hazards of the duty.
b. Should not need KI, but if need perceived, review the guidance in Exhibit 3 and cautions in Exhibit 4 of MD 10.131.
c. Should not need respiratory protection, respirators require medical qualification. This does not include dust masks.

4. Review the guidelines for use of dosimeters (should be a separate page).
    a. Do not place in checked luggage
    b. Keep on person, if possible.
    c. Wear on upper portion of trunk of body

5. Sign the form
    a. Obtain your Office RSO or ARSO signature for dosimeter authorization
    b. The RSO retains a copy for office records.

6. The individual must present the completed form to the ASC staff (OWFN 2nd Floor Lobby)
    a. The ASC will issue the temporary dosimeter to the individual from the ASC Services Desk.
    b. This service is not always immediately available, so please plan accordingly. (1 to 24 hours is best.)
    c. ASC hours are M-F, 7:15 am to 5:00 pm. Phone 301-415-2251.

The dosimeter wear period is quarterly beginning on the 1st day of January, April, July and October. The dosimeters must be returned to the ASC at the end of each quarter.

The Headquarters RSOs and ARSOs are listed below by office.

Office	RSO	ARSO
NRR	Roger Pedersen	Steven Garry
NMSS	Matt Bartlett	Richard Thompson
FSME	John O'Donnell	Richard Struckmeyer
NRO	Charles Hinson	

Note: HQ personnel in Offices other than those listed above should contact the NRR RSO for dosimetry guidance.

Regards,

John O'Donnell
301-415-7908

Ghosh, Ti...

From: Ghosh, Tina
Sent: Monday, April 18, 2011 10:54 AM
To: 'Short, Steve M'
Cc: oles, Garill A
Subject: RE: Proposal to Review SAMA info for input to the NRC 90-day Review

Hi Steve,

How are you and family?
My family and I are well.

Thanks for this white paper, I will get you any comments shortly.
I have been thinking in the back of my mind too that there must be a way to leverage all that SAMA information we have.

FYI, other good NRC contacts for this work would be Don Helton, senior risk analyst in the Division of Risk Analysis (DRA) in RES who is familiar with SAMAs and working in the division responsible for using PRA information, and perhaps Ed Fuller, senior risk analyst also familiar with SAMAs (severe accident expert) in NRO's DSRA who is more involved with answering questions from NRC's task force. I could share the white paper with them if you think it's a good idea.

Best,
Tina

From: Short, Steve M [mailto:steve.short@pnl.gov]
Sent: Thursday, April 14, 2011 9:54 PM
To: Ghosh, Tina
Cc: Coles, Garill A; Gallucci, Ray
Subject: Proposal to Review SAMA info for input to the NRC 90-day Review

Hi Tina:

How are you doing and how is SOARCA going? I hope all is well with you and your family.

I wanted to get your thoughts on a white paper we have developed that we feel could provide useful insight into the NRC review of the safety of U.S. plants in response to the recent events in Japan. The white paper is attached. Basically the white paper proposes that the severe accident information provided with the license renewal SAMA analyses provides significant insight into both the internal and external risk at 4/5 of nuclear power plants in the U.S and that this risk information would have value to the NRC review that the NRC commission initiated a couple of weeks ago. A couple of years ago Bob Palla and I discussed the potential for compiling this information and I believe he discussed doing something along these lines with you. The attached white paper proposes an expanded version of what we had previously discussed. I would appreciate your thoughts on the white paper proposal and whether you consider it is worth pressing forward with. Any comments/thoughts you have would be much appreciated.

FYI. We have provided this to Ray Gallucci and Donnie Harrison. We've updated it to include Ray's comments but unfortunately we have not been able to get any feedback from Donnie (it is my understanding he has been busy working at the NRC emergency control center). However, we also recognize that this proposal is more likely to be of interest to RES than to NRR so I'm hoping you will give me your thoughts.

Thanks much.

Steve

RRP7

Steven Short, P.E.
Staff Engineer
Energy and Environment Directorate

Pacific Northwest National Laboratory
902 Battelle Boulevard
P.O. Box 999, MSIN K6-52
Richland, WA 99352 USA
Tel: 509-375-2868
Fax: 509-372-4995
steve.short@pnl.gov
www.pnl.gov

OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:00 AM
To: OIP_ITServices Resource
Subject: FW: Japan's Tepco shuts seven nuclear units after earthquake

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From: Breskovic, Clarence
Sent: Friday, March 11, 2011 6:34 AM
To: Breskovic, Clarence
Subject: Japan's Tepco shuts seven nuclear units after earthquake

This is an older message but gives a more complete picture of the reactor situation when the earthquake hit.

Japan's Tepco shuts seven nuclear units after earthquake
Singapore (Platts)--11Mar2011/555 am EST/1055 GMT

Japan's Tokyo Electric Power Company has shut a total of seven nuclear units at two of its nuclear power plants in Fukushima prefecture after a 8.9-magnitude earthquake struck northeastern Japan off the main Honshu island Friday, a company spokesman said.

At its 4.4 GW Fukushima Daini plant, units 1, 2 and 3 (460 MW, 784 MW and 784 MW respectively) were operating during the earthquake and have all been shut, the spokesman said.

Units 4, 5 and 6 (784 MW, 784 MW and 1.1 GW respectively) were all offline for maintenance.

At the Fukushima Daiichi plant, all four 1.1 GW units were running during the earthquake and were subsequently stopped, he added.

At Tepco's Kashiwazaki-Kariwa nuclear plant in the northwest, units 2, 3 and 4 were already offline for inspections, while units 1, 5, 6 and 7 were operating during the earthquake and are still operating, the spokesman said.

Tepco released a statement at 1630 Tokyo time (0730 GMT) confirming the outages, and adding: "At all the nuclear power stations, monitoring posts, which monitor radiation through exhaust stacks have shown normal values. In other words, at the present, no radiation leaks have been confirmed."

The company said that 4.05 million households had lost power as a result of the earthquake.

The earthquake struck at a depth of 10 km, off Sanriku in Miyagi prefecture at around 2:46 pm (0546 GMT), the Japan Meteorological Agency said.

The agency also issued a tsunami warning for Honshu's Pacific coast, warning of waves up to 3 meters high.

RR138

OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:00 AM
To: OIP_ITServices Resource
Subject: FW: Japan Update: Emergency Cooling System Working at Quake-hit Fukushima Plant

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From: Breskovic, Clarence
Sent: Friday, March 11, 2011 6:13 AM
To: Breskovic, Clarence
Subject: Japan Update: Emergency Cooling System Working at Quake-hit Fukushima Plant

Emergency Cooling System Working at Quake-hit Fukushima Plant

Tokyo *Kyodo World Service* 1047 GMT 11 Mar 11
Tokyo, March 11 Kyodo -- An emergency cooling system was activated at the No. 1 reactor of the Fukushima No. 2 nuclear plant after a powerful earthquake hit northern Japan on Friday, the industry ministry said.

The operator, Tokyo Electric Power Co., notified the ministry of the move, the ministry said, adding monitors outside the facility have detected no abnormalities.

RR/39

OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 9:59 AM
To: OIP_ITServices Resource
Subject: FW: Japan: Fukushima diesel generator failure

From: Breskovic, Clarence
Sent: Friday, March 11, 2011 4:34 AM
To: Breskovic, Clarence
Subject: Japan: Fukushima diesel generator failure

Devastating earthquake hits Japan
Financial Times
By Jonathan Soble in Tokyo, Rahul Jacob in Hong Kong and agencies
Published: March 11 2011 06:30 | Last updated: March 11 2011 08:15

Japan was reeling Friday after an 8.9 magnitude earthquake hit the northeast of the country, causing many injuries, fires and a 12m tsunami along parts of the country's coastline.
Japan was braced for further tsunamis to hit in the coming hours. Its Pacific coast was badly affected and the country was bracing for waves at least 20 foot high. The country's northern region was expecting a significant number of casualties and a tsunami warning was issued by several countries including Russia, Indonesia, Mexico and Taiwan.
"People in Japan should exercise the spirit of solidarity and act fast," said Japan's prime minister Naoto Kan appealing for calm, "we ask you to act in such a way to minimise the damage."

In Sendai, the closest large city to the quake's epicentre, oil storage tanks caught fire and the tsunami flooded the airport, sending staff and passengers onto the roof. Outside the city, television helicopters captured a vast moving blanket of water, mud, debris, cars and unmoored houses -- some of them on fire -- spreading across rice fields.
Residents of several Sendai districts and smaller cities and towns in Miyagi and neighbouring Aomori were ordered to leave their homes.
The governor of Miyagi prefecture, where Sendai is located, asked for Self Defence Forces soldiers to be deployed to assist rescue efforts.
The quake was strongly felt in Tokyo, where there were isolated reports of mostly superficial damage. Thousands of people milled in parks and squares in the city's skyscraper districts after fleeing tall buildings. Transport systems were brought to a standstill and mobile phone service failed – though many people managed to communicate using the city's numerous public wireless internet points.
In the two hours following the earthquake, there were 12 significant aftershocks of at least 5.9 magnitude, which continued to shake buildings and cause damage. The most severe of these measured 7.1.
Precise numbers of dead and injured were not immediately available. NHK relayed sporadic reports of casualties, including more than a dozen elderly people believed to be trapped under the collapsed roof of a nursing home in northern Japan. About five people are reported dead in that incident.
"The building shook for what seemed a long time and many people in the newsroom grabbed their helmets and some got under their desks," Reuters correspondent Linda Sieg said in Tokyo.
"It was probably the worst I have felt since I came to Japan more than 20 years ago."
In crowded central Tokyo in areas such as Shinjuku and Marunouchi, thousands of people rushed out of skyscrapers into parks and squares.
The Japanese utility Hokuriku Electric Company said that all three of its nuclear reactors at its Onagawa plant in northern Japan had shut down automatically. NHK showed ceiling panels inside Ibaraki airport, Japan's newest regional airport north of Tokyo, collapsing during the quake.
Tokyo Electric Power (Tepco) reported that 4.5m homes lost power in the capital area, and many northern districts were without electricity entirely. A nuclear plant in Fukushima prefecture operated by Tepco shut down automatically, but at least one diesel generator needed to cool its reactors failed, though Tepco said safety had not been compromised.

EE/40

Tokyo Stock Exchange headquarters were rocked by the quake but its trading system kept functioning. The Nikkei 225 closed down 1.7 per cent at 10,254.43. The yen dropped to a two week low against the dollar.
Equity markets across the region sold off. Hong Kong's Hang Seng fell 1.5 per cent while Sydney's S&P ASX 200 fell 1.2 per cent.
Public broadcaster NHK showed flames and black smoke billowing from a building in Odaiba, a Tokyo suburb, and bullet trains to the north of the country were halted, Reuters reports.
Black smoke was also pouring out of an industrial area in Yokohama's Isogo area. TV footage showed boats, cars and trucks floating in water after a tsunami hit the town of Kamaichi in northern Japan. An overpass, location unknown, appeared to have collapsed into the water.
Kyodo news agency said there were reports of fires in the city of Sendai in the northeast.
Passengers on a subway line in Tokyo screamed and grabbed other passengers' hands. The shaking was so bad it was hard to stand, said Reuters reporter Mariko Katsumura.
Earthquakes are common in Japan, one of the world's most seismically active areas. The country accounts for about 20 per cent of the world's earthquakes of magnitude 6 or greater.

OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 9:59 AM
To: OIP_ITServices Resource
Subject: FW: Japan: media reports government has decided to declare a nuclear power emergency situation

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From: Breskovic, Clarence
Sent: Friday, March 11, 2011 5:31 AM
To: Breskovic, Clarence
Subject: Japan: media reports government has decided to declare a nuclear power emergency situation

Fire at Tohoku Elec Onagawa nuclear plant

TOKYO, March 11 (Reuters) - A fire broke out at Tohoku Electric Power Co's Onagawa nuclear plant in northeastern Japan following Friday's major earthquake, Kyodo news agency said.

Prior to the Kyodo report, the company had said it had not received information on whether there had been any problems at the nuclear power plant after the disaster.

Separately, Fukushima Prefecture, the site of a Tokyo Electric Power nuclear power plant, said on Friday the plant's reactor cooling system was functioning, denying an earlier report that it was malfunctioning.

Japanese media reported that the government had decided to declare a nuclear power emergency situation, which occurs if there is confirmation of radioactivity leaks from a nuclear power plant or a reactor cooling system breaks down.

22141

Lee, Richard

From: Petti, Jason P [jppetti@sandia.gov]
Sent: Monday, April 11, 2011 9:59 AM
To: Lee, Richard
Subject: RE: Risk Informed Assessment of Degraded Containment Vessels

Richard

Have you any response to this?

Jason

From: Lee, Richard [mailto:Richard.Lee@nrc.gov]
Sent: Friday, April 01, 2011 1:04 PM
To: Petti, Jason P
Subject: RE: Risk Informed Assessment of Degraded Containment Vessels

Jason:

Let me ask DE to advice on how to proceed. Will get back to you soon.

Richard

From: Petti, Jason P [mailto:jppetti@sandia.gov]
Sent: Friday, April 01, 2011 12:16 PM
To: Lee, Richard
Subject: FW: Risk Informed Assessment of Degraded Containment Vessels

Richard

I have another request for you to advise on. Ben Spencer was contacted by a staffer for Congressman Waxman regarding a NUREG Ben and I authored (NUREG/CR-6920). They were requesting to speak with someone about the findings. Again, Herman Graves in NRC/Research was the NRC PM for this NUREG. Please advise as how to proceed.

Jason

From: "Cassady, Alison" <Alison.Cassady@mail.house.gov>
Date: March 31, 2011 1:21:50 PM MDT
To: "'bwspenc@sandia.gov'" <bwspenc@sandia.gov>
Subject: Risk Informed Assessment of Degraded Containment Vessels

Hello,

RR/42

My colleagues and I are interested in speaking with someone about the findings of the 2006 Sandia report entitled "Risk-Informed Assessment of Degraded Containment Vessels." I saw your name as one of the authors. Are you the best person to speak to this report's findings?

Thanks,

Alison Cassady

Alison Cassady
Senior Professional Staff
Committee on Energy and Commerce
U.S. House of Representatives
Rep. Henry A. Waxman, Ranking Member
(202) 226-3400

OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:00 AM
To: OIP_ITServices Resource
Subject: FW: Japan: Fukushima 1 & 2 cooling system problems

From: Breskovic, Clarence
Sent: Friday, March 11, 2011 6:11 AM
To: Breskovic, Clarence
Subject: Japan: Fukushima 1 & 2 cooling system problems

According to NHK TV news (Japan Broadcasting Corporation) the Fukishima 1 & 2 reactors are experiencing reactor cooling problems after diesel generator failures but also saying there is no cause for alarm even though the government has declared a "nuclear emergency situation".

RR/43

OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:01 AM
To: OIP_ITServices Resource
Subject: FW: Japan's Tepco shuts seven nuclear units after earthquake

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From: Shaffer, Mark R [mailto:ShafferMr@state.gov]
Sent: Friday, March 11, 2011 8:43 AM
To: Schwartzman, Jennifer
Subject: RE: Japan's Tepco shuts seven nuclear units after earthquake

Earthquake and Tsunami Update

- IAEA Incident & Emergency Centre
- Japan Atomic Industrial Forum
- Japan Nuclear and Industrial Safety Agency (NISA)
- Listen to this story

Vienna, 11 March 2011 (1245 CET) | The IAEA's Incident and Emergency Centre has received information from Japan's Nuclear and Industrial Safety Agency (NISA) that a heightened state of alert has been declared at Fukushima Daiichi nuclear power plant. NISA says the plant has been shut down and no release of radiation has been detected.

Japanese authorities have also reported a fire at the Onagawa nuclear power plant, which has been extinguished. They say Onagawa, Fukushima-Daini and Tokai nuclear power plants were also shut down automatically, and no radiation release has been detected.

The IAEA received information from its International Seismic Safety Centre that a second earthquake of magnitude 6.5 has struck Japan near the coast of Honshu, near the Tokai plant.

The IAEA is seeking further details on the situation at Fukushima Daiichi and other nuclear power plants and research reactors, including information on off-site and on-site electrical power supplies, cooling systems and the condition of the reactor buildings. Nuclear fuel requires continued cooling even after a plant is shut down.

All IAEA staff in Japan, both in the Tokyo office and in nuclear facilities, are confirmed to be safe.

Background

At around 0815 CET on 11 March 2011, the IAEA's Incident and Emergency Centre received information from the International Seismic Safety Centre (ISSC) that an earthquake registering 8.9 on the Richter scale had occurred near the east coast of Honshu, Japan.

The IAEA then liaised with the Japanese Ministry of Economy, Trade and Industry (METI) to confirm further details of the situation. Japanese authorities later reported that the four nuclear power plants closest to the quake had been safely shut down. The IAEA has offered its support to the Japanese government.

The IAEA's Incident and Emergency Centre is the global focal point for preparedness, event reporting, and response to nuclear and radiological incidents and emergencies irrespective of their cause. The Incident and Emergency Centre provides around-the-clock assistance to Member States in dealing with nuclear and radiological events, including security related events through timely and efficient services and the provision of a coordinated international response to such emergencies.

This email is UNCLASSIFIED.

From: Schwartzman, Jennifer [mailto:Jennifer.Schwartzman@nrc.gov]
Sent: Friday, March 11, 2011 2:08 PM
To: Shaffer, Mark R
Subject: FW: Japan's Tepco shuts seven nuclear units after earthquake

This one is pretty useful.

From: Breskovic, Clarence
Sent: Friday, March 11, 2011 6:34 AM
To: Breskovic, Clarence
Subject: Japan's Tepco shuts seven nuclear units after earthquake

This is an older message but gives a more complete picture of the reactor situation when the earthquake hit.

Japan's Tepco shuts seven nuclear units after earthquake
Singapore (Platts)--11Mar2011/555 am EST/1055 GMT

Japan's Tokyo Electric Power Company has shut a total of seven nuclear units at two of its nuclear power plants in Fukushima prefecture after a 8.9-magnitude earthquake struck northeastern Japan off the main Honshu island Friday, a company spokesman said.

At its 4.4 GW Fukushima Daini plant, units 1, 2 and 3 (460 MW, 784 MW and 784 MW respectively) were operating during the earthquake and have all been shut, the spokesman said.

Units 4, 5 and 6 (784 MW, 784 MW and 1.1 GW respectively) were all offline for maintenance.

At the Fukushima Daiichi plant, all four 1.1 GW units were running during the earthquake and were subsequently stopped, he added.

At Tepco's Kashiwazaki-Kariwa nuclear plant in the northwest, units 2, 3 and 4 were already offline for inspections, while units 1, 5, 6 and 7 were operating during the earthquake and are still operating, the spokesman said.

Tepco released a statement at 1630 Tokyo time (0730 GMT) confirming the outages, and adding: "At all the nuclear power stations, monitoring posts, which monitor radiation through exhaust stacks have shown normal values. In other words, at the present, no radiation leaks have been confirmed."

The company said that 4.05 million households had lost power as a result of the earthquake.

The earthquake struck at a depth of 10 km, off Sanriku in Miyagi prefecture at around 2:46 pm (0546 GMT), the Japan Meteorological Agency said.

The agency also issued a tsunami warning for Honshu's Pacific coast, warning of waves up to 3 meters high.

OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:00 AM
To: OIP_ITServices Resource
Subject: FW: Japan initiates emergency protocol after earthquake

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From: Breskovic, Clarence
Sent: Friday, March 11, 2011 6:40 AM
To: Breskovic, Clarence
Subject: Japan initiates emergency protocol after earthquake

Japan initiates emergency protocol after earthquake

11 March 2011

Nuclear Engineering International

Onagawa, Fukushima Daiichi, Fukushima Daini and Tokai nuclear power stations have automatically shut down following a magnitude 8.8 earthquake off the northeast coast of the largest island of Japan, Honshu.

All four operating plants on that coast have automatically shut down, or SCRAMmed, according to Japan Atomic Information Forum (JAIF). Higashidori 1, which is also located on Honshu's northeast coast, was shut down for a periodic inspection.

The earthquake struck at 2:45pm local time. A 6:45 pm local time report from the Japan Nuclear and Industrial Safety Agency contained more information of damage and other problems in a site-by-site report.

-A C02 fire has broken out at Onagawa nuclear power station.

-Utility TEPCO has requested the establishment of a nuclear emergency response programme for Fukushima Daiichi 1&3 and Fukushima Daini 1.

JAIF reported that Fukushima Daiichi 1, 2 and 3 automatically shut down; units 4, 5 and 6 were in maintenance outages. Fukushima Daini 1, 2, 3 and 4 automatically shut down.

JAIF has reported that TEPCO sent the emergency report because emergency diesel generators at the two sites are out of order. It said that there is no report that the radiation was detected out of the site. It said that an emergency headquarters has been set up and will issue information hourly.

JAIF also reported that the Rokkasho reprocessing facility was being powered by emergency diesel generators. No other unusual events or radiation leaks have been reported. Nuclear power stations at Hamaoka, Kashiwazaki-Kariwa and Tomari are continuing normal operation, according to JAIF.

After an accident occurs at a nuclear power plant, the licensee must notify the national Nuclear and Industrial Safety Agency by law.

A minister in its controlling organisation, the Ministry of Economy, Trade and Industry, notifies the prime minister's office. The central nuclear emergency response headquarters (NERHQ) of the national government issues a nuclear emergency declaration, which also includes instructions about preventative measures. It

RR/45

receives technical advice from the Nuclear Safety Commission. The NERHQ sends a specialist and the NSC sends a commissioner to the site.

After the emergency declaration is received, the local office of the national government's NERHQ arranges prevention measures based on factors including facility information, climate and monitoring.

Nuclear emergency response operations are coordinated in one of 20 so-called off-site centres spread across Japan, which are close to, but not inside, nuclear facilities. The off-site centre's role is to be the main centre of information, incident analysis, and emergency plan organisation and direction. Two or three senior specialists for nuclear emergency preparedness work in each OFC. In normal conditions, the specialists work as nuclear power safety inspectors, checking plant operation from the viewpoint of regulation. During an emergency, the specialists organize prevention measures as a secretariat and report it to a joint council for nuclear emergency response. The joint council includes not only the local office of the national government's NERHQ and the senior specialists, but also representatives of the Nuclear Safety Commission and prefectural and municipal NERHQs.

The joint council devises instructions to residents for evacuation and/or sheltering. It also instructs the emergency services and coast guard, self-defence force, Japan Nuclear Energy Safety Organisation (JNES), the National Institute of Radiological Sciences, the Japan Atomic Energy Agency, and other bodies.

JNES has constructed a dedicated high-speed network system connecting the 20 off-site centres and other agencies called Emergency Preparedness Response Network (EPRNet). It includes video conferencing systems, e-mail, telephone, fax, and connections to a meteorological information service, a plant information collection, diagnosis, prognosis and analytical prediction tool (called ERSS), and an emergency environmental dose prediction tool (called SPEEDI).

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:05 AM
To: OIP_ITServices Resource
Subject: FW: U.S. delivers coolant to Japan nuclear plant: Clinton/ Plant Being Cooled

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From: Breskovic, Clarence
Sent: Friday, March 11, 2011 12:02 PM
To: Breskovic, Clarence
Subject: U.S. delivers coolant to Japan nuclear plant: Clinton/ Plant Being Cooled

WASHINGTON | Fri Mar 11, 2011 11:05am EST
WASHINGTON (Reuters) - The United States has transported coolant to a Japanese nuclear plant affected by a massive earthquake and will continue to assist Japan, Secretary of State Hillary Clinton said on Friday.
"We just had our Air Force assets in Japan transport some really important coolant to one of the nuclear plants," Clinton said at a meeting of the President's Export Council.
"You know Japan is very reliant on nuclear power and they have very high engineering standards but one of their plants came under a lot of stress with the earthquake and didn't have enough coolant," Clinton said.

Japan Reactor Being Cooled

LONDON, March 11 (Reuters) - The World Nuclear Association, the main nuclear industry body, said on Friday that it understood the situation at Japan's Fukushima plant after a massive earthquake was under control, and water was being pumped into its cooling system.
"We understand this situation is under control," an analyst at the association told Reuters.
The Japanese government had declared an emergency situation around the plant as a precaution and evacuated residents, saying a cooling system was not working.
The analyst said he understood that a back-up battery power system had been brought online after about an hour, and begun pumping water back into the cooling system, where the water level had been falling.

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OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:06 AM
To: OIP_ITServices Resource
Subject: FW: Secretary Clinton video on supplying "coolant" to Japan

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From: Breskovic, Clarence
Sent: Friday, March 11, 2011 1:27 PM
To: Breskovic, Clarence
Subject: Secretary Clinton video on supplying "coolant" to Japan

http://www.state.gov/video/?videoid=822755222001

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OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:07 AM
To: OIP_ITServices Resource
Subject: FW: Japan: Radioactive Steam Could Be Released From Troubled Plant

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From: Breskovic, Clarence
Sent: Friday, March 11, 2011 1:57 PM
To: Breskovic, Clarence
Subject: Japan: Radioactive Steam Could Be Released From Troubled Plant

Radioactive Steam Could Be Released From Troubled Plant

Tokyo *Kyodo World Service* 1819 GMT 11 Mar 11
Tokyo, March 12 Kyodo -- Japanese authorities are nearing a decision to release radioactive steam from a troubled nuclear reactor, industry minister Benri Kaieda said Saturday.

Kaieda was referring to the rising pressure inside the No. 1 reactor of the Fukushima No. 1 plant, which was hit by a powerful earthquake Friday.

CC/48

OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:08 AM
To: OIP_ITServices Resource
Subject: FW: Nagano New Quake

From: Fladeboe, Jan P [mailto:FladeboeJP@state.gov]
Sent: Friday, March 11, 2011 2:32 PM
To: ISN-NESS-DL; Dresser, Heather L (EAP/J); Schwartzman, Jennifer; Scheland, Mark DL; Shaffer, Mark R; Wood, Robert A
Subject: Nagano New Quake

Another quake just hit Nagano (central Japan) – about 6.2 /6.6 on the Richter scale

http://www.guardian.co.uk/world/2011/mar/11/japan-tsunami-earthquake-live-coverage

Jan Peter Fladeboe
Office of Nuclear Energy, Safety and Security
Bureau of International Security and Nonproliferation
U.S. Department of State
Washington, DC, 20520
+1 202-647-6957
fladeboejp@state.gov

This email is UNCLASSIFIED.

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OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:08 AM
To: OIP_ITServices Resource
Subject: FW: INFO: Japan NPP - US supplies coolant

From: Hopkins, Jon
Sent: Friday, March 11, 2011 2:53 PM
To: Boger, Bruce; McGinty, Tim; Brown, Frederick
Cc: Thomas, Eric; Regan, Christopher; Cullingford, Michael; Astwood, Heather; Quinones, Lauren; Schwartzman, Jennifer; Foggie, Kirk; Ramsey, Jack
Subject: INFO: Japan NPP - US supplies coolant

"The US Air Force has delivered coolant to a Japanese nuclear plant which was jolted by the biggest earthquake in Japan's history, US Secretary of State Hillary Clinton said Friday.

"We just had our Air Force assets in Japan transport some really important coolant to one of the nuclear plants," Clinton said in Washington.

"You know Japan is very reliant on nuclear power, and they have very high engineering standards, but one of their plants came under a lot of stress with the earthquake and didn't have enough coolant," the chief US diplomat said."

http://www.industryweek.com/articles/u-s-_delivers_coolant_to_japanese_nuclear_reactor_24111.aspx

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OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:08 AM
To: OIP_ITServices Resource
Subject: FW: INFO: Japan NPP

From: Hopkins, Jon
Sent: Friday, March 11, 2011 2:56 PM
To: Boger, Bruce; McGinty, Tim; Brown, Frederick
Cc: Thomas, Eric; Regan, Christopher; Cullingford, Michael; Astwood, Heather; Quinones, Lauren; Schwartzman, Jennifer; Foggie, Kirk; Ramsey, Jack
Subject: INFO: Japan NPP

"The temperature in one reactor's nuclear fuel rods has built up to 50% above normal levels since the six-reactor facility was shut down following the most powerful earthquake on record in the island nation, the Nuclear and Industrial Safety Agency reported."

http://www.chicagotribune.com/news/nationworld/la-fgw-japan-quake-nuclear-20110312,0,6581307.story

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OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:10 AM
To: OIP_ITServices Resource
Subject: FW: Tokyo Electric Power To Release Reactor Pressure

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From: Breskovic, Clarence
Sent: Friday, March 11, 2011 7:28 PM
To: Breskovic, Clarence
Subject: Tokyo Electric Power To Release Reactor Pressure

Tokyo Electric Power To Release Reactor Pressure

Tokyo, March 12 (Jiji Press) -- Tokyo Electric Power Co. has decided to release the pressure from reactors of a quake-hit nuclear power plant in Fukushima Prefecture, northern Japan, to prevent them from breaking down, company sources said Saturday.

Releasing the pressure from the company's Fukushima No. 1 nuclear power plant by opening their valves may let a small amount of radioactive substances leak out into the atmosphere, according to Tokyo Electric Power.

The safety of nearby residents will be ensured as all the residents in a 10-kilometer radius from the power plant have been evacuated or instructed by the government to stay at home, according to the sources.

Immediately after the 8.8-magnitude quake hit northeastern Japan, all the three operating reactors at the power plant stopped automatically.

Internal pressure is feared to have risen at all the reactors. The pressure in the No. 1 reactor increased to 600 kilopascals from the normal level of 400 kilopascals.

Meantime, Tokyo Electric Power is striving to restore the No. 2 reactor's cooling system, which stopped working because the quake caused a power outage and emergency diesel power generation equipment broke down.

While the reactor's cooling water levels are still kept at about 3.5 meters above the top of its nuclear fuel rods, the level's decline would force the fuel rods exposed to air to generate radiation.

Radiation Could Already Have Leaked at Nuke Plant

Tokyo, March 12 Kyodo -- Radioactive substances could already have leaked at the Fukushima No. 1 nuclear power plant after a magnitude 8.8 earthquake hit northern Japan, the operator Tokyo Electric Power Co. said Saturday.

The amount of radiation reached around 1,000 times the normal level in the control room of the No. 1 reactor of the plant, the Nuclear and Industrial Safety Agency also said. The discovery suggests radioactive steam could spread around the facility.

The agency also said radiation has been more than eight times the normal level at a monitoring post near the main gate of the plant.

The authorities expanded the evacuation area for residents in the vicinity of the plant from a 3-kilometer radius to 10 km on the orders of Prime Minister Naoto Kan, who plans to visit the facility later Saturday.

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Siu, Nathan

From: Siu, Nathan
Sent: Saturday, March 12, 2011 8:11 AM
To: (b)(6)
Subject: Fw: NEA/CNRA - WGPC Secretariat - [Fukushima] NISA Website with Press Releases in English
Attachments: NISA-PR_en_Fukushima_20110312-4.pdf

Sent from NRC BlackBerry
Nathan Siu
(b)(6)

----- Original Message -----
From: Jean.GAUVAIN@oecd.org <Jean.GAUVAIN@oecd.org>
Sent: Sat Mar 12 06:41:07 2011
Subject: NEA/CNRA - WGPC Secretariat - [Fukushima] NISA Website with Press Releases in English

Dear colleagues,

Following the dramatic event in Japan and receiving many questions from member countries, please find below the address of the Japanese Nuclear Regulatory Body where Press release in English are posted:

http://www.nisa.meti.go.jp/english/

Attached is the latest press release posted today at 11:00 UTC

Best Regards
Jean Gauvain
Secretariat of the CNRA/Working Group of Public Information of Nuclear Regulatory Organisations OECD/NEA
Nuclear Safety Division Mobile (b)(6)

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OIP_ITServices Resource

From: Emche, Danielle
Sent: Monday, March 14, 2011 4:55 PM
To: Smiroldo, Elizabeth
Subject: RE: can we replace the reactors table with this?

Do you know what the file is called?

From: Smiroldo, Elizabeth
Sent: Monday, March 14, 2011 4:42 PM
To: Emche, Danielle
Subject: RE: can we replace the reactors table with this?

Yes! I will do that now.
The document for you to add bullets about the earthquake is in the folder (countries, japan, emergency...)

From: Emche, Danielle
Sent: Monday, March 14, 2011 4:41 PM
To: Smiroldo, Elizabeth
Subject: can we replace the reactors table with this?

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	Name of Plant	Unit Number	Company	Installed Capacity (MW)	Type of Reactor	Start
1	Tomari	1	Hokkaido	579	PWR	1989.6
		2		579	PWR	1991.4
2	Higashi-Dori	1	Tohoku	1,100	BWR	2005.12
3	Onagawa	1	Tohoku	524	BWR	1984.6
		2		825	BWR	1995.7
		3		825	BWR	2002.1
4	Fukushima Daiichi	1	Tokyo	460	BWR	1971.3
		2		784	BWR	1974.7
		3		784	BWR	1976.3
		4		784	BWR	1978.10
		5		784	BWR	1978.4
		6		1,100	BWR	1979.10
5	Fukushima Daini	1	Tokyo	1,100	BWR	1982.4
		2		1,100	BWR	1984.2
		3		1,100	BWR	1985.6
		4		1,100	BWR	1987.8
6	Kashiwazaki Kariwa	1	Tokyo	1,100	BWR	1985.9
		2		1,100	BWR	1990.9
		3		1,100	BWR	1993.8
		4		1,100	BWR	1994.8
		5		1,100	BWR	1990.4
		6		1,356	ABWR	1996.11
		7		1,356	ABWR	1997.7
7	Hamaoka	1	Chubu	540	BWR	1976.3
		2		840	BWR	1978.11
		3		1,100	BWR	1987.8
		4		1,137	BWR	1993.9
		5		1,267	ABWR	2005.1
8	Shika	1	Hokuriku	540	BWR	1993.7
		2		1,358	ABWR	2006.3
9	Mihama	1	Kansai	340	PWR	1970.11
		2		500	PWR	1972.7
		3		826	PWR	1976.12
10	Takahama	1	Kansai	826	PWR	1974.11
		2		826	PWR	1975.11
		3		870	PWR	1985.1
		4		870	PWR	1985.6
11	Ohi	1	Kansai	1,175	PWR	1979.3
		2		1,175	PWR	1979.12
		3		1,180	PWR	1991.12
		4		1,180	PWR	1993.2
12	Shimane	1	Chugoku	460	BWR	1974.3
		2		820	BWR	1989.2
13	Ikata	1	Shikoku	566	PWR	1977.9
		2		566	PWR	1982.3
		3		890	PWR	1994.12
14	Genkai	1	Kyushu	559	PWR	1975.10
		2		559	PWR	1981.3

Danielle Emche
International Relations Specialist
Office of International Programs
US Nuclear Regulatory Commission
Tel.: 301-415-2644
BlackBerry: (b)(6)

Rathbun, Howard

From: Csontos, Aladar
Sent: Monday, March 14, 2011 8:58 AM
To: RES_DE_CIB; Rachel Vaucher; Benson, Michael
Subject: ANS Japan Backgrounder
Attachments: ANS Japan Backgrounder.pdf

Folks,

Gary supplied this good synopsis of the events in Japan.

There's a lot of speculation flying around at this time. We should be careful to not add to the fog of the events at this point. Mike is one of the RST supervisors reacting to the issues at the Op Center so I'm sure we'll hear a lot more at the 11am today. As a result, he's been inundated with a bunch of info, emails, etc this weekend. Brett Rini's been up since 11pm last night covering for that RST shift.

I'll be in contact if and when there's a request for additional work. In the meantime, take care.

Al

Aladar A. Csontos, Ph.D
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Washington, DC 20555-0001
(301) 251-7640 (Office)
(b)(6) (Blackberry)
(301) 251-7425 (Fax)
Email: aladar.csontos@nrc.gov

55/3

American Nuclear Society Backgrounder: Japanese Earthquake/Tsunami; Problems with Nuclear Reactors

3/12/2011 5:22 PM EST

To begin, a sense of perspective is needed... right now, the Japanese earthquake/tsunami is clearly a catastrophe; the situation at impacted nuclear reactors is, in the words of IAEA, an "Accident with Local Consequences."

The Japanese earthquake and tsunami are natural catastrophes of historic proportions. The death toll is likely to be in the thousands. While the information is still not complete at this time, the tragic loss of life and destruction caused by the earthquake and tsunami will likely dwarf the damage caused by the problems associated with the impacted Japanese nuclear plants.

What happened?

Recognizing that information is still not complete due to the destruction of the communication infrastructure, producing reports that are conflicting, here is our best understanding of the sequence of events at the Fukushima I-1 power station.

- The plant was immediately shut down (scrammed) when the earthquake first hit. The automatic power system worked.
- All external power to the station was lost when the sea water swept away the power lines.
- Diesel generators started to provide backup electrical power to the plant's backup cooling system. The backup worked.
- The diesel generators ceased functioning after approximately one hour due to tsunami induced damage, reportedly to their fuel supply.
- An Isolation condenser was used to remove the decay heat from the shutdown reactor.
- Apparently the plant then experienced a small loss of coolant from the reactor.
- Reactor Core Isolation Cooling (RCIC) pumps, which operate on steam from the reactor, were used to replace reactor core water inventory, however, the battery-supplied control valves lost DC power after the prolonged use.
- DC power from batteries was consumed after approximately 8 hours.
- At that point, the plant experienced a complete blackout (no electric power at all).
- Hours passed as primary water inventory was lost and core degradation occurred (through some combination of zirconium oxidation and clad failure).

- Portable diesel generators were delivered to the plant site.
- AC power was restored allowing for a different backup pumping system to replace inventory in reactor pressure vessel (RPV).
- Pressure in the containment drywell rose as wetwell became hotter.
- The Drywell containment was vented to outside reactor building which surrounds the containment.
- Hydrogen produced from zirconium oxidation was vented from the containment into the reactor building.
- Hydrogen in reactor building exploded causing it to collapse around the containment.
- The containment around the reactor and RPV were reported to be intact.
- The decision was made to inject seawater into the RPV to continue to the cooling process, another backup system that was designed into the plant from inception.
- Radioactivity releases from operator initiated venting appear to be decreasing.

Can it happen here in the US?

- While there are risks associated with operating nuclear plants and other industrial facilities, the chances of an adverse event similar to what happened in Japan occurring in the US is small.
- Since September 11, 2001, additional safeguards and training have been put in place at US nuclear reactors which allow plant operators to cool the reactor core during an extended power outage and/or failure of backup generators – "blackout conditions."

Is a nuclear reactor "meltdown" a catastrophic event?

- Not necessarily. Nuclear reactors are built with redundant safety systems. Even if the fuel in the reactor melts, the reactor's containment systems are designed to prevent the spread of radioactivity into the environment. Should an event like this occur, containing the radioactive materials could actually be considered a "success" given the scale of this natural disaster that had not been considered in the original design. The nuclear power industry will learn from this event, and redesign our facilities as needed to make them safer in the future.

What is the ANS doing?

ANS has reached out to The Atomic Energy Society of Japan (AESJ) to offer technical assistance.

ANS has established an incident communications response team.

This team has compiling relevant news reports and other publicly available information on the ANS blog, which can be found at ansnuclearcafe.org.

The team is also fielding media inquiries and providing reporters with background information and technical perspective as the events unfold.

Finally, the ANS is collecting information from publicly available sources, our sources in government agencies, and our sources on the ground in Japan, to better understand the extent and impact of the incident.

OIP_ITServices Resource

From: Mamish, Nader
Sent: Monday, March 14, 2011 3:55 PM
To: Emche, Danielle; Smiroldo, Elizabeth; Abrams, Charlotte; Schwartzman, Jennifer; LIA02 Hoc; LIA03 Hoc
Cc: Kreuter, Jane; Larson, Emily; Afshar-Tous, Mugeh
Subject: Re: Who is the head of delegation?

No, it's Chuck Casto. Need to add Bill Cook from RI.

Sent from my NRC blackberry
Nader Mamish
(b)(6)

From: Emche, Danielle
To: Smiroldo, Elizabeth; Abrams, Charlotte; Schwartzman, Jennifer; LIA02 Hoc; LIA03 Hoc; Mamish, Nader
Cc: Kreuter, Jane; Larson, Emily; Afshar-Tous, Mugeh
Sent: Mon Mar 14 15:45:40 2011
Subject: Re: Who is the head of delegation?

Would it be Monninger?
Danielle
Sent from an NRC BlackBerry.

From: Smiroldo, Elizabeth
To: Emche, Danielle; Abrams, Charlotte; Schwartzman, Jennifer; LIA02 Hoc; LIA03 Hoc
Cc: Kreuter, Jane; Larson, Emily; Afshar-Tous, Mugeh
Sent: Mon Mar 14 15:44:12 2011
Subject: RE: Who is the head of delegation?

Who would be the head of del? Or are they to be considered part of a larger State Dept delegation? If something happens, the head of delegation has certain responsibilities.

From: Emche, Danielle
Sent: Monday, March 14, 2011 2:20 PM
To: Abrams, Charlotte; Schwartzman, Jennifer; LIA02 Hoc; LIA03 Hoc
Cc: Kreuter, Jane; Larson, Emily; Smiroldo, Elizabeth; Afshar-Tous, Mugeh
Subject:

Chuck Casto, John Monninger, Tony Nakanishi, Tim Kolb, Jack Foster and Richard Devercelly are the confirmed 6 technical staff

55/14

OIP_ITServices Resource

From: Afshar-Tous, Mugeh
Sent: Monday, March 14, 2011 4:15 PM
To: Abrams, Charlotte
Cc: Smiroldo, Elizabeth
Subject: Queen Noor's request

Hi Charlotte - I just talked with Patti Pace who passed the call to Bobbie Warren. Neither of them was aware of the request. They told me that Josh Batkin has been at the Op Center all day and from time to time sends them emails, but he hasn't told them anything on this subject either.

They asked that I provide more information as who received the request? And a little more detail if you have any.

Thanks.
Mugeh

Mugeh Afshar-Tous
Senior International Relations Officer
International Cooperation & Assistance Branch
Office of International Programs
MS: O4-E21
Nuclear Regulatory Commission
Washington, DC 20555-0001
Office: 301-415-6899
Mobile: (b)(6)

SS/5

OIP_ITServices Resource

From: Afshar-Tous, Mugeh
Sent: Monday, March 14, 2011 4:57 PM
To: Schwedtm@state.gov
Cc: Smiroldo, Elizabeth
Subject: Seeking ok to provide briefing on radiation levels

Dear Miriam – To follow up on our conversation this afternoon, the Country of Jordan has contacted the Nuclear Regulatory Commission (NRC) with a request for information and we want to get it cleared through the Department of State before we provided the desired information.

This afternoon, the Office of Her Majesty Queen Noor of Jordan called the Operations Center at the NRC and verbally requested for NRC's Chairman Jaczko to provide a briefing to Queen Noor on radiation levels in Japan and an explanation of what these levels mean.

Please advise if NRC should proceed with planning for a conference call to meet this request.

Warm regards,
Mugeh

Mugeh Afshar-Tous
Senior International Relations Officer
International Cooperation & Assistance Branch
Office of International Programs
MS: O4-E21
Nuclear Regulatory Commission
Washington, DC 20555-0001
Office: 301-415-6899
Mobile: (b)(6)

Gibson, Kathy

From: Gibson, Kathy
Sent: Tuesday, March 15, 2011 7:23 PM
To: Santiago, Patricia
Subject: RE: IRC Staffing
Attachments: Kathy Halvey Gibson2.vcf

Right now I am just gathering information. So Charlie and Jason should respond.

No request is being made of Sandia or any other contractor at this time. I prefer to use our staff first. In a previous request, Sandia proposed using Randy and others currently working on SOARCA so either way SOARCA schedule will suffer. I prefer to use our staff to respond to Japan and leave Sandia working on SOARCA.

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Santiago, Patricia
Sent: Tuesday, March 15, 2011 7:18 PM
To: Gibson, Kathy
Subject: RE: IRC Staffing

No Jason or Charlie....correct?

Also we have asked about funding SNL to support the Japan questions that Jason and Charlie have been needing to respond to. Presently I don't believe it is too costly but should we be asking NSIR what funds they have to support vs using our SOARCA funds?

PMDA said wait for unused funds to add to SOARCA which is ok with me.
Thanks

From: Gibson, Kathy
Sent: Tuesday, March 15, 2011 7:16 PM
To: RES_DSA
Subject: FW: IRC Staffing
Importance: High

Please let Ken Armstrong know by noon tomorrow the following:
1) If you are interested and available to work a shift in the Ops Center. Please indicate your preference of shift and your area(s) of expertise.
2) If you are willing and able to go to Japan for 2 weeks. Indicate your availability to go at the end of the month or at some future time (dates to be negotiated). Also indicate your area(s) of expertise.

See below for details about this request.

55\6

Ken, please compile a list of the information you receive in response to this request for my review.

Thanks to all!

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell Ex 6

From: Sheron, Brian
Sent: Tuesday, March 15, 2011 5:27 PM
To: Coyne, Kevin; Case, Michael; Coe, Doug; Correia, Richard; Gibson, Kathy; Lui, Christiana; Richards, Stuart; Sangimino, Donna-Marie; Scott, Michael; Uhle, Jennifer; Valentin, Andrea
Cc: Dion, Jeanne
Subject: IRC Staffing

I participated on a conference call with other ODs and led by Michele Evans, acting deputy OD in NSIR at 4 pm today.

The purpose of the conference call was to discuss staffing for the IRC for the near future. The IRC is currently staffed with members of the Reactor safety team, the Protective Measures team, Liaison Team, etc. There is also an ET member there. None of the teams are at their full compliment. What Michele is looking for is people that can staff the IRC and relieve the staff that are currently there. She said they are currently running 3 shifts (11pm-7am, 7am – 3pm, and 3pm to 11 pm). They would like to find staff that can work shifts for 4 days in a row (I think she wants 4 days on, 3 days off). She said the staff do not have to have had IRC training.

Several of us said we would certainly canvas our staff to see who was qualified to work in the IRC and could work there, but we needed to know what technical disciplines they were looking for. Michele did not have a list of needed disciplines, but said she would generate one and send it out. As of 5:15 pm I have not received a list yet.

However, I am assuming they will be looking for staff with expertise in such areas as systems analysis, severe accidents, radiological dose assessment, etc. In anticipation that these are the technical disciplines of interest, can you please start identifying your staff that you believe have some of the requisite skills needed for the IRC, and start asking if they would be available to work shifts in the IRC if asked to. HR said they would be eligible for normal overtime compensation.

Also, they will be looking for staff to go to Japan and relieve the technical staff that recently went there. There were 2 BWR experts that left over the weekend, and a team of 9 more (6 engineers and 3 OIP staff) left yesterday. The thinking is that the staff that recently went over would come back in 2 weeks, which is when they want to send a replacement team over there. So please check to see if you have any staff with the proper technical credentials, are reasonably good communicators, and would be willing to spend about 2 weeks in Japan as part of the team there.

I will forward the list of desired disciplines as soon as I receive them from Michele. Michele said she will be looking for the list of potential IRC replacements by COB tomorrow (3/16/11), thus, I will need your candidates by mid-afternoon.

For the team that will replace the one that was just sent to Japan, she said she would like us to update the list we previously sent by COB 3/17.

Pires, Jose

From:	Pires, Jose
Sent:	Tuesday, March 15, 2011 4:09 PM
To:	Roche, Robert; Graves, Herman; Candra, Hernando
Subject:	RE: latest version of Q&As

Robert,
Thanks. I have to learn earlier today to meet my accountant.

Jose.

From: Roche, Robert
Sent: Tuesday, March 15, 2011 3:34 PM
To: Pires, Jose; Graves, Herman; Candra, Hernando
Subject: RE: latest version of Q&As

For reference, please see the file attached. I know we can condensed the table but I wanted to preserve the information as similar as possible to the original files (ex. plant names).

Robert

From: Pires, Jose
Sent: Tuesday, March 15, 2011 11:10 AM
To: Roche, Robert
Subject: FW: latest version of Q&As

This is the Q&As that are being prepared. Annie and Jon are controlling it. Maybe you can take a look at them as well.

Attached is a table sent by Jon Ake and the one from Herman. Maybe you can compare them for OBE and SSE.

Thanks,

Jose.

From: Kammerer, Annie
Sent: Tuesday, March 15, 2011 3:41 AM
To: Hiland, Patrick; Skeen, David
Cc: Howe, Allen; Nelson, Robert; Stutzke, Martin; Giitter, Joseph; Rihm, Roger; McDermott, Brian; Hasselberg, Rick; Kammerer, Annie; Chokshi, Nilesh; Munson, Clifford; Cook, Christopher; Flanders, Scott; Ross-Lee, MaryJane; Brown, Frederick; Giitter, Joseph; Howe, Allen; Case, Michael; Ruland, William; Dudes, Laura; Karas, Rebecca; Ake, Jon; Munson, Clifford; Hogan, Rosemary; Uhle, Jennifer; Marshall, Michael; Uselding, Lara; Randall, John; Allen, Don; Burnell, Scott; Hayden, Elizabeth; Pires, Jose; Graves, Herman; Candra, Hernando; Murphy, Andrew; Murphy, Andrew; Pires, Jose; Hogan, Rosemary; Sheron, Brian; Dricks, Victor; Warnick, Greg; Reynoso, John; Lantz, Ryan; Markley, Michael
Subject: latest version of Q&As

All,

This is the first draft of the seismic-specific Q&As. It is pretty rough and there are many answers still missing, but people have contributed a lot and we thought it may be useful for many people trying to answer questions coming in.

55\17

We are continuing to compile the questions that come in and update the seismic Q&A document. If you have suggested changes, or want to provide missing answers, please forward them to me for compilation.

This is a living document and will be updated daily in the foreseeable future.

Annie

Dr. Annie Kammerer, PE
Senior Seismologist and Earthquake Engineer
US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Washington DC 20555
(b)(6) mobile
BB

Gibson, Kathy

From: Gibson, Kathy
Sent: Tuesday, March 15, 2011 3:35 PM
To: Santiago, Patricia; Hasselberg, Rick
Cc: Tinkler, Charles; Scott, Michael; Schaperow, Jason
Subject: RE: Ops Center
Attachments: Kathy Halvey Gibson.vcf

Rick,
Do you have people on your rosters over there that can be put in Jason and Charlie's duty slot so they are freed up to support the ad hoc calls?

Thanks

Kathy Halvey Gibson
Director
Division of Systems Analysis

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From: Santiago, Patricia
Sent: Tuesday, March 15, 2011 3:25 PM
To: Hasselberg, Rick
Cc: Tinkler, Charles; Gibson, Kathy; Scott, Michael; Schaperow, Jason
Subject: RE: Ops Center

Hi Rick

There apparently are separate requests coming almost simultaneously for staff support. Yesterday morning we received a request to send staff support down to the Ops Center. Jason had been asked to go and also just was reading a schedule he was emailed for teams. Later we talked to Laura Dudes and Steve Bloom asking that they allow Charlie to be on call from 5pm on and I understand he was on the line through 2 am this morning.

We are looking for other staff to put in your schedule in lieu of Jason or Charlie simply because Jason and Charlie are being called continuously to support the Chairman, EDO and others on matters since they are key severe accident experts.

I will let you know who might support the 11pm to 7 am shift today/tomorrow however Jason is downtown at this time and cannot.

thanks

SS|8

From: Hasselberg, Rick
Sent: Tuesday, March 15, 2011 2:20 PM
To: Schaperow, Jason; Santiago, Patricia

Cc: Tinkler, Charles
Subject: RE: Ops Center

Folks,

You shouldn't be working two shifts in a 24 hour period. That's why we ask our responders and their management to arrange for the night shift folks to be excused to get some rest. Jason, if you've been up all day, don't come in.

Rick

From: Schaperow, Jason
Sent: Tuesday, March 15, 2011 10:25 AM
To: Santiago, Patricia
Cc: Tinkler, Charles; Hasselberg, Rick
Subject: Ops Center

Hi Pat,

This morning, I called the Ops Center and spoke with Rick Hasselberg. I told him that when I was in the Ops Center yesterday, they did not have a list of events for each reactor, together with a time each event happened. I said that I could not predict what will happen without a list of what happened and when. I requested that he develop such a list of events with approximate times.

I also requested that he move me from the shift that starts at 11:00 p.m. tonight to an earlier shift. (This is the same request I made to Rollie Berry in the Ops Center yesterday.) I pointed out that I will be exhausted if I have to work a graveyard shift tonight, and my effectiveness as a resource on spent fuel pool and reactor accidents will be much reduced.

Jason

Schaperow, Jason

From: Schaperow, Jason
Sent: Tuesday, March 15, 2011 10:47 AM
To: Gibson, Kathy
Subject: RE: Jason Schaperow

Thank you!

From: Gibson, Kathy
Sent: Tuesday, March 15, 2011 10:46 AM
To: McDermott, Brian; Morris, Scott
Cc: Schaperow, Jason; Santiago, Patricia
Subject: Jason Schaperow
Importance: High

Brian, Scott,
Would one of you please call me? I want to see if we can make arrangements for Jason Schaperow to be taken off the Ops Center roster for the Japan response. He would be available for consultation and on call. We have a time sensitive project (SOARCA) that I need Jason to stay engaged with. I am working on identifying other staff in my division that could replace Jason on the Ops Center roster, but I know you also have lists of alternates and was hoping you might identify someone to fill the slot that Jason is currently scheduled.

Please let me know what can be done,
Thanks,
Kathy

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
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Schaperow, Jason

From: Gauntt, Randall O [rogaunt@sandia.gov]
Sent: Tuesday, March 15, 2011 12:56 PM
To: Schaperow, Jason
Subject: FW: JAIF Update on Fukushima
Attachments: ENGNEWS01_1300189582P.pdf

-----Original Message-----
From: Kelly, John E (NE) [mailto:JohnE.Kelly@Nuclear.Energy.Gov]
Sent: Tuesday, March 15, 2011 10:32 AM
To: Gauntt, Randall O
Subject: FW: JAIF Update on Fukushima

I'll be calling in a bit

-----Original Message-----
From: Johnson, Shane
Sent: Tuesday, March 15, 2011 11:09 AM
To: Lyons, Peter; Kelly, John E (NE); Golub, Sal; Smith-Kevern, Rebecca; O'Connor, Tom (NE-HQ); Welling, Craig; Miller, Tom
Subject: JAIF Update on Fukushima

FYI

-----Original Message-----
From: McGinnis, Edward
Sent: Tuesday, March 15, 2011 10:52 AM
To: Johnson, Shane
Subject: FW: NucNet Japan Update / Brief No. 65 / 15 March 2011

Not sure if you saw this. Very useful, particularly the JAIF chart:
http://www.jaif.or.jp/english/news_images/pdf/ENGNEWS01_1300189582P.pdf

Ed McGinnis
Deputy Assistant Secretary for
Nuclear Energy
U.S. Department of Energy
Washington, D.C. 20585
(office) 202 586-4557
(mobile) (b)(6)

55\10

Status of nuclear power plants in Fukushima as of 19:00 March 15 (Estimated by JAIF)

Power Station	Fukushima #1 Nuclear Power Station					
Unit	1	2	3	4	5	6
Electric / Thermal Power output (MWe)	460 / 1380	784 / 2381				1100 /3293
Type of Reactor	BWR-3	BWR-4	BWR-4	BWR-4	BWR-4	BWR-5
Operation Status at the earthquake occurred	Service	Service	Service	Outage	Outage	Outage
Fuel Integrity	Damaged	Unknown	Damaged	Not Damaged	Not Damaged	Not Damaged
Containment Integrity	Not Damaged	Damage Suspected	Not Damaged	Not Damaged	Not Damaged	Not Damaged
Core cooling requiring AC power	Not Functional	Not Functional	Not Functional	Not necessary	Not necessary	Not necessary
Core cooling not requiring AC power	Not Functional	Not Functional	Not Functional	Not necessary	Not necessary	Not necessary
Building Integrity	Severely Damaged	Slightly Damaged	Severely Damaged	Partially Damaged	Not Damaged	Not Damaged
water level of the pressure vessel	Around half of the Fuel	Recovering after Dried-up	Around half of the Fuel	Safe	Safe	Safe
pressure of the pressure vessel	Stable	Fluctuating	Stable	Safe	Safe	Safe
Containment pressure	Stable	D/W: Unknown, S/P: Atmosphere	Stable	Safe	Safe	Safe
Sea water injection to core	Continuing	Continuing	Continuing	Not necessary	Not necessary	Not necessary
Sea water injection to Containment Vessel	Continuing	to be decided	to be decided	Not necessary	Not necessary	Not necessary
Containment venting	Continuing	Preparing	Continuing	Not necessary	Not necessary	Not necessary
Spent Fuel Integrity	(No info)	(No info)	(No info)	SFP level low, Injecting Water	SFP Temp. Increasing	SFP Temp. Increasing
Environmental effect	NPS border: 489.8 μSv/h at 16:30, Mar. 15					
Evacuation Area	20km from NPS * People who live between 20km to 30km from the Fukushima #1NPS are to stay indoors.					
INES	Level 4 (estimated by NISA)					
Remarks	A fire broke on the 4th floor of the Unit-4 Reactor Building around 6AM, Mar. 15, and the radiation monitor readings increased outside of the building. 30mSv between Unit-2 and Unit-3, 400mSv beside Unit-3, 100mSv beside Unit-4 at 10:22, Mar. 15. It is estimated that spent fuels stored in the spent fuel pit heated and hydrogen was generated from these fuels, resulting in explosion. TEPCO later announced the fire had been extinguished. Other staff and workers than fifty TEPCO employees who are engaged in water injection operation have been evacuated.					

Power Station	Fukushima #2 Nuclear Power Station			
Unit	1	2	3	4
Electric / Thermal Power output (MWe)	1100 / 3293			
Type of Reactor	BWR-5	BWR-5	BWR-5	BWR-5
Operation Status at the earthquake occurred	Service	Service	Service	Service
Fuel Integrity	Not Damaged	Not Damaged	Not Damaged	Not Damaged
Containment Integrity	Not Damaged	Not Damaged	Not Damaged	Not Damaged
Core cooling requiring AC power	Functioning	Functioning	Functioning	Functioning
Core cooling not requiring AC power	Not necessary	Not necessary	Not necessary	Not necessary
Building Integrity	Not Damaged	Not Damaged	Not Damaged	Not Damaged
water level of the pressure vessel	(No info)	(No info)	(No info)	(No info)
pressure of the pressure vessel	(No info)	(No info)	(No info)	(No info)
Containment pressure	(No info)	(No info)	(No info)	(No info)
Sea water injection to core	Not necessary	Not necessary	Not necessary	Not necessary
Sea water injection to Containment Vessel	Not necessary	Not necessary	Not necessary	Not necessary
Containment venting	Not necessary	Not necessary	Not necessary	Not necessary
Environmental effect	NPS border: 13.7 μSv/h at 12:00, Mar. 15			
Evacuation Area	10km from NPS			
INES	(No Info)			
Spent Fuel Integrity	(No Info)			
Remarks	All the units are in cold shutdown.			

[Source]
Governmental Emergency Headquarters: News Release (3/15 14:00), Press conference (3/14 11:45, 16:15, 3/15 8:00, 11:00, 16:25)
NISA: News Release (3/14 7:30)
Tokyo Electric Power Co.: Press Release (3/14 16:00, 17:35, 3/15 6:00, 12:00, 16:30), Press Conference (3/14 12:10, 20:00, 3/15 8:00, 8:30)

[Significance]
: low
: high
: severe

[Abbreviations]
INES: International Nuclear Event Scale
NISA: Nuclear and Industrial Safety Agency
SFP: spent fuel pool

Yarsky, Peter

From: Gibson, Kathy
Sent: Tuesday, March 15, 2011 2:15 PM
To: RES_DSA
Subject: FW: Press Release: NRC Analysis Continues to Support Japan's Protective Actions
Attachments: 11-049.docx; Kathy Halvey Gibson.vcf; image001.jpg

Kathy Halvey Gibson
Director
Division of Systems Analysis

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From: Sheron, Brian
Sent: Tuesday, March 15, 2011 2:14 PM
To: Bonaccorso, Amy; Calvo, Antony; Case, Michael; Coe, Doug; Correia, Richard; Dion, Jeanne; Gibson, Kathy; Lui, Christiana; Richards, Stuart; Rini, Brett; Sangimino, Donna-Marie; Uhle, Jennifer; Valentin, Andrea
Subject: FW: Press Release: NRC Analysis Continues to Support Japan's Protective Actions

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From: OPA Resource
Sent: Tuesday, March 15, 2011 1:30 PM
To: Ash, Darren; Barkley, Richard; Batkin, Joshua; Bell, Hubert; Belmore, Nancy; Bergman, Thomas; Bollwerk, Paul; Bonaccorso, Amy; Borchardt, Bill; Bozin, Sunny; Brenner, Eliot; Brock, Terry; Brown, Boris; Bubar, Patrice; Burnell, Scott; Burns, Stephen; Carpenter, Cynthia; Chandrathil, Prema; Clark, Theresa; Collins, Elmo; Couret, Ivonne; Crawford, Carrie; Cutler, Iris; Dacus, Eugene; Dapas, Marc; Davis, Roger; Dean, Bill; Decker, David; Dricks, Victor; Droggitis, Spiros; Flory, Shirley; Franovich, Mike; Gibbs, Catina; Haney, Catherine; Hannah, Roger; Harbuck, Craig; Harrington, Holly; Hasan, Nasreen; Hayden, Elizabeth; Holahan, Gary; Holahan, Patricia; Holian, Brian; Jacobssen, Patricia; Jaczko, Gregory; Jasinski, Robert; Jenkins, Verlyn; Johnson, Michael; Jones, Andrea; Kock, Andrea; Kotzalas, Margie; Ledford, Joey; Lee, Samson; Leeds, Eric; Lepre, Janet; Lew, David; Lewis, Antoinette; Loyd, Susan; Magwood, William; McCrary, Cheryl; McGrady-Finneran, Patricia; McIntyre, David; Mensah, Tanya; Mitlyng, Viktoria; Monninger, John; Montes, David; Nieh, Ho; Ordaz, Vonna; Ostendorff, William; Owen, Lucy; Powell, Amy; Quesenberry, Jeannette; Reddick, Darani; Regan, Christopher; Reyes, Luis; Riddick, Nicole; RidsSecyMailCenter Resource; Riley (OCA), Timothy; Rohrer, Shirley; Samuel, Olive; Satorius, Mark; Schaaf, Robert; Schmidt, Rebecca; Scott, Catherine; Screnci, Diane; Shaffer, Vered; Shane, Raeann; Sharkey, Jeffry; Sheehan, Neil; Sheron, Brian; Siurano-Perez, Osiris; Steger (Tucci), Christine; Svinicki, Kristine; Tabatabai, Omid; Tannenbaum, Anita; Taylor, Renee; Temp, WDM; Thomas, Ann; Uhle, Jennifer; Uselding, Lara; Vietti-Cook, Annette; Virgilio, Martin; Virgilio, Rosetta; Walker-Smith, Antoinette; Weaver, Doug; Weber, Michael; Weil, Jenny; Werner, Greg; Wiggins, Jim; Williams, Evelyn; Zimmerman, Roy; Zorn, Jason
Subject: Press Release: NRC Analysis Continues to Support Japan's Protective Actions

Attaching the press release would be helpful!

To be issued and posted to the live web in 15 minutes.

Office of Public Affairs
US Nuclear Regulatory Commission

301-415-8200
opa.resource@nrc.gov

NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

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Washington, D.C. 20555-0001
E-mail: opa.resource@nrc.gov Site: www.nrc.gov
Blog: http://public-blog.nrc-gateway.gov

No. 11-049 March 15, 2011

NRC ANALYSIS CONTINUES TO SUPPORT JAPAN'S PROTECTIVE ACTIONS

NRC analysts overnight continued their review of radiation data related to the damaged Japanese nuclear reactors. The analysts continue to conclude the steps recommend by Japanese authorities parallel those the United States would suggest in a similar situation.

The Japanese authorities Monday recommended evacuation to 20 kilometers around the affected reactors and said that persons out to 30 kilometers should shelter in place.

Those recommendations parallel the protective actions the United States would suggest should dose limits reach 1 rem to the entire body and 5 rem for the thyroid, an organ particularly susceptible to radiation uptake.

A rem is a measure of radiation dose. The average American is exposed to approximately 620 millirems, or 0.62 rem, of radiation each year from natural and manmade sources.

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Yarsky, Peter

From: Gibson, Kathy
Sent: Tuesday, March 15, 2011 2:15 PM
To: RES_DSA
Subject: FW: Press Release: (Revised) NRC Sends Additional Experts to Assist Japan
Attachments: 11-048R.docx; Kathy Halvey Gibson.vcf; image001.jpg

Kathy Halvey Gibson
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From: Sheron, Brian
Sent: Tuesday, March 15, 2011 2:04 PM
To: Bonaccorso, Amy; Calvo, Antony; Case, Michael; Coe, Doug; Correia, Richard; Dion, Jeanne; Gibson, Kathy; Lui, Christiana; Richards, Stuart; Rini, Brett; Sangimino, Donna-Marie; Uhle, Jennifer; Valentin, Andrea
Subject: FW: Press Release: (Revised) NRC Sends Additional Experts to Assist Japan

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From: OPA Resource
Sent: Tuesday, March 15, 2011 11:41 AM
To: Ash, Darren; Barkley, Richard; Batkin, Joshua; Bell, Hubert; Belmore, Nancy; Bergman, Thomas; Bollwerk, Paul; Bonaccorso, Amy; Borchardt, Bill; Bozin, Sunny; Brenner, Eliot; Brock, Terry; Brown, Boris; Bubar, Patrice; Burnell, Scott; Burns, Stephen; Carpenter, Cynthia; Chandrathil, Prema; Clark, Theresa; Collins, Elmo; Couret, Ivonne; Crawford, Carrie; Cutler, Iris; Dacus, Eugene; Dapas, Marc; Davis, Roger; Dean, Bill; Decker, David; Dricks, Victor; Droggitis, Spiros; Flory, Shirley; Franovich, Mike; Gibbs, Catina; Haney, Catherine; Hannah, Roger; Harbuck, Craig; Harrington, Holly; Hasan, Nasreen; Hayden, Elizabeth; Holahan, Gary; Holahan, Patricia; Holian, Brian; Jacobssen, Patricia; Jaczko, Gregory; Jasinski, Robert; Jenkins, Verlyn; Johnson, Michael; Jones, Andrea; Kock, Andrea; Kotzalas, Margie; Ledford, Joey; Lee, Samson; Leeds, Eric; Lepre, Janet; Lew, David; Lewis, Antoinette; Loyd, Susan; Magwood, William; McCrary, Cheryl; McGrady-Finneran, Patricia; McIntyre, David; Mensah, Tanya; Mitlyng, Viktoria; Monninger, John; Montes, David; Nieh, Ho; Ordaz, Vonna; Ostendorff, William; Owen, Lucy; Powell, Amy; Quesenberry, Jeannette; Reddick, Darani; Regan, Christopher; Reyes, Luis; Riddick, Nicole; RidsSecyMailCenter Resource; Riley (OCA), Timothy; Rohrer, Shirley; Samuel, Olive; Satorius, Mark; Schaaf, Robert; Schmidt, Rebecca; Scott, Catherine; Screnci, Diane; Shaffer, Vered; Shane, Raeann; Sharkey, Jeffry; Sheehan, Neil; Sheron, Brian; Siurano-Perez, Osiris; Steger (Tucci), Christine; Svinicki, Kristine; Tabatabai, Omid; Tannenbaum, Anita; Taylor, Renee; Temp, WDM; Thomas, Ann; Uhle, Jennifer; Uselding, Lara; Vietti-Cook, Annette; Virgilio, Martin; Virgilio, Rosetta; Walker-Smith, Antoinette; Weaver, Doug; Weber, Michael; Weil, Jenny; Werner, Greg; Wiggins, Jim; Williams, Evelyn; Zimmerman, Roy; Zorn, Jason
Subject: Press Release: (Revised) NRC Sends Additional Experts to Assist Japan

Attached to be released in approximately 15 minutes.

Office of Public Affairs
US Nuclear Regulatory Commission
301-415-8200
opa.resource@nrc.gov

55\12

REVISED: NRC SENDS ADDITIONAL EXPERTS TO ASSIST JAPAN

The NRC has sent nine additional experts to Tokyo to provide assistance as requested by the Japanese government. Acting as part of a U.S. Agency for International Development assistance team, the NRC has dispatched the experts to Tokyo to provide assistance as requested by the Japanese government.

The first members of the team left the United States Monday evening and were due to arrive in Tokyo Wednesday afternoon. The team includes additional reactor experts, international affairs professional staffers, and a senior manager from one of the NRC's four operating regions.

The team members come from the NRC's headquarters in Rockville, Md., and from offices in King of Prussia, Pa., Chattanooga, Tenn., and Atlanta. The team has been instructed to: conduct all activities needed to understand the status of efforts to safely shut down the Japanese reactors; better understand the potential impact on people and the environment of any radioactivity releases; if asked, provide technical advice and support through the U.S. ambassador for the Japanese government's decision making process; and draw on NRC-headquarters expertise for any other additional technical requirements. The team will be in communication with the Japanese regulator, the U.S. Embassy, NRC headquarters, and other government stakeholders as appropriate.

The team is led by Charles A. Casto, deputy regional administrator of the NRC's Center of Construction Inspection, based in NRC's office in Atlanta. Casto has worked in the commercial nuclear power industry at three different nuclear power plants, including Browns Ferry, which has three boiling water reactors, operated by the Tennessee Valley Authority in Alabama. He has also worked as a licensed reactor operator and operator instructor. Casto will provide a single point of contact for the U.S. Ambassador in Japan on nuclear reactor issues.

The two reactor experts sent Saturday to Japan will participate as members of this assistance team.

Note To Editors: Revision reflects an additional team member, there are now a total of 11 NRC staffers on the assistance team.

###

Gibson, Kathy

From: Gibson, Kathy
Sent: Tuesday, March 15, 2011 6:08 PM
To: Tinkler, Charles; Schaperow, Jason; Uhle, Jennifer
Subject: FW: Fukushima
Attachments: Kathy Halvey Gibson.vcf

For what it's worth...

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Gavrilas, Mirela
Sent: Tuesday, March 15, 2011 4:56 PM
To: Farmer, Mitchell T.
Cc: Case, Michael; Gibson, Kathy
Subject: RE: Fukushima

Thank you, Mitch. Good thinking.

M.

From: Farmer, Mitchell T. [mailto:farmer@anl.gov]
Sent: Tuesday, March 15, 2011 4:54 PM
To: Tinkler, Charles
Cc: Basu, Sudhamay; Gavrilas, Mirela; Lee, Richard; Grandy, Christopher
Subject: RE: Fukushima

Steve noticed in a washington post article a few minutes ago that from satelite photos they observed steam rising from the spent fuel pool at Unit 3 on Monday. Just thought you should know.

I wanted to try to put this in perspective not knowing much. Sensible heat is about 15 % of the total heat to boil, so if it took 3 days to start boiling, that would mean it would take 20 days to completely boil dry in the whole pool. Assuming that the total pool height is filled 1/3 of the way by the assemblies, with 2/3 of the water layer on top, then the time to boil down to the tops of the assemblies is of the order of (2/3)*20 days or 13 days. This is a groping calculation but I know very little like total decay heat level in the pool and the initial water volume and height.

Mitch

53\13

From: Farmer, Mitchell T.
Sent: Tuesday, March 15, 2011 8:58 AM
To: 'Tinkler, Charles'

Cc: 'Sud Basu'; Gavrilas, Mirela; 'Lee, Richard'
Subject: RE: Fukushima

Still worried about pools in 1-3, and whether or not they can gain access to these or the cooling water connections to these pools given the state of the plants. I was thinking about the approach for getting water into these a little more and would suggest that this could be done as an unmanned operation if you attached a pipe to the lift that was off sufficient length to clear the wall of the damaged exterior wall adjacent to the deck of the pool. With a 90 degree elbow on it, you could direct water down into (or at least towards) the pool. The operator could articulate the lift platform with the attached pipe over the wall remotely and once in position you could add water with a fire pump through an attached fire hose.

I don't know if this is helpful but it can't hurt. Although I feel somewhat knowledgable about accident progression and accident management planning for the reactor, I wonder if the SAMGs also call for keeping track of the spent fuel pool while you are dealing with the reactor situation. If not, this could be a constructive lessons learned.

Again, let me know if you want me to stop.

Mitch

From: Farmer, Mitchell T.
Sent: Monday, March 14, 2011 8:52 AM
To: 'Tinkler, Charles'
Cc: 'Sud Basu'; Gavrilas, Mirela; Lee, Richard
Subject: RE: Fukushima

Hi Charlie,

I just wanted to send you a note and let you know that I'm a little concerned about the spent fuel storage pools for Units 1 and 3 for the reasons we've talked about over the years. I know you've probably thought of this but it's a stressful time and I just want to make sure the people you've deployed are thinking about this.

I doubt they have access inside the building due to radiation levels so I'm going to make a suggestion which may or may not be nieve, but given the circumstances I'll make it anyway. I know you can get the aerial lifts that can go up at least 10 stories. I was thinking you could send a brave individual up on that with a fire hose on the exterior of the building with an alarming TLD so that he would know if the radiation level was getting to high. You would use the exterior of the secondary containment as shielding. He could place the hose over the exposed wall and then wire tire that to one of the ibeams so that it doesn't blow off when you start deluge over the edge and onto the deck. The wire tie is imparitive as it'll blow back when you start the pump. If they have an extra fire pump that could push water head to 10 stories, you could get some water over the top and into the pool. This might take 1/2 hour or so to execute and so if the dose rate stays below 20 R/hour this could be pulled off.

I hope you don't mind me making suggestions and if it is problematic, please don't hesitate to let me know. Mirela has my cell phone; call me 24/7 if I can be of any assistance. As you know, you have resources here at the lab and I'm sure management would approve of us supporting you know.

Best Regards,
Mitch

ps. I wish we were further along on that remote sensing project for the RCIC that we just started for you; that could be quite helpful now.

From: Tinkler, Charles [mailto:Charles.Tinkler@nrc.gov]
Sent: Saturday, March 12, 2011 1:18 PM

To: Farmer, Mitchell T.
Subject: RE: Fukushima

Thanks Mitch, right now I don't know exactly why they are unable to use their isolation condenser or inject water. Thanks for the reminder on flooding. I appreciate your offer.

From: Farmer, Mitchell T. [mailto:farmer@anl.gov]
Sent: Friday, March 11, 2011 7:43 PM
To: Gavrilas, Mirela; Tinkler, Charles; Basu, Sudhamay; Lee, Richard
Cc: Grandy, Christopher; 'corradin@cae.wisc.edu'
Subject: Fukushima

Hi Mirela, Charlie, Sud, Richard,

Don't know if you are out there. I've been watching the situation at Fukushima and don't like what I'm seeing, at least based on the news reports I have access to. I don't know how long a BWR can go w/o emergency core cooling and not sustain significant core damage but it seems like we're well into that time domain. Is there anything that can be done to help? I don't know, I'm searching. The one thing we learned from MCCI though: if you fear vessel failure and you have any means to flood the cavity then you should do that. They have siliecous concrete in Japan; too much interaction ex-vessel w/o water and coolability is lost. Let me know if there is anything I can do.

Mitch

Stutzke, Martin

From: Stutzke, Martin
Sent: Wednesday, March 16, 2011 9:04 AM
To: Chokshi, Nilesh; Munson, Clifford; Ake, Jon
Cc: Kammerer, Annie; Bagchi, Goutam; Manoly, Kamal
Subject: Re: Numbers

I provided the SCFDs to Scott, based on GI-199 (CEUS) and NUREG-1742 (western plants). Both are publically available; in fact, the reporter had already discovered the GI-199 S/RA through ADAMS. FYI - I also provided the same info to Joe Giitter for possible use in today's Congressional hearing.

These are the most current info we have, although they are dated. This supports our need for the GL and more seismic research.

Marty

Sent from NRC Blackberry
Marty Stutzke
(b)(6)

From: Chokshi, Nilesh
To: Munson, Clifford; Stutzke, Martin; Ake, Jon
Cc: Kammerer, Annie; Bagchi, Goutam; Manoly, Kamal
Sent: Wed Mar 16 08:47:01 2011
Subject: RE: Numbers

I agree with Scott. In a simple answer we need to emphasize a very simplistic, conservative approach for screening and to identify needs for further evaluations.

From: Munson, Clifford
Sent: Wednesday, March 16, 2011 8:42 AM
To: Stutzke, Martin; Ake, Jon
Cc: Kammerer, Annie; Chokshi, Nilesh; Bagchi, Goutam; Manoly, Kamal
Subject: RE: Numbers

Additional note: We can only refute inaccurate numbers, not his interpretation of the data.

From: Munson, Clifford
Sent: Wednesday, March 16, 2011 8:40 AM
To: Stutzke, Martin; Ake, Jon
Cc: Kammerer, Annie; Chokshi, Nilesh; Bagchi, Goutam; Manoly, Kamal
Subject: FW: Numbers
Importance: High

Marty and Jon,

Please see the MSNBC article below and check out his numbers. Reporter lists Indian Pt3 as having a SCDF of 1E-4. From my GI-199 table its 3.3E-5. Where did he get his numbers from – did he confuse the delta SCDF with actual?

Thanks,
Cliff

SS\14

From: Burnell, Scott
Sent: Wednesday, March 16, 2011 8:23 AM
To: Munson, Clifford
Subject: FW: Numbers
Importance: High

From: Burnell, Scott
Sent: Wednesday, March 16, 2011 7:22 AM
To: Kammerer, Annie; Ake, Jon; Manoly, Kamal
Cc: Brenner, Eliot; Harrington, Holly; Screnci, Diane; Sheehan, Neil; Hannah, Roger; Ledford, Joey; Chandrathil, Prema; Mitlyng, Viktoria; Uselding, Lara; McIntyre, David; Couret, Ivonne
Subject: FW: Numbers
Importance: High

Annie, Jon, Kamal;

I know you're going to have a cow over this – somewhat inevitable when a reporter new to the subject tries to summarize things. Apart from "you're totally off-base," what specific technical corrections can we ask for??

OPA – this is likely to spark a lot of follow-up. The immediate response would be "that's a very incomplete look at the overall research and we continue to believe U.S. reactors are capable of withstanding the strongest earthquake their sites could experience." I'll share whatever we get from the experts.

Scott

From: Bill Dedman [mailto:Bill.Dedman@msnbc.com]
Sent: Wednesday, March 16, 2011 6:47 AM
To: Burnell, Scott
Subject: RE: Numbers

Scott,

FYI, this story is online now.

If you or the NRC technical see any error, please let me know right away. I linked to all the source documents so people can also read in full.

Thanks,

Bill

http://www.msnbc.msn.com/id/42103936/ns/world_news-asiapacific/

From: Burnell, Scott [mailto:Scott.Burnell@nrc.gov]
Sent: Tuesday, March 15, 2011 3:38 PM
To: Bill Dedman
Subject: Numbers

Bill;

Staff's amazing here – they were compiling these numbers just in case – the Western plants are in there.

Scott Burnell

Gibson, Kathy

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 5:41 PM
To: Lubinski, John
Subject: Re: PMT Director Deputy-- Rev 1

Not a problem, like I said its not critical.

From: Lubinski, John
To: Gibson, Kathy
Sent: Wed Mar 16 16:14:23 2011
Subject: RE: PMT Director Deputy - Rev 1

Unless someone provides another change that accommodates, I will just leave that as a hole for now (fill in when we start doing the 10th).

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 4:08 PM
To: Lubinski, John
Subject: RE: PMT Director Deputy - Rev 1

I prefer not to work the 9th if possible, but not critical. I was actually planning to ask Doug to sub for me since you didn't have him on the schedule, but now that you do I find it necessary to send this request.

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Lubinski, John
Sent: Wednesday, March 16, 2011 4:05 PM
To: Cool, Donald; Reis, Terrence; Holahan, Patricia; Holahan, Vincent; Milligan, Patricia; Sullivan, Randy; Tappert, John; Lui, Christiana; Gibson, Kathy; Coe, Doug
Subject: PMT Director Deputy - Rev 1

Thanks for the quick responses. I have made a revision to account for some conflicts that people have identified. These are included in **bold.**

Please let me know by noon tomorrow if ok. I feel very comfortable with the first 4 days so if a problem let me know asap.

55\15

Rathbun, Howard

From: Kammerer, Annie
Sent: Wednesday, March 16, 2011 1:36 PM
To: Rathbun, Howard
Subject: Re: Calls for answering questions on earthquakes, etc, in support of Japanese event activities

Thanks howard. I appreciate the support.

Cheers,
Annie

Sent from an NRC blackberry
Annie Kammerer
mobile (b)(6)
bb (b)(6)
annie.kammerer@nrc.gov

From: Rathbun, Howard
To: Kammerer, Annie
Sent: Wed Mar 16 13:33:33 2011
Subject: Re: Calls for answering questions on earthquakes, etc, in support of Japanese event activities

Hang in there Annie. If there's anything I can do to help, just let me know.
-Howard

Sent from NRC Blackberry
Howard J. Rathbun
(b)(6)

From: Kammerer, Annie
To: RES Distribution
Cc: Karas, Rebecca
Sent: Wed Mar 16 12:17:59 2011
Subject: FW: Calls for answering questions on earthquakes, etc, in support of Japanese event activities

All,

Please read Becky's email below and follow the procedures she laid out to NRO staff.

It is important that we keep the NRC's message consistent and moving through appropriate channels. I have added the latest version of the seismic Q&As for the convenience of those of you who are getting in-house questions related to your projects and responsibilities. Currently we are updating this daily with the questions (and answers) we collect each day.

Thanks,
Annie

From: Karas, Rebecca
Sent: Wednesday, March 16, 2011 12:05 PM
To: NRO_DSER Distribution

55\16

Cc: Chokshi, Nilesh; Kammerer, Annie; Munson, Clifford
Subject: Calls for answering questions on earthquakes, etc, in support of Japanese event activities

All,

Based on what just happened, individuals within NRC appear to be either randomly calling geologists/geophysicists/hydrologists or people they happen to know to answer questions.

For callers who are NRC staff who ask you a question, please direct them to call the Ops Center and ask to be connected to the RST seismologist (Cliff on day shift, Annie on evening shift). That person will coordinate all question responses (if Cliff or Annie call you, provide any support they need to help answer these questions).

For callers who are NOT NRC staff (including people from other agencies), please continue to follow the direction of the EDO here:

THIS IS NOT A DRILL

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

The NRC is coordinating its actions with other Federal agencies as part of the U.S. government response to the events in Japan. The NRC is examining all available information as part of the effort to analyze the event and understand its implications both for Japan and the United States. The NRC's Headquarters Operations Center in Rockville, MD has been stood up since the beginning of the emergency in Japan and is operating on a 24-hour basis.

NRC Incident Responders at Headquarters have spoken with the agency's counterpart in Japan and offered the assistance of U.S. technical experts. NRC representatives with expertise on boiling water nuclear reactors have deployed to Japan as part of a U.S. International Agency for International Development (USAID) team. USAID is the Federal government agency primarily responsible for providing assistance to countries recovering from disasters.

U.S. nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis. Even those plants that are located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster. The NRC requires that safety significant structures, systems, and components be designed to take in account the most severe natural phenomena historically estimated for the site and surrounding area.

The NRC will <u>not</u> provide information on the status of Japan's nuclear power plants. For the latest information on NRC actions see the NRC's web site at www.nrc.gov or blog at http://public-blog.nrc-gateway.gov.

<u>Two important reminders</u>:

It is possible that some of us will be requested by colleagues in another country to provide technical advice and assistance during this emergency. It is essential that all such communications be handled through the NRC Operations Center. Any assistance to a foreign government or entity must be coordinated through the NRC Operations Center and the U.S. Department of State (DOS). If you receive such a request, contact the NRC Operations Officer (301-816-5100 or via the NRC Operator) immediately.

If you receive information regarding this or any emergency (foreign or domestic) and you are not certain that the NRC's Incident Response Operations Officer is already aware of that information, you should contact the NRC Operations Officer (301-816-5100 or via the NRC Operator) and provide that information.

Other Sources of Information:

USAID – www.usaid.gov
U.S. Department of State – www.state.gov
FEMA – www.fema.gov
White House – www.whitehouse.gov
Nuclear Energy Institute – www.nei.org
International Atomic Energy Agency – www.iaea.org/press

No response to this message is required.

THIS IS NOT A DRILL

Rebecca Karas, Chief
Geosciences and Geotechnical Engineering Branch 1
Division of Site and Environmental Reviews
Office of New Reactors
U.S. Nuclear Regulatory Commission
Phone: 301-415-7533
Fax: 301-415-5397

Stutzke, Martin

From: Stutzke, Martin
Sent: Tuesday, March 15, 2011 11:01 AM
To: Runyan, Michael
Subject: RE: NBC deadline question for NRC on seismic hazard estimates

Great! I can calculate the annual exceedance frequencies if I know the SSE for peak ground acceleration. Do you have these handy? If not, I will look them up in the FSARs.

Anything about SCDFs? I can use NUREG-1742 (IPEEE results) for every plant except Palo Verde (they did an SMA for IPEEE, but later upgraded to SPRA).

Thanks again,
Marty

From: Runyan, Michael
Sent: Tuesday, March 15, 2011 10:58 AM
To: Stutzke, Martin
Subject: RE: NBC deadline question for NRC on seismic hazard estimates

Here is the information we use to determine exceedences based on peak ground acceleration. Sometimes, spectra accelerations are used and these are different to some extent. ..

For the four sites West of Rocky mountains, this information is obtained from IPEEE studies and is given below.

14 Columbia		20 Diablo Canyon		46 Palo Verde 1, 2 & 3		58 San Onofre 2 & 3	
g value	mean f per year	g value	mean f per year	g value	mean f per year	g value	mean f per year
0.05	1.30E-03	0.20	1.85E-02	1.00E-02	3.00E-02	0.20	5.20E-03
0.10	1.30E-03	0.50	7.44E-03	2.00E-02	5.70E-03	0.30	2.00E-03
0.20	3.00E-04	0.80	3.56E-03	5.00E-02	9.10E-04	0.40	8.00E-04
0.30	1.10E-04	1.00	2.19E-03	7.00E-02	5.30E-04	0.50	3.38E-04
0.40	5.00E-05	1.20	1.35E-03	1.00E-01	3.00E-04	0.60	2.10E-04
0.50	2.50E-05	1.50	6.26E-04	1.50E-01	1.50E-04	0.70	1.00E-04
0.60	1.30E-05	2.00	1.61E-04	2.00E-01	7.90E-05	0.80	4.80E-05
0.70	7.80E-06	2.50	3.73E-05	3.00E-01	2.20E-05	0.90	2.60E-05
0.80	4.60E-06	3.00	7.89E-06	5.00E-01	1.10E-06	1.00	1.30E-05
0.90	3.00E-06	4.00	2.42E-07	1.00E+00	9.30E-10	2.00	7.80E-08
1.00	1.80E-06						

Michael Runyan
Senior Reactor Analyst, Region IV
817-860-8142
(b)(6) [redacted] **(cell)**

From: Stutzke, Martin
Sent: Tuesday, March 15, 2011 9:39 AM
To: Runyan, Michael
Subject: FW: NBC deadline question for NRC on seismic hazard estimates
Importance: High

Mike –

58/17

I was given your name by Don Marksberry. By way of introduction, I'm one of the PRA SLS working in RES/DRA, and coauthored the Safety/Risk Assessment of GI-199 concerning the impact of updated seismic hazard estimates in the Central and Eastern US.

We are trying to answer Question #2 (see below). Since GI-199 focused in CEUS plants, we did not collect recent information on seismic hazards and seismic core-damage frequencies for the Western US plants (Columbia, Diablo Canyon, San Onofre, and Palo Verde). I am hoping that you might have or can readily obtain this information. Specifically, here's what we would like to know:

1. What is the current estimate of seismic core-damage frequency at each Western US plant?
2. What is the current estimate of exceeding the safe shutdown earthquake (SSE) at each Western US plant? To get a complete picture, we'd like to know the annual exceedence frequencies for various spectral frequencies (e.g., 1 Hz, 5 Hz, and 10 Hz) as well as peak ground acceleration.

Thanks in advance,

Marty

Martin A. Stutzke
Senior Technical Advisor of PRA Technologies
Division of Risk Analysis
Office of Nuclear Regulatory Research
301-251-7614

From: Beasley, Benjamin
Sent: Tuesday, March 15, 2011 9:36 AM
To: Stutzke, Martin; Ake, Jon
Cc: Kauffman, John
Subject: FW: NBC deadline question for NRC on seismic hazard estimates
Importance: High

I am still reading this but need to give you the heads up. I am walking to the 6th floor to get permission to work on this.

Ben

From: Wilson, George
Sent: Tuesday, March 15, 2011 9:31 AM
To: Beasley, Benjamin
Subject: FW: NBC deadline question for NRC on seismic hazard estimates
Importance: High

fyi

From: Hiland, Patrick
Sent: Tuesday, March 15, 2011 9:20 AM
To: Wilson, George; Manoly, Kamal
Cc: Stutzke, Martin; Ake, Jon; Coe, Doug; Skeen, David; Scales, Kerby
Subject: FW: NBC deadline question for NRC on seismic hazard estimates
Importance: High

Need to work with OPA, and RES. Kamal should coordinate with RES, and I suggest Marty/Jon respond directly through RES. Doug Coe is good source also for the GI. Get OPA involved.

From: Bill Dedman [mailto:Bill.Dedman@msnbc.com]
Sent: Tuesday, March 15, 2011 9:06 AM
To: Manoly, Kamal; Sheron, Brian; Hiland, Patrick; OPA Resource
Subject: NBC deadline question for NRC on seismic hazard estimates

Good morning,

My name is Bill Dedman. I'm a reporter for NBC News and msnbc.com, writing an article today about:

SAFETY/RISK ASSESSMENT RESULTS FOR GENERIC ISSUE 199, "IMPLICATIONS OF UPDATED PROBABILISTIC SEISMIC HAZARD ESTIMATES IN CENTRAL AND EASTERN UNITED STATES ON EXISTING PLANTS"

I reached out to NRC Public Affairs yesterday but have not heard back, and my deadline is end-of-day today. I'm hoping to get on the phone today with someone from NRC to make sure I'm conveying this information accurately to the public. If nothing else, I'm hoping one of the technical people can help clarify the points below. My telephone number is 203-451-9995.

I've read Director Brian Sheron's memo of Sept. 2, 2010, to Mr. Patrick Hiland; the safety/risk assessment of August 2010; its appendices A through D; NRC Information Notice 2010-18; and the fact sheet from public affairs from November 2010.

I have these questions:

1. I'd like to make sure that I accurately place in layman's terms the seismic hazard estimates. I need to make sure that I'm understanding the nomenclature for expressing the seismic core-damage frequencies. Let's say there's an estimate expressed as "2.5E-06." (I'm looking at Table D-2 of the safety/risk assessment of August 2010.) I believe that this expression means the same as 2.5 x 10^-06, or 0.0000025, or 2.5 divided by one million. In layman's terms, that means an expectation, on average, of 2.5 events every million years, or once every 400,000 years. Similarly, "2.5E-05" would be 2.5 divided by 100,000, or 2.5 events every 100,000 years, on average, or once every 40,000 years. Is this correct?

2. These documents give updated probabilistic seismic hazard estimates for existing nuclear power plants in the Central and Eastern U.S. What document has the latest seismic hazard estimates (probabilistic or not) for existing nuclear power plants in the Western U.S.?

3. The documents refer to newer data on the way. Have NRC, USGS et al. released those? I'm referring to this: "New consensus seismic-hazard estimates will become available in late 2010 or early 2011 (these are a product of a joint NRC, U.S. Department of Energy, U.S. Geological Survey (USGS) and Electric Power Research Institute (EPRI) project). These consensus seismic hazard estimates will supersede the existing EPRI, Lawrence Livermore National Laboratory, and USGS hazard estimates used in the GI-199 Safety/Risk Assessment."

4. What is the timetable now for consideration of any regulatory changes from this research?

Thank you for your help.

Regards,

Bill Dedman

that any unauthorized use, dissemination, distribution or copy of this communication is strictly prohibited. No waiver of privilege, confidence or otherwise is intended by virtue of this communication. If you have received this message in error, or are not the named recipient(s), please immediately notify the sender, destroy all copies and delete this e-mail message from your computer. Thank you.

Stutzke, Martin

From: Stutzke, Martin
Sent: Tuesday, March 15, 2011 3:28 PM
To: Burnell, Scott; Manoly, Kamal
Subject: RE: NBC deadline question for NRC on seismic hazard estimates

Yes – The IPEEE SCDF estimates are in NUREG-1742 (on the public website). Also, the GI-199 Safety/Risk Assessment is publically available (ML100270582).

From: Burnell, Scott
Sent: Tuesday, March 15, 2011 3:25 PM
To: Stutzke, Martin; Manoly, Kamal
Subject: Re: NBC deadline question for NRC on seismic hazard estimates

Is this drawn from publicly available info??

Sent from an NRC Blackberry
Scott Burnell
(b)(6)

From: Stutzke, Martin
To: Manoly, Kamal
Cc: Burnell, Scott
Sent: Tue Mar 15 15:23:53 2011
Subject: RE: NBC deadline question for NRC on seismic hazard estimates

Here's a spreadsheet that I developed earlier today for Joe Giitter and Pat Hiland that shows the SCDFs and frequencies of exceeding the SSE for all plants.

Marty

From: Manoly, Kamal
Sent: Tuesday, March 15, 2011 3:22 PM
To: Stutzke, Martin
Cc: Burnell, Scott
Subject: RE: NBC deadline question for NRC on seismic hazard estimates

Are the numbers handy to you for response to Scott?

From: Stutzke, Martin
Sent: Tuesday, March 15, 2011 3:21 PM
To: Manoly, Kamal
Subject: RE: NBC deadline question for NRC on seismic hazard estimates

They both did seismic PRAs.

From: Manoly, Kamal
Sent: Tuesday, March 15, 2011 3:20 PM
To: Stutzke, Martin; Ake, Jon; Ferrante, Fernando
Subject: FW: NBC deadline question for NRC on seismic hazard estimates

55\18

Do you guys know whether Diablo and San Onofre did seismic PRA or seismic margin?

From: Burnell, Scott
Sent: Tuesday, March 15, 2011 3:16 PM
To: Beasley, Benjamin; Wilson, George; Manoly, Kamal
Subject: RE: NBC deadline question for NRC on seismic hazard estimates

Quick follow-up: Any easy way to provide access to the IPEEE seismic CDF numbers for Diablo Canyon, San Onofre, etc?

From: Couret, Ivonne
Sent: Tuesday, March 15, 2011 2:12 PM
To: Burnell, Scott
Cc: Beasley, Benjamin
Subject: FW: NBC deadline question for NRC on seismic hazard estimates

Scott Burnell will respond to the reporter. Thanks to everyone for providing information on this matter. Scott will call you Ben for clarifications. Ivonne

---

From: Beasley, Benjamin
Sent: Tuesday, March 15, 2011 12:52 PM
To: Couret, Ivonne
Cc: Wilson, George; Manoly, Kamal; Ake, Jon; Stutzke, Martin; Kammerer, Annie; Murphy, Andrew; Munson, Clifford; Kauffman, John
Subject: RE: NBC deadline question for NRC on seismic hazard estimates

Ivonne,

Answers are provided in the attached Word document. I will be in a low priority meeting for the next couple of hours. If you want us to support a telephone interview, please call me at 301-873-3070.

Ben

From: Couret, Ivonne
Sent: Tuesday, March 15, 2011 11:31 AM
To: Beasley, Benjamin
Cc: Wilson, George
Subject: RE: NBC deadline question for NRC on seismic hazard estimates

I just spoke to the reporter if we can give him written responses and coordinate a phone interview/review of items. When you guys are ready we can do this before 5p.m. Thanks for ALL you do! Ivonne

---

From: Beasley, Benjamin
Sent: Tuesday, March 15, 2011 11:29 AM
To: Couret, Ivonne
Cc: Wilson, George
Subject: FW: NBC deadline question for NRC on seismic hazard estimates
Importance: High

Ivonne,

I am coordinating the assembly of answers for the NBC reporter on GI-199. We are still working, but draft answers are:

1. His plain language understanding of the risk is correct.

2. The latest seismic hazard estimates for western U.S. nuclear plants are in the IPEEEs. Following 9-11, these documents are no longer publicly available. There are updated USGS seismic estimates for the entire U.S., but these have not been applied to the western plants.

3. The consensus hazard estimates are not out yet. We expect them by the end of the year.

4. The NRC is working on developing a Generic Letter (GL) to request information from affected licensees. The GL will likely be issued in a draft form within the next 2 months to stimulate discussions with industry in a public meeting. After that it has to be approved by CRGR, presented to ACRS and issued as a draft for formal public comments (45 days). After evaluation of the public comments it can then be finalized for issuance. We anticipate to issue the GL by the end of this calendar year. The information from licensees will likely require 3-6 months to complete. Staff's review will commence after receiving licensees' responses. Based on staff's review, a determination can be made regarding cost beneficial backfits where it can be justified.

I will send an update after I get final information. Please let me know if there is something else we can do.

Ben Beasley

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment
Benjamin Beasley, Chief
Operating Experience and Generic Issues Branch
Division of Risk Analysis
Office of Nuclear Regulatory Research
301-251-7676
Benjamin.Beasley@nrc.gov
Generic Issues Program
Operating Experience Databases

From: Wilson, George
Sent: Tuesday, March 15, 2011 9:31 AM
To: Beasley, Benjamin
Subject: FW: NBC deadline question for NRC on seismic hazard estimates
Importance: High

fyi

From: Hiland, Patrick
Sent: Tuesday, March 15, 2011 9:20 AM
To: Wilson, George; Manoly, Kamal
Cc: Stutzke, Martin; Ake, Jon; Coe, Doug; Skeen, David; Scales, Kerby
Subject: FW: NBC deadline question for NRC on seismic hazard estimates
Importance: High

Need to work with OPA, and RES. Kamal should coordinate with RES, and I suggest Marty/Jon respond directly through RES. Doug Coe is good source also for the GI. Get OPA involved.

From: Bill Dedman [mailto:Bill.Dedman@msnbc.com]
Sent: Tuesday, March 15, 2011 9:06 AM
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Subject: NBC deadline question for NRC on seismic hazard estimates

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3. The documents refer to newer data on the way. Have NRC, USGS et al. released those? I'm referring to this: "New consensus seismic-hazard estimates will become available in late 2010 or early 2011 (these are a product of a joint NRC, U.S. Department of Energy, U.S. Geological Survey (USGS) and Electric Power Research Institute (EPRI) project). These consensus seismic hazard estimates will supersede the existing EPRI, Lawrence Livermore National Laboratory, and USGS hazard estimates used in the GI-199 Safety/Risk Assessment."

4. What is the timetable now for consideration of any regulatory changes from this research?

Thank you for your help.

Regards,

Bill Dedman

that any unauthorized use, dissemination, distribution or copy of this communication is strictly prohibited. No waiver of privilege, confidence or otherwise is intended by virtue of this communication. If you have received this message in error, or are not the named recipient(s), please immediately notify the sender, destroy all copies and delete this e-mail message from your computer. Thank you.

Beasley, Benjamin

From:	Beasley, Benjamin
Sent:	Wednesday, March 16, 2011 9:47 AM
To:	Ake, Jon; Stutzke, Martin
Cc:	Kauffman, John; Hogan, Rosemary
Subject:	FW: NBC deadline question for NRC on seismic hazard estimates
Importance:	High

We need to check the number in the article. "Each year, at the typical nuclear reactor in the U.S., there's a 1 in 74,176 chance that the core could be damaged by an earthquake." That seems high to me. I am still reading but will start checking numbers as soon as I finish the read.

I want to coordinate so we do not duplicate effort and so that we cover all the bases. Please let me know when you have time to look at this.

Ben

From: Hogan, Rosemary
Sent: Wednesday, March 16, 2011 9:13 AM
To: Ake, Jon; Killian, Lauren; Beasley, Benjamin
Cc: Case, Michael; Richards, Stuart
Subject: Fw: NBC deadline question for NRC on seismic hazard estimates

I am not sure the GI 199 plan has anything to add to the Q & As but someone should check and get back to Brian Sheron on this.

Sent from my NRC Blackberry
Rosemary Hogan
(b)(6)

From: Dean, Bill
To: Sheron, Brian; Uhle, Jennifer; Case, Michael; Richards, Stuart; Hogan, Rosemary; Kammerer, Annie; Ake, Jon; Murphy, Andrew
Cc: Weber, Michael; Virgilio, Martin; Leeds, Eric; Grobe, Jack; Lew, David
Sent: Wed Mar 16 08:34:58 2011
Subject: RE: NBC deadline question for NRC on seismic hazard estimates

Brian,
I Assume that our team in HQ is working up proper communications for this that we can leverage. I know there is an existing comm. plan for GSI 199, but my guess it likely needs to be updated in light of current events.

Bill

From: Sheron, Brian
Sent: Wednesday, March 16, 2011 8:10 AM
To: Uhle, Jennifer; Case, Michael; Richards, Stuart; Hogan, Rosemary; Kammerer, Annie; Ake, Jon; Murphy, Andrew
Cc: Weber, Michael; Virgilio, Martin; Leeds, Eric; Grobe, Jack; Dean, Bill; Lew, David
Subject: FW: NBC deadline question for NRC on seismic hazard estimates

FYI. I imagine this should generate some new interest in IP.

55\19

From: Bill Dedman [mailto:Bill.Dedman@msnbc.com]
Sent: Wednesday, March 16, 2011 6:44 AM
To: Manoly, Kamal; Sheron, Brian; Hiland, Patrick; OPA Resource
Subject: RE: NBC deadline question for NRC on seismic hazard estimates

This story is online now. If you see any error, please let me know right away.

Thanks,

Bill

http://www.msnbc.msn.com/id/42103936/ns/world_news-asiapacific/

From: Bill Dedman
Sent: Tuesday, March 15, 2011 9:06 AM
To: 'Kamal.Manoly@nrc.gov'; 'brian.sheron@nrc.gov'; 'patrick.hiland@nrc.gov'; 'OPA.Resource@nrc.gov'
Subject: NBC deadline question for NRC on seismic hazard estimates

Good morning,

My name is Bill Dedman. I'm a reporter for NBC News and msnbc.com, writing an article today about:

SAFETY/RISK ASSESSMENT RESULTS FOR GENERIC ISSUE 199, "IMPLICATIONS OF UPDATED PROBABILISTIC SEISMIC HAZARD ESTIMATES IN CENTRAL AND EASTERN UNITED STATES ON EXISTING PLANTS"

I reached out to NRC Public Affairs yesterday but have not heard back, and my deadline is end-of-day today. I'm hoping to get on the phone today with someone from NRC to make sure I'm conveying this information accurately to the public. If nothing else, I'm hoping one of the technical people can help clarify the points below. My telephone number is 203-451-9995.

I've read Director Brian Sheron's memo of Sept. 2, 2010, to Mr. Patrick Hiland; the safety/risk assessment of August 2010; its appendices A through D; NRC Information Notice 2010-18; and the fact sheet from public affairs from November 2010.

I have these questions:

1. I'd like to make sure that I accurately place in layman's terms the seismic hazard estimates. I need to make sure that I'm understanding the nomenclature for expressing the seismic core-damage frequencies. Let's say there's an estimate expressed as "2.5E-06." (I'm looking at Table D-2 of the safety/risk assessment of August 2010.) I believe that this expression means the same as 2.5 x 10^-06, or 0.0000025, or 2.5 divided by one million. In layman's terms, that means an expectation, on average, of 2.5 events every million years, or once every 400,000 years. Similarly, "2.5E-05" would be 2.5 divided by 100,000, or 2.5 events every 100,000 years, on average, or once every 40,000 years. Is this correct?

2. These documents give updated probabilistic seismic hazard estimates for existing nuclear power plants in the Central and Eastern U.S. What document has the latest seismic hazard estimates (probabilistic or not) for existing nuclear power plants in the Western U.S.?

3. The documents refer to newer data on the way. Have NRC, USGS et al. released those? I'm referring to this: "New consensus seismic-hazard estimates will become available in late 2010 or early 2011 (these are a product of a joint NRC, U.S. Department of Energy, U.S. Geological Survey (USGS) and Electric Power Research Institute (EPRI) project). These

consensus seismic hazard estimates will supersede the existing EPRI, Lawrence Livermore National Laboratory, and USGS hazard estimates used in the GI-199 Safety/Risk Assessment."

4. What is the timetable now for consideration of any regulatory changes from this research?

Thank you for your help.

Regards,

Bill Dedman

Weaver, Tonna

From:	Samuel Miranda (b)(6)
Sent:	Wednesday, March 16, 2011 7:55 AM
To:	Mendiola, Anthony; Martin, Robert
Subject:	Radiation Thwarts Helicopter Plan

THE WALL STREET JOURNAL.
WSJ.com

- ASIA NEWS
- MARCH 16, 2011, 6:31 A.M. ET

Radiation Thwarts Helicopter Plan

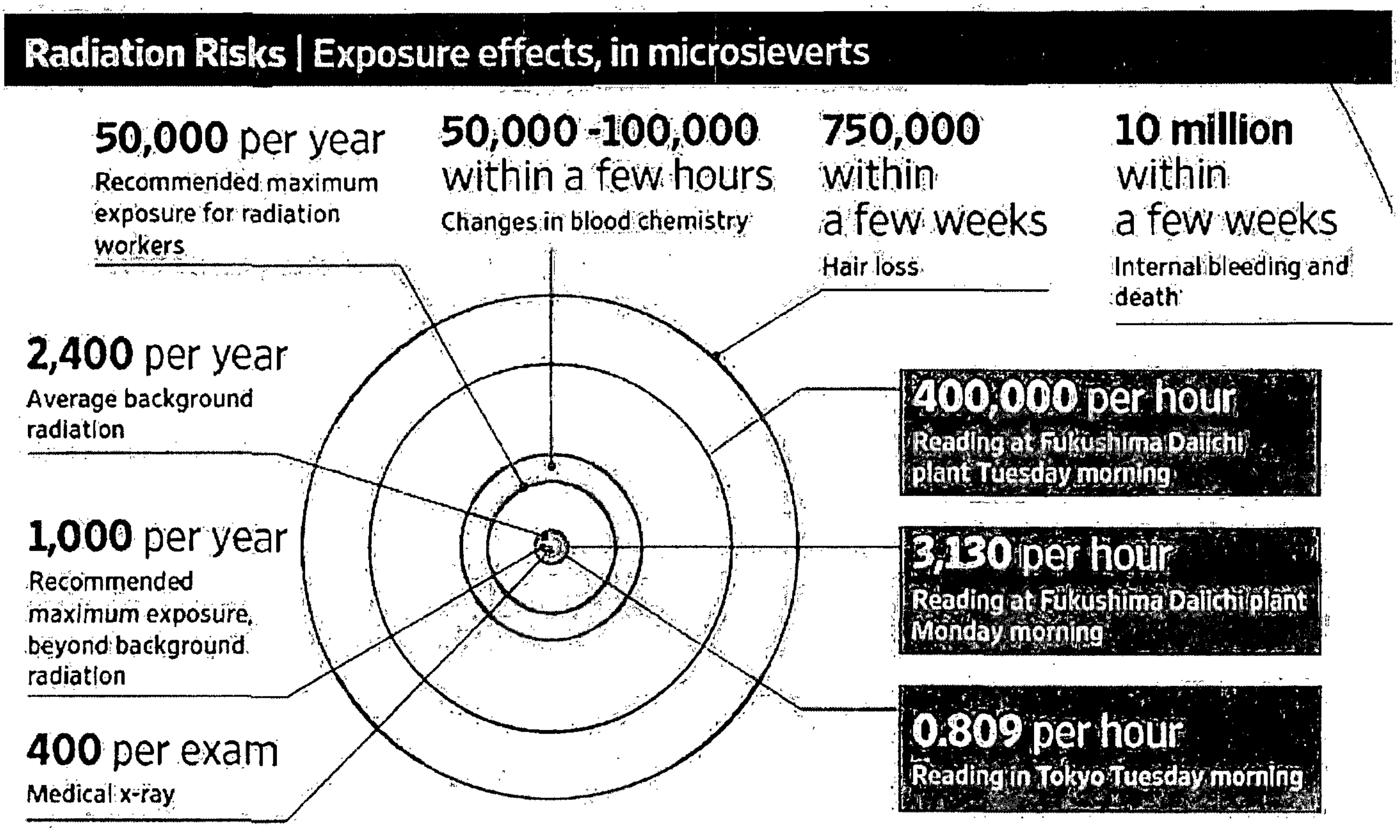
By YUKA HAYASHI And ANDREW MORSE

Japan's nuclear crisis deepened as a fresh fire broke out in a quake-ravaged nuclear complex and expats fled Tokyo over warnings of radiation leaks. WSJ's Mariko Sanchanta and Yumiko Ono discuss.

Journal Community

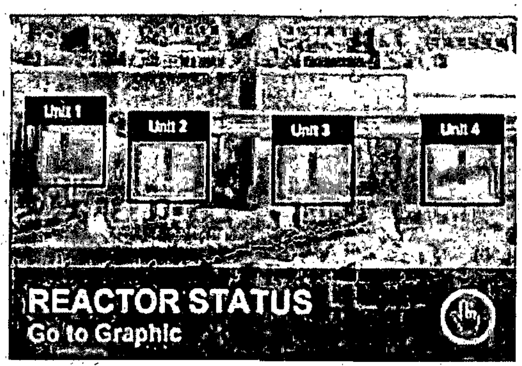
Radiation Risks

55/20



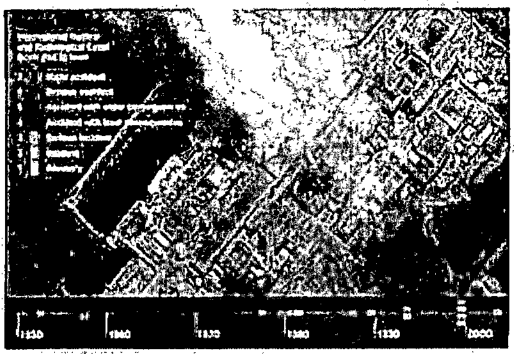
Reactor Monitor

View Interactive



Past Nuclear Incidents

View Interactive



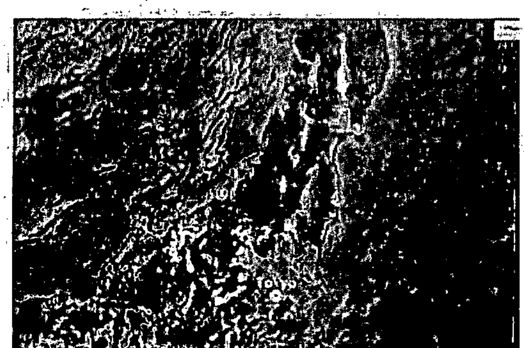
The Aftermath

View Interactive

Compare satellite images before and after the quake and tsunami.

Japan Quake's Effects

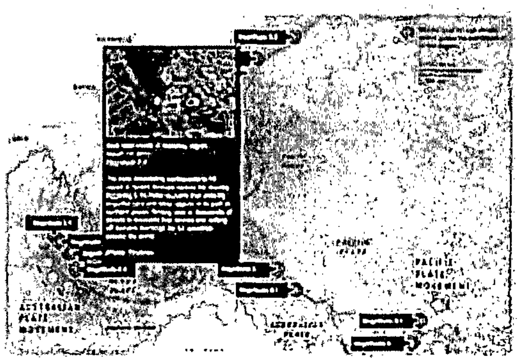
View Interactive



See a map of post-earthquake and tsunami events in Japan, Hawaii and the U.S. West Coast.

Shaky Ground

View Interactive



Colliding plates under earth's surface make Asia Pacific one of the most tectonically active region on earth.

Disastrous Japan Earthquakes

View Slideshow

Associated Press

See a historical gallery of past earthquakes in Japan.

The World's Biggest Quakes

View Interactive

Associated Press

Past earthquakes around the World.

Snow Falls, Rescue Continues

View Slideshow

REUTERS

Snow falls Wednesday as rescue workers search a devastated factory area in Sendai, northern Japan.

TOKYO—Efforts to extinguish smoldering spent fuel were thwarted Wednesday, after high radiation levels above forced the cancellation of a plan to dump water from a helicopter on the power plant at the center of Japan's escalating nuclear crisis.

And suggesting the spreading of problems at the reactor, officials said the waste fuel kept at a storage pool at one of the reactors appeared to be heating up.

Earlier Wednesday, officials worried that the critical containment unit surrounding the reactor, known as reactor No. 3, had been breached. Their worries were sparked by a fire and a surge in radiation there Wednesday morning, leading to fears of damage to the reactor and the potential release of radiation.

But officials later downplayed the idea of damage to the containment unit and instead focused on the pool, which is located in the upper part of the building surrounding the reactor. The waste fuel kept in a storage pool at the No.3 unit appeared to be heating up, they said.

On the sixth day of a crisis at the Fukushima Daiichi nuclear power complex that has riveted the world and cast a pall over global nuclear power ambitions, plant operator Tokyo Electric Power Co. said it was contemplating spraying water on the No. 3 reactor as well as the No. 4 reactor in an effort to cool it and stop the emission of dangerous levels of radiation.

A spokesman for Tepco said smoke rising from the No. 3 reactor indicates that a pool of water storing spent fuel rods within the building had dried out. Officials still haven't succeeded in filling the pool with water, which could cool them down and act as a buffer against radiation. Radiation levels at the site were highest near the No. 3 reactor, though the source of the radiation hasn't been determined.

The spokesman said helicopters from Japan's Self Defense Forces were preparing to dump water on the No. 3 and No. 4 reactors where fuel rods in another pool of water were heating up. But after flying a surveillance helicopter to measure the radiation levels above the plant, the government canceled the plan, citing excessive radiation levels, chief government spokesman Yuko Edano said.

Trucks have been pumping water into reactors No. 1, 2 and 3, the company said, but not enough to significantly raise water levels. In a small bit of progress, officials said the water level in No. 2, which Tuesday had been a major concern, was stable.

Earlier Wednesday a fire broke out at No. 4, the second fire in less than 24 hours. Radiation levels began rising sharply around 10 a.m. local time, according to a government spokesman, forcing outdoor workers at the power plant to move indoors, away from the most radioactive areas. But by 11:30 a.m. the workers were back on the job, the government's nuclear-safety agency said.

Officials later said they believe the sharp increase in radiation levels actually may have come from reactor No. 2. Its containment unit—a steel structure that protects the reactor vessel inside—had earlier been breached.

Also Wednesday afternoon, Japanese national broadcaster NHK reported radiation of 300 microsieverts detected about 20 kilometers, or about 13 miles, from the Fukushima Daiichi plant. That distance is near the edge of the evacuation zone that Japanese officials widened earlier this week. That exposure level is somewhere between an X-ray and the background radiation people receive during a year.

The latest developments suggest that the disaster at the facility is far from tamed. The plant has been emitting radiation for days, at levels that generally wouldn't cause an immediate health threat beyond the plant property, following severe damage from last week's quake and tsunami.

Until now, the focus of the crisis at the nuclear plant has been on its badly damaged nuclear reactors, which have been at risk of catastrophic overheating. Before the fires in the No. 4 reactor, officials had appeared to be gaining ground in their battle to cool down the reactors by pumping seawater into them.

But on Tuesday, officials were forced to turn their attention to the facility's waste-storage pools. These pools are used to warehouse spent fuel rods, which are no longer being used but remain highly radioactive and must also be cooled.

Officials say the water level that covers the rods plummeted in at least one of the storage pools, forcing them to inject new water. Temperatures were also rising in at least two other pools, requiring monitoring, according to the Japanese Government Emergency Headquarters. It is critical that the spent fuel rods remain covered in water, otherwise they can emit lethal doses of radioactivity.

The concerns over the spent fuel pools are centered on reactors Nos. 4, 5, and 6—all of which were offline Friday when a mammoth quake hit Japan, rocking the plant and sending a tsunami toward the plant. But the situation at one of those offline reactors, No. 4, became dire on Tuesday when the spent fuel heated up and generated hydrogen that led to a fire, according to government officials.

That fire was extinguished in a few hours. But meantime, radiation levels at the plant's gate shot up to over 11,000 microsievert per hour. That level dropped back to below 600 (roughly equivalent to a medical X-ray) by mid-afternoon.

The currently reported Japanese radiation measurements are "well below" the U.S. Nuclear Regulatory Commission's dose limits of 10,000 microsieverts per nuclear event, according to an NRC statement. The annual occupational limit for workers who deal with radiation on the job is 50,000 microsieverts, according to an NRC spokesman.

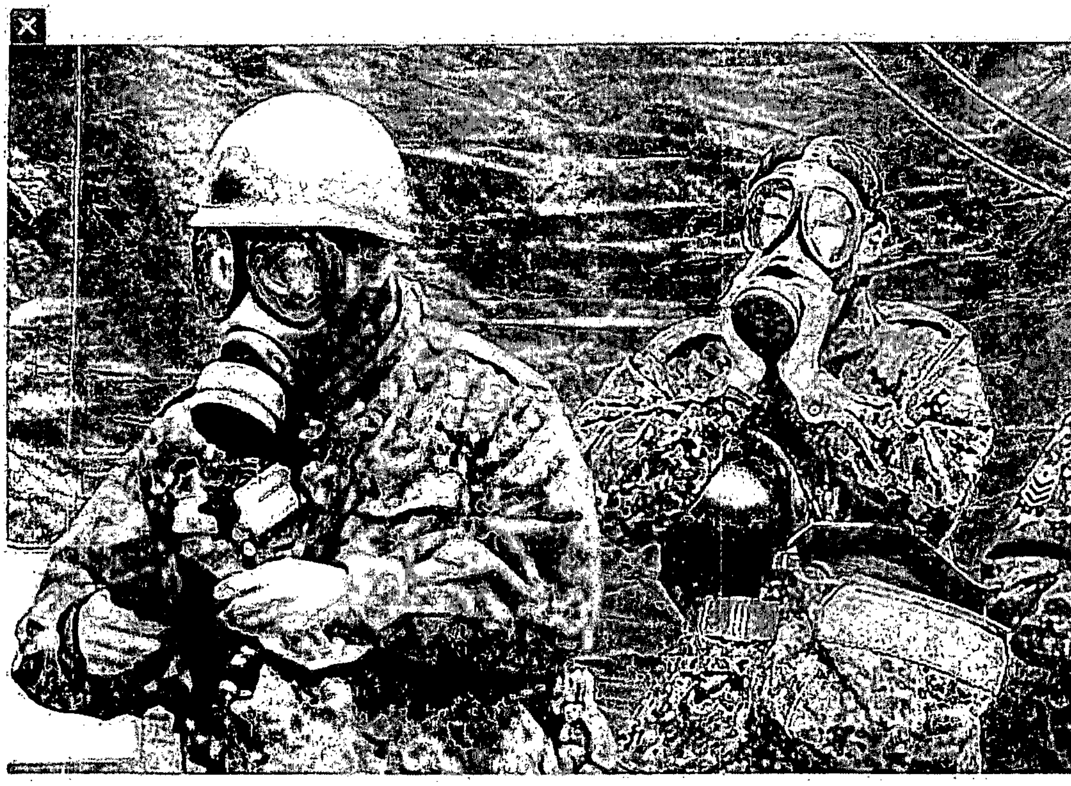
Doctors have tested radiation levels in about 150 people from the close vicinity of the Fukushima Daiichi site. Authorities have taken measures to decontaminate 23 people, the IAEA says.

Officials were forced to evacuate all nonessential employees at the plant. The population was evacuated in a radius of 12 miles from the plant; residents in an 18-mile radius are asked to remain indoors; and an 18-mile no-fly zone has been established around the plant. The Japanese coast guard has banned shipping within six miles of the Fukushima Daiichi nuclear power plant and within two miles of the Fukushima Daini nuclear power plant.

"This is an accident that has not finished," IAEA Director General Yukiya Amano said.

Associated Press

Members of Japan's Self-Defense Forces prepared for radioactive decontamination operations near a stricken nuclear facility Tuesday.



Until Tuesday, when fire broke out at the Fukushima Daiichi Plant's No. 4 reactor, officials had focused most of their efforts on trying to cool other reactors that had been operating when the quake struck. Electricity was cut to all three of those reactors—Nos. 1, 2, and 3—and officials pumped seawater into them to prevent radioactive material from melting.

Those efforts triggered chemical reactions that caused explosions in each of the reactor buildings. The International Atomic Energy Agency says Japan authorities believe the all-important "containment vessels" that encase the radioactive material in reactors 1 and 3 are intact. The state of the reactor 2 containment vessel is unclear.

The operator of the Fukushima Daiichi plant, Tepco, in 2009 told the government it had designed the facility against a radiation spill. According to that presentation, written in Japanese and posted on a government Web site, Tepco said safety measures would suspend operations at the reactors, cool them and shut them down with no danger of radiation escaping. "With even a large earthquake, the plant has been designed so that there will be no radiation impact in its vicinity," Tepco said in the presentation to the country's Nuclear Safety Commission.

Agence France-Presse/Getty Images

A screengrab from Japan government broadcaster NHK showing a Japanese military twin-rotor cargo helicopter seen exploring a mission to dump water onto a reactor at the stricken Fukushima Daiichi nuclear power plant Wednesday. Officials abandoned the plan Wednesday afternoon due to radiation.

By Wednesday, radiation at the nuclear plant had dropped significantly but concern about the spent fuel pools remained. Officials say temperatures in the pools at reactors 5 and 6 were rising Tuesday but that by early Wednesday, pumps were working and heating problems appeared to be resolved.

Six of seven pools are adjacent to the main reactors, in secondary containment structures that are not as robust as the containment structures that surround the reactors. They look somewhat like large swimming pools, but they are laced with boron, which gives them an irridescent blue hue. They are approximately 45 feet deep, so that the 15-foot fuel rods, which are vertically arranged in racks, have up to 30 feet of water on top of them to keep them cool.

If water boils or drains away, exposing the fuel rods, the metal cladding around the rods could begin to fail, in the process creating explosive hydrogen gas.

—Mitsuru Obe, Rebecca Smith, David Crawford and Ben Lefebvre contributed to this article.

Disaster in Japan

- **Radiation Threatens to Curb Japan Relief Efforts**
- **Japan Plant's Workers Are at Risk, Likely Not Yet Poisoned, Say Experts**
- **'There Is Nothing Left'**
- **Anxiety Spreads to Japan's Neighbors**
- **Complete Coverage:** Japan Quake

Write to Yuka Hayashi at yuka.hayashi@wsj.com and Andrew Morse at andrew.morse@wsj.com

Pires, Jose

From: Pires, Jose
Sent: Wednesday, March 16, 2011 9:44 AM
To: Kammerer, Annie; Ake, Jon; Anooshehpoor, Rasool; Candra, Hernando; Graves, Herman; Gupta, Abhinav; Herrity, Thomas; Hogan, Rosemary; Rivera-Lugo, Richard; Roche, Robert; Sircar, Madhumita; Stovall, Scott; Weaver, Thomas
Subject: RE: in case you think i'm slacking off....

Annie,

We are working on your request now. We will be checking among ourselves and then will send a single a document to you to avoid confusion.

If there is a specific item, also please let us know.

Thanks,

Jose.

From: Kammerer, Annie
Sent: Wednesday, March 16, 2011 4:20 AM
To: Ake, Jon; Anooshehpoor, Rasool; Candra, Hernando; Graves, Herman; Gupta, Abhinav; Herrity, Thomas; Hogan, Rosemary; Kammerer, Annie; Pires, Jose; Rivera-Lugo, Richard; Roche, Robert; Sircar, Madhumita; Stovall, Scott; Weaver, Thomas
Subject: in case you think i'm slacking off....

Here are the latest Seismic Q&As.

Annie

Dr. Annie Kammerer, PE
Senior Seismologist and Earthquake Engineer
US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Washington DC 20555
(b)(6) mobile
BB

From: Lubinski, John
To: Gibson, Kathy
Sent: Tue Mar 15 21:56:33 2011
Subject: Fw: Staffing Ops Center 24/7

Kathy,

Are you willing to serve as a pmt directoron?

Sent from my NRC blackberry
John W. Lubinski
(b)(6) (blackberry number)

From: OST02 HOC
To: Jones, Cynthia; Lubinski, John; Reis, Terrence; Reis, Terrence; Holahan, Patricia; Tappert, John; Cool, Donald; Milligan, Patricia; Lui, Christiana; Sullivan, Randy; Holahan, Vincent
Cc: Evans, Michele
Sent: Tue Mar 15 18:24:47 2011
Subject: Staffing Ops Center 24/7

PMT Directors:

Per EDO direction we plan to staff the Ops Center 24/7 while we have staff dispatched in Japan. And we are currently planning to identify a second team to send to Japan in about 2 weeks, with the idea that they may stay there for an additional two weeks. That would take us out to April 10 or so.

Staffing in the IRC will remain at the current levels for potentially another week. Possibly we will be able to scale back somewhat at that point. The intent is to develop a schedule through April 10 at this point. The immediate focus is to staff for the first week, starting Saturday March 19.

We'd like to have a little more consistency in the staffing of most positions. So we'd like to staff the PMT director in 4 day blocks, three shifts each day, starting March 19.

Fred Brown/Tim McGinty/John Lubinski has offered to take the lead to coordinate among the potential PMT Directors to fill the schedule. Please work with him and provide at least the schedule for the first four day block by COB Wednesday March 16.

Michele

Gibson, Kathy

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 1:00 PM
To: Lubinski, John
Subject: Re: Staffing Ops Center 24/7

Ok

From: Lubinski, John
To: Gibson, Kathy
Sent: Wed Mar 16 11:05:32 2011
Subject: RE: Staffing Ops Center 24/7

Kathy,

Can you work 11p-7a for Saturday and Sunday night? If not, at least Sunday Night?

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 8:00 AM
To: Lubinski, John
Subject: Fw: Staffing Ops Center 24/7

I can work day shift the weeks listed below and any shift the other weeks.

From: Gibson, Raymond
To: Gibson, Kathy
Sent: Wed Mar 16 07:19:44 2011
Subject: RE: Staffing Ops Center 24/7

March 21-25 - OUT
March 28- April 1 – OUT
April 11-15 – OUT

From: Gibson, Kathy
Sent: Tuesday, March 15, 2011 11:05 PM
To: Gibson, Raymond
Subject: Fw: Staffing Ops Center 24/7

I need your travel schedule from now til end of April please :-)

From: Gibson, Kathy
To: Lubinski, John
Sent: Tue Mar 15 22:30:04 2011
Subject: Re: Staffing Ops Center 24/7

Certainly but I can only work day shift when my husband is traveling for force-on-force inspections. I can send you his schedule tomorrow. I can work any shift when he is in town.

55\22

From: Lubinski, John
To: Gibson, Kathy
Sent: Tue Mar 15 21:56:33 2011
Subject: Fw: Staffing Ops Center 24/7

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John W. Lubinski
(b)(6) (blackberry number)

From: OST02 HOC
To: Jones, Cynthia; Lubinski, John; Reis, Terrence; Reis, Terrence; Holahan, Patricia; Tappert, John; Cool, Donald; Milligan, Patricia; Lui, Christiana; Sullivan, Randy; Holahan, Vincent
Cc: Evans, Michele
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Michele

Gibson, Kathy

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 9:22 AM
To: Lee, Richard
Subject: Re: MELCOR input deck for Germany

Thanks Richard

From: Lee, Richard
To: Gibson, Kathy
Sent: Wed Mar 16 09:11:30 2011
Subject: FW: MELCOR input deck for Germany

Kathy:

For your information. Yesterday, we wer contacted by Larry form SNL informing our CSARP contact at GRS asking for the deck. We responded quickly. Jason (and Charlie) has contact at Peach Bottom and if he gets the O.K., we definitely has not objection to provide the input deck to GRS.

Richard

From: Lee, Richard
Sent: Wednesday, March 16, 2011 9:05 AM
To: Santiago, Patricia
Subject: Re: MELCOR input deck for Germany

We were requested to provide MELCOR input deck of Peach Bottom to GRS. Since it has priopriety data, we said we can't. If Jason can get the utility OK, then we have no problem giving the deck to GRS.

Sent from nrc blackberry
(b)(6)
Richard Lee

From: Santiago, Patricia
To: Gibson, Kathy; Tinkler, Charles; Lee, Richard
Cc: Scott, Michael
Sent: Wed Mar 16 08:39:54 2011
Subject: RE: MELCOR input deck for Germany

Initially I proposed Randy Sullivan however Randy is best suited for results as they apply to EP not a BWR operation and questions that likely will come. I left a message for Richard to also ask. If we have the set in the impact study and it is relatively straightforward, I didn't expect it to take too much of his time. I will talk to Charlie and Richard and make a final recommendation.
thanks

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 8:37 AM
To: Santiago, Patricia; Tinkler, Charles; Lee, Richard
Cc: Scott, Michael
Subject: Re: MELCOR input deck for Germany
Importance: High

55\23

Hold on, is there someone who can do this besides Charlie? Someone in Richard's branch?

From: Santiago, Patricia
To: Tinkler, Charles
Cc: Gibson, Kathy; Scott, Michael
Sent: Wed Mar 16 08:33:11 2011
Subject: FW: MELCOR input deck for Germany

Morning Charlie,

Can you email Diane back with your contact information and cc management.

Thanks again Charlie!

From: Uhle, Jennifer
Sent: Wednesday, March 16, 2011 8:22 AM
To: Santiago, Patricia; Gibson, Kathy; Scott, Michael
Subject: Fw: MELCOR input deck for Germany

We should be able to do this from our aircraft impact SFP work. Charlie knows. J

From: Diane.JACKSON@oecd.org <Diane.JACKSON@oecd.org>
To: Uhle, Jennifer
Sent: Wed Mar 16 08:18:04 2011
Subject: MELCOR input deck for Germany

Hello Jennifer –

How are you? I am sure overly busy with Japan, as many of us are. We have requests for information from all over in many forms.

As I am sure you know, the German government has ordered the shutdown of 7 of their plants that were built before 1980. GRS would like to run MELCOR on Mark 1 containments to fight back with some analysis.

Would NRC/RES be able to share an input deck for Mark 1 containment with GRS? Maybe someone from SOARCA branch could talk with someone in GRS?

If so, I can send along a NRC name and number or I can get my German colleague here to give me the GRS contact, so that NRC can contact GRS directly.

Diane Jackson, Nuclear Safety Specialist
Nuclear Safety Division, OECD Nuclear Energy Agency (NEA)
Tel.: +33 (0)1 45 24 10 55, Diane.Jackson@oecd.org
Update your bookmarks! On 1 December 2010, the NEA is moving to: www.oecd-nea.org

Gibson, Kathy

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 8:46 AM
To: Scott, Michael; Santiago, Patricia
Subject: Re: MELCOR input deck for Germany

Agree, I already mentioned to Brian. Pat hasn't sent extension request up yet so we can work this once we get a sense of how long we will be in react mode.

From: Scott, Michael
To: Gibson, Kathy; Santiago, Patricia
Sent: Wed Mar 16 08:42:31 2011
Subject: Re: MELCOR input deck for Germany

Sorry - fact of life. Per my previous stated view that soarca deadline dec 11 has been overcome by events and needs to be pushed out into early 12. We are constantly band aiding because of demands on these folks. Suggest we accept that situation has changed given demands of Japan issue.

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: Gibson, Kathy
To: Scott, Michael
Sent: Wed Mar 16 08:37:28 2011
Subject: Re: MELCOR input deck for Germany

What is f o l?

From: Scott, Michael
To: Santiago, Patricia; Tinkler, Charles
Cc: Gibson, Kathy
Sent: Wed Mar 16 08:34:10 2011
Subject: Re: MELCOR input deck for Germany

More f-o-l.

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: Santiago, Patricia
To: Tinkler, Charles
Cc: Gibson, Kathy; Scott, Michael
Sent: Wed Mar 16 08:33:11 2011
Subject: FW: MELCOR input deck for Germany

Morning Charlie,

Can you email Diane back with your contact information and cc management.

Thanks again Charlie!

From: Uhle, Jennifer
Sent: Wednesday, March 16, 2011 8:22 AM
To: Santiago, Patricia; Gibson, Kathy; Scott, Michael
Subject: Fw: MELCOR input deck for Germany

We should be able to do this from our aircraft impact SFP work. Charlie knows. J

From: Diane.JACKSON@oecd.org <Diane.JACKSON@oecd.org>
To: Uhle, Jennifer
Sent: Wed Mar 16 08:18:04 2011
Subject: MELCOR input deck for Germany

Hello Jennifer –

How are you? I am sure overly busy with Japan, as many of us are. We have requests for information from all over in many forms.

As I am sure you know, the German government has ordered the shutdown of 7 of their plants that were built before 1980. GRS would like to run MELCOR on Mark 1 containments to fight back with some analysis.

Would NRC/RES be able to share an input deck for Mark 1 containment with GRS? Maybe someone from SOARCA branch could talk with someone in GRS?

If so, I can send along a NRC name and number or I can get my German colleague here to give me the GRS contact; so that NRC can contact GRS directly.

Diane Jackson, Nuclear Safety Specialist
Nuclear Safety Division, OECD Nuclear Energy Agency (NEA)
Tel.: +33 (0)1 45 24 10 55, Diane.Jackson@oecd.org

Gibson, Kathy

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 9:52 AM
To: Lee, Richard; Santiago, Patricia
Cc: Scott, Michael
Subject: Re: MELCOR input deck for Germany

We should not be doing any analysis. If we can send the input decks fine, if we can't we can't.

From: Lee, Richard
To: Santiago, Patricia
Cc: Gibson, Kathy; micheal.scott@nrc.gov <micheal.scott@nrc.gov>
Sent: Wed Mar 16 09:26:35 2011
Subject: RE: MELCOR input deck for Germany

We are using the SOARCA deck, only for thermal-hydarulics analysis for PRA Level 1 success criteria.

It is not easy to modify Peach Bottom deck for a German plant, and perform analysis from here. Running a single MELCOR may not do the job. It is going to be a long drag out analysis for the Germans.

There may be a Peach Bottom deck at SNL that was used for revised NUREG-1465 for HBU/MOX fuel which does not have safeguards info. Please consult with Charlie and Jason to get the utility for NRC to provide this deck to GRS.

Richard

From: Santiago, Patricia
Sent: Wednesday, March 16, 2011 9:11 AM
To: Lee, Richard
Cc: Gibson, Kathy; Scott, Michael
Subject: FW: MELCOR input deck for Germany

The SOARCA is proprietary and the impact is safeguards....are you referring to the SOARCA?

And can you do a MELCOR run for GRS on their BWR specifics if we were to get them and how long would that take. If too long, then we can call Peach Bottom to ask they send us a letter to allow.

Someone asked if this request be going via DOS?

Thanks

From: Lee, Richard
Sent: Wednesday, March 16, 2011 9:05 AM
To: Santiago, Patricia
Subject: Re: MELCOR input deck for Germany

We were requested to provide MELCOR input deck of Peach Bottom to GRS. Since it has priopriety data, we said we can't. If Jason can get the utility OK, then we have no problem giving the deck to GRS.

Sent from nrc blackberry

55\25

(b)(6)

Richard Lee

From: Santiago, Patricia
To: Gibson, Kathy; Tinkler, Charles; Lee, Richard
Cc: Scott, Michael
Sent: Wed Mar 16 08:39:54 2011
Subject: RE: MELCOR input deck for Germany

Initially I proposed Randy Sullivan however Randy is best suited for results as they apply to EP not a BWR operation and questions that likely will come. I left a message for Richard to also ask. If we have the set in the impact study and it is relatively straightforward, I didn't expect it to take too much of his time. I will talk to Charlie and Richard and make a final recommendation.
thanks

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 8:37 AM
To: Santiago, Patricia; Tinkler, Charles; Lee, Richard
Cc: Scott, Michael
Subject: Re: MELCOR input deck for Germany
Importance: High

Hold on, is there someone who can do this besides Charlie? Someone in Richard's branch?

From: Santiago, Patricia
To: Tinkler, Charles
Cc: Gibson, Kathy; Scott, Michael
Sent: Wed Mar 16 08:33:11 2011
Subject: FW: MELCOR input deck for Germany

Morning Charlie,

Can you email Diane back with your contact information and cc management.

Thanks again Charlie!

From: Uhle, Jennifer
Sent: Wednesday, March 16, 2011 8:22 AM
To: Santiago, Patricia; Gibson, Kathy; Scott, Michael
Subject: Fw: MELCOR input deck for Germany

We should be able to do this from our aircraft impact SFP work. Charlie knows. J

From: Diane.JACKSON@oecd.org <Diane.JACKSON@oecd.org>
To: Uhle, Jennifer
Sent: Wed Mar 16 08:18:04 2011
Subject: MELCOR input deck for Germany

Hello Jennifer –

How are you? I am sure overly busy with Japan, as many of us are. We have requests for information from all over in many forms.

As I am sure you know, the German government has ordered the shutdown of 7 of their plants that were built before 1980. GRS would like to run MELCOR on Mark 1 containments to fight back with some analysis.

Would NRC/RES be able to share an input deck for Mark 1 containment with GRS? Maybe someone from SOARCA branch could talk with someone in GRS?

If so, I can send along a NRC name and number or I can get my German colleague here to give me the GRS contact, so that NRC can contact GRS directly.

Diane Jackson, Nuclear Safety Specialist
Nuclear Safety Division, OECD Nuclear Energy Agency (NEA)
Tel.: +33 (0)1 45 24 10 55, Diane.Jackson@oecd.org
Update your bookmarks! On 1 December 2010, the NEA is moving to: www.oecd-nea.org

Gibson, Kathy

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 2:24 PM
To: Sheron, Brian
Subject: FW: RASCAL Dose Assessment person for this evening and tomorrow
Attachments: Kathy Halvey Gibson.vcf

HEB staff and RASCAL

We will make it a point to get all HPs in DSA to learn RASCAL. I have already set this expectation with Stephanie, but will reinforce when she returns.

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Lewis, Doris
Sent: Wednesday, March 16, 2011 2:18 PM
To: Gibson, Kathy
Cc: Tomon, John
Subject: RE: RASCAL Dose Assessment person for this evening and tomorrow

Hi Kathy,

HEB only has 2 staffers that can run RASCAL – Tony and Casper. Both of them are currently supporting the PMT.

I spoke to Sami and he is familiar with this code (about 10 years ago) but has not used it in its recent version.

Thanks,
Doris

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 1:49 PM
To: Lewis, Doris
Subject: Fw: RASCAL Dose Assessment person for this evening and tomorrow

Please survey HEB staff(including Sami) and let me know who all can run RASCAL.

From: Sheron, Brian
To: Gibson, Kathy; Scott, Michael
Sent: Wed Mar 16 13:45:52 2011
Subject: FW: RASCAL Dose Assessment person for this evening and tomorrow

What about Sami?

55\20

From: Moore, Scott
Sent: Wednesday, March 16, 2011 1:35 PM
To: Evans, Michele; OST02 HOC
Cc: Tracy, Glenn; Cohen, Miriam; Uhle, Jennifer; Sheron, Brian; Deegan, George
Subject: RASCAL Dose Assessment person for this evening and tomorrow

Michelle:

You asked for additional people to support RASCAL in the Ops Center for the 11-7 shift this evening, and the 7-3 shift tomorrow. We are checking our staff that may have experience with RASCAL, but are finding that many are already working the Operations Center on the Protective Measures team, in assigned roles. FSME will continue looking.

In addition, you may want to look into the following:

OHR offers a course in RASCAL. I believe that the most recent one was offered in Region I, and all of the attendees may have been from the Region, so that may not help you for shifts this evening, but if OHR could provide you with a list of staff who have completed the RASCAL course who are here, at HQ, then that could give you a group from which to draw upon.

Finally, Dr. Sami Sherbini, who is assigned to RES and was formerly of FSME, is well versed in dose assessment and codes, and may have RASCAL experience. He came to mind. You would need to talk to RES about Sami's availability.

We will still get back to you with an answer from FSME, in follow up to the conference call yesterday, but I wanted you to be aware of the RASCAL course and Sherbini.

Scott
x7875

Gibson, Kathy

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 6:07 PM
To: Lee, Richard; Scott, Michael; Santiago, Patricia
Subject: RE: single point of contact at NRC to channel NRC response to SNL questions
Attachments: Kathy Halvey Gibson.vcf

Importance: High

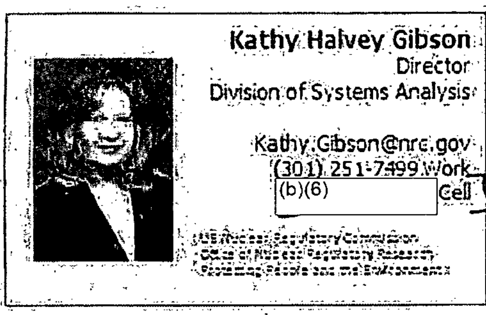
I was thinking a little more broadly. I was thinking of sending an email to the DSA staff that any requests for information they get from outside NRC be sent to Katie (and inform their branch chief). She can keep a log of the requests with who the action was assigned to and status. I would like her to update me and Mike at least at the end of each day so we can update Brian/Jennifer at the 8:45 each morning.

She will also be our point of contact with Sandia. They can send the requests they get to her, and then she can provide responses back to them after the cognizant staff follow up.

This is intended to efficiently track and process requests. It is not intended to make communication more difficult. Staff should continue their routine communications with their contractors as usual.

We also need to be cognizant of contractual obligations and make sure we have proper documentation in place for work that we request of contractors. On their end, the contractors should not do any work that they intend to bill us for without getting approval from the NRC project managers.

I plan to send a message out to DSA staff with this information. Anything I missed or you object to?



From: Lee, Richard
Sent: Wednesday, March 16, 2011 3:52 PM
To: Gibson, Kathy
Subject: single point of contact at NRC to channel NRC response to SNL questions

Kathy:

I spoke to Katie Wagner and ask her to serve as the point of contact at DSA for SNL questions on how it should responses to request for information, MELCOR input decks, etc., from outside. Do you want me to convey this to SNL?

Richard

Rathbun, Howard

From: Rathbun, Howard
Sent: Wednesday, March 16, 2011 2:24 PM
To: Csontos, Aladar
Subject: Re: Schedule

Hey I'm just watching Chmn. Jackzo testify and I see Jason Scaperow in the background. He's the guy I was working with on SOARCA. Have any SRV issues come up? Do you need me to go testify before congress on my abaqus work?

Sent from NRC Blackberry
Howard J. Rathbun
(b)(6)

From: Csontos, Aladar
To: Rathbun, Howard
Sent: Wed Mar 16 12:53:11 2011
Subject: RE: Schedule

Nope. will talk later

From: Rathbun, Howard
Sent: Wednesday, March 16, 2011 11:43 AM
To: Csontos, Aladar
Subject: Re: Schedule

Do you need me to come in to the office?

Sent from NRC Blackberr
Howard J. Rathbun
(b)(6)

From: Csontos, Aladar
To: Rathbun, Howard
Sent: Wed Mar 16 11:01:41 2011
Subject: RE: Schedule

Still in mtg. will call in a few.

From: Rathbun, Howard
Sent: Wednesday, March 16, 2011 11:01 AM
To: Csontos, Aladar
Subject: Re: Schedule

dude, what's up?

Sent from NRC Blackberry

55/28

Howard J. Rathbun
(b)(6) [redacted]

From: Csontos, Aladar
To: Rathbun, Howard
Sent: Wed Mar 16 09:44:38 2011
Subject: RE: Schedule

Did you get my vmail and email?

From: Rathbun, Howard
Sent: Wednesday, March 16, 2011 8:08 AM
To: Csontos, Aladar
Subject: Schedule

Al,
(b)(6) [redacted]
-Howard

From: Chang, Richard
To: Armstrong, Kenneth
Subject: RE: IRC Staffing
Date: Wednesday, March 16, 2011 8:31:00 AM

Ken,

1) I am interested and available to work at the Ops center.
2) I am willing to go to Japan for 2 weeks.
3) I do not think I have a specific skill set that would help with the reactors in Japan.

Thanks,
Richard

From: Gibson, Kathy
Sent: Tuesday, March 15, 2011 7:16 PM
To: RES_DSA
Subject: FW: IRC Staffing
Importance: High

Please let Ken Armstrong know by noon tomorrow the following:

1) If you are interested and available to work a shift in the Ops Center. Please indicate your preference of shift and your area(s) of expertise.
2) If you are willing and able to go to Japan for 2 weeks. Indicate your availability to go at the end of the month or at some future time (dates to be negotiated). Also indicate your area(s) of expertise.

See below for details about this request.

Ken, please compile a list of the information you receive in response to this request for my review.

Thanks to all!

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Sheron, Brian
Sent: Tuesday, March 15, 2011 5:27 PM
To: Coyne, Kevin; Case, Michael; Coe, Doug; Correia, Richard; Gibson, Kathy; Lui, Christiana; Richards, Stuart; Sangimino, Donna-Marie; Scott, Michael; Uhle, Jennifer; Valentin, Andrea
Cc: Dion, Jeanne
Subject: IRC Staffing

I participated on a conference call with other ODs and led by Michele Evans, acting deputy OD in NSIR at 4 pm today.

The purpose of the conference call was to discuss staffing for the IRC for the near future. The IRC is currently staffed with members of the Reactor safety team, the Protective Measures team, Liaison Team, etc. There is also an ET member there. None of the teams are at their full compliment. What Michele is looking for is people that can staff the IRC and relieve the staff that are currently there. She said they are currently running 3 shifts (11pm-7am, 7am – 3pm, and 3pm to 11 pm). They would like to find staff that can work shifts for 4 days in a row (I think she wants 4 days on, 3 days off). She said the staff do not have to have had IRC training.

Several of us said we would certainly canvas our staff to see who was qualified to work in the IRC and could work there, but we needed to know what technical disciplines they were looking for. Michele did not have a list of needed disciplines, but said she would generate one and send it out. As of 5:15 pm I have not received a list yet.

However, I am assuming they will be looking for staff with expertise in such areas as systems analysis, severe accidents, radiological dose assessment, etc. In anticipation that these are the technical disciplines of interest, can you please start identifying your staff that you believe have some of the requisite skills needed for the IRC, and start asking if they would be available to work shifts in the IRC if asked to. HR said they would be eligible for normal overtime compensation.

Also, they will be looking for staff to go to Japan and relieve the technical staff that recently went there. There were 2 BWR experts that left over the weekend, and a team of 9 more (6 engineers and 3 OIP staff) left yesterday. The thinking is that the staff that recently went over would come back in 2 weeks, which is when they want to send a replacement team over there. So please check to see if you have any staff with the proper technical credentials, are reasonably good communicators, and would be willing to spend about 2 weeks in Japan as part of the team there.

I will forward the list of desired disciplines as soon as I receive them from Michele. Michele said she will be looking for the list of potential IRC replacements by COB tomorrow (3/16/11), thus, I will need your candidates by mid-afternoon.

For the team that will replace the one that was just sent to Japan, she said she would like us to update the list we previously sent by COB 3/17.

Gibson, Kathy

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 8:54 AM
To: Santiago, Patricia
Subject: Re: MELCOR input deck for Germany

Both

From: Santiago, Patricia
To: Gibson, Kathy
Sent: Wed Mar 16 08:48:41 2011
Subject: RE: MELCOR input deck for Germany

As severe accident analysts ? or MELCOR experts? thanks

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 8:47 AM
To: Santiago, Patricia
Subject: Re: MELCOR input deck for Germany

He has people already developed like Hossein Esmaili and mike salay.

From: Santiago, Patricia
To: Gibson, Kathy; Scott, Michael
Sent: Wed Mar 16 08:42:33 2011
Subject: RE: MELCOR input deck for Germany

Agree and am working to have knowledge transfer plans so they are not the constant 2 that can respond. I am hopeful in the next year that Richard can be on his way to an expert, I am looking at Tina and eventually Sergio. I also want to talk to Richard to see who else can be developed.

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 8:40 AM
To: Santiago, Patricia; Scott, Michael
Subject: Re: MELCOR input deck for Germany

We need to wean people away from Charlie (and Jason) as much as we can. We have many other capable people in DSA, RES, and NRC :-)

From: Gibson, Kathy
To: Santiago, Patricia; Scott, Michael
Sent: Wed Mar 16 08:38:29 2011
Subject: Re: MELCOR input deck for Germany

Please get with Richard and get someone from his staff to do this - he owns MELCOR.

From: Santiago, Patricia
To: Scott, Michael; Gibson, Kathy
Sent: Wed Mar 16 08:36:29 2011
Subject: RE: MELCOR input deck for Germany

55\30

Hope this is fact of life.....haha.....I can hear Charlie....although he may have been called by the op center...haven't heard from him this am.
thanks

From: Scott, Michael
Sent: Wednesday, March 16, 2011 8:34 AM
To: Santiago, Patricia; Tinkler, Charles
Cc: Gibson, Kathy
Subject: Re: MELCOR input deck for Germany

More f-o-l.

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: Santiago, Patricia
To: Tinkler, Charles
Cc: Gibson, Kathy; Scott, Michael
Sent: Wed Mar 16 08:33:11 2011
Subject: FW: MELCOR input deck for Germany

Morning Charlie,

Can you email Diane back with your contact information and cc management.

Thanks again Charlie!

From: Uhle, Jennifer
Sent: Wednesday, March 16, 2011 8:22 AM
To: Santiago, Patricia; Gibson, Kathy; Scott, Michael
Subject: Fw: MELCOR input deck for Germany

We should be able to do this from our aircraft impact SFP work. Charlie knows. J

From: Diane.JACKSON@oecd.org <Diane.JACKSON@oecd.org>
To: Uhle, Jennifer
Sent: Wed Mar 16 08:18:04 2011
Subject: MELCOR input deck for Germany

Hello Jennifer –

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Would NRC/RES be able to share an input deck for Mark 1 containment with GRS? Maybe someone from SOARCA branch could talk with someone in GRS?

- If so, I can send along a NRC name and number or I can get my German colleague here to give me the GRS contact, so that NRC can contact GRS directly.

Diane Jackson, Nuclear Safety Specialist
Nuclear Safety Division, OECD Nuclear Energy Agency (NEA)
Tel.: +33 (0)1 45 24 10 55, Diane.Jackson@oecd.org

Update your bookmarks! On 1 December 2010, the NEA is moving to: www.oecd-nea.org

Wagner, Katie

From: Wagner, Katie
Sent: Thursday, March 17, 2011 4:06 PM
To: Santiago, Patricia; Jimenez, Juan
Cc: Lee, Richard
Subject: RE: Japan requests

Pat,

There will be a report today, in MS Word at least that I am updating right now. I'll work on getting Sharepoint up and running after that.

Thanks,
Katie

-----Original Message-----
From: Santiago, Patricia
Sent: Thursday, March 17, 2011 3:40 PM
To: Wagner, Katie; Jimenez, Juan
Cc: Lee, Richard
Subject: Japan requests

Kathy and mike would like a report at the end of the day on the requests we are receiving. I am not sure but is any available today. Thx

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6)

55\31

Wagner, Katie

From: Wagner, Katie
Sent: Thursday, March 17, 2011 4:08 PM
To: Santiago, Patricia
Subject: RE: Japan requests

Yes.

-----Original Message-----
From: Santiago, Patricia
Sent: Thursday, March 17, 2011 4:07 PM
To: Wagner, Katie; Jimenez, Juan
Cc: Lee, Richard
Subject: Re: Japan requests

Wonderful. R u at ur office

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6)

----- Original Message -----
From: Wagner, Katie
To: Santiago, Patricia; Jimenez, Juan
Cc: Lee, Richard
Sent: Thu Mar 17 16:06:02 2011
Subject: RE: Japan requests

Pat,

There will be a report today, in MS Word at least that I am updating right now. I'll work on getting Sharepoint up and running after that.

Thanks,
Katie

-----Original Message-----
From: Santiago, Patricia
Sent: Thursday, March 17, 2011 3:40 PM
To: Wagner, Katie; Jimenez, Juan
Cc: Lee, Richard
Subject: Japan requests

Kathy and mike would like a report at the end of the day on the requests we are receiving. I am not sure but is any available today. Thx

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6)

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 4:19 PM
To: Wagner, Katie
Cc: Salley, MarkHenry
Subject: FW: Questions from Operations Center
Attachments: Kathy Halvey Gibson2.vcf; image001.jpg

Katie,
Please let the RST in the ops center know that Mark Salley is the POC in RES for interpreting thermal images.

Thanks,
Kathy

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Zigh, Ghani
Sent: Thursday, March 17, 2011 4:14 PM
To: Gibson, Kathy
Cc: Salley, MarkHenry
Subject: FW: Questions from Operations Center

Kathy,
Mark will be the point of contact.

From: Salley, MarkHenry
Sent: Thursday, March 17, 2011 3:13 PM
To: Zigh, Ghani
Subject: RE: Questions from Operations Center

yes

From: Zigh, Ghani
Sent: Thursday, March 17, 2011 3:12 PM
To: Salley, MarkHenry
Subject: FW: Questions from Operations Center

Mark,
Can I provide your name?
I will check also with sandia.

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 2:00 PM

To: Wagner, Katie
Cc: Lee, Richard; Scott, Michael; Zigh, Ghani; Schaperow, Jason; Santiago, Patricia
Subject: Questions from Operations Center

Katie,
I receive two questions from the Operations Center reactor safety team.

1. Request for b.5.b air oxidation in BWRs report and slides. Assigned to Jason Schaperow. He will provide the slides and the ML number for the report to either the Ops center directly or to you to forward to the ops center (email RST01.hoc@nrc.gov, contact Donna Williams)
2. Request for the name(s) of RES staff who can distinguish between zirconium fire, oil fire, steam explosion, etc from a thermal image of the Japanese reactors and spent fuel pools.
3. Assigned to Ghani Zigh. Ghani will check with Mike Salley and Sandia to see who might have these skills and provide the name(s) to me. I will then either forward them to the Ops Center or ask you to do it.

Thanks!

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

Ex 2

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 4:46 PM
To: Wagner, Katie
Cc: Tinkler, Charles; Zigh, Ghani; Lee, Richard
Subject: Request from Ops Center RST
Attachments: Kathy Halvey Gibson.vcf; image001.jpg

Katie,
Operations Center requested an expert in spent fuel pool fires to contact the Reactor Safety Team to talk to RST and Chuck Casto (NRC's team lead in Japan). They are strategizing on recommendations to make to the Japanese regarding the SFP (add water, etc.)

Charlie Tinkler and Ghani Zigh called the RST and were told that they would call them back, but the RST as of yet has not called back.

Please provide the Ops Center the response that Charlie Tinkler or Ghani Zigh can be contacted regarding SFP fires. We recommend that a conference call be arranged so that they both can participate in any relevant discussions.

Thanks,
Kathy

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

Schaperow, Jason

From: Schaperow, Jason
Sent: Thursday, March 17, 2011 2:21 PM
To: Wagner, Katie
Subject: FW: Questions from Operations Center
Attachments: BRC 110203.rev1.ppt

Importance: High

Please forward to the Ops Center the attached slides that we used to brief the Blue Ribbon Commission on America's Nuclear Future on 2/3/11.
Also, please give the Ops Center the following ML# which contains our spent fuel pool analysis report: ML062550218.

Thanks,
Jason

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 2:00 PM
To: Wagner, Katie
Cc: Lee, Richard; Scott, Michael; Zigh, Ghani; Schaperow, Jason; Santiago, Patricia
Subject: Questions from Operations Center

Katie,
I receive two questions from the Operations Center reactor safety team.

1. Request for b.5.b air oxidation in BWRs report and slides. Assigned to Jason Schaperow. He will provide the slides and the ML number for the report to either the Ops center directly or to you to forward to the ops center (email RST01.hoc@nrc.gov, contact Donna Williams)
2. Request for the name(s) of RES staff who can distinguish between zirconium fire, oil fire, steam explosion, etc from a thermal image of the Japanese reactors and spent fuel pools.
3. Assigned to Ghani Zigh. Ghani will check with Mike Salley and Sandia to see who might have these skills and provide the name(s) to me. I will then either forward them to the Ops Center or ask you to do it.

Thanks!

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

35/34

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 6:02 PM
To: Wagner, Katie; Dehn, Jeff
Cc: Lee, Richard
Subject: RE: Fukushima
Attachments: Kathy Halvey Gibson.vcf; image001.jpg

Importance: High

Jeff Dehn should handle it. Note that the report is OUO- Safeguards information. We need to know whether/how we can provide this to the requester.

Jeff – the announcement from the ops center said:
It is possible that some of us will be requested by colleagues in another country to provide technical advice and assistance during this emergency. It is essential that all such communications be handled through the NRC Operations Center. Any assistance to a foreign government or entity must be coordinated through the NRC Operations Center and the U.S. Department of State (DOS). If you receive such a request, contact the NRC Operations Officer (301-816-5100 or via the NRC Operator) immediately.

Are you coordinating with the Ops Center? (regarding this request and the info to GRS and any others we get) or is OIP doing that?

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Wagner, Katie
Sent: Thursday, March 17, 2011 4:40 PM
To: Gibson, Kathy
Subject: FW: Fukushima

Kathy,

Pat and I are asking for your guidance on priority for responding to this.

Thanks,
Pat and Katie

From: Wagner, Katie
Sent: Thursday, March 17, 2011 3:38 PM
To: Dehn, Jeff
Subject: FW: Fukushima

55\35

Good Afternoon Jeff,

I have already forwarded this to Charlie Tinkler as Richard instructed, but realized this also needs to go through you since you are the designated international contact.

Thanks,
Katie

From: Wagner, Katie
Sent: Thursday, March 17, 2011 1:05 PM
To: Tinkler, Charles
Subject: FW: Fukushima

From: Lee, Richard
Sent: Thursday, March 17, 2011 12:10 PM
To: Wagner, Katie
Subject: Fw: Fukushima

Sent from nrc blackberry
(b)(6)
Richard Lee

From: Lee, Richard
To: 'kathy.wagner@nrc.' <kathy.wagner@nrc.>
Sent: Thu Mar 17 12:07:37 2011
Subject: Fw: Fukushima

Katie:
Pls forward to Charlie Tinkler.
Thx

Sent from nrc blackberry
(b)(6)
Richard Lee

From: Gauntt, Randall O <rogaunt@sandia.gov>
To: 'CLEMENT Bernard' <bernard.clement@irsn.fr>; Lee, Richard; Tinkler, Charles
Cc: 'VOLA Didier' <didier.vola@irsn.fr>; 'BONNET Jean-Michel' <jean-michel.bonnet@irsn.fr>
Sent: Thu Mar 17 12:02:44 2011
Subject: RE: Fukushima

From: CLEMENT Bernard [mailto:bernard.clement@irsn.fr]
Sent: Thursday, March 17, 2011 5:47 AM
To: Gauntt, Randall O
Cc: VOLA Didier; BONNET Jean-Michel
Subject: Fukushima

Dear Randy,

As you may imagine, we are looking at the possible accident progression in Fukushima power plant. A t the time being we are looking at the problem of the spent fuel storage pool of reactor #4.

We will make evaluations of the consequences of the loss of water for different scenarios of emptying, calculate heat-up and associated source term.

You certainly have made such evaluations in the past using MELCOR calculations. So i have the following question: would it be possible for you to send us some results so as we can make cross-comparisons with our results.

You can certainly understand that this is an urgent request.

Bernard

B. Clément
IRSN/DPAM/SEMIC Bt 702
BP3 13115 Saint-Paul-lez-Duranc
Tel + 33 4 42 19 94 70
Fax + 33 4 42 19 91 67

B. Clément
IRSN/DPAM/SEMIC Bt 702
BP3 13115 Saint-Paul-lez-Duranc
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OFFICIAL USE ONLY – SECURITY-RELATED INFORMATION

SANDIA LETTER REPORT
Revision 3 Completed: June 2008

Evaluation of a BWR Spent Fuel Pool Accident Response to Loss-of-Coolant Inventory Scenarios Using MELCOR 1.8.5

K. C. Wagner
R. O. Gauntt

Prepared by
Sandia National Laboratories
Albuquerque, New Mexico 87185 and Livermore, California 94550

Sandia is a multiprogram laboratory operated by Sandia Corporation,
a Lockheed Martin Company, for the United States Department of Energy's
National Nuclear Security Administration under Contract DE-AC04-94AL85000.

Sandia National Laboratories

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SANDIA REPORT

Revision 0
Draft

Analysis of Spent Fuel Pool Flow Patterns Using Computational Fluid Dynamics: Supplement – Thermal Plume Response

Draft Completed: July 2003

Prepared by
A. J. Suo Anttila*
K. C. Wagner*
R. O. Gauntt

Sandia National Laboratories
P.O. Box 5800
Albuquerque, NM 87185-0748

*Innovative Technology Solutions Corporation
6000 Uptown Boulevard, NE Suite 300
Albuquerque, NM 87110

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SANDIA REPORT

Revision 0
Draft

MELCOR 1.8.5 Separate Effect Analyses of Spent Fuel Pool Assembly Accident Response

Draft Completed: June 2003

Prepared by
KC Wagner*
J. Tezak*
R. O. Gauntt

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Albuquerque, NM 87185-0748

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Albuquerque, NM 87110

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SANDIA LETTER REPORT
Revision 2 Completed: January 2008

Analysis of Emergency Spray Mitigation of Spent Fuel Pool Loss-of-Coolant Inventory Accidents

K. C. Wagner
R. O. Gauntt

Prepared by
Sandia National Laboratories
Albuquerque, New Mexico 87185 and Livermore, California 94550

Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy's National Nuclear Security Administration under Contract DE-AC04-94AL85000.

Sandia National Laboratories

SANDIA REPORT

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Revision 0
Draft

Analysis of Spent Fuel Pool Flow Patterns Using Computational Fluid Dynamics: Part 2 – Partial Water Cases

Draft Completed: April 28, 2003

Prepared by:
Kyle Ross*
K. C. Wagner*
R. O. Gauntt

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Albuquerque, NM 87185-0748

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SANDIA REPORT

Revision 0
Draft

Analysis of Spent Fuel Pool Flow Patterns Using Computational Fluid Dynamics: Part 1 -Air Cases

Draft Completed: May 2003

Prepared by
R. Chiffelle*
KC Wagner*
R. O. Gauntt

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P.O. Box 5800
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Albuquerque, NM 87110

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SANDIA REPORT

Draft
Revision 2

Analysis of BWR Spent Fuel Pool Flow Patterns Using Computational Fluid Dynamics: Supplemental Air Cases

Draft Completed: July 2005
Revision 1 Completed: August 2005
Revision 2 Completed: October 2005

Prepared for:
United States Nuclear Regulatory Commission, Office of Nuclear Regulatory Research

Don Helton, Project Manager

Prepared by:
K. C. Wagner
R. O. Gauntt

Sandia National Laboratories
P.O. Box 5800
Albuquerque, NM 87185-0748

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SANDIA LETTER REPORT
Revision 2 Completed: November 2006

Mitigation of Spent Fuel Pool Loss-of-Coolant Inventory Accidents And Extension of Reference Plant Analyses to Other Spent Fuel Pools

K. C. Wagner
R. O. Gauntt

Prepared by
Sandia National Laboratories
Albuquerque, New Mexico 87185 and Livermore, California 94550

Sandia is a multiprogram laboratory operated by Sandia Corporation,
a Lockheed Martin Company, for the United States Department of Energy's
National Nuclear Security Administration under Contract DE-AC04-94AL85000.

Sandia National Laboratories

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SANDIA LETTER REPORT
Revision 3 Completed: June 2008

Additional MELCOR Analyses of BWR Spent Fuel Pool Assembly Accident Response

K. C. Wagner
R. O. Gauntt

Prepared by
Sandia National Laboratories
Albuquerque, New Mexico 87185 and Livermore, California 94550

Sandia is a multiprogram laboratory operated by Sandia Corporation,
a Lockheed Martin Company, for the United States Department of Energy's
National Nuclear Security Administration under Contract DE-AC04-94AL85000

Sandia National Laboratories

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 2:00 PM
To: Wagner, Katie
Cc: Lee, Richard; Scott, Michael; Zigh, Ghani; Schaperow, Jason; Santiago, Patricia
Subject: Questions from Operations Center
Attachments: Kathy Halvey Gibson.vcf; image001.jpg

Katie,
I receive two questions from the Operations Center reactor safety team.

1. Request for b.5.b air oxidation in BWRs report and slides. Assigned to Jason Schaperow. He will provide the slides and the ML number for the report to either the Ops center directly or to you to forward to the ops center (email RST01.hoc@nrc.gov, contact Donna Williams)
2. Request for the name(s) of RES staff who can distinguish between zirconium fire, oil fire, steam explosion, etc from a thermal image of the Japanese reactors and spent fuel pools.
3. Assigned to Ghani Zigh. Ghani will check with Mike Salley and Sandia to see who might have these skills and provide the name(s) to me. I will then either forward them to the Ops Center or ask you to do it.

Thanks!

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

55/36

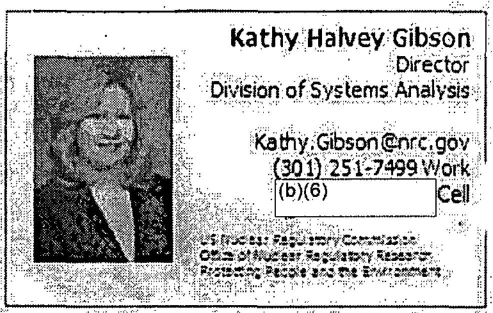
Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 2:07 PM
To: Tinkler, Charles
Subject: FW: Filtering in Fukushima
Attachments: Kathy Halvey Gibson.vcf; image001.jpg

FYI

Please make sure you pass along requests for information to Katie so we have a complete picture of what the questions are that are being contemplated by our counterparts.

Thanks



From: Gavrilas, Mirela
Sent: Thursday, March 17, 2011 2:04 PM
To: Gibson, Kathy; Case, Michael
Subject: FW: Filtering in Fukushima

I wish I would know what data the Germans collected used to suggest the 2mm particle size, but the recommendation is sound.

M.

From: Farmer, Mitchell T. [mailto:farmer@anl.gov]
Sent: Thursday, March 17, 2011 1:54 PM
To: Peters, Mark T.; Khalil, Hussein S.
Cc: 'dhalsmeyer@web.de'; Sattelberger, Alfred P.; Grandy, Christopher; Basu, Sudhamay; Lee, Richard; Tinkler, Charles; Gavrilas, Mirela; 'sehgal@safety.sci.kth.se'
Subject: FW: Filtering in Fukushima

Hi Mark and Hussein,
See the suggestion below from Hans Alsmeyer who is a German colleague from KfK/FZK who has many years of experience in severe accident analysis and testing. Could you please pass on to DOE for consideration.

Hans, we all share your deep concern about the situation in Japan and we are trying to do all we can to help.

Mitch

From: (b)(6)
Sent: Thursday, March 17, 2011 11:58 AM
To: Farmer, Mitchell T.; Bal Raj Sehgal

55\37

Cc: Lomperski, Stephen W.; Tromm, Walter; Alex Miassoedow
Subject: Filtering in Fukushima

Dear Mitch and Ray,

after some discussions with my German friends I propose a possible action to reduce long term aerosol release from the Fukushima reactors by a simple filter:

Cover the critical zones with coarse sand. Particle size about 2 mm to allow water and gas permeation. Finer particles are not allowed, as they could block gases or water. Sand may be silica or granite etc (heat resistant, ...), but no carbonates. This may be applied also in combination with water, in the storage tanks as well as near the inner containment or those areas where steam or aerosols are escaping.

The retention capability is however not high for very fine aerosol particles, but better than the present state, and would be higher when the sand is wet. The sand must be transported through helicopters, long cables must be used for the transfer of the sand bags, to be released close to the surface to be covered.

As at the present time I don't have good contact with Japanese organizations, I think that this suggestion would best be proposed by you to competent Japanese persons, if you don't have objections.

I am deeply concerned that all our hypothetical scenarios are occurring.

Best regards,

Hans

--
Hans Alsmeyer

(b)(6) [redacted]

Tel (b)(6) [redacted]
dhal[redacted]

Pulvirenti, April

From: Pulvirenti, April
Sent: Thursday, March 17, 2011 4:04 PM
To: Stevens, Gary
Subject: RE: URGENT!!! - Concrete Question

Nope, I have no idea.
BTW, NEI has a small update up. One of the side walls of the suspended spent fuel pool at FK 4 (or was it 3) collapsed, and only the stainless steel liner is holding the pool together. I'm just hoping that if they can restore power, that they bring down the radiation levels long enough to repair the pool, or long enough to move the fuel (how) to another pool, or dry cask it. It definitely can't stay there!

From: Stevens, Gary
Sent: Thursday, March 17, 2011 4:01 PM
To: Pulvirenti, April
Subject: FW: URGENT!!! - Concrete Question

From: Csontos, Aladar
Sent: Thursday, March 17, 2011 3:59 PM
To: RES_DE_CIB; Nove, Carol
Subject: URGENT!!! - Concrete Question

Anyone work/know of work on concrete/sand contacting spent fuel, i.e. thermal conductivity, reactivity, etc.? If so, please stop by/call ASAP.

Aladar A. Csontos, Ph.D
Chief, Component Integrity Branch
Division of Engineering
Office of Nuclear Regulatory Research
Mailstop C5-A24M
Washington, DC 20555-0001
(301) 251-7640 (Office)
(b)(6) (Blackberry)
(301) 251-7425 (Fax)
Email: aladar.csontos@nrc.gov

55\38

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 3:09 PM
To: Schaperow, Jason; Uhle, Jennifer; Santiago, Patricia; Lee, Richard; Tinkler, Charles; Salay, Michael; Wagner, Katie
Subject: RE: Fukushima Daiichi coordination meeting

This meeting is canceled until further notice.

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

Kathy Halvey Gibson.vcf

-----Original Appointment-----
From: Schaperow, Jason
Sent: Thursday, March 17, 2011 1:37 PM
To: Uhle, Jennifer; Gibson, Kathy; Santiago, Patricia; Lee, Richard; Tinkler, Charles; Salay, Michael; Wagner, Katie
Subject: Fukushima Daiichi coordination meeting
When: Occurs every day effective 03/17/2011 until 03/18/2011 from 3:00 PM to 3:30 PM (GMT-05:00) Eastern Time (US & Canada).
Where: 2C17

Request you attend coordination meeting to discuss ongoing DSA efforts on Fukushia Daiichi accident and preparation for Monday's Commission meeting.

Meeting requested by Jason.

Schaperow, Jason

From: Schaperow, Jason
Sent: Thursday, March 17, 2011 3:37 PM
To: Santiago, Patricia
Subject: RE: Canceled: Fukushima Daiichi coordination meeting

Maybe we could discuss tomorrow. Thanks.

From: Santiago, Patricia
Sent: Thursday, March 17, 2011 3:35 PM
To: Schaperow, Jason
Subject: Re: Canceled: Fukushima Daiichi coordination meeting

If we as spb want to meet I am good with that. Do u want to send it to me carlos charlie etc

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6)

E

From: Schaperow, Jason
To: Uhle, Jennifer; Gibson, Kathy; Santiago, Patricia; Lee, Richard; Tinkler, Charles; Salay, Michael; Wagner, Katie
Sent: Thu Mar 17 15:31:23 2011
Subject: Canceled: Fukushima Daiichi coordination meeting

When: Occurs every day effective 3/17/2011 until 3/18/2011 from 3:00 PM to 3:30 PM (GMT-05:00) Eastern Time (US & Canada).

Where: 2C17

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

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

Request you attend coordination meeting to discuss ongoing DSA efforts on Fukushia Daiichi accident and preparation for Monday's Commission meeting.

Meeting requested by Jason.

55\40

Schaperow, Jason

From: Schaperow, Jason
Sent: Thursday, March 17, 2011 2:39 PM
To: Santiago, Patricia
Subject: RE: Fukushima Daiichi coordination meeting

I need to go home at 4:45 p.m.

-----Original Message-----
From: Santiago, Patricia
Sent: Thursday, March 17, 2011 2:38 PM
To: Schaperow, Jason; Uhle, Jennifer; Gibson, Kathy; Lee, Richard; Tinkler, Charles; Salay, Michael
Subject: Fukushima Daiichi coordination meeting

Jason although this is a good idea. We are in op center and edo ocm pre planning meetings. You might move this to 5 pm so we can attend.

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6)

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 2:40 PM
To: Santiago, Patricia
Subject: RE: Fukushima Daiichi coordination meeting
Attachments: Kathy Halvey Gibson.vcf

I tasked Mike with determining whether this meeting was necessary and who should attend, etc.

-----Original Message-----
From: Santiago, Patricia
Sent: Thursday, March 17, 2011 2:38 PM
To: Schaperow, Jason; Uhle, Jennifer; Gibson, Kathy; Lee, Richard; Tinkler, Charles; Salay, Michael
Subject: Fukushima Daiichi coordination meeting

Jason although this is a good idea. We are in op center and edo ocm pre planning meetings. You might move this to 5 pm so we can attend.

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6)

Schaperow, Jason

From: Schaperow, Jason
Sent: Thursday, March 17, 2011 2:33 PM
To: Williams, Donna
Subject: RE: Questions from Operations Center

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 2:00 PM
To: Wagner, Katie
Cc: Lee, Richard; Scott, Michael; Zigh, Ghani; Schaperow, Jason; Santiago, Patricia
Subject: Questions from Operations Center

Katie,
I receive two questions from the Operations Center reactor safety team.

1. Request for b.5.b air oxidation in BWRs report and slides. Assigned to Jason Schaperow. He will provide the slides and the ML number for the report to either the Ops center directly or to you to forward to the ops center (email RST01.hoc@nrc.gov, contact Donna Williams)
2. Request for the name(s) of RES staff who can distinguish between zirconium fire, oil fire, steam explosion, etc from a thermal image of the Japanese reactors and spent fuel pools.
3. Assigned to Ghani Zigh. Ghani will check with Mike Salley and Sandia to see who might have these skills and provide the name(s) to me. I will then either forward them to the Ops Center or ask you to do it.

Thanks!

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

55/42

Schaperow, Jason

From: Schaperow, Jason
Sent: Thursday, March 17, 2011 2:28 PM
To: Wagner, Katie
Subject: RE: Questions from Operations Center

Thanks.

From: Wagner, Katie
Sent: Thursday, March 17, 2011 2:26 PM
To: RST01 Hoc
Subject: FW: Questions from Operations Center
Importance: High

Ops Personnel,

Please see the email below and attached slides.

Thanks,

Katie Wagner
General Engineer
U.S. Nuclear Regulatory Commission
(301) 251.7917
Katie.Wagner@nrc.gov

From: Schaperow, Jason
Sent: Thursday, March 17, 2011 2:21 PM
To: Wagner, Katie
Subject: FW: Questions from Operations Center
Importance: High

Please forward to the Ops Center the attached slides that we used to brief the Blue Ribbon Commission on America's Nuclear Future on 2/3/11.
Also, please give the Ops Center the following ML# which contains our spent fuel pool analysis report: ML062550218.

Thanks,
Jason

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 2:00 PM
To: Wagner, Katie
Cc: Lee, Richard; Scott, Michael; Zigh, Ghani; Schaperow, Jason; Santiago, Patricia
Subject: Questions from Operations Center

Katie,
I receive two questions from the Operations Center reactor safety team.

1. Request for b.5.b air oxidation in BWRs report and slides. Assigned to Jason Schaperow. He will provide the slides and the ML number for the report to either the Ops center directly or to you to forward to the ops center (email RST01.hoc@nrc.gov, contact Donna Williams)

SS/43

2. Request for the name(s) of RES staff who can distinguish between zirconium fire, oil fire, steam explosion, etc from a thermal image of the Japanese reactors and spent fuel pools.
3. Assigned to Ghani Zigh. Ghani will check with Mike Salley and Sandia to see who might have these skills and provide the name(s) to me. I will then either forward them to the Ops Center or ask you to do it.

Thanks!

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

Schaperow, Jason

From:	Schaperow, Jason
Sent:	Thursday, March 17, 2011 2:22 PM
To:	Tinkler, Charles
Subject:	FW: Questions from Operations Center
Attachments:	BRC 110203.rev1.ppt
Importance:	High

Forgot to include you on cc. Sorry.

From: Schaperow, Jason
Sent: Thursday, March 17, 2011 2:21 PM
To: Wagner, Katie
Subject: FW: Questions from Operations Center
Importance: High

Please forward to the Ops Center the attached slides that we used to brief the Blue Ribbon Commission on America's Nuclear Future on 2/3/11.
Also, please give the Ops Center the following ML# which contains our spent fuel pool analysis report: ML062550218.

Thanks,
Jason

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 2:00 PM
To: Wagner, Katie
Cc: Lee, Richard; Scott, Michael; Zigh, Ghani; Schaperow, Jason; Santiago, Patricia
Subject: Questions from Operations Center

Katie,
I receive two questions from the Operations Center reactor safety team.

1. Request for b.5.b air oxidation in BWRs report and slides. Assigned to Jason Schaperow. He will provide the slides and the ML number for the report to either the Ops center directly or to you to forward to the ops center (email RST01.hoc@nrc.gov, contact Donna Williams).
2. Request for the name(s) of RES staff who can distinguish between zirconium fire, oil fire, steam explosion, etc from a thermal image of the Japanese reactors and spent fuel pools.
3. Assigned to Ghani Zigh. Ghani will check with Mike Salley and Sandia to see who might have these skills and provide the name(s) to me. I will then either forward them to the Ops Center or ask you to do it.

Thanks!

SS/44

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

[illegible]

Schaperow, Jason

From: Schaperow, Jason
Sent: Thursday, March 17, 2011 2:16 PM
To: Chang, Richard
Subject: RE: Questions from Operations Center

No.

From: Chang, Richard
Sent: Thursday, March 17, 2011 2:07 PM
To: Schaperow, Jason
Subject: RE: Questions from Operations Center

Thank you.

For the item that you were assigned, will you be using Sandia support?

Regards,
Richard

From: Schaperow, Jason
Sent: Thursday, March 17, 2011 2:02 PM
To: Chang, Richard
Subject: FW: Questions from Operations Center

FYI.

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 2:00 PM
To: Wagner, Katie
Cc: Lee, Richard; Scott, Michael; Zigh, Ghani; Schaperow, Jason; Santiago, Patricia
Subject: Questions from Operations Center

Katie,
I receive two questions from the Operations Center reactor safety team.

1. Request for b.5.b air oxidation in BWRs report and slides. Assigned to Jason Schaperow. He will provide the slides and the ML number for the report to either the Ops center directly or to you to forward to the ops center (email RST01.hoc@nrc.gov, contact Donna Williams).
2. Request for the name(s) of RES staff who can distinguish between zirconium fire, oil fire, steam explosion, etc from a thermal image of the Japanese reactors and spent fuel pools.
3. Assigned to Ghani Zigh. Ghani will check with Mike Salley and Sandia to see who might have these skills and provide the name(s) to me. I will then either forward them to the Ops Center or ask you to do it.

Thanks!

SS/45

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 11:38 AM
To: RES_DSA
Subject: Information requests to DSA staff on Japan - Katie Wagner single POC
Attachments: Kathy Halvey Gibson.vcf; image001.jpg

Importance: High

DSA colleagues,
We are establishing a system to process information requests about the situation in Japan to ensure we follow agency direction and ensure actions are not taken based on any single staff members answer to ad hoc questions. If you give an answer to a question and action is taken based on your answer (without management knowledge), you may be held responsible.

Any requests for information (written or oral) you get related to the situation in Japan should be sent to sent to Katie Wagner (and inform your supervisor). Katie's contact information is 301-251-7917 or Katie.Wagner@nrc.gov. She will keep a log of the requests with who the action was assigned to and status. She will update me and Mike at least at the end of each day so we can update Brian/Jennifer at the 8:45 each morning.

This is intended to efficiently track and process requests. It is not intended to make communication more difficult. Staff should continue their routine communications with their contractors as usual.

We also need to be cognizant of contractual obligations and make sure we have proper documentation in place for work that we request of contractors. On their end, the contractors should not do any work that they intend to bill us for without getting approval from the NRC project managers.

Please let me or Mike know how this works and if you experience any difficulties so we can adjust as we need to as the days go on.

Thanks to all for your cooperation in these difficult circumstances.

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

Schaperow, Jason

From: Schaperow, Jason
Sent: Thursday, March 17, 2011 6:21 AM
To: nbixler@sandia.gov
Cc: rogaunt@sandia.gov; Tinkler, Charles
Subject: Please call me! This is urgent!

Importance: High

Hi Nate,

If you are in the Washington, DC, area, we need you to come to RES to run MACCS calculations. We will set you up with a PC immediately. My understanding is that these calculations are a direct need of Chairman Jaczko.

The issue is that we need some estimates of offsite doses beyond 50 mile for multiple reactor and spent fuel pool accidents (for Yukushima Daiichi). RASCAL only goes out to 50 miles.

Please call me! This is urgent!

Try my cell phone first: (b)(6)
(Then my home phone: (b)(6) Then my work phone: 301-251-7452)

Then come to my office at the Church Street Building, I will be in around 8:00 a.m.

Thanks,
Jason

SS/47

Schaperow, Jason

From: Schaperow, Jason
Sent: Thursday, March 17, 2011 6:23 AM
To: nbixler@sandia.gov
Subject: Please call me! This is urgent!

Importance: High

Hi Nate,

If you are in the Washington, DC, area, we need you to come to RES to run MACCS calculations. We will set you up with a PC immediately. My understanding is that these calculations are a direct need of Chairman Jaczko.

The issue is that we need some estimates of offsite doses beyond 50 mile for multiple reactor and spent fuel pool accidents (for Yukushima Daiichi). RASCAL only goes out to 50 miles.

Please call me! This is urgent!

Try my cell phone first: (b)(6)
(Then my home phone: (b)(6) Then my work phone: 301-251-7452)

Then come to my office at the Church Street Building, I will be in around 8:00 a.m.

Thanks,
Jason

55/48

Schaperow, Jason

From: Schaperow, Jason
Sent: Thursday, March 17, 2011 6:22 AM
To: nbixler@sandia.gov
Cc: rogaunt@sandia.gov; Tinkler, Charles
Subject: Please call me! This is urgent!

Importance: High

Hi Nate,

If you are in the Washington, DC, area, we need you to come to RES to run MACCS calculations. We will set you up with a PC immediately. My understanding is that these calculations are a direct need of Chairman Jaczko.

The issue is that we need some estimates of offsite doses beyond 50 mile for multiple reactor and spent fuel pool accidents (for Yukushima Daiichi). RASCAL only goes out to 50 miles.

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Try my cell phone first: (b)(6)
(Then my home phone: (b)(6) Then my work phone: 301-251-7452)

Then come to my office at the Church Street Building. I will be in around 8:00 a.m.

Thanks,
Jason

55/49

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 7:34 PM
To: Zigh, Ghani; Wagner, Katie
Cc: Salley, MarkHenry
Subject: RE: Questions from Operations Center
Attachments: Kathy Halvey Gibson2.vcf; image001.jpg

Katie,
Please provide the information below to the Ops Center regarding expertise in thermal imaging.

Thanks,
k

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Zigh, Ghani
Sent: Thursday, March 17, 2011 7:28 PM
To: Gibson, Kathy
Subject: FW: Questions from Operations Center

Kathy,
John Roskovensky is a sandia staff (see bottom e-mail) who can help with aerial thermal images to differentiate between oil or zirc fire.

From: Durbin, Samuel [sdurbin@sandia.gov]
Sent: Thursday, March 17, 2011 6:30 PM
To: Zigh, Ghani
Cc: Roskovensky, John K; Townsend, Toby O
Subject: RE: Questions from Operations Center

Ghani,

I just spoke with John Roskovensky of Org. 5717, Mission Science and Analysis. Their group may possess the expertise for determining the nature of the fire in the thermal images from the Fukushima nuclear plant, i.e. zirc fire vs. organics. The manager of the group is Toby Townsend and is copied in this email.

Sam
Samuel Durbin II
Sandia National Laboratories
Advanced Nuclear Fuel Cycle Technologies, Organization 6223
P.O Box 5800 - MS 0747
Albuquerque, NM 87185-0747
Office: (505) 284-7850
Fax: (505) 844-2348

55\50

From: Durbin, Samuel <sdurbin@sandia.gov>
To: Zigh, Ghani
Sent: Thu Mar 17 17:13:26 2011
Subject: RE: Questions from Operations Center

Ghani,

We do have experts in this field. I have thus far been able to form leads but have been unable to speak directly with potentially suitable personnel to confirm their expertise.

From my own understanding, the emissive power as a function of wavelength data would be needed to determine a temperature. This data would need to accommodate the sensitivity as a function of wavelength of the imaging device and possible infrared absorption bands (esp. H_2O). The corrected emissive power as a function of wavelength would be fitted to a blackbody power spectrum, ultimately resulting in the apparent fire temperature. If the instrument is sensitive enough, it should be able to differentiate between a zirc fire ~2000 K and an organic fire <1500 K.

Sam

From: Zigh, Ghani [mailto:Ghani.Zigh@nrc.gov]
Sent: Thursday, March 17, 2011 2:17 PM
To: Durbin, Samuel; Lindgren, Eric
Subject: FW: Questions from Operations Center

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 2:00 PM
To: Wagner, Katie
Cc: Lee, Richard; Scott, Michael; Zigh, Ghani; Schaperow, Jason; Santiago, Patricia
Subject: Questions from Operations Center

Katie,
I receive two questions from the Operations Center reactor safety team.

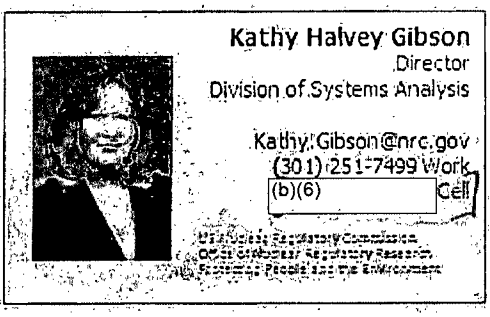
1. Request for b.5.b air oxidation in BWRs report and slides. Assigned to Jason Schaperow. He will provide the slides and the ML number for the report to either the Ops center directly or to you to forward to the ops center (email RST01.hoc@nrc.gov, contact Donna Williams).
2. Request for the name(s) of RES staff who can distinguish between zirconium fire, oil fire, steam explosion, etc from a thermal image of the Japanese reactors and spent fuel pools.
3. Assigned to Ghani Zigh. Ghani will check with Mike Salley and Sandia to see who might have these skills and provide the name(s) to me. I will then either forward them to the Ops Center or ask you to do it.

Thanks!

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 5:54 PM
To: Bajorek, Stephen; Scott, Michael
Subject: RE: Rescinding the Denial of PRM-50-76
Attachments: Kathy Halvey Gibson.vcf; image001.jpg

Thanks, Steve, this is helpful.



From: Bajorek, Stephen
Sent: Thursday, March 17, 2011 5:40 PM
To: Scott, Michael
Cc: Gibson, Kathy
Subject: FW: Rescinding the Denial of PRM-50-76

Mike,

I think that if asked about this email from Leyse your response should be:

The staff is currently evaluating Mr. Leyse's concern as part of the petition PRM-50-95. The issue he expresses is not new and his latest email does not provide any new information or insight (as we do not believe he has access to in-core temperatures from the plant). His concern is on some specific correlations used to predict cladding oxidation. Our previous evaluations have found these to be acceptable and adequate and we do not expect this conclusion to change based on information from Fukushima.

Gary's email (below) may also be a help.

Steve

From: Mizuno, Geary
Sent: Thursday, March 17, 2011 2:52 PM
To: Dudley, Richard; Collins, Timothy; Reed, Timothy; Bajorek, Stephen; Scott, Harold
Cc: Helton, Shana; Inverso, Tara
Subject: RE: Rescinding the Denial of PRM-50-76

Assuming that the Commission is going to delegate this down to the staff to respond, the letter should be a simple letter, indicating that the staff has been asked to answer the letter, and the NRC staff declines to recommend rescinding of the petition denial, because the Mr. Leyse's letter provides no new information that would provide a basis for a determination that the Commission's earlier denial was incorrect.

By contrast, if this is for the Secretary's signature, then the letter should state that the Commission has been provided with a copy of the Leyse letter, and they decline to rescind the petition denial, because the Mr.

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Leyse's letter provides no new information that would provide a basis for a determination that the Commission's earlier denial was incorrect.

Geary

From: Dudley, Richard
Sent: Thursday, March 17, 2011 1:17 PM
To: Collins, Timothy; Reed, Timothy; Bajorek, Stephen; Scott, Harold; Mizuno, Geary
Cc: Helton, Shana; Inverso, Tara
Subject: FW: Rescinding the Denial of PRM-50-76

I think we were all expecting something like this.

Tim Reed – See the requested revisiting of PRM-50-76.

Dick Dudley

From: (b)(6)
Sent: Thursday, March 17, 2011 1:04 PM
To: CHAIRMAN Resource; CMRSVINICKI Resource; CMROSTENDORFF Resource; CMRMAGWOOD Resource; CMRAPOSTOLAKIS Resource; Burns, Stephen
Cc: Inverso, Tara; Helton, Shana; Tregoning, Robert; Miller, Barry; Carlson, Robert; Dudley, Richard; Clifford, Paul; Herr, Linda; Voglewede, John; Bell, Hubert
Subject: Fwd: Rescinding the Denial of PRM-50-76

Furthermore, you must cease delaying the review of PRM-50-93. The recent production of hydrogen in Japan was initiated well below 2200 degrees Fahrenheit.

Bob Leyse (b)(6)

From: (b)(6)
To: chairman@nrc.gov, cmrsvinicki@nrc.gov, cmrostendorff@nrc.gov, cmrmagwood@nrc.gov, cmrapostolakis@nrc.gov, stephen.burns@nrc.gov
CC: Tara.Inverso@nrc.gov, Shana.Helton@nrc.gov, Robert.Tregoning@nrc.gov, barry.miller@nrc.gov, Robert.Carlson@nrc.gov, Richard.Dudley@nrc.gov, Paul.Clifford@nrc.gov, Linda.Herr@nrc.gov, John.Voglewede@nrc.gov
Sent: 6/10/2010 9:42:37 A.M. Mountain Daylight Time
Subj: Rescinding the Denial of PRM-50-76

To the Commissioners:

You are urged to direct the NRC staff to promptly write a document for your approval that rescinds the denial of PRM-50-76 that was published in the Federal Register on September 6, 2005 (NRC-2002-0019-00130). The attachment to this e-mail, *Rebuttal SECY-05-0113 Leyse R*, has Leyse's rebuttal in 14 point type interspersed within the NRC's draft notice, SECY-03-0113, dated June 29, 2005.

Rescinding the denial of PRM-50-76 is vital. Under current regulations at 10CFR50.46(b)(1) and Appendix K to 10CFR Part 50, our nuclear power plants lack sufficient measures to prevent runaway to meltdown when blowout occurs during a loss-of-coolant accident. The **Baker-Just equation** does not accurately and conservatively indicate the conditions under which an autocatalytic (runaway) oxidation reaction of Zircaloy begins.

Reference:

Appendix K to Part 50--ECCS Evaluation Models

I. Required and Acceptable Features of the Evaluation Models

5. *Metal--Water Reaction Rate*. The rate of energy release, hydrogen generation, and cladding oxidation from the metal/water reaction shall be calculated using the **Baker-Just equation** (Baker, L., Just, L.C., "Studies of Metal Water Reactions at High Temperatures, III. Experimental and Theoretical Studies of the Zirconium-Water Reaction," ANL-6548, page 7, May 1962).

Robert H. Leyse

(b)(6)

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 5:04 PM
To: Bush-Goddard, Stephanie; Scott, Michael
Cc: Brandon, Lou
Subject: RE: RASCAL Dose Assessment person for this evening and tomorrow
Attachments: Kathy Halvey Gibson2.vcf; image001.jpg

Stephanie,
I understand that your staff (including you) have been assigned other positions in the Ops center. I appreciate their willingness to serve in this capacity.

However, I would like those with HP backgrounds to be trained (or retrained) on RASCAL and be assigned (as much as possible) to the Protective Measures Team. This is the most effective and efficient use of the staff's talents and the agency's resources. There are plenty of other staff across the agency that can be communicators, etc.

Please work with your staff and Lou Brandon to move towards getting HPs trained and on the PMT.

Thanks,
Kathy

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

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Office of Nuclear Regulatory Research
Protecting People and the Environment

From: Bush-Goddard, Stephanie
Sent: Wednesday, March 16, 2011 6:13 PM
To: Gibson, Kathy; Scott, Michael
Subject: Re: RASCAL Dose Assessment person for this evening and tomorrow

Kathy and Mike,

Most of us have had RASCAL training in the past, but we are rusty.

It is hard to schedule this type of training and stay current due to the nature and low probabilty of this happening.

This is great on the job training. I plan to encourage others when I get back and work some shifts myself.

Please feel free to encourage other to work the shifts. Lou Brandon and other can help them.

From: Gibson, Kathy
To: Scott, Michael
Cc: Bush-Goddard, Stephanie

55/52

Sent: Wed Mar 16 18:00:34 2011
Subject: Fw: RASCAL Dose Assessment person for this evening and tomorrow

Fyi

From: Gibson, Kathy
To: Sheron, Brian
Sent: Wed Mar 16 14:24:02 2011
Subject: FW: RASCAL Dose Assessment person for this evening and tomorrow

HEB staff and RASCAL

We will make it a point to get all HPs in DSA to learn RASCAL. I have already set this expectation with Stephanie, but will reinforce when she returns.

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell Ex 2

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From: Lewis, Doris
Sent: Wednesday, March 16, 2011 2:18 PM
To: Gibson, Kathy
Cc: Tomon, John
Subject: RE: RASCAL Dose Assessment person for this evening and tomorrow

Hi Kathy,

HEB only has 2 staffers that can run RASCAL – Tony and Casper. Both of them are currently supporting the PMT.

I spoke to Sami and he is familiar with this code (about 10 years ago) but has not used it in its recent version.

Thanks,
Doris

From: Gibson, Kathy
Sent: Wednesday, March 16, 2011 1:49 PM
To: Lewis, Doris
Subject: Fw: RASCAL Dose Assessment person for this evening and tomorrow

Please survey HEB staff(including Sami) and let me know who all can run RASCAL.

From: Sheron, Brian
To: Gibson, Kathy; Scott, Michael
Sent: Wed Mar 16 13:45:52 2011
Subject: FW: RASCAL Dose Assessment person for this evening and tomorrow

What about Sami?

From: Moore, Scott
Sent: Wednesday, March 16, 2011 1:35 PM
To: Evans, Michele; OST02 HOC
Cc: Tracy, Glenn; Cohen, Miriam; Uhle, Jennifer; Sheron, Brian; Deegan, George
Subject: RASCAL Dose Assessment person for this evening and tomorrow

Michelle:

You asked for additional people to support RASCAL in the Ops Center for the 11-7 shift this evening, and the 7-3 shift tomorrow. We are checking our staff that may have experience with RASCAL, but are finding that many are already working the Operations Center on the Protective Measures team, in assigned roles. FSME will continue looking.

In addition, you may want to look into the following:

OHR offers a course in RASCAL. I believe that the most recent one was offered in Region I, and all of the attendees may have been from the Region, so that may not help you for shifts this evening, but if OHR could provide you with a list of staff who have completed the RASCAL course who are here, at HQ, then that could give you a group from which to draw upon.

Finally, Dr. Sami Sherbini, who is assigned to RES and was formerly of FSME, is well versed in dose assessment and codes, and may have RASCAL experience. He came to mind. You would need to talk to RES about Sami's availability.

We will still get back to you with an answer from FSME, in follow up to the conference call yesterday, but I wanted you to be aware of the RASCAL course and Sherbini.

Scott
x7875

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 5:53 PM
To: Lee, Richard
Cc: Tinkler, Charles; Wagner, Katie
Subject: FW: Sandia reports requested for Fuku recovery
Attachments: Kathy Halvey Gibson.vcf

Importance: High

Richard,
This is high priority. Please find out how we can send OUO reports to GE.

Thanks,
Kathy

-----Original Message-----
From: Wagner, Katie
Sent: Thursday, March 17, 2011 5:42 PM
To: wayne.marquino@ge.com
Cc: Gibson, Kathy
Subject: RE: Sandia reports requested for Fuku recovery

Dear Mr. Marquino,

I am the POC for your request for reports. We are following up on your request and will get back to you.

Thanks,

Katie Wagner
General Engineer
U.S. Nuclear Regulatory Commission
(301) 251.7917
Katie.Wagner@nrc.gov

-----Original Message-----
From: Marquino, Wayne (GE Power & Water) [mailto:wayne.marquino@ge.com]
Sent: Thursday, March 17, 2011 4:35 PM
To: Tinkler, Charles
Cc: Kingston, Rick E. (GE Power & Water); Head, Jerald G (GE Power & Water); Quintana, Louis M (GE Power & Water); Gauntt, Randall O
Subject: Sandia reports requested for Fuku recovery

Charles -

We request the reports in the attached .pdf file to assist in recovery efforts at the Fukushima 1 units. We've screened the list of reports provided by Randy Gauntt, to those which seem relevant to our present efforts.

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If you can send them to me encrypted via email, I will follow GEH Safe Guards Information while handling them. Please advise what encryption SW I need if it's special so I can install it on our SGI computer.

If via FedEx, please send to

Jerald Head
3901 Castle Hayne Road M/C A18
Wilmington, NC 28402

Thanks,

Wayne

Wayne Marquino P.E.
System Integration Engineering Manager, ESBWR GE Hitachi Nuclear Energy
Voice- (910) 819-6444 (dial comm 819-6444) Cell (b)(6)
FAX- (910) 362-6444
Conferencing passcode (b)(6) toll free: (b)(6) International (b)(6), Sweden (b)(6) Spain (b)(6) Japan (b)(6) Mexico (b)(6) DialComm (b)(6)

email:wayne.marquino@ge.com
3901 Castle Hayne Road M/C A75
ATC2 4319
Wilmington, NC 28402
www.ge-energy.com/nuclear
http://www.ge-energy.com/prod_serv/products/nuclear_energy/en/passive_safety_system.htm
http://adamswebsearch2.nrc.gov/idmws/ViewDocByAccession.asp?AccessionNumber=ML103440266

-----Original Message-----
From: Gauntt, Randall O [mailto:rogaunt@sandia.gov]
Sent: Wednesday, March 16, 2011 5:09 PM
To: Marquino, Wayne (GE Power & Water); Head, Jerald G (GE Power & Water)
Cc: Loewen, Eric (GE Power & Water); Ginsberg, Robert (GE Power & Water); Klapproth, James F (GE Power & Water); Quintana, Louis M (GE Power & Water)
Subject: RE: Can we call you about spent fuel?

Wayne
List of relevant reports.

Randy

-----Original Message-----
From: Marquino, Wayne (GE Power & Water) [mailto:wayne.marquino@ge.com]
Sent: Wednesday, March 16, 2011 11:49 AM
To: Gauntt, Randall O; Head, Jerald G (GE Power & Water)
Cc: Loewen, Eric (GE Power & Water); Ginsberg, Robert (GE Power & Water); Klapproth, James F (GE Power & Water); Quintana, Louis M (GE Power & Water)
Subject: Re: Can we call you about spent fuel?

Jerry-

Jim asked me to request the reports via you when Randy sends the reports numbers.

Wayne
Wayne Marquino P.E.
System Integration Engineering Manager, ESBWR GE Hitachi Nuclear Energy

Voice- (910) 819-6444 (dial comm 292-6444) Cell (910) 228-2982
FAX- (910) 362-6444
Conferencing passcode 2926444, toll free: 8005010843 International 01 647 723 6909, Spain access 900800388

email:wayne.marquino@ge.com

3901 Castle Hayne Road M/C A75
ATC2 4319
Wilmington, NC 28402

(b)(6)

----- Original Message -----
From: Marquino, Wayne (GE Power & Water)
To: Gauntt, Randall O <rogaunt@sandia.gov>
Cc: Loewen, Eric (GE Power & Water); Ginsberg, Robert (GE Power & Water); Klapproth, James F (GE Power & Water)
Sent: Wed Mar 16 12:09:07 2011
Subject: RE: Can we call you about spent fuel?

Randy -

GEH would like to obtain the Sandia reports you described on spent fuel response to loss of cooling which includes BWR fuel and different discharge times. Can you provide the report numbers?

I understand that these have a security classification (one of the lower ones) and therefore will have to request reports from the NRC, and the knowledgeable NRC contacts are:

Jennifer Uhle 301 251 7499

Hinkler 251 7496

Brain Sheron

Thanks for the information,

Wayne

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 4:49 PM
To: Wagner, Katie
Subject: FW: Request from Ops Center RST
Attachments: Kathy Halvey Gibson2.vcf; image001.jpg

Importance: High

Katie,
This action is complete.

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Tinkler, Charles
Sent: Thursday, March 17, 2011 4:48 PM
To: Gibson, Kathy
Subject: RE: Request from Ops Center RST

We are talking to them now.

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 4:46 PM
To: Wagner, Katie
Cc: Tinkler, Charles; Zigh, Ghani; Lee, Richard
Subject: Request from Ops Center RST

Katie,
Operations Center requested an expert in spent fuel pool fires to contact the Reactor Safety Team to talk to RST and Chuck Casto (NRC's team lead in Japan). They are strategizing on recommendations to make to the Japanese regarding the SFP (add water, etc.)

Charlie Tinkler and Ghani Zigh called the RST and were told that they would call them back, but the RST as of yet has not called back.

Please provide the Ops Center the response that Charlie Tinkler or Ghani Zigh can be contacted regarding SFP fires. We recommend that a conference call be arranged so that they both can participate in any relevant discussions.

Thanks,
Kathy

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Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

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Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 7:29 PM
To: Sheron, Brian; Scott, Michael
Cc: Uhle, Jennifer
Subject: RE: Effect of Salt
Attachments: Kathy Halvey Gibson.vcf; image001.jpg

Will find out from Richard/Mike Salay

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

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From: Sheron, Brian
Sent: Thursday, March 17, 2011 6:56 PM
To: Gibson, Kathy; Scott, Michael
Cc: Uhle, Jennifer
Subject: Effect of Salt

During my meeting today with Secretary Chu, the issue of salt water injection came up. The Japanese are injection seawater into the reactors. The seawater is boiling off, leaving salt. While there are obvious questions about how salt might affect coolability of the core (clogging coolant channels, etc., a question was raised about how the salt might affect the Cesium release. Do we have any info on what the effect might be?

SS/55

Greenwood, Carol

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 7:32 PM
To: Lee, Richard; Salay, Michael
Cc: Wagner, Katie
Subject: FW: Effect of Salt
Attachments: Kathy Halvey Gibson.vcf; image001.jpg

Importance: High

Richard, Mike,
Do you have any info to answer this question? Effect of salt on cesium release? I'd like to respond to Brian tomorrow.

Thanks,
Kathy

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Sheron, Brian
Sent: Thursday, March 17, 2011 6:56 PM
To: Gibson, Kathy; Scott, Michael
Cc: Uhle, Jennifer
Subject: Effect of Salt

During my meeting today with Secretary Chu, the issue of salt water injection came up. The Japanese are injection seawater into the reactors. The seawater is boiling off, leaving salt. While there are obvious questions about how salt might affect coolability of the core (clogging coolant channels, etc., a question was raised about how the salt might affect the Cesium release. Do we have any info on what the effect might be?

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Greenwood, Carol

From:	Gibson, Kathy
Sent:	Friday, March 18, 2011 10:13 AM
To:	Wagner, Katie
Cc:	Sheron, Brian; Uhle, Jennifer
Subject:	Sharepoint site with requests from outside RES re: Japan
Attachments:	Kathy Halvey Gibson.vcf; image001.jpg

Katie,
Please send Brian and Jennifer the link to the SharePoint site so they can review as they have time and interest.

Thanks,
Kathy

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

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Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 9:31 AM
To: RST01 Hoc; HOO Hoc; PMT01 Hoc
Cc: Lee, Richard; Sheron, Brian; Uhle, Jennifer
Subject: POC for RES/DSA

This message is from Kathy Gibson, Division Director, RES.

Apparently we missed a conference call this morning at 8am on SFP issues via an email that went to individual staff members. Also our office director and deputy are making trips to Congress and other duties outside of the office so they have missed calls from the Ops Center.

To help facilitate communications between RES and the Ops Center, I have assigned Richard Lee (BC for severe accident research) as our POC with the Ops Center (24x7). I request that any support that you need from RES/DSA be sent to Richard and he will either get the answer or put the right person in contact with the appropriate team or person in the Ops Center. Richard's contact information is:

Office: 251-7526
BB: (b)(6)
Richard.Lee@nrc.gov

As a backup, please contact me:

Office: 251-7499
BB: (b)(6) Ex 6
Kathy.Gibson@nrc.gov

Thank you!

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Schaperow, Jason

From: Schaperow, Jason
Sent: Friday, March 18, 2011 8:26 AM
To: 'Bixler, Nathan E'
Subject: RE: Please call me! This is urgent!

Thanks for trying to get a hold of me yesterday.

I understand that you are in Wilmington. We do NOT need you to come to RES. Thanks.

-----Original Message-----
From: Bixler, Nathan E [mailto:nbixler@sandia.gov]
Sent: Friday, March 18, 2011 7:33 AM
To: Schaperow, Jason
Subject: RE: Please call me! This is urgent!

Jason,

I tried to call several times yesterday and left several messages. I'm in Wilmington this morning and am not sure how quickly I could get up to DC. Let me know what you think makes sense for me to do.

In the meantime, I've been working with Ray Jun and Randy Gauntt back at Sandia to get some calculations running. They have better data than I do at this point for doing consequence calculations. I hope Ray is getting the results that you need. But let me know if I need to do something further.

Nate

-----Original Message-----
From: Schaperow, Jason [mailto:Jason.Schaperow@nrc.gov]
Sent: Thursday, March 17, 2011 4:23 AM
To: Bixler, Nathan E
Subject: Please call me! This is urgent!
Importance: High

Hi Nate,

If you are in the Washington, DC, area, we need you to come to RES to run MACCS calculations. We will set you up with a PC immediately. My understanding is that these calculations are a direct need of Chairman Jaczko.

The issue is that we need some estimates of offsite doses beyond 50 mile for multiple reactor and spent fuel pool accidents (for Yukushima Daiichi). RASCAL only goes out to 50 miles.

Please call me! This is urgent!

Try my cell phone first: (b)(6)
(Then my home phone (b)(6) Then my work phone: 301-251-7452).

Then come to my office at the Church Street Building, I will be in around 8:00 a.m.

Thanks,

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Jason

Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 2:53 PM
To: Holahan, Vincent; Lubinski, John
Subject: Re: Ops Center shift
Attachments: image001.jpg

Thanks Vince.

John, FYI - please forward to whoever needs to know.

From: Holahan, Vincent
To: Gibson, Kathy
Sent: Fri Mar 18 12:29:10 2011
Subject: RE: Ops Center shift

Hi Cathy,

Assuming that I'm still here, I can switch shifts. Assume it's a done deal. If there is an issue with my availability, we'll let the Op Center deal with it.

Cheers,
Vince

From: Gibson, Kathy
Sent: Friday, March 18, 2011 10:15 AM
To: Holahan, Vincent
Subject: Ops Center shift

Vince,
Any chance you would want to switch shifts with me on April 7, 8, 9? I am scheduled for 3-11 and I have kid stuff going on, but I could do the 11-7am shift if you are amenable to switching.

Thanks,
Kathy

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

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Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 2:06 PM
To: Evans, Michele
Cc: Case, Michael
Subject: Re: Staff for Potential Support in Japan
Attachments: image001.jpg

No he is not, Mike Case is considering alternatives.

From: Evans, Michele
To: Gibson, Kathy
Sent: Fri Mar 18 14:04:02 2011
Subject: RE: Staff for Potential Support in Japan

A question came up from Wiggins whether Syed Ali was available for structural since he was so involved in the post 911 work

---

From: Gibson, Kathy
Sent: Friday, March 18, 2011 1:39 PM
To: Evans, Michele
Cc: Uhle, Jennifer; Coyne, Kevin; Huffert, Anthony; Rubin, Stuart; Yarsky, Peter; Salley, MarkHenry; Elkins, Scott; Case, Michael; Bush-Goddard, Stephanie; Scott, Michael
Subject: Staff for Potential Support in Japan
Importance: High

Michele,
I am following up on your request to Jennifer for staff to potentially go to Japan beginning around March 24 for about 2 weeks.

I don't have a name for structural as yet, but will provide it when DE gets back to me.

For the other areas of expertise:

Protective Measures – Tony Huffert
Engineers with good people skills – Stu Rubin, Peter Yarsky
Infrared Imaging – Mark Salley

Please let me know if you need anything else.

Kathy

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 2:05 PM
To: Greenwood, Carol
Subject: Re: Ops Center Called, Want you to work tonights shift

Yes I can, and I will call.

From: Greenwood, Carol
To: Gibson, Kathy
Sent: Fri Mar 18 14:01:06 2011
Subject: Ops Center Called, Want you to work tonights shift

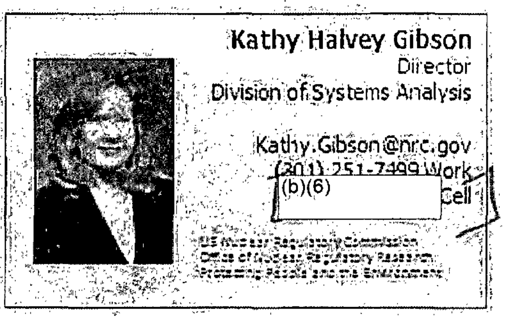
Please call Tony on his cell (b)(6)

55/60

Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 1:39 PM
To: Case, Michael
Subject: RE: Syed and the Japan Trip
Attachments: Kathy Halvey Gibson.vcf; image001.jpg

Ok do you have an alternative?



From: Case, Michael
Sent: Friday, March 18, 2011 1:38 PM
To: Gibson, Kathy
Subject: Syed and the Japan Trip

Hi Kathy. Syed reports that he has a previous commitment in Paris during the first week of April so he wouldn't be available for the two week duration.

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Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 1:39 PM
To: Evans, Michele
Cc: Uhle, Jennifer; Coyne, Kevin; Huffert, Anthony; Rubin, Stuart; Yarsky, Peter; Salley, MarkHenry; Elkins, Scott; Case, Michael; Bush-Goddard, Stephanie; Scott, Michael
Subject: Staff for Potential Support in Japan
Attachments: Kathy Halvey Gibson.vcf; image001.jpg

Importance: High

Michele,
I am following up on your request to Jennifer for staff to potentially go to Japan beginning around March 24 for about 2 weeks.

I don't have a name for structural as yet, but will provide it when DE gets back to me.

For the other areas of expertise:

Protective Measures – Tony Huffert
Engineers with good people skills – Stu Rubin, Peter Yarsky
Infrared Imaging – Mark Salley

Please let me know if you need anything else.

Kathy

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

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Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 11:05 AM
To: Coyne, Kevin
Subject: Re: Mark Salley's Availability

Great thanks!

From: Coyne, Kevin
To: Gibson, Kathy
Cc: Uhle, Jennifer; Sheron, Brian; Coe, Doug; Correia, Richard; Salley, MarkHenry
Sent: Fri Mar 18 11:00:17 2011
Subject: Mark Salley's Availability

Kathy –

I talked with Mark – he does have the requisite skills (and in fact was down in the ops center last night helping with a similar task). He does have a (b)(6) and is available to go to Japan for two weeks starting March 24. His contact information is:

(b)(6)
(Blackberry)
(cell)
(home)

Kevin

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Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 3:53 PM
To: Uhle, Jennifer
Subject: Fw: Staff for Potential Support in Japan
Attachments: image001.jpg

From: Case, Michael
To: Gibson, Kathy; Evans, Michele
Sent: Fri Mar 18 15:42:22 2011
Subject: RE: Staff for Potential Support in Japan

The other alternative I had is extremely good structural, good people skills but not a lot of plant and agency experience so I don't think it would be the best fit. If the agency really needs a structural person to make it work, I could try some sort of Plan B with Syed.

From: Gibson, Kathy
Sent: Friday, March 18, 2011 2:06 PM
To: Evans, Michele
Cc: Case, Michael
Subject: Re: Staff for Potential Support in Japan

No he is not, Mike Case is considering alternatives.

From: Evans, Michele
To: Gibson, Kathy
Sent: Fri Mar 18 14:04:02 2011
Subject: RE: Staff for Potential Support in Japan

A question came up from Wiggins whether Syed Ali was available for structural since he was so involved in the post 911 work

---

From: Gibson, Kathy
Sent: Friday, March 18, 2011 1:39 PM
To: Evans, Michele
Cc: Uhle, Jennifer; Coyne, Kevin; Huffert, Anthony; Rubin, Stuart; Yarsky, Peter; Salley, MarkHenry; Elkins, Scott; Case, Michael; Bush-Goddard, Stephanie; Scott, Michael
Subject: Staff for Potential Support in Japan
Importance: High

Michele,
I am following up on your request to Jennifer for staff to potentially go to Japan beginning around March 24 for about 2 weeks.

I don't have a name for structural as yet, but will provide it when DE gets back to me.

For the other areas of expertise:

SS\60

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Engineers with good people skills – Stu Rubin, Peter Yarsky

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Please let me know if you need anything else.

Kathy

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell
[illegible]

Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 11:03 PM
To: Scott, Michael
Subject: Re: Japan for me

Good thanks! Get some sleep I'm in the ops center and will take DSA duty now. :-)

----- Original Message -----
From: Scott, Michael
To: Gibson, Kathy
Sent: Fri Mar 18 22:57:41 2011
Subject: RE: Japan for me

Want to give Scott until tomorrow am if okay with you. No mobilizing call yet so don't expect to fly out tomorrow. If I don't hear by late morning will call her.

-----Original Message-----
From: Gibson, Kathy
Sent: Friday, March 18, 2011 10:53 PM
To: Scott, Michael
Subject: Re: Japan for me

Bummer - can you try Stephanie B-G?

----- Original Message -----
From: Scott, Michael
To: Gibson, Kathy
Cc: Elkins, Scott
Sent: Fri Mar 18 22:51:17 2011
Subject: RE: Japan for me

I called and left message - no return call so far.

-----Original Message-----
From: Gibson, Kathy
Sent: Friday, March 18, 2011 10:48 PM
To: Scott, Michael
Subject: Re: Japan for me

Ok do we have scott elkins briefed up?

----- Original Message -----
From: Scott, Michael
To: Sheron, Brian; Uhle, Jennifer; Gibson, Kathy
Sent: Fri Mar 18 16:45:01 2011
Subject: Japan for me

Nsir has approved me going to Japan. If edo and chairman agree, I will be going for estimated two weeks. Likely leaving between tomorrow and tuesday but still tbd. Will try to make you proud. :-)

55\67

Sent from my NRC blackberry
Michael Scott

(b)(6)

Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 10:27 AM
To: Sangimino, Donna-Marie
Cc: Wagner, Katie
Subject: Re: Japanese TV request for Snadia video footage. FW: NHK-TV, Japan - Sandia OECD Lower Head Failure Project - final report

Is this a DSA sponsored activity? I'd so I rely on Richard's judgement and don't object. If it was sponsored by the other divisions they should be consulted. Agree that Ops center and OPA be consulted also.

----- Original Message -----
From: Sangimino, Donna-Marie
To: Sheron, Brian; Uhle, Jennifer; Gibson, Kathy
Cc: Lee, Richard; Valentin, Andrea; Kardaras, Tom; Dehn, Jeff
Sent: Fri Mar 18 10:18:27 2011
Subject: FW: Japanese TV request for Snadia video footage. FW: NHK-TV, Japan - Sandia OECD Lower Head Failure Project - final report

All,

This is a request from NEA about video footage of an OECD/NEA program from ~10 years ago. It was NRC funded, Sandia hosted. The video is of a vessel being pressurized and heated until it fails. NEA wants to release the video to a Japanese TV station, and believes it is publically releasable at this point. They're looking to the NRC for a tacit approval at this point.

Jeff talked to Richard, and he believes there isn't a technical reason to decline the request. If you have an opinion on this, please forward as soon as possible. Jeff can provide the video or a link and password to view the video if desired.

We would propose forwarding this request to the Ops Center management with no objection to NEA's request.

Thank you,

Donna-Marie Sangimino

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From: Diane.JACKSON@oecd.org [mailto:Diane.JACKSON@oecd.org]
Sent: Friday, March 18, 2011 7:28 AM
To: Dehn, Jeff; Sangimino, Donna-Marie
Cc: Janice.DUNNLEE@oecd.org; Javier.REIG@oecd.org

Subject: Japanese TV request for Snadia video footage. FW: NHK-TV, Japan - Sandia OECD Lower Head Failure Project - final report

Hello Jeff –

A Japanese news station would like to obtain footage and report of the Oct 23 2000 experiment the OECD had requested Sandia to conduct. Please see below the news release from Sandia.

http://www.sandia.gov/media/NewsRel/NR2000/vessel.htm

In the e-mail below, the video is identified from the secure NEA website (and information to access it).

Bottom line, the data from the project is now publically available, but there is a question if video footage is included or not.

Before making any decision, the NEA would like to check with the NRC.

Best regards,

Diane Jackson, Nuclear Safety Specialist Nuclear Safety Division, OECD Nuclear Energy Agency (NEA)
Tel.: +33 (0)1 45 24 10 55, Diane.Jackson@oecd.org

From: GAS Serge, NEA/RE
Sent: Friday, March 18, 2011 12:03
To: DUNN LEE Janice, NEA; JACKSON Diane, NEA/SURN
Cc: CLAPPER Maureen [United States]; STANFORD Benjamin, NEA/RE
Subject: FW: NHK-TV, Japan - Sandia OECD Lower Head Failure Project - final report

Hello Janice and Diane,

Please see below - I assume you can download the video from this link (Ben will otherwise advise how to proceed).

http://www.oecd-nea.org/press/accredited/video/OLHF-2.mpg

Please use the following username and password:

(b)(6) [redacted]

Could you please make sure that NRC has no objection to the release of the footage?

Thanks in advance.

Best regards,

Serge

From: GAS Serge, NEA/RE
Sent: Friday, March 18, 2011 11:56
To: 'KAMADA TOSHIHIKO'
Cc: DUNN LEE Janice, NEA; YOSHIMURA Uichiro, NEA/SRAN; REIG Javier, NEA/SURN
Subject: NHK-TV, Japan - Sandia OECD Lower Head Failure Project - final report

Dear Toshi,

I am being told that we could be entitled to send it but we don't want to do that without the Japanese government's green light and the US NRC's since they were the main funding organisation at the time. We are starting now to see with the US NRC is it is fine with them. If you could look on your side. Thanks a lot in advance.

Best regards,

Serge

From: KAMADA TOSHIHIKO [mailto:toshihiko.kamada@mofa.go.jp]
Sent: Friday, March 18, 2011 11:22
To: STANFORD Benjamin, NEA/RE; GAS Serge, NEA/RE
Cc: YOSHIMURA Uichiro, NEA/SRAN
Subject: RE: FW: NHK-TV, Japan - Sandia OECD Lower Head Failure Project - final report

Dear Mr. Benjamin Stanford and Serge,

Thank you very much for your information!

May I ask you a question?

Whose possession is the contents and data of this video and the report?

(member country?, project participants?, NEA? or others?)

Is it possible to think that NEA has right to decide whether this should be open or not?

Best regards,

Toshi

//

Toshihiko KAMADA

First Secretary (Science and Technology)

Permanent Delegation of Japan to the OECD

TEL: +33 (0)1 53 76 61 81

FAX: +33 (0)1 45 63 05 44

E-mail: toshihiko.kamada@mofa.go.jp <mailto:toshihiko.kamada@deljp-ocde.fr>

//

経済協力開発機構日本政府代表部

一等書記官（科学技術担当）

鎌　田　俊　彦

//

From: Benjamin.STANFORD@oecd.org [mailto:Benjamin.STANFORD@oecd.org]
Sent: Friday, March 18, 2011 10:50 AM
To: Serge.GAS@oecd.org; KAMADA TOSHIHIKO
Cc: Uichiro.YOSHIMURA@oecd.org
Subject: RE: FW: NHK-TV, Japan - Sandia OECD Lower Head Failure Project - final report

Dear Mr. Kamada,

You can download the video from this link.

http://www.oecd-nea.org/press/accredited/video/OLHF-2.mpg

Please use the following username and password:

(b)(6)

Please do not share this username and password. We will provide a separate one to the journalists if the video is to be shared.

Please contact me should you have any technical difficulties.

Best regards,

Benjamin Stanford
Webmaster
OECD Nuclear Energy Agency (NEA)
Tel.: +33 (0)1 45 24 10 09
benjamin.stanford@oecd.org <mailto:benjamin.stanford@oecd.org>
www.oecd-nea.org <http://www.oecd-nea.org>

From: GAS Serge, NEA/RE
Sent: Friday, March 18, 2011 10:41 AM
To: KAMADA Toshihiko [Company Name]
Cc: YOSHIMURA Uichiro, NEA/SRAN; STANFORD Benjamin, NEA/RE
Subject: FW: FW: NHK-TV, Japan - Sandia OECD Lower Head Failure Project - final report
Importance: High

Dear Toshi,

Please see the exchange of messages below. In fact we have found the footage but the video could have some impact on the public so I think you should have a look before we pass it to the TV channel. Our webmaster Ben Stanford is going to send it to you very soon.

Best regards,

Serge

From: yuhong hiro koh (b)(6)
Sent: Friday, March 18, 2011 10:15
To: GAS Serge, NEA/RE
Cc: HUERTA Alejandro, NEA/SURN; TURCHI Elodie, PAC/WASH; RUMPF Matthias, PAC/WASH; FISHER Helen, PAC/COM
Subject: Re: FW: NHK-TV, Japan - Sandia OECD Lower Head Failure Project - final report

Mr. Serge Gas,

Thank you very much for this.
Can you please tell me if you have a video footage of the experiment?
If you do, I would like to send someone from NHK Europe to retrieve it today.
I have contacted Sandia, but they unfortunately do not want to help in this matter
and are not lifting a finger. Thank you again.

Hiro

On 3/18/2011 1:55 AM, Serge.GAS@oecd.org wrote:

Dear Hiro,

This is the final report of the OECD (Sandia) Lower Head Failure project run between 2000 and 2002.

The final report is available (downloadable) on our public website:

http://www.oecd-nea.org/nsd/docs/2002/csni-r2002-27.pdf

We cannot send it since it is 570 pages and about 40 Mbytes, without the appendices.

These experiments were to assess resistance of reactor vessel in case of core melt down.

Our expert Alejandro Huerta (copied, +33 1 45 24 10 57) can help you to understand the report if you need it.

Best regards,

Mr. Serge Gas

Head, Central Secretariat, External Relations and Public Affairs

OECD Nuclear Energy Agency

Tel. : +33 1 45 24 10 10

Fax: +33 1 45 24 11 15

Le Seine Saint Germain, 12 Boulevard des Iles, 92130 Issy-les-Moulineaux, France

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

From: yuhong hiro koh [mailto:hkoh@earthlink.net]

Sent: Thursday, March 17, 2011 3:35 PM

To: TURCHI Elodie, PAC/WASH

Subject: NHK-TV, Japan

Dear Elodie,

Thank you for accommodating me over the phone just now.
We would like to obtain FOOTAGE and REPORT of the
2000, Oct 23 experiment the OECD had requested Sandia to
conduct. Please see below the news release from Sandia.
http://www.sandia.gov/media/NewsRel/NR2000/vessel.htm
I don't have a name of the experiment, but it was to see how
string the reactor vessels are to pressure and and blasts.
Again, we have a Friday night deadline for the special edition
program we are putting together on the situation at Fukushima.
I would sincerely and greatly appreciate your help.
Thank you,
Hiro

--

Yuhong Hiro Koh
NHK, Science& Nature
Tel: US ++1 310-502-4506
Fax: US ++1 310-539-3021
e: s02709-koh@nhk.or.jp

(b)(6)

Homepage: http://www.nhk.or.jp

English: http://www.nhk.or.jp/nhkworld/index.html

--
Yuhong Hiro Koh
NHK, Science & Nature
Tel: US ++1 310-502-4506
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(b)(6)
Homepage: http://www.nhk.or.jp
English: http://www.nhk.or.jp/nhkworld/index.html

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Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 3:47 PM
To: Scott, Michael
Subject: Re: Effect of Salt
Attachments: image001.jpg

Saw it and had it sent to ops center and brian

From: Scott, Michael
To: Sheron, Brian
Cc: Gibson, Kathy
Sent: Fri Mar 18 15:43:22 2011
Subject: Fw: Effect of Salt

Richard's answer in case you have not seen it.

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: Lee, Richard
To: Scott, Michael
Sent: Fri Mar 18 15:36:40 2011
Subject: FW: Effect of Salt

Mike:

Here's is the e-mail. The sharepoint site where DSA is keeping track of our stuff is:

http://portal.nrc.gov/edo/res/DSA/Shared%20Documents/JPN-Status-Request.aspx

Richard

From: Lee, Richard
Sent: Friday, March 18, 2011 1:35 PM
To: Gibson, Kathy
Cc: Wagner, Katie; Salay, Michael
Subject: RE: Effect of Salt

Kathy:

Below is a better response. It addressed not only the affects of sea water on fission products chemistry in the reactor coolant system and the spent fuel pool, but also address potential of plugging.

There do not appear to be serious downsides to the use of seawater. The Paul Scherer Institute (Switzerland) experiments have investigated effects of salt on aqueous iodine chemistry and had not seen much effect.

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We see CII (Cholrine iodide) rather than I2 partitioning from salt solutions but iodine partitioning is about the same. There will be some organic iodide formation because of the organic in seawater. Seawater pH will typically be less than 7, but boration will change the pH presumably to a higher value and this will suppress iodine partitioning from the water into the gas phase. Any silver will precipitate, but in BWRs there is only fission product silver and this does not have a high yield. We can presume the seawater is saturated in carbon dioxide. This may precipitate any barium or strontium in the water as a carbonate.

Again, we do not expect a big effect such as plugging etc. There will be enhanced corrosion of the cladding and the steel, but these are very long term effects and not of particular interest now.

I don't think we need to worry about iodine in the spent fuel pools. The fuel is old enough that we are well beyond 10 half lives for the most important iodine isotopes. The only significant iodine iodine isotope is I-129 which has a very long half life and consequently a minuscule radioactivity in comparison to other things such as noble gases and cesium.

Richard

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 7:32 PM
To: Lee, Richard; Salay, Michael
Cc: Wagner, Katie
Subject: FW: Effect of Salt
Importance: High

Richard, Mike,
Do you have any info to answer this question? Effect of salt on cesium release? I'd like to respond to Brian tomorrow.

Thanks,
Kathy

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

From: Sheron, Brian
Sent: Thursday, March 17, 2011 6:56 PM
To: Gibson, Kathy; Scott, Michael
Cc: Uhle, Jennifer
Subject: Effect of Salt

During my meeting today with Secretary Chu, the issue of salt water injection came up. The Japanese are injection seawater into the reactors. The seawater is boiling off, leaving salt. While there are obvious questions about how salt might affect coolability of the core (clogging coolant channels, etc., a question was raised about how the salt might affect the Cesium release. Do we have any info on what the effect might be?

Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 1:51 PM
To: Wagner, Katie
Cc: Salay, Michael; Lee, Richard
Subject: RE: Effect of Salt
Attachments: Kathy Halvey Gibson2.vcf; image001.jpg

Katie,
Please send this information to the Operations Center at the RST and PMT email addresses.

This question regarding salt water injection was raised at a meeting Brian Sheron participated in with DOE officials. RES is sending this information to the Operations Center for your cognizance.

Q: The Japanese are injecting seawater into the reactors. The seawater is boiling off, leaving salt. While there are obvious questions about how salt might affect coolability of the core (clogging coolant channels, etc., a question was raised about how the salt might affect the Cesium release. Do we have any info on what the effect might be?

A: There do not appear to be serious downsides to the use of seawater. The Paul Scherer Institute (Switzerland) experiments have investigated effects of salt on aqueous iodine chemistry and had not seen much effect.

We see ClI (Chlorine iodide) rather than I2 partitioning from salt solutions but iodine partitioning is about the same. There will be some organic iodide formation because of the organic in seawater. Seawater pH will typically be less than 7, but boration will change the pH presumably to a higher value and this will suppress iodine partitioning from the water into the gas phase. Any silver will precipitate, but in BWRs there is only fission product silver and this does not have a high yield. We can presume the seawater is saturated in carbon dioxide. This may precipitate any barium or strontium in the water as a carbonate.

Again, we do not expect a big effect such as plugging etc. There will be enhanced corrosion of the cladding and the steel, but these are very long term effects and not of particular interest now.

Regarding iodine in the spent fuel pools:

We don't think there is a concern about iodine in the spent fuel pools. The fuel is old enough that we are well beyond 10 half lives for the most important iodine isotopes. The only significant iodine isotope is I-129 which has a very long half life and consequently a minuscule radioactivity in comparison to other things such as noble gases and cesium.

Richard Lee or Mike Salay are the RES staff contacts.

55/70

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Lee, Richard
Sent: Friday, March 18, 2011 1:35 PM
To: Gibson, Kathy
Cc: Wagner, Katie; Salay, Michael
Subject: RE: Effect of Salt

Kathy:

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Richard

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 7:32 PM
To: Lee, Richard; Salay, Michael
Cc: Wagner, Katie
Subject: FW: Effect of Salt
Importance: High

Richard, Mike,
Do you have any info to answer this question? Effect of salt on cesium release? I'd like to respond to Brian tomorrow.

Thanks,
Kathy

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
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Sent: Thursday, March 17, 2011 6:56 PM
To: Gibson, Kathy; Scott, Michael
Cc: Uhle, Jennifer
Subject: Effect of Salt

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Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 1:41 PM
To: Sheron, Brian
Cc: Wagner, Katie; Salay, Michael; Lee, Richard
Subject: Re: Effect of Salt
Attachments: image001.jpg

Brian,
More on salt and fission products below. We will send this to the Ops Center so they have this information if and when they need it.

Is there anyone else we should send it to?

Thanks,

Kathy

From: Lee, Richard
To: Gibson, Kathy
Cc: Wagner, Katie; Salay, Michael
Sent: Fri Mar 18 13:35:11 2011
Subject: RE: Effect of Salt

Kathy:

Below is a better response. It addressed not only the affects of sea water on fission products chemistry in the reactor coolant system and the spent fuel pool, but also address potential of plugging.

There do not appear to be serious downsides to the use of seawater. The Paul Scherer Institute (Switzerland) experiments have investigated effects of salt on aqueous iodine chemistry and had not seen much effect.

We see CII (Cholrine iodide) rather than I2 partitioning from salt solutions but iodine partitioning is about the same. There will be some organic iodide formation because of the organic in seawater. Seawater pH will typically be less than 7, but boration will change the pH presumably to a higher value and this will suppress iodine partitioning from the water into the gas phase. Any silver will precipitate, but in BWRs there is only fission product silver and this does not have a high yield. We can presume the seawater is saturated in carbon dioxide. This may precipitate any barium or strontium in the water as a carbonate.

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Richard

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 7:32 PM
To: Lee, Richard; Salay, Michael
Cc: Wagner, Katie

55\71

Subject: FW: Effect of Salt
Importance: High

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Thanks,
Kathy

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
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Sent: Thursday, March 17, 2011 6:56 PM
To: Gibson, Kathy; Scott, Michael
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Kathy

Kathy Halvey Gibson
Director
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Kathy.Gibson@nrc.gov
(301) 251-7499 Work
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U.S. Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

From: Sheron, Brian
Sent: Thursday, March 17, 2011 6:56 PM
To: Gibson, Kathy; Scott, Michael
Cc: Uhle, Jennifer
Subject: Effect of Salt

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Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 10:27 AM
To: Wagner, Katie
Subject: Re: Japan requests

Sure, I didn't realize it wasn't ready yet.

----- Original Message -----
From: Wagner, Katie
To: Gibson, Kathy
Cc: Santiago, Patricia; Lee, Richard
Sent: Fri Mar 18 10:25:02 2011
Subject: FW: Japan requests

Kathy can we talk about the Sharepoint site for a minute? I want to make sure that it will capture the information you want in the way you want it before I populate it. Thanks! - Katie

-----Original Message-----
From: Jimenez, Juan
Sent: Thursday, March 17, 2011 4:02 PM
To: Santiago, Patricia; Wagner, Katie
Cc: Lee, Richard
Subject: RE: Japan requests

I created a database in SharePoint (List) here:
http://portal.nrc.gov/edo/res/DSA/Shared%20Documents/JPN-Status-Request.aspx

And also here is a printable page (report) http://portal.nrc.gov/edo/res/DSA/reports/japan-requests.aspx

I spoke to Katie an hour ago and she is going to contact me when she gets out of a meeting..

-----Original Message-----
From: Santiago, Patricia
Sent: Thursday, March 17, 2011 3:40 PM
To: Wagner, Katie; Jimenez, Juan
Cc: Lee, Richard
Subject: Japan requests

Kathy and mike would like a report at the end of the day on the requests we are receiving. I am not sure but is any available today. Thx

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6)

55/72

Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 10:53 AM
To: Sheron, Brian; Uhle, Jennifer
Cc: Wagner, Katie; Lee, Richard
Subject: FW: Effect of Salt
Attachments: Kathy Halvey Gibson2.vcf; image001.jpg

Importance: High

Anybody else we need to provide this information to?

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Lee, Richard
Sent: Friday, March 18, 2011 10:49 AM
To: Gibson, Kathy
Cc: Wagner, Katie; Salay, Michael
Subject: RE: Effect of Salt

Sea water affect on fission products:

NaCl affects -

Cs: None that we know of
I: there may be a little more organic iodine from organic materials in sea water, some silver chloride (silver – fission products) may formed.

Overall effects on fission products compositions – very small

Corrosions - very, very long time effects on fuel and reactor components (this is the least of the immediate problems need to be addressed)

Richard

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 7:32 PM
To: Lee, Richard; Salay, Michael
Cc: Wagner, Katie
Subject: FW: Effect of Salt
Importance: High

55/73

Richard, Mike,

Greenwood, Carol

From: Gibson, Kathy
Sent: Friday, March 18, 2011 8:08 AM
To: Salley, MarkHenry
Cc: Coyne, Kevin; Zigh, Ghani; Wagner, Katie; Scott, Michael
Subject: Re: Questions from Operations Center
Attachments: image001.jpg

Thanks Mark!

From: Salley, MarkHenry
To: Gibson, Kathy
Cc: Coyne, Kevin
Sent: Fri Mar 18 07:51:23 2011
Subject: Re: Questions from Operations Center

Kathy

I went down to the Opps Center last evening after work and met with Dan Dorman. I think I answered their questions on this.

MHS

Sent from an NRC Blackberry
Mark Henry Salley
(b)(6)

From: Gibson, Kathy
To: Zigh, Ghani; Wagner, Katie
Cc: Salley, MarkHenry
Sent: Thu Mar 17 19:33:35 2011
Subject: RE: Questions from Operations Center

Katie,
Please provide the information below to the Ops Center regarding expertise in thermal imaging.

Thanks,
k

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell
US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

55/74

From: Zigh, Ghani
Sent: Thursday, March 17, 2011 7:28 PM

To: Gibson, Kathy
Subject: FW: Questions from Operations Center

Kathy,
John Roskovensky is a sandia staff (see bottom e-mail) who can help with aerial thermal images to differentiate between oil or zirc fire.

From: Durbin, Samuel [sdurbin@sandia.gov]
Sent: Thursday, March 17, 2011 6:30 PM
To: Zigh, Ghani
Cc: Roskovensky, John K; Townsend, Toby O
Subject: RE: Questions from Operations Center

Ghani,

I just spoke with John Roskovensky of Org. 5717, Mission Science and Analysis. Their group may possess the expertise for determining the nature of the fire in the thermal images from the Fukushima nuclear plant, i.e. zirc fire vs. organics. The manager of the group is Toby Townsend and is copied in this email.

Sam

Samuel Durbin II
Sandia National Laboratories
Advanced Nuclear Fuel Cycle Technologies, Organization 6223
P.O. Box 5800 - MS 0747
Albuquerque, NM 87185-0747
Office: (505) 284-7850
Fax: (505) 844-2348

From: Durbin, Samuel <sdurbin@sandia.gov>
To: Zigh, Ghani
Sent: Thu Mar 17 17:13:26 2011
Subject: RE: Questions from Operations Center

Ghani,

We do have experts in this field. I have thus far been able to form leads but have been unable to speak directly with potentially suitable personnel to confirm their expertise.

From my own understanding, the emissive power as a function of wavelength data would be needed to determine a temperature. This data would need to accommodate the sensitivity as a function of wavelength of the imaging device and possible infrared absorption bands (esp. H_2O). The corrected emissive power as a function of wavelength would be fitted to a blackbody power spectrum, ultimately resulting in the apparent fire temperature. If the instrument is sensitive enough, it should be able to differentiate between a zirc fire ~2000 K and an organic fire <1500 K.

Sam

From: Zigh, Ghani [mailto:Ghani.Zigh@nrc.gov]
Sent: Thursday, March 17, 2011 2:17 PM
To: Durbin, Samuel; Lindgren, Eric
Subject: FW: Questions from Operations Center

From: Gibson, Kathy
Sent: Thursday, March 17, 2011 2:00 PM
To: Wagner, Katie

Cc: Lee, Richard; Scott, Michael; Zigh, Ghani; Schaperow, Jason; Santiago, Patricia
Subject: Questions from Operations Center

Katie,
I receive two questions from the Operations Center reactor safety team.

1. Request for b.5.b air oxidation in BWRs report and slides. Assigned to Jason Schaperow. He will provide the slides and the ML number for the report to either the Ops center directly or to you to forward to the ops center (email RST01.hoc@nrc.gov, contact Donna Williams)
2. Request for the name(s) of RES staff who can distinguish between zirconium fire, oil fire, steam explosion, etc from a thermal image of the Japanese reactors and spent fuel pools.
3. Assigned to Ghani Zigh. Ghani will check with Mike Salley and Sandia to see who might have these skills and provide the name(s) to me. I will then either forward them to the Ops Center or ask you to do it.

Thanks!

From: Siu, Nathan
Sent: Saturday, March 19, 2011 2:06 PM
To: 'burchill@ne.tamu.edu'
Subject: Re: Fukushima Questions from Burchill

Hi Bill,

Sorry, I haven't been working Fukushima and don't have any special insights. In general, you can understand that NRC has told the staff to refer all questions to a central number: 301-415-8200. I'd imagine this isn't very helpful so again my apologies.
Wasgood seeing you too. Best regards, Nathan

Sent from NRC BlackBerry
Nathan Siu
(b)(6)

From: William E. Burchill <burchill@ne.tamu.edu>
To: Siu, Nathan
Sent: Sat Mar 19 13:55:15 2011
Subject: Fukushima Questions from Burchill

Nathan,
Can you give me any insight on the following questions or refer me to a source of answers?
1. How badly were the unit 3 and 4 SFP structures damaged by the earthquake?
2. Was the SFP water drained due to the earthquake? If yes, over what period of time?
3. Are the SFPs structurally sound enough to be refilled with water, a slurry, or sand?
4. What are the SFP loadings (# F/As, weight, heat load, radioactivity)?
5. How much has the cladding in the SFPs been oxidized (perhaps as inferred from the hydrogen released)?
6. What is the degree of fuel melting in the SFPs?
7. Is the fuel in the SFPs in a coolable geometry?
8. What effect has the spraying with water cannons had (fuel cooling, fuel degradation, water accumulation)?
9. What are the options to refill the SPFs with water, i.e., plant systems, external systems, water supplies, heat sink?
10. Will refilling the SFPs with water cause the fuel within to "slump" as occurred at TMI?
11. Will refilling the SFPs with water produce massage amounts of hydrogen? If yes, is it likely to explode before it is vented from the building?
12. Will refilling the SFPs with water produce a potential nuclear criticality?
13. Is filling the SFPs with a slurry or sand being aggressively evaluated?
How engaged is NRC in helping the TEPCO, NISA, META address these questions?
It was great to see you at PSA 11. Thanks for your time.
Best regards,

William E. Burchill, Ph.D.
Past President
American Nuclear Society Ret
Retired Department Head
Nuclear Engineering
Texas A&M University
129 Zachry Engineering Center
College Station, TX 77843-3133
Phone: (979) 845-1670

55/75

FAX: (979) 845-6443
E-mail: burchill@tamu.edu

Greenwood, Carol

From: Gibson, Kathy
Sent: Saturday, March 19, 2011 1:12 PM
To: Scott, Michael; Elkins, Scott
Subject: Re: Japan for me

Thanks to you both! Godspeed Mike! :-)

----- Original Message -----
From: Scott, Michael
To: Elkins, Scott; Gibson, Kathy
Sent: Sat Mar 19 09:09:25 2011
Subject: RE: Japan for me

Scott and I have connected. He is good to go and on standby.

Mike

-----Original Message-----
From: Elkins, Scott
Sent: Saturday, March 19, 2011 8:05 AM
To: Scott, Michael; Gibson, Kathy
Subject: Re: Japan for me

Mike, we got in really late last night. I have your message and will be glad to serve. I'll call this morning about 8:30.
Scott

----- Original Message -----
From: Scott, Michael
To: Gibson, Kathy
Cc: Elkins, Scott
Sent: Fri Mar 18 22:51:17 2011
Subject: RE: Japan for me

I called and left message - no return call so far.

-----Original Message-----
From: Gibson, Kathy
Sent: Friday, March 18, 2011 10:48 PM
To: Scott, Michael
Subject: Re: Japan for me

Ok do we have scott elkins briefed up?

----- Original Message -----
From: Scott, Michael
To: Sheron, Brian; Uhle, Jennifer; Gibson, Kathy
Sent: Fri Mar 18 16:45:01 2011
Subject: Japan for me

Nsir has approved me going to Japan. If edo and chairman agree, I will be going for estimated two weeks. Likely leaving between tomorrow and tuesday but still tbd. Will try to make you proud. :-)

55\76

Sent from my NRC blackberry
Michael Scott
(b)(6)

Siu, Nathan

From: Siu, Nathan
Sent: Saturday, March 19, 2011 2:20 PM
To: Helton, Donald
Cc: Coyne, Kevin
Subject: Fw: Fukushima Questions from Burchill

Don - FYI got this from ANS past president. Have referred him to general number 301-415-8200.

Sent from NRC BlackBerry
Nathan Siu
(b)(6)

From: William E. Burchill <burchill@ne.tamu.edu>
To: Siu, Nathan
Sent: Sat Mar 19 13:55:15 2011
Subject: Fukushima Questions from Burchill

Nathan,

Can you give me any insight on the following questions or refer me to a source of answers?

1. How badly were the unit 3 and 4 SFP structures damaged by the earthquake?
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5. How much has the cladding in the SFPs been oxidized (perhaps as inferred from the hydrogen released)?
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12. Will refilling the SFPs with water produce a potential nuclear criticality?
13. Is filling the SFPs with a slurry or sand being aggressively evaluated?

How engaged is NRC in helping the TEPCO, NISA, META address these questions?

It was great to see you at PSA 11. Thanks for your time.

Best regards,

William E. Burchill, Ph.D.
Past President
American Nuclear Society
Retired Department Head
Nuclear Engineering
Texas A&M University
129 Zachry Engineering Center
College Station, TX 77843-3133
Phone: (979) 845-1670
FAX: (979) 845-6443
E-mail: burchill@tamu.edu

Greenwood, Carol

From: Gibson, Kathy
Sent: Saturday, March 19, 2011 2:08 AM
To: RST01 Hoc
Subject: Fw: SFP test
Attachments: UPDATE: Sandia Fuel Project Ignition Test viewing/webcast

---

From: Santiago, Patricia
To: Williams, Donna
Cc: Tene, Kimberly; Scott, Michael; Dion, Jeanne; Zaki, Tarek; Bowman, Gregory; Gibson, Kathy; Zigh, Ghani; Rini, Brett; Armstrong, Kenneth; Navarro, Carlos
Sent: Mon Mar 07 13:27:16 2011
Subject: RE: SFP test

Hi Donna

I understand a question came up from Gary or Mike at the NRO management meeting about the Sandia Fuels Project Phase I test that occurred on March 1, 2011. Office Directors and deputies were provided the attached email notifying them of the time and viewing capabilities. A recorded time-lapsed video will be available in about 3 weeks. Viewing of the test is still available anytime at:

http://mediasiteson.sandia.gov/mediasite/Viewer/?peid=20eab58445ac4b94aa5d6d3b86257eb9

Username: (b)(6)

Password: (b)(6)

As you view you can move the video forward to see various time segments since it is a test that occurred over more than 14 hours. Tentatively, we plan a seminar in the October timeframe in the Auditorium. We will let you know more details on the seminar once a firm date is scheduled.

Please let us know if you, Mike or Gary have any other questions.

Thanks,

Pat

Patricia A. Santiago
Chief, Special Projects Branch
Division of Systems Analysis
Office of Nuclear Regulatory Research
Phone- 301-251-7982
Fax- 301-251-7426
Patricia.Santiago@nrc.gov

From: Zaki, Tarek
Sent: Monday, March 07, 2011 10:58 AM
To: Santiago, Patricia
Cc: Tene, Kimberly; Scott, Michael; Dion, Jeanne
Subject: SFP test

55\78

Pat;

Your SFP test came up in today's NRO management meeting, everyone liked it and they (Mike & Gary) were asking if/when a time-lapsed video will be available. Can you please forward to Gary the relevant info that you (or Jeanne) had sent to Greg Bowman and others earlier.

Thanks,
Tarek

Greenwood, Carol

From: Gibson, Kathy
Sent: Sunday, March 20, 2011 3:40 PM
To: Santiago, Patricia
Subject: Re: Monday Commission meeting

Thanks Pat, you're a gem :-D

----- Original Message -----
From: Santiago, Patricia
To: Gibson, Kathy; Scott, Michael; Uhle, Jennifer; Sheron, Brian
Cc: Elkins, Scott
Sent: Sun Mar 20 15:08:54 2011
Subject: Re: Monday Commission meeting

I just confirmed with Charlie that he should attend and sit in the nrc staff section for this meeting. When he asked if jason was to attend I said no since there is limited room and other experts are being asked. He recognizes there will be media as well Thanks

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6) [redacted]

----- Original Message -----
From: Santiago, Patricia
To: Gibson, Kathy; Tinkler, Charles; Scott, Michael
Cc: Elkins, Scott
Sent: Sun Mar 20 08:16:02 2011
Subject: Re: Monday Commission meeting

Ok I did ask him on Friday to support Brian and will try to call him later today to confirm again. Thanks

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6) [redacted]

----- Original Message -----
From: Gibson, Kathy
To: Tinkler, Charles; Scott, Michael
Cc: Elkins, Scott; Santiago, Patricia
Sent: Sun Mar 20 01:12:51 2011
Subject: Monday Commission meeting

Charlie,
Brian wants you to attend the Commission meeting on Monday at 9 am in the Commission Hearing Room (OWFN) to answer severe accident questions if cued by Brian or Bill Borchardt.

There will be sections of seating for public, media, and NRC staff. You should sit in the staff section (Brian and other office directors will be in the pit). Borchardt is the only one at the table.

Jennifer is listed to attend to represent severe accidents but she (and I) are working night shift Sunday and won't be in on Monday. If anyone questions you, tell them you are there at Brian's request in place of jennifer.

SS\79

Mike, Scott, Pat - please verify that Charlie gets this message before Monday morning in time to get to the meeting.

Thanks!

Greenwood, Carol

From: Gibson, Kathy
Sent: Monday, March 21, 2011 8:33 AM
To: Santiago, Patricia; Scott, Michael
Subject: Re: Call from opcen today

No sorry

----- Original Message -----
From: Santiago, Patricia
To: Scott, Michael; Gibson, Kathy
Sent: Mon Mar 21 08:19:18 2011
Subject: Re: Call from opcen today

Don helton a possibility?

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6) Ex 6

----- Original Message -----
From: Scott, Michael
To: Gibson, Kathy; Santiago, Patricia
Sent: Mon Mar 21 08:09:33 2011
Subject: Re: Call from opcen today

They called at 7:30 this am

Sent from my NRC blackberry
Michael Scott
(b)(6) Ex 6

----- Original Message -----
From: Gibson, Kathy
To: Santiago, Patricia; Scott, Michael
Sent: Mon Mar 21 08:02:50 2011
Subject: Re: Call from opcen today

I would check with RST/PMT and see if they still need that before he makes the trip.

----- Original Message -----
From: Santiago, Patricia
To: Scott, Michael; Gibson, Kathy
Sent: Mon Mar 21 07:59:31 2011
Subject: Re: Call from opcen today

Ok as asked. More impact to soarca uinderstandably.

Separately If things settle in a week i request he only consult and be off the routine roster. Thx

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6) Ex6

55/80

----- Original Message -----
From: Scott, Michael
To: Santiago, Patricia; Schaperow, Jason
Sent: Mon Mar 21 07:55:23 2011
Subject: Call from opcen today

They informed me that Jennifer Uhle evidently asked for Jason to go over to opcen sometime this morning to brief on application of melcor to sfp's. Please ensure that happens. Thanks

Sent from my NRC blackberry
Michael Scott
(b)(6) Ex 6

Greenwood, Carol

From: Gibson, Kathy
Sent: Monday, March 21, 2011 7:57 AM
To: Santiago, Patricia
Subject: Re: You may have to remind Ops Center that Richard is RES POC. :-)

I would donate it to Japanese. :-(

----- Original Message -----
From: Santiago, Patricia
To: Gibson, Kathy
Sent: Mon Mar 21 07:55:46 2011
Subject: Re: You may have to remind Ops Center that Richard is RES POC. :-)

Sweet dreams. Dream I get staff working soarca and we win 10 mil we can split.

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6)

----- Original Message -----
From: Gibson, Kathy
To: Santiago, Patricia; Lee, Richard
Sent: Mon Mar 21 07:42:03 2011
Subject: You may have to remind Ops Center that Richard is RES POC. :-)

Going home to sleep!

Zzzzzzzzzzzz

55\81

Greenwood, Carol

From: Gibson, Kathy
Sent: Monday, March 21, 2011 7:41 AM
To: Santiago, Patricia
Subject: Re: questions on zirc fire

Should go to Katie.

From: Santiago, Patricia
To: Gibson, Kathy; Scott, Michael
Sent: Mon Mar 21 07:35:11 2011
Subject: Fw: questions on zirc fire

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6)

From: Uhle, Jennifer
To: Zigh, Ghani; Santiago, Patricia; Navarro, Carlos
Sent: Mon Mar 21 07:05:10 2011
Subject: questions on zirc fire

Can someone call Brian McDermott and provide him information about what the chemistry of the emissions is during a zirc fire. Please do so sometime today, preferably before lunch.

Thanks,

Jennifer

55/80

Schaperow, Jason

From: Schaperow, Jason
Sent: Monday, March 21, 2011 2:14 PM
To: 'Gauntt, Randall O'
Subject: RE: Fukushima SFP Source Terms

Thanks for your support last night.

Did you ever get an answer to your question below? Whom at DOE are you referring to?

Jason

From: Gauntt, Randall O [mailto:rogaunt@sandia.gov]
Sent: Friday, March 18, 2011 8:18 PM
To: Gauntt, Randall O; Hart, Michelle; Tinkler, Charles; Schaperow, Jason
Cc: PMT09 Hoc; PMT11 Hoc; Hoc, PMT12; Pickering, Susan Y; Orrell, Stanley A
Subject: RE: Fukushima SFP Source Terms

Can this be shared with the DOE?

Randy

From: Gauntt, Randall O
Sent: Friday, March 18, 2011 5:48 PM
To: Gauntt, Randall O; 'michelle.hart@nrc.gov'; 'Charles.Tinkler@nrc.gov'; 'Schaperow, Jason'
Cc: 'pmt09.hoc@nrc.gov'; 'pmt11.hoc@nrc.gov'; 'pmt12.hoc@nrc.gov'; Pickering, Susan Y; Orrell, Stanley A
Subject: RE: Fukushima SFP Source Terms

Attached is the latest Excel sheet. See the tab marked Peach Bottom.

I have entered release fractions and recommend using .5 hr release duration since most comes out over that period and might better mimic the steam venting releases of the Fukushima reactors.

Randy

<< File: Fukushima SFP Source Terms.xlsx >>

From: Gauntt, Randall O
Sent: Friday, March 18, 2011 4:41 PM
To: 'michelle.hart@nrc.gov'; 'Charles.Tinkler@nrc.gov'; 'Schaperow, Jason'
Cc: 'pmt09.hoc@nrc.gov'; 'pmt11.hoc@nrc.gov'; 'pmt12.hoc@nrc.gov'; Pickering, Susan Y; Orrell, Stanley A
Subject: Fukushima SFP Source Terms

I would recommend staggering these source terms out, perhaps 24 to 48 hrs apart, starting with Unit 4.

The inventory and released radioactivity is in CURIES.

I do not have a decay power for units 1, 2 or 3, but Unit 4 has a total decay power of ~3.5MW. You might use that for the plume energy for unit 4 pool.

I would very much like to see the results of the NARAC analysis.

55/83

Randall Gauntt
505 284 3989
(b)(6) Cell
<< File: Randall O Gauntt Ph D .vcf >>

<< File: Fukushima SFP Source Terms.xlsx >>

Greenwood, Carol

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 12:18 PM
To: Sheron, Brian
Cc: Uhle, Jennifer
Subject: RE: NEI Request
Attachments: Kathy Halvey Gibson.vcf; image001.jpg

We will take care of it. You don't need to be involved in these requests if you don't want to be. Just send them to us and we will let you know when they are complete.

We are working this one through NRR.

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Sheron, Brian
Sent: Tuesday, March 22, 2011 9:36 AM
To: Gibson, Kathy
Subject: NEI Request

Alex Marion wanted the info on the SFP BWR bundle test we did at SNL a while back. I asked Scott to find out if we could release it, and if so, to get me the ML #'s or a hard copy.

55/84

Greenwood, Carol

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 11:59 AM
To: Wagner, Katie
Cc: Lee, Richard
Subject: FW: Station blackout questions
Attachments: Kathy Halvey Gibson.vcf; image001.jpg

Importance: High

See if you can find this report in ADAMS and who was the cognizant office, branch, and staff.

If that doesn't' work or in parallel, send an email request to our BCs and see if any of them know who the lead should be to answer these questions.

It may be another RES division or NRR, I am not sure.

If you need help processing this, see me or Richard Lee.

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

From: Burnell, Scott
Sent: Tuesday, March 22, 2011 9:49 AM
To: Gibson, Kathy; Scott, Michael
Cc: Elkins, Scott
Subject: FW: Station blackout questions
Importance: High

Kathy, Mike;

I'm thinking NUREG-1776 (Regulatory Effectiveness of the Station Blackout Rule) was done by the predecessor to your division, probably under Scott's branch. I need help answering the reporter's four questions below. Thanks very much.

Scott

From: Mike Soraghan [mailto:msoraghan@eenews.net]
Sent: Thursday, March 17, 2011 6:06 PM
To: Burnell, Scott
Subject: Station blackout questions

Mr. Burnell,

55\85

Thank you for taking my call a moment ago. I am looking at doing a story on station black out, with a little on seismic, that looks at all u.s. plants.

My simplest question is whether there is a list of the design basis each of the 104 reactors must meet in terms of what magnitude earthquake they must be able to withstand. I've been told that's not likely, so I'm pulling the information from news reports.

I have the 2000 report (attached) "Regulatory Effectiveness of the Station Blackout Rule." I've been looking at this, particularly the plant-by-plant chart, and I'm seeking some guidance.

First, has there been any update to these numbers?
"Coping time in hours" – is that the amount of battery power? And is it the amount the plant has, or is required to have?
"Loss of Power events" – if a combined plant with two reactors lists two events, did each shut down for a total of four?
Also, is there updated figures for the "loss of power events?"

Thank you,

Mike Soraghan
Reporter
msoraghan@eenews.net
202-446-0423 (desk)
(b)(6) (cell)
(Google Voice

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ClimateWire, E&E Daily, Greenwire, E&ENews PM, E&ETV, Land Letter

Greenwood, Carol

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 11:56 AM
To: Burnell, Scott; Wagner, Katie
Cc: Elkins, Scott; Lee, Richard
Subject: RE: Station blackout questions
Attachments: Kathy Halvey Gibson.vcf; image001.jpg

Scott,
Katie Wagner is our POC for information requests. I am cc'ing her on this response.

She will follow-up with our staff to get responses back to you. I am not personally aware of this report or our role in it, so this will take some digging. Not sure how quickly we can respond. As you can imagine we are continuously getting requests for information from domestic as well as international people, so we will add this one to the list.

Katie will keep you informed of our progress.

Thanks,
Kathy

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Burnell, Scott
Sent: Tuesday, March 22, 2011 9:49 AM
To: Gibson, Kathy; Scott, Michael
Cc: Elkins, Scott
Subject: FW: Station blackout questions
Importance: High

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Mike Soraghan
Reporter
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Greenwood, Carol

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 2:18 PM
To: Elkins, Scott; Shaffer, Vered
Subject: FW: EDO Alignment/Pre-briefs for Commission Meetings
Attachments: Kathy Halvey Gibson.vcf; image001.jpg; EDO Alignment. Prebriefs for CM Meetings.doc

Please ensure the relevant prebriefs get on our calendars.

Thanks

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Flory, Shirley
Sent: Tuesday, March 22, 2011 2:15 PM
To: Rini, Brett; Ibarra, Jose; Rivera-Lugo, Richard; Armstrong, Kenneth; Case, Michael; Coe, Doug; Coyne, Kevin; Gibson, Kathy; Richards, Stuart; Sangimino, Donna-Marie; Scott, Michael; Sheron, Brian; Uhle, Jennifer; Valentin, Andrea
Subject: FW: EDO Alignment/Pre-briefs for Commission Meetings

NOTE MEETINGS RE JAPANESE EVENTS – THANKS -SHIRLEY

From: Taylor, Renee
Sent: Tuesday, March 22, 2011 2:09 PM
To: Andersen, James; Ash, Darren; Blount, Tom; Boger, Bruce; Borchardt, Bill; Bowman, Adriane; Boyce, Thomas (OIS); Boyd, Lena; Buckley, Patricia; Cannady, Ashley; Carpenter, Cynthia; Casby, Marcia; Casto, Chuck; Cianci, Sandra; Cohen, Miriam; Collins, Elmo; Collins, Jay; Cooper, LaToya; Corley, Cherrie; Damiano, Debra; Dapas, Marc; Dean, Bill; Dubose, Sheila; EDO_ETAs; Evans, Michele; Flory, Shirley; Garland, Stephanie; Givvines, Mary; Greene, LaTosha; Grobe, Jack; Haney, Catherine; Hasan, Nasreen; Higginbotham, Tina; Holahan, Gary; Howard, Patrick; Johnson, Michael; Kelley, Corenthis; Landau, Mindy; Lee, Pamela; Leeds, Eric; Lockhart, Denise; Lubinski, John; Mamish, Nader; Matakas, Gina; Mayberry, Theresa; McClain, Nicole; McCrary, Cheryl; McCree, Victor; McGinty, Tim; Miles, Patricia; Miller, Charles; Mitchell, Matthew; Muessle, Mary; ODaniell, Cynthia; Owen, Lucy; Pederson, Cynthia; Penny, Melissa; Plisco, Loren; Quesenberry, Jeannette; Riddick, Nicole; Ronewicz, Lynn; Ross, Brenda; Salus, Amy; Satorius, Mark; Scarbrough, Thomas; Schaeffer, James; Schumann, Stacy; Schwarz, Sherry; Sheron, Brian; Sprogeris, Patricia; Tannenbaum, Anita; Taylor, Renee; Terry, Leslie; Thomas, Loretta; Tomczak, Tammy; Uhle, Jennifer; Veltri, Debra; Virgilio, Martin; Walker, Dwight; Weber, Michael; Wiggins, Jim; Williams, Barbara; Zimmerman, Roy
Subject: EDO Alignment/Pre-briefs for Commission Meetings

An updated EDO Alignment/Pre-brief listing is attached. Please ensure that your calendar reflects the changes as needed.

Thank you,
Renee

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EDO ALIGNMENT/PRE-BRIEFS FOR COMMISSION MEETINGS

Updated: 03/22/11

03/24/11 (POSTPONED – New Date TBD)
(9:00 – 12:30)
Part 50.46a Rulemaking Risk-Informed ECCS Rule

EDO Alignment:	**01/31/11 @ 4:00 pm**
EDO Pre-brief:	**03/14/11 @ 4:00 pm**

03/29/11
(9:00 – 12:00)
Small Modular Reactors

EDO Alignment:	**01/27/11 @ 1:30 pm**
EDO Pre-brief:	**03/17/11 @ 3:00 pm**

03/31/11 (Closed)
(2:30 – 3:30)
Discussion of Management Issues

EDO Alignment:	**CANCELLED NOT NEEDED - 02/01/11 @ 3:00 pm**
EDO Pre-brief:	**CANCELLED NOT NEEDED - 03/21/11 @ 3:00 pm**

04/14/11
(TBD)
Japanese Earthquake Status – Focus on Health Effects of Radiation

EDO Alignment:	**03/28/11 @ 3:00 pm (Joint meeting with 4/28 CM Alignment)**
EDO Pre-brief:	**04/06/11 @ 4:00 pm**

04/19/11
(9:00 – 12:00)
Part 37 Rulemaking – Physical Protection & Byproduct Material

EDO Alignment:	**02/10/11 @ 1:00 pm**
EDO Pre-brief:	**03/31/11 @ 10:00 am**

04/28/11
(TBD)
Japanese Earthquake Status – Focus on Station Black-Out

EDO Alignment: **03/28/11 @ 3:00 pm (Joint meeting with 4/14 CM Alignment)**
EDO Pre-brief: **04/14/11 @ 10:00 am**

04/28/11 (POSTPONED – New Date TBD)
(9:00 – 12:15)
ITAAC Related Activities

EDO Alignment: **CANCELLED - 02/28/11 @ 3:30 pm**
EDO Pre-brief: **CANCELLED - 04/18/11 @ 4:00 pm**

05/03/11
(TBD)
Near Term Tasking – 30 Day Quick Look

EDO Alignment: **04/07/11 @ 4:00 pm**
(Tentative – Joint meeting with 6/16 CM Alignment)
EDO Pre-brief: **04/18/11 @ 4:00 pm**

05/12/11 (Rescheduled from 06/02/11)
(9:00 – 12:00)
Final EP Rule

EDO Alignment: **04/07/11 @ 1:00 pm (Rescheduled from 04/06/11)**
EDO Pre-brief: **05/02/11 @ 3:00 pm (Rescheduled from 05/17/11)**

05/12/11 (POSTPONED – New Date TBD)
(9:00 – 12:00)
Cumulative Effects of Reactor Regulation

EDO Alignment: **CANCELLED - 03/22/11 @ 9:00 am**
EDO Pre-brief: **CANCELLED - 05/02/11 @ 3:00 pm**

05/27/11
(9:00 – 12:00)
Briefing on Results of AARM

EDO Alignment: **CANCELLED NOT NEEDED - 03/28/11 @ 3:00 pm**
EDO Pre-brief: **05/12/11 @ 3:00 pm**

06/02/11 (Rescheduled from 05/03/11)
(9:30 – 10:30)
Human Capital and EEO

EDO Alignment:	**03/17/11 @ 1:00 pm**
EDO Pre-brief:	**05/04/11 @ 4:00 pm (Rescheduled from 04/26/11)**

06/06/11
(9:00 – 12:00)
Potential Meeting w/ACRS

EDO Alignment:	**03/29/11 @ 4:00 pm**
EDO Pre-brief:	**05/19/11 @ 3:00 pm**

06/16/11
(TBD)
Near Term Tasking – 60 Day Quick Look

EDO Alignment:	**04/07/11 @ 4:00 pm** **(Tentative – Joint meeting with 5/3 CM Alignment)**
EDO Pre-brief:	**06/02/11 @ 4:00 pm**

(POSTPONED – Date TBD) 06/16/11
(9:00 – 12:00)
International Activities or Potential Meeting w/ACRS

EDO Alignment:	**CANCELLED - 04/26/11 @ 1:00 pm**
EDO Pre-brief:	**CANCELLED - 06/06/11 @ 3:00 pm**

<u>NOTE</u>: Please be aware that this list is organized by the Commission meeting date. EDO Alignment meetings are generally scheduled approximately 60 days prior to the Commission meeting. EDO Pre-briefs are scheduled approximately 2 weeks prior to the Commission meeting. All meetings are scheduled based on the availability of the EDO/DEDOs calendars. All meetings are held in conference room O-17B4.

Greenwood, Carol

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 1:02 PM
To: OST02 HOC
Cc: Holahan, Vincent
Subject: RE:
Attachments: Kathy Halvey Gibson.vcf; image001.jpg

For future planning, Vince Holahan and I switched shifts for PMT director on April 7,8,9. He will work 3-11 and I will work 11-7.

Thanks,

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

From: OST02 HOC
Sent: Tuesday, March 22, 2011 12:52 PM
To: Abrams, Charlotte; Abu-Eid, Boby; Adams, John; Afshar-Tous, Mugeh; Ahn, Hosung; Alemu, Bezakulu; Alter, Peter; Anderson, Brian; Anderson, James; Arribas-Colon, Maria; Ashkeboussi, Nima; Athey, George; Baker, Stephen; Ballam, Nick; Barnhurst, Daniel; Barr, Cynthia; Barss, Dan; Bazian, Samuel; Bensi, Michelle; Bergman, Thomas; Berry, Rollie; Bhachu, Ujagar; Bloom, Steven; Blount, Tom; Boger, Bruce; Bonnette, Cassandra; Borchardt, Bill; Bowers, Anthony; Bowman, Gregory; Boyce, Tom (RES); Brandon, Lou; Brandt, Philip; Brenner, Eliot; Brock, Kathryn; Brown, Cris; Brown, David; Brown, Eva; Brown, Frederick; Brown, Michael; Bukharin, Oleg; Burnell, Scott; Bush-Goddard, Stephanie; Campbell, Stephen; Camper, Larry; Carpenter, Cynthia; Carter, Mary; Case, Michael; Casto, Greg; Cecere, Bethany; Cervera, Margaret; Chazell, Russell; Chen, Yen-Ju; Cheok, Michael; Chokshi, Nilesh; Chowdhury, Prosanta; Circle, Jeff; Clement, Richard; Clinton, Rebecca; Coggins, Angela; Collins, Frank; Cool, Donald; Correia, Richard; Costa, Arlon; Couret, Ivonne; Crutchley, Mary Glenn; Cruz, Zahira; Cuadrado, Leira; Dacus, Eugene; DeCicco, Joseph; Decker, David; Dembek, Stephen; Devlin, Stephanie; Dimmick, Lisa; Doane, Margaret; Dorman, Dan; Dorsey, Cynthia; Dozier, Jerry; Drake, Margaret; Droggitis, Spiros; Dube, Donald; Dudes, Laura; Eads, Johnny; Emche, Danielle; English, Lance; Erlanger, Craig; Esmaili, Hossein; Figueroa, Roberto; Fiske, Jonathan; Flannery, Cindy; Floyd, Daphene; Foggie, Kirk; Foster, Jack; Fragoyannis, Nancy; Franovich, Rani; Frazier, Alan; Freshman, Steve; Fuller, Edward; Galletta, Thomas; Gambone, Kimberly; Gibson, Kathy; Giitter, Joseph; Gilmer, James; Gordon, Dennis; Gott, William; Grant, Jeffery; Greenwood, Carol; Grimes, Kelly; Grobe, Jack; Gross, Allen; Gulla, Gerald; Hale, Jerry; Hardesty, Duane; Harrington, Holly; Harris, Tim; Hart, Ken; Hart, Michelle; Harvey, Brad; Hasselberg, Rick; Hayden, Elizabeth; Helton, Donald; Henderson, Karen; Hiland, Patrick; Holahan, Patricia; Holahan, Vincent; Holian, Brian; Howard, Tabitha; Huffert, Anthony; Hurd, Sapna; Huyck, Doug; Imboden, Andy; Isom, James; Jackson, Karen; Jacobson, Jeffrey; Jervey, Richard; Jessie, Janelle; Johnson, Michael; Jolicoeur, John; Jones, Andrea; Jones, Cynthia; Jones, Henry; Kahler, Carolyn; Kammerer, Annie; Karas, Rebecca; Kauffman, John; Khan, Omar; Kolb, Timothy; Kotzalas, Margie; Kowalczik, Jeffrey; Kratchman, Jessica; Kugler, Andrew; Lamb, Christopher; Lane, John; Larson, Emily; Laur, Steven; LaVie, Steve; Lewis, Robert; Li, Yong; Lichatz, Taylor; Lising, Jason; Lombard, Mark; Lubinski, John; Lui, Christiana; Lukes, Kim; Lynch, Jeffery; Ma, John; Mamish, Nader; Manahan, Michelle; Marksberry, Don; Marshall, Jane; Masao, Nagai; Maupin, Cardelia; Mayros, Lauren; Mazaika, Michael; McConnell, Keith; McCoppin, Michael; McDermott, Brian; McGinty, Tim; McGovern, Denise; McIntyre, David; McMurtray, Anthony; Merritt, Christina; Meyer, Karen; Miller, Charles; Miller, Chris; Milligan, Patricia; Miranda, Samuel; Mohseni, Aby; Moore, Scott; Morlang, Gary; Morris, Scott; Mroz (Sahm), Sara; Munson, Clifford; Murray, Charles; Nerret, Amanda; Nguyen, Caroline; Norris, Michael; Norton, Charles; Ordaz, Vonna; Owens, Janice; Padovan, Mark; Parillo, John; Patel, Jay; Patel, Pravin; Patrick, Mark; Perin, Vanice; Pope, Tia; Powell, Amy; Purdy, Gary; Quinlan, Kevin; Raddatz,

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Michael; Ragland, Robert; Ralph, Melissa; Ramsey, Jack; Reed, Elizabeth; Reed, Sara; Reed, Wendy; Reis, Terrence; Resner, Mark; Riley (OCA), Timothy; Riner, Kelly; Rini, Brett; Robinson, Edward; Rodriguez-Luccioni, Hector; Roggenbrodt, William; Ropon, Kimberly; Rosenberg, Stacey; Ross-Lee, MaryJane; Roundtree, Amy; Ruland, William; Ryan, Michelle; Salay, Michael; Salter, Susan; Salus, Amy; Sanfilippo, Nathan; Scarbrough, Thomas; Schaperow, Jason; Schmidt, Duane; Schmidt, Rebecca; Schoenebeck, Greg; Schrader, Eric; Schwartzman, Jennifer; Seber, Dogan; See, Kenneth; Shane, Raeann; Shea, James; Shepherd, Jill; Sheron, Brian; Skarda, Raymond; Skeen, David; Sloan, Scott; Smiroldo, Elizabeth; Smith, Brooke; Smith, Stacy; Smith, Theodore; Stahl, Eric; Stang, Annette; Steger (Tucci), Christine; Stieve, Alice; Stone, Rebecca; Stransky, Robert; Sturz, Fritz; Sullivan, Randy; Summers, Robert; Sun, Casper; Tappert, John; Tegeler, Bret; Temple, Jeffrey; Thaggard, Mark; Thomas, Eric; Thorp, John; Tiruneh, Nebiyu; Tobin, Jennifer; Trefethen, Jean; Tschiltz, Michael; Turtil, Richard; Uhle, Jennifer; Valencia, Sandra; Vaughn, James; Versluis, Robert; Vick, Lawrence; Virgilio, Martin; Virgilio, Rosetta; Ward, Leonard; Ward, William; Wastler, Sandra; Watson, Bruce; Webber, Robert; Weber, Michael; White, Bernard; Wiggins, Jim; Williams, Donna; Williams, Joseph; Williamson, Linda; Willis, Dori; Wimbush, Andrea; Wittick, Brian; Wray, John; Wright, Lisa (Gibney); Wright, Ned; Wunder, George; Young, Francis; Zimmerman, Jacob; Zimmerman, Roy
Subject:

Please disregard the last copy which was the template.

Revised Copy

Attached is the OPS Center watchbill for March 18-26th, you will be receiving the watchbill for the week of March 26-April 2nd , in the future. If you need to change the schedule, please send an email to OST02 HOC.

Siu, Nathan

From: Siu, Nathan
Sent: Tuesday, March 22, 2011 1:38 PM
To: Coyne, Kevin
Subject: Re: QUERY: Funding Needs for Japan Follow-up

Tks. Would be interesting to see what specific regulatory decision problems folks think we should be getting at.

Sent from NRC BlackBerry
Nathan Siu
(b)(6)

From: Coyne, Kevin
To: Siu, Nathan
Sent: Tue Mar 22 11:54:56 2011
Subject: FW: QUERY: Funding Needs for Japan Follow-up

Fyi...

From: Rini, Brett
Sent: Monday, March 21, 2011 4:44 PM
To: Case, Michael; Richards, Stuart; Coe, Doug; Coyne, Kevin; Scott, Michael; Gibson, Kathy; Elkins, Scott
Cc: Sheron, Brian; Uhle, Jennifer; Valentin, Andrea; Grancorvitz, Teresa; Rivera-Lugo, Richard; Armstrong, Kenneth; Ibarra, Jose; Hudson, Daniel; RidsResPmdaMail Resource
Subject: QUERY: Funding Needs for Japan Follow-up
Importance: High

Division Directors,

We have received a quick turnaround OEDO request to estimate resources ($ and FTE) required for a near term effort and longer term review related to the recent events in Japan. Brian brainstormed a list of possible research areas that I've listed below, and I will reach out to our customer offices to find out in what areas they anticipate asking us for help. Please review the list below, think about what areas of research you anticipate for your division, and estimate how much effort these projects will require.

- Spent fuel analyses – SFPs vs ISFSIs?
- Severe accident analyses
- Exceeding seismic design basis
- Response to aftershocks following a design or beyond-design basis earthquake
- Tsunami/storm surge impacts
- Protection from hurricane winds, tornadoes, etc.

Please send me your inputs by noon tomorrow, and I will review the list with Brian before responding to OEDO. We weren't given much time to reply, so a rough estimate is all that's required at this time. I appreciate your help during this time of significant competing priorities.

Thanks,

Brett

SS/88

From: Kasputys, Clare
Sent: Monday, March 21, 2011 4:18 PM
To: RidsNroOd Resource; RidsNrrOd Resource; RidsNsirOd Resource; RidsResOd Resource; RidsFsmeOd Resource; RidsNmssOd Resource; RidsOgcMailCenter Resource; RidsCsoMailCenter Resource; RidsRgn1MailCenter Resource; RidsRgn2MailCenter Resource; RidsRgn3MailCenter Resource; RidsRgn4MailCenter Resource; RidsOipMailCenter Resource
Cc: RidsNrrPmda Resource; RidsNroPmda Resource; RidsNsirPmda Resource; RidsResPmdaMail Resource; RidsFsmePbpaFmb Resource; RidsNmssTa Resource; Golder, Jennifer; Smolik, George; Muessle, Mary; Andersen, James; Jacobs-Baynard, Elizabeth; Allwein, Russell; Peterson, Gordon; Peterson, Gordon; Virgilio, Martin; Virgilio, Martin; Weber, Michael; Weber, Michael; Ash, Darren; Ash, Darren
Subject: Funding Needs for Japan Follow-up - Resent to provide Attachment

Resent to provide the Attachment

All,

The Chairman has requested for the NRC to conduct a Near-term (90 day effort) and a longer-term review (as discussed by Bill B at the Commission meeting today) of regulatory issues affecting U.S. operating reactors based on the events in Japan. The Chairman is interested in seeking supplemental funding to support our efforts for the above effort, in addition to NRC's costs associated with emergency response and technical experts sent to Japan. OCFO is preparing cost data associated with emergency response and technical support to Japan.

On Friday, the OCFO requested some initial estimates to support the reviews (see attached).. At this time, we are requesting the offices to review these initial estimates and include some information concerning the work that is envisioned to support these reviews. Listed below are some initial thoughts about the scope of the near-term and long-term reviews. Also, consider what on-going efforts related to the development of our regulatory program could benefit with supplemental funding. For example, it was mentioned in the Commission meeting that NRC is currently working on GSI-199. Should funding be accelerated for this effort and others of this nature.

<u>Near Term Review (90 day effort):</u>

- Evaluate currently available technical and operational information from the Japan event to identify near-term (or immediate) operational or regulatory issues affection U.S. operating reactors of all designs in areas such as protection against earthquakes, tsunami, flooding, hurricanes, station blackout and a degraded ability to restore power; severe accident mitigation and emergency preparedness
- Develop recommendations for generic communications, orders, changes to inspection procedures and licensing review guidance, etc.
- Possibly prepare a 30 day quick look report

<u>Longer-Term Review (Following obtaining sufficient technical information from the Japan event)</u>

- Evaluate all technical and policy issues related to the event to identify additional research, generic issues, changes to the reactor oversight process, rulemakings and adjustments to the regulatory framework that should be conducted by the NRC.
- Evaluate interagency issues such as emergency preparedness.
- Applicability of the lessons learned to non-operating reactor and non-reactor facilities.

It is recognized that the full scope of the reviews has yet to be determined or the size of the group that will be conducting the analysis. Therefore, we are looking only for rough cost estimates. You are requested to send the level of funding (dollars and FTE) that is anticipated that could be obligated in FY 2011 for both the near-term and long-term efforts. We are asking the business line leads to coordinate with supporting offices and submit a response by business line and by office. Please send your responses to me and Liz Jacobs-Baynard and copy Jennifer Golder and George Smolik, OCFO NLT than Noon on Tuesday.

If you have any questions, please let me know.

Thank you for your support.

X

Greenwood, Carol

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 2:16 PM
To: Wagner, Katie; Burnell, Scott
Cc: Lee, Richard
Subject: RE: Station blackout questions
Attachments: Kathy Halvey Gibson2.vcf; image001.jpg

Katie,
Kevin wanted you to have NRR to review this BEFORE it went to OPA.

Thanks

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Wagner, Katie
Sent: Tuesday, March 22, 2011 1:53 PM
To: Burnell, Scott
Cc: Lee, Richard; Gibson, Kathy
Subject: Station blackout questions
Importance: High

Good Afternoon Scott,

Kevin Coyne of RES/DRA has provided a preliminary response to Mr. Soraghan's questions (see below), however he did not understand the third question and recommends that George Wilson of NRR/DE/EEEB review the preliminary response.

Thanks,

Katie Wagner
DSA POC for Japan-Related Requests

From: Coyne, Kevin
Sent: Tuesday, March 22, 2011 1:40 PM
To: Lee, Richard
Cc: Wagner, Katie; Wilson, George; Demoss, Gary; Beasley, Benjamin; Coe, Doug
Subject: RE: Station blackout questions
Importance: High

Richard –

We've taken a first cut at responding to the questions, but George Wilson from the NRR electrical engineering branch has been very active in this area and should review the question and answers before a response goes

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back to OPA (particularly for the first question...). I've cc'ed George, but Katie should coordinate the response with him before providing a final answer back to Scott Burnell.

-Kevin

First, has there been any update to these numbers?

- Unknown. However, our understanding is that NUREG-1776 (http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1776/) is the most recent study specific to the station blackout rule that has been prepared by RES.

"Coping time in hours" – is that the amount of battery power? And is it the amount the plant has, or is required to have?

- 10 CFR 50.63, "Loss of all alternating current power," requires that the station blackout duration shall be based on (i) redundancy of the onsite emergency power ac power sources,; (2) the reliability of the onsite emergency ac power sources; (3) the expected frequency of loss of offsite power; and (4) the probably time needed to restore offsite power. RG 1.155, "Station Blackout," (August 1988), provides guidance for determining a plant specific coping time based on these factors. In general, coping times range from 2 to 16 hours, though licensees may propose alternate durations based on plant specific factors relating to the reliability of their ac power systems.

- Licensees must demonstrate that systems have sufficient capacity and capability to ensure core cooling and containment integrity are maintained for the duration of the specified coping time. Although station batteries are one of the necessary systems, other systems that provide water inventory and containment functions must also be available

"Loss of Power events" – if a combined plant with two reactors lists two events, did each shut down for a total of four?

- Do not understand question – can a reference to a specific table or graph be provided by the questioner?

Also, is there updated figures for the "loss of power events?"

- NUREG/CR-6890, "Reevaluation of Station Blackout Risk at Nuclear Power Plants," (http://www.nrc.gov/reading-rm/doc-collections/nuregs/contract/cr6890/) examined data from 1986-2004 for four categories of loss of offsite power events: plant-centered, switchyard centered, grid-related, and weather-related.
- The NRC also maintains an active data collection program on operating experience. The most recent data for loss of offsite power events can be found at the following website: http://nrcoe.inel.gov/results/index.cfm?fuseaction=LOSP.showMenu

---

From: Lee, Richard
Sent: Tuesday, March 22, 2011 12:49 PM
To: Coyne, Kevin
Cc: Wagner, Katie
Subject: FW: Station blackout questions

Kevin:

We need to respond to inquiry on this. Could you please have someone in your Branch or Division to take a look at this. There is also another report, NUREG/CR-6890 on station blackout too.

http://www.nrc.gov/reading-rm/doc-collections/nuregs/contract/cr6890/

If you know other staff in NRO or NRR knows the answers, please let me know.

Thanks, Richard

From: Wagner, Katie
Sent: Tuesday, March 22, 2011 12:13 PM
To: Santiago, Patricia; Hoxie, Chris; Elkins, Scott; Bush-Goddard, Stephanie; Zaki, Tarek
Cc: Lee, Richard
Subject: Station blackout questions
Importance: High

All,

Do any of you know who the lead should be to answer these questions about station blackout (the questions are from a reporter see the highlighted section at the bottom of this email)? It may It may be another RES division or one in NRR?

Thank you,

Katie Wagner
DSA POC for Japan-Related Requests

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 11:59 AM
To: Wagner, Katie
Cc: Lee, Richard
Subject: FW: Station blackout questions
Importance: High

See if you can find this report in ADAMS and who was the cognizant office, branch, and staff.

If that doesn't' work or in parallel, send an email request to our BCs and see if any of them know who the lead should be to answer these questions.

It may be another RES division or NRR, I am not sure.

If you need help processing this, see me or Richard Lee.

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6)

From: Burnell, Scott
Sent: Tuesday, March 22, 2011 9:49 AM
To: Gibson, Kathy; Scott, Michael

Cc: Elkins, Scott
Subject: FW: Station blackout questions
Importance: High

Kathy, Mike;

I'm thinking NUREG-1776 (Regulatory Effectiveness of the Station Blackout Rule) was done by the predecessor to your division, probably under Scott's branch. I need help answering the reporter's four questions below. Thanks very much.

Scott

From: Mike Soraghan [mailto:msoraghan@eenews.net]
Sent: Thursday, March 17, 2011 6:06 PM
To: Burnell, Scott
Subject: Station blackout questions

Mr. Burnell,

Thank you for taking my call a moment ago. I am looking at doing a story on station black out, with a little on seismic, that looks at all u.s. plants.

My simplest question is whether there is a list of the design basis each of the 104 reactors must meet in terms of what magnitude earthquake they must be able to withstand. I've been told that's not likely, so I'm pulling the information from news reports.

I have the 2000 report (attached) "Regulatory Effectiveness of the Station Blackout Rule." I've been looking at this, particularly the plant-by-plant chart, and I'm seeking some guidance.

First, has there been any update to these numbers?
"Coping time in hours" – is that the amount of battery power? And is it the amount the plant has, or is required to have?
"Loss of Power events" – if a combined plant with two reactors lists two events, did each shut down for a total of four?
Also, is there updated figures for the "loss of power events?"

Thank you,

Mike Soraghan
Reporter
msoraghan@eenews.net
202-446-0423 (desk)
(b)(6) [redacted] cell)
Google Voice)

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ClimateWire, E&E Daily, Greenwire, E&ENews PM, E&ETV, Land Letter

Greenwood, Carol

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 4:21 PM
To: RES_DSA
Subject: Expectations - Priorities and Schedules during Japan response period
Attachments: Kathy Halvey Gibson.vcf; image001.jpg

Dear staff,
During this time of upheaval during the response to the events in Japan, I wanted to let you know my expectations for completing our work.

Firstly, let me address priorities. As always, our highest priority is work that is related to the safety of operating reactors in the US.

Our second priority currently is Fukushima event response, first and foremost support to the NRC Operations Center and requests for support that are directly related to Fukushima safety and recovery efforts. We are getting a number of requests for information and action that are from entities that are curious or are doing their own analysis of the events. These types of requests should be processed on a priority set by the cognizant BC (in consultation with division or office management as necessary). All requests regarding support on Japan should be sent to Katie Wagner for tracking.

Other work – our regular work – should continue on a priority set by the cognizant BC. Work that is impacted (i.e. milestones in jeopardy) by staff support to the Japan response activities should be raised to the cognizant BC and dates renegotiated with our customers as appropriate.

Staff that are assigned duty in the operations center are not expected to do other work on the days they are scheduled ops center duty. I do not expect staff (or managers) to work more than their normally scheduled work hour duration per day on a routine basis. Occasionally, an hour or two here and there is fine to monitor contract activities or to attend important meetings that can't be postponed, etc.

I am working with the BCs to realign staff and some work activities to better distribute the reactive workload. I appreciate your flexibility and patience as we make these temporary adjustments.

I am asking you all to take care of yourselves, especially during this time of high stress and high workload. I have asked the BCs to monitor workload and work schedules more closely that normal to ensure staff are able to spend time at home with their families and get proper rest. Please don't hesitate to let your BC (or me) know if you need help. Also, remember that the Employee Assistance Program counselors are available for consultation and assistance.

I am proud to be part of DSA, you are amazing!

Kathy

55\90

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

Lee, Richard

From: Santiago, Patricia
Sent: Tuesday, March 22, 2011 6:47 PM
To: Hoxie, Chris; Wagner, Katie; Lee, Richard; Ghosh, Tina
Cc: Elkins, Scott; Bush-Goddard, Stephanie; Zaki, Tarek; Gibson, Kathy; Schaperow, Jason
Subject: Re: Station blackout questions

I think I asked jason earlier and later today asked tina to follow up with him or charlie. Thx

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6)

From: Hoxie, Chris
To: Wagner, Katie; Lee, Richard
Cc: Santiago, Patricia; Elkins, Scott; Bush-Goddard, Stephanie; Zaki, Tarek; Gibson, Kathy
Sent: Tue Mar 22 17:59:53 2011
Subject: RE: Station blackout questions

The regulatory effectiveness NUREG was done by the part of RES that used to be AEOD. I don't know where they reside now. PRA or SOARCA should be the best source of info in RES. For plant information either PRA or DE in NRR should be the cognizant people.

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6)

From: Wagner, Katie
Sent: Tuesday, March 22, 2011 12:52 PM
To: Lee, Richard
Cc: Santiago, Patricia; Hoxie, Chris; Elkins, Scott; Bush-Goddard, Stephanie; Zaki, Tarek; Gibson, Kathy
Subject: RE: Station blackout questions

All,

In case it helps anyone here is information about NUREG-1776:

ADAMS: ML032450542.

NRC Project Manager was William S. Raughley

Foreword was signed by:
Farouk Eltawila, Director
Division of Systems Analysis and Regulatory Effectiveness
Office of Nuclear Regulatory Research

55\91

Thanks,

Katie

From: Lee, Richard
Sent: Tuesday, March 22, 2011 12:46 PM
To: Wagner, Katie
Cc: Santiago, Patricia; Hoxie, Chris; Elkins, Scott; Bush-Goddard, Stephanie; Zaki, Tarek
Subject: RE: Station blackout questions

Katie:

Let me ask DRA, Kevin Coyne on this. There is PRA stuff in here.

Richard

From: Wagner, Katie
Sent: Tuesday, March 22, 2011 12:13 PM
To: Santiago, Patricia; Hoxie, Chris; Elkins, Scott; Bush-Goddard, Stephanie; Zaki, Tarek
Cc: Lee, Richard
Subject: Station blackout questions
Importance: High

All,

Do any of you know who the lead should be to answer these questions about station blackout (the questions are from a reporter see the highlighted section at the bottom of this email)? It may It may be another RES division or one in NRR?

Thank you,

Katie Wagner
DSA POC for Japan-Related Requests

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 11:59 AM
To: Wagner, Katie
Cc: Lee, Richard
Subject: FW: Station blackout questions
Importance: High

See if you can find this report in ADAMS and who was the cognizant office, branch, and staff.

If that doesn't' work or in parallel, send an email request to our BCs and see if any of them know who the lead should be to answer these questions.

It may be another RES division or NRR, I am not sure.

If you need help processing this, see me or Richard Lee.

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

Ex 6

US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

From: Burnell, Scott
Sent: Tuesday, March 22, 2011 9:49 AM
To: Gibson, Kathy; Scott, Michael
Cc: Elkins, Scott
Subject: FW: Station blackout questions
Importance: High

Kathy, Mike;

I'm thinking NUREG-1776 (Regulatory Effectiveness of the Station Blackout Rule) was done by the predecessor to your division, probably under Scott's branch. I need help answering the reporter's four questions below. Thanks very much.

Scott

From: Mike Soraghan [mailto:msoraghan@eenews.net]
Sent: Thursday, March 17, 2011 6:06 PM
To: Burnell, Scott
Subject: Station blackout questions

Mr. Burnell,

Thank you for taking my call a moment ago. I am looking at doing a story on station black out, with a little on seismic, that looks at all u.s. plants.

My simplest question is whether there is a list of the design basis each of the 104 reactors must meet in terms of what magnitude earthquake they must be able to withstand. I've been told that's not likely, so I'm pulling the information from news reports.

I have the 2000 report (attached) "Regulatory Effectiveness of the Station Blackout Rule." I've been looking at this, particularly the plant-by-plant chart, and I'm seeking some guidance.

First, has there been any update to these numbers?
"Coping time in hours" – is that the amount of battery power? And is it the amount the plant has, or is required to have?
"Loss of Power events" – if a combined plant with two reactors lists two events, did each shut down for a total of four?
Also, is there updated figures for the "loss of power events?"

Thank you,

Mike Soraghan
Reporter
msoraghan@eenews.net
202-446-0423 (desk)

(b)(6)

cell)

Google Voice)

Ex 6

Environment & Energy Publishing, LLC
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ClimateWire, E&E Daily, Greenwire, E&ENews PM, E&ETV, Land Letter

Greenwood, Carol

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 7:16 PM
To: Greenwood, Carol
Subject: RE: Ops Center work
Attachments: Kathy Halvey Gibson2.vcf; image001.jpg

Ok, add me for 11-7 shift on apr 7, 8, 9 and then we are done for now. Thanks

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

From: Greenwood, Carol
Sent: Tuesday, March 22, 2011 6:24 PM
To: Gibson, Kathy
Subject: Ops Center work

Done, attached is updated list, I added Casper Sun and updated Tony Huffert and Mike Salay

---

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 5:55 PM
To: Greenwood, Carol
Subject: FW:

Please double check this list against the spreadsheet you sent me – but just for the DSA folks.

Thanks

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell Ex 6

US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

From: OST02 HOC
Sent: Tuesday, March 22, 2011 12:52 PM
To: Abrams, Charlotte; Abu-Eid, Boby; Adams, John; Afshar-Tous, Mugeh; Ahn, Hosung; Alemu, Bezakulu; Alter, Peter; Anderson, Brian; Anderson, James; Arribas-Colon, Maria; Ashkeboussi, Nima; Athey, George; Baker, Stephen; Ballam, Nick; Barnhurst, Daniel; Barr, Cynthia; Barss, Dan; Bazian, Samuel; Bensi, Michelle; Bergman, Thomas; Berry, Rollie; Bhachu, Ujagar; Bloom, Steven; Blount, Tom; Boger, Bruce; Bonnette, Cassandra; Borchardt, Bill; Bowers, Anthony; Bowman, Gregory; Boyce, Tom (RES); Brandon, Lou; Brandt, Philip; Brenner, Eliot; Brock, Kathryn; Brown, Cris; Brown,

55/92

David; Brown, Eva; Brown, Frederick; Brown, Michael; Bukharin, Oleg; Burnell, Scott; Bush-Goddard, Stephanie; Campbell, Stephen; Camper, Larry; Carpenter, Cynthia; Carter, Mary; Case, Michael; Casto, Greg; Cecere, Bethany; Cervera, Margaret; Chazell, Russell; Chen, Yen-Ju; Cheok, Michael; Chokshi, Nilesh; Chowdhury, Prosanta; Circle, Jeff; Clement, Richard; Clinton, Rebecca; Coggins, Angela; Collins, Frank; Cool, Donald; Correia, Richard; Costa, Arlon; Couret, Ivonne; Crutchley, Mary Glenn; Cruz, Zahira; Cuadrado, Leira; Dacus, Eugene; DeCicco, Joseph; Decker, David; Dembek, Stephen; Devlin, Stephanie; Dimmick, Lisa; Doane, Margaret; Dorman, Dan; Dorsey, Cynthia; Dozier, Jerry; Drake, Margaret; Droggitis, Spiros; Dube, Donald; Dudes, Laura; Eads, Johnny; Emche, Danielle; English, Lance; Erlanger, Craig; Esmaili, Hossein; Figueroa, Roberto; Fiske, Jonathan; Flannery, Cindy; Floyd, Daphene; Foggie, Kirk; Foster, Jack; Fragoyannis, Nancy; Franovich, Rani; Frazier, Alan; Freshman, Steve; Fuller, Edward; Galletta, Thomas; Gambone, Kimberly; Gibson, Kathy; Giitter, Joseph; Gilmer, James; Gordon, Dennis; Gott, William; Grant, Jeffery; Greenwood, Carol; Grimes, Kelly; Grobe, Jack; Gross, Allen; Gulla, Gerald; Hale, Jerry; Hardesty, Duane; Harrington, Holly; Harris, Tim; Hart, Ken; Hart, Michelle; Harvey, Brad; Hasselberg, Rick; Hayden, Elizabeth; Helton, Donald; Henderson, Karen; Hiland, Patrick; Holahan, Patricia; Holahan, Vincent; Holian, Brian; Howard, Tabitha; Huffert, Anthony; Hurd, Sapna; Huyck, Doug; Imboden, Andy; Isom, James; Jackson, Karen; Jacobson, Jeffrey; Jervey, Richard; Jessie, Janelle; Johnson, Michael; Jolicoeur, John; Jones, Andrea; Jones, Cynthia; Jones, Henry; Kahler, Carolyn; Kammerer, Annie; Karas, Rebecca; Kauffman, John; Khan, Omar; Kolb, Timothy; Kotzalas, Margie; Kowalczik, Jeffrey; Kratchman, Jessica; Kugler, Andrew; Lamb, Christopher; Lane, John; Larson, Emily; Laur, Steven; LaVie, Steve; Lewis, Robert; Li, Yong; Lichatz, Taylor; Lising, Jason; Lombard, Mark; Lubinski, John; Lui, Christiana; Lukes, Kim; Lynch, Jeffery; Ma, John; Mamish, Nader; Manahan, Michelle; Marksberry, Don; Marshall, Jane; Masao, Nagai; Maupin, Cardelia; Mayros, Lauren; Mazaika, Michael; McConnell, Keith; McCoppin, Michael; McDermott, Brian; McGinty, Tim; McGovern, Denise; McIntyre, David; McMurtray, Anthony; Merritt, Christina; Meyer, Karen; Miller, Charles; Miller, Chris; Milligan, Patricia; Miranda, Samuel; Mohseni, Aby; Moore, Scott; Morlang, Gary; Morris, Scott; Mroz (Sahm), Sara; Munson, Clifford; Murray, Charles; Nerret, Amanda; Nguyen, Caroline; Norris, Michael; Norton, Charles; Ordaz, Vonna; Owens, Janice; Padovan, Mark; Parillo, John; Patel, Jay; Patel, Pravin; Patrick, Mark; Perin, Vanice; Pope, Tia; Powell, Amy; Purdy, Gary; Quinlan, Kevin; Raddatz, Michael; Ragland, Robert; Ralph, Melissa; Ramsey, Jack; Reed, Elizabeth; Reed, Sara; Reed, Wendy; Reis, Terrence; Resner, Mark; Riley (OCA), Timothy; Riner, Kelly; Rini, Brett; Robinson, Edward; Rodriguez-Luccioni, Hector; Roggenbrodt, William; Ropon, Kimberly; Rosenberg, Stacey; Ross-Lee, MaryJane; Roundtree, Amy; Ruland, William; Ryan, Michelle; Salay, Michael; Salter, Susan; Salus, Amy; Sanfilippo, Nathan; Scarbrough, Thomas; Schaperow, Jason; Schmidt, Duane; Schmidt, Rebecca; Schoenebeck, Greg; Schrader, Eric; Schwartzman, Jennifer; Seber, Dogan; See, Kenneth; Shane, Raeann; Shea, James; Shepherd, Jill; Sheron, Brian; Skarda, Raymond; Skeen, David; Sloan, Scott; Smiroldo, Elizabeth; Smith, Brooke; Smith, Stacy; Smith, Theodore; Stahl, Eric; Stang, Annette; Steger (Tucci), Christine; Stieve, Alice; Stone, Rebecca; Stransky, Robert; Sturz, Fritz; Sullivan, Randy; Summers, Robert; Sun, Casper; Tappert, John; Tegeler, Bret; Temple, Jeffrey; Thaggard, Mark; Thomas, Eric; Thorp, John; Tiruneh, Nebiyu; Tobin, Jennifer; Trefethen, Jean; Tschiltz, Michael; Turtil, Richard; Uhle, Jennifer; Valencia, Sandra; Vaughn, James; Versluis, Robert; Vick, Lawrence; Virgilio, Martin; Virgilio, Rosetta; Ward, Leonard; Ward, William; Wastler, Sandra; Watson, Bruce; Webber, Robert; Weber, Michael; White, Bernard; Wiggins, Jim; Williams, Donna; Williams, Joseph; Williamson, Linda; Willis, Dori; Wimbush, Andrea; Wittick, Brian; Wray, John; Wright, Lisa (Gibney); Wright, Ned; Wunder, George; Young, Francis; Zimmerman, Jacob; Zimmerman, Roy
Subject:

Please disregard the last copy which was the template.

Revised Copy

Attached is the OPS Center watchbill for March 18-26th, you will be receiving the watchbill for the week of March 26-April 2nd , in the future. If you need to change the schedule, please send an email to OST02 HOC.

Greenwood, Carol

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 7:18 PM
To: Santiago, Patricia; Hoxie, Chris; Wagner, Katie; Lee, Richard; Ghosh, Tina
Cc: Elkins, Scott; Bush-Goddard, Stephanie; Zaki, Tarek; Schaperow, Jason
Subject: RE: Station blackout questions
Attachments: Kathy Halvey Gibson2.vcf; image001.jpg

I'm trying to deflect requests away from your staff. Katie is working this, so unless your guys hear from her, they don't need to do anything on this. Thanks

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Santiago, Patricia
Sent: Tuesday, March 22, 2011 6:47 PM
To: Hoxie, Chris; Wagner, Katie; Lee, Richard; Ghosh, Tina
Cc: Elkins, Scott; Bush-Goddard, Stephanie; Zaki, Tarek; Gibson, Kathy; Schaperow, Jason
Subject: Re: Station blackout questions

I think I asked jason earlier and later today asked tina to follow up with him or charlie. Thx

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6)

From: Hoxie, Chris
To: Wagner, Katie; Lee, Richard
Cc: Santiago, Patricia; Elkins, Scott; Bush-Goddard, Stephanie; Zaki, Tarek; Gibson, Kathy
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Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell (b)(6)

55\93

From: Wagner, Katie
Sent: Tuesday, March 22, 2011 12:52 PM
To: Lee, Richard
Cc: Santiago, Patricia; Hoxie, Chris; Elkins, Scott; Bush-Goddard, Stephanie; Zaki, Tarek; Gibson, Kathy
Subject: RE: Station blackout questions

All,

In case it helps anyone here is information about NUREG-1776:

ADAMS: ML032450542.

NRC Project Manager was William S. Raughley

Foreword was signed by:
Farouk Eltawila, Director
Division of Systems Analysis and Regulatory Effectiveness
Office of Nuclear Regulatory Research

Thanks,
Katie

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Richard

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To: Santiago, Patricia; Hoxie, Chris; Elkins, Scott; Bush-Goddard, Stephanie; Zaki, Tarek
Cc: Lee, Richard
Subject: Station blackout questions
Importance: High

All,

Do any of you know who the lead should be to answer these questions about station blackout (the questions are from a reporter see the highlighted section at the bottom of this email)? It may It may be another RES division or one in NRR?

Thank you,

Katie Wagner
DSA POC for Japan-Related Requests

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 11:59 AM
To: Wagner, Katie

Cc: Lee, Richard
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Importance: High

See if you can find this report in ADAMS and who was the cognizant office, branch, and staff.

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If you need help processing this, see me or Richard Lee.

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

Ex 6

From: Burnell, Scott
Sent: Tuesday, March 22, 2011 9:49 AM
To: Gibson, Kathy; Scott, Michael
Cc: Elkins, Scott
Subject: FW: Station blackout questions
Importance: High

Kathy, Mike;

I'm thinking NUREG-1776 (Regulatory Effectiveness of the Station Blackout Rule) was done by the predecessor to your division, probably under Scott's branch. I need help answering the reporter's four questions below. Thanks very much.

Scott

From: Mike Soraghan [mailto:msoraghan@eenews.net]
Sent: Thursday, March 17, 2011 6:06 PM
To: Burnell, Scott
Subject: Station blackout questions

Mr. Burnell,

Thank you for taking my call a moment ago. I am looking at doing a story on station black out, with a little on seismic, that looks at all u.s. plants.

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Also, is there updated figures for the "loss of power events?"

Thank you,

Mike Soraghan
Reporter
msoraghan@eenews.net
202-446-0423 (desk)
(b)(6) (cell)
(Google Voice)

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ClimateWire, E&E Daily, Greenwire, E&ENews PM, E&ETV, Land Letter

Greenwood, Carol

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 4:30 PM
To: Armstrong, Kenneth
Subject: RE: ACTION: DRAFT SRM - COMGBJ-11-0002 (NRC Actions Following the Events in Japan)
Attachments: Kathy Halvey Gibson2.vcf; image001.jpg

Ok, then respond that DSA has no comments, and we agree with DRA's comments.

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

From: Armstrong, Kenneth
Sent: Tuesday, March 22, 2011 4:28 PM
To: Gibson, Kathy
Subject: FW: ACTION: DRAFT SRM - COMGBJ-11-0002 (NRC Actions Following the Events in Japan)

Kathy,

This is all that I received, please touch base with Brett when you have a chance.

Thanks,
Kenneth

From: Voglewede, John
Sent: Tuesday, March 22, 2011 4:24 PM
To: Armstrong, Kenneth
Cc: Ramirez, Annie
Subject: RE: ACTION: DRAFT SRM - COMGBJ-11-0002 (NRC Actions Following the Events in Japan)

The Commission decision is clear and understandable.

Although it probably does not matter, there is no way the staff can "properly consider resource, schedular and legal constraints."

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 3:36 PM
To: Bush-Goddard, Stephanie; Elkins, Scott; Hoxie, Chris; Lee, Richard; Santiago, Patricia; Scott, Michael; Bajorek, Stephen; Boyd, Christopher; Rubin, Stuart; Sherbini, Sami; Tinkler, Charles; Voglewede, John; Zigh, Ghani
Cc: Armstrong, Kenneth; Ramirez, Annie
Subject: FW: ACTION: DRAFT SRM - COMGBJ-11-0002 (NRC Actions Following the Events in Japan)
Importance: High

Please provide any comments to Ken and Annie ASAP, I will consider any comments received prior to **4pm today**.

55\94

Comments should be limited to "ensure that the Commission decision is clear and understandable and that resource, schedular, and legal constraints are properly considered".

thanks

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

US Nuclear R
Office of Nuclear Regulatory Research
Protecting People and the Environment

From: Rini, Brett
Sent: Tuesday, March 22, 2011 3:27 PM
To: Case, Michael; Richards, Stuart; Gibson, Kathy; Elkins, Scott; Coe, Doug; Coyne, Kevin
Cc: Rivera-Lugo, Richard; Armstrong, Kenneth; Ibarra, Jose; Ramirez, Annie; Sheron, Brian; Uhle, Jennifer
Subject: ACTION: DRAFT SRM - COMGBJ-11-0002 (NRC Actions Following the Events in Japan)
Importance: High

Division Directors,

Please see the attached SRM regarding follow-up actions from the events in Japan. As indicated below, "as provided in the Internal Commission Procedures, the staff is "...afforded an opportunity to review the SRM to ensure that the Commission decision is clear and understandable and that resource, schedular, and legal constraints are properly considered."

Please send me any major problems that you see with the attached by COB today.

Thank you in advance for addressing this (additional) short turnaround request.

Brett

From: Sheron, Brian
Sent: Tuesday, March 22, 2011 2:04 PM
To: Rini, Brett
Subject: FW: DRAFT SRM - COMGBJ-11-0002 (NRC Actions Following the Events in Japan)
Importance: High

Brett, please have division review and let me know if any major problems or show-stoppers.

From: RidsEdoDraftSrmVote Resource
Sent: Tuesday, March 22, 2011 1:58 PM
To: Ash, Darren; Borchardt, Bill; Boyd, Lena; Buckley, Patricia; Clarke, Deanna; Cohen, Miriam; EDO_Staff_Assistants; Flory, Shirley; Fry, Jeannie; Garland, Stephanie; Johnson, Michael; Mamish, Nader; Matakas, Gina; Miles, Patricia; Miller, Charles; Owen, Lucy; Riddick, Nicole; RidsAdmMailCenter Resource; RidsCsoMailCenter Resource; RidsFsmeOd Resource; RidsHrMailCenter Resource; RidsNmssOd Resource; RidsNroMailCenter Resource; RidsNrrOd Resource; RidsNsirMailCenter Resource; RidsOeMailCenter Resource; RidsOiMailCenter Resource; RidsOIS Resource; RidsResOd Resource; RidsRgn1MailCenter Resource; RidsRgn2MailCenter Resource; RidsRgn3MailCenter Resource; RidsRgn4MailCenter Resource; RidsSbcrMailCenter Resource; Thomas, Loretta; Virgilio, Martin; Walker, Dwight; Weber, Michael
Subject: FW: DRAFT SRM - COMGBJ-11-0002 (NRC Actions Following the Events in Japan)
Importance: High

From: Wright, Darlene
Sent: Tuesday, March 22, 2011 1:19 PM
To: Baggett, Steven; Bates, Andrew; Batkin, Joshua; Bavol, Rochelle; Blake, Kathleen; Bozin, Sunny; Bradford, Anna; Bubar, Patrice; Bupp, Margaret; Burns, Stephen; Chairman Temp; Clark, Lisa; Coggins, Angela; Cordes, John; Crawford, Carrie; Davis, Roger; Fopma, Melody; Franovich, Mike; Gibbs, Catina; Hackett, Edwin; Hart, Ken; Harves, Carolyn; Henderson, Karen; Herr, Linda; Hipschman, Thomas; Hudson, Sharon; Joosten, Sandy; KLS Temp; Kock, Andrea; Laufer, Richard; Lepre, Janet; Loyd, Susan; Mamish, Nader; Marshall, Michael; Monninger, John; Moore, Scott; Orders, William; Pace, Patti; Poole, Brooke; Reddick, Darani; RidsEdoDraftSrmVote Resource; Rothschild, Trip; Savoy, Carmel; Sharkey, Jeffry; Shea, Pamela; Snodderly, Michael; Sosa, Belkys; Speiser, Herald; Svinicki, Kristine; Temp, GEA; Temp, WCO; Temp, WDM; Thoma, John; Vietti-Cook, Annette; Warren, Roberta; Zorn, Jason; Tadesse, Rebecca; Joosten, Sandy; Castleman, Patrick; Montes, David; Dhir, Neha; Adler, James; Jimenez, Patricia; Muessle, Mary; Nieh, Ho; Ostendorff, William; Warnick, Greg; Apostolakis, George; Pearson, Laura; Lui, Christiana; Lisann, Elizabeth
Cc: Lewis, Antoinette
Subject: DRAFT SRM - COMGBJ-11-0002 (NRC Actions Following the Events in Japan)
Importance: High

The attached file contains a draft SRM which is being circulated for Commission review. Your response is requested as soon as practical today. As provided in the Internal Commission Procedures, the staff is "...afforded an opportunity to review the SRM to ensure that the Commission decision is clear and understandable and that resource, schedular, and legal constraints are properly considered." Please provide any responses to Ken Hart (KRH), Richard Laufer (RJL), Rochelle Bavol (RCB5), and Pam Shea (PWS).

Greenwood, Carol

From: Gibson, Kathy
Sent: Wednesday, March 23, 2011 7:14 AM
To: Kratchman, Jessica
Subject: Re: Ops Center experience
Attachments: image001.jpg

Its ok, that's why we work in teams. And not every guy is as insensitive as the one you dealt with, ugh!

From: Kratchman, Jessica
To: Gibson, Kathy
Sent: Wed Mar 23 00:45:05 2011
Subject: RE: Ops Center experience

Thanks so much. Sorry I let the pressure get to me a little. That is not really like me.

It was wonderful luck that both you and Jennifer were around that night ☺

From: Gibson, Kathy
Sent: Wednesday, March 23, 2011 12:06 AM
To: Kratchman, Jessica
Subject: Re: Ops Center experience

Great, you go girl!

From: Kratchman, Jessica
To: Gibson, Kathy
Sent: Tue Mar 22 22:36:15 2011
Subject: RE: Ops Center experience

Kathy,

Thanks for following up with me. Last night was MUCH better! And it definitely did not take 20 years of experience to figure out what was going on while I was on shift, if you know what I mean.... <wink> ☺

Thanks again.

-Jessie

From: Gibson, Kathy
Sent: Tuesday, March 22, 2011 1:01 PM
To: Kratchman, Jessica
Subject: Ops Center experience

Jessica,
I just wanted to follow-up with you and see how your experience was in the ops center?

55\95

Best wishes,
Kathy

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

Lee, Richard

From:	Voglewede, John
Sent:	Wednesday, March 23, 2011 1:57 PM
To:	Lee, Richard
Cc:	Basu, Sudhamay
Subject:	FW: Berkeley NE Dept says Zr can't burn in air or H2O and joins Nils Diaz in saying graphite burns like coal
Importance:	High

See message below about burning zirconium in air. You already got it from Don Carlson. Sud may enjoy it.

From: Voglewede, John
Sent: Monday, March 21, 2011 3:22 PM
To: Scott, Harold; Flanagan, Michelle; Raynaud, Patrick
Subject: FW: Berkeley NE Dept says Zr can't burn in air or H2O and joins Nils Diaz in saying graphite burns like coal
Importance: High

Learn your lesson: Zirconium doesn't react with water.

Video is interesting.

From: Carlson, Donald
Sent: Monday, March 21, 2011 2:51 PM
To: Voglewede, John
Cc: Tinkler, Charles; Lee, Richard; Schaperow, Jason
Subject: FW: Berkeley NE Dept says Zr can't burn in air or H2O and joins Nils Diaz in saying graphite burns like coal
Importance: High

John,

Below is what I was telling you about. I think Charlie, Jason, and Richard might enjoy this as well.

And don't forget: UC-Berkeley's NE Department is consistently rated among the top three in the U.S. (yikes!).

FYI – I also had a nice e-mail exchange with blogger Rod Adams yesterday from my home e-mail account. I thought I might actually make some progress at educating him until he came up with the UC-Berkeley news video. Now it's our word against theirs.
Btw – I didn't identify myself to him as NRC staff and I don't think he figured it out.

Cheers,
Don
Cell: (b)(6)

From: Carlson, Donald
Sent: Monday, March 21, 2011 11:56 AM
To: Srinivasan, Makuteswara; Ward, Leonard; burchelltd@ornl.gov
Subject: Berkeley NE Dept says Zr can't burn in air or H2O and joins Nils Diaz in saying graphite burns like coal

Srini, Tim, and Len:

As you may have noticed, Rod Adams' stridently pro-nuclear Atomic Insights blog has been getting some attention for criticizing NRC's response to Fukushima Daiichi (see March 17 blog).

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But Adams doesn't stop there. He dismisses in-core energetic zirconium-water reactions as a likely source of exploding hydrogen, insists that spent fuel fires are impossible, and even finds support for these views in a very recent local TV news report. The news report features professors at the UC-Berkeley Nuclear Engineering Department claiming that (a) zirconium cannot burn in air or water and (b) graphite is essentially coal (see March 20 blog). With regard to graphite burning like coal, Nils Diaz said the same on CNN last week in reference to Chernobyl.

If Rod Adams and UC-Berkeley are right about zirconium, then this would seem to be a historic new insight worthy of the highest praise. Our understanding of TMI would have to be revised along with many NE textbooks. Or maybe they're wrong. What do you think, Len?

UC-Berkeley's blowtorch demo on zirconium tubing is similar to some of the torch demos on nuclear graphite we've seen where the graphite emerges unscathed. It would be interesting to see such a demo on coal.

My own limited understanding of what happened with the Chernobyl graphite after the explosive core reactivity excursion is as follows:

A considerable amount of graphite does indeed seem to have oxidized or "burned" after the explosion. A former Chernobyl worker (Vladimir Khotylev, since employed by the CNSC in Ottawa) told me several years ago that much of the graphite is no longer there, presumably having been oxidized (to CO or CO2). But Chernobyl was water cooled. Furthermore, given its use of robust zircalloy pressure tubes as well as zircalloy fuel cladding, Chernobyl had much more zirconium than any conventional LWR. So it seems likely that lots of ultra-hot zirconium burned in the air and residual steam after the Chernobyl explosion. The hot zirconium fires then played a significant role in promoting exothermic air oxidation of graphite. Without the energetic zirc-water and zirc-air reactions, it seems likely that much less graphite would have "burned" at Chernobyl.

Similarly for the 1957 Windscale accident, very little graphite would have burned there had it not been for combustion of the metallic fuel elements (and some say secret lithium targets) as a result of Wigner-energy overheating of the air-cooled graphite core.

Graphite "burning" or oxidation is of course being analyzed for postulated severe air-ingress accidents in proposed modular HTGR designs like NGNP and PBMR. With the metal-free all-ceramic cores that define HTGRs, it seems that any comparison of graphite to coal is especially unwarranted.

What do you think, Srini, Tim, and Len?

Best regards,
Don

Dr.-Ing. Donald E. Carlson
Senior Project Manager
NRO/ARP/ARB1
Office: 301-415-0109
Cell: (b)(6)
T6-F6/MS T6-E4

Bano, Mahmooda

From:	Scott, Michael
Sent:	Friday, March 25, 2011 4:53 AM
To:	Foggie, Kirk
Subject:	Fw: RST tracker for Japan
Attachments:	boarddata.pdf

Pls print in color. Thx

Sent from my NRC blackberry
Michael Scott
(b)(6)

----- Original Message -----
From: Scott, Michael
To: Monninger, John
Sent: Fri Mar 25 03:47:38 2011
Subject: FW: RST tracker for Japan

Can you please print this? The update you requested.

-----Original Message-----
From: RST01 Hoc
Sent: Friday, March 25, 2011 3:05 AM
To: Scott, Michael
Subject: RE: RST tracker for Japan

Attached what you are looking for?

-----Original Message-----
From: Scott, Michael
Sent: Friday, March 25, 2011 3:02 AM
To: RST01 Hoc
Subject: RE: RST tracker for Japan

What we were asking for was the color-coded RST tracker spreadsheet that comes out of the RST computer system About three pages in the older version we had. Does that parallel the list in the e-mail you sent?

-----Original Message-----
From: RST01 Hoc
Sent: Thursday, March 24, 2011 9:36 PM
To: Scott, Michael
Subject: RE: RST tracker for Japan

Mike,

Let me know if this helps.

Due 3/25 0700
Desc: E-mail request from Josh Batkin (3/24 @ 1818)
Can you please have your staffs work together to provide more detailed information than he has now for his call tomorrow morning? The Chairman is interested in more detail on the status of the cooperative effort between our team and the Japanese, any challenges on

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concerns about that coordination, specific requests he should make of the Ambassador, any knowledge you might have about what the Ambassador may ask him, and any other information you think is relevant.

Due 3/25 0045
Desc: Review AREVA Fukushima Daiichi Incident report, dated 3/24/11 report for possible additional/new insights that could change our current status, and therefore change our assessment or recommendations.

Due 3/25 0345
Desc: Develop trend data of relevant reactor system parameters as instrumentation at the Fukushima reactors becomes available and dependable.

Thanks,

Brett Rini
RST Coordinator

-----Original Message-----
From: Scott, Michael
Sent: Thursday, March 24, 2011 9:10 PM
To: RST01 Hoc
Subject: RST tracker for Japan

Hi. Can I please get an e-copy of your latest Japan task tracker?

Thanks

Mike Scott
Japan team

Sent from my NRC blackberry
Michael Scott
(b)(6) Ex 6

----- Original Message -----
From: Nakanishi, Tony
To: RST01 Hoc
Cc: Blamey, Alan; Scott, Michael
Sent: Thu Mar 24 18:33:47 2011
Subject: Integrated Response Team Procedure for Core cooling

I received this from NISA. It documents the response plan for cooling the reactor. It's written in Japanese. If possible, please have it translated and provide our evaluation. It provides some cautionary measures on preventing H2 explosion, steam explosion, etc.

Task Tracker

Print PDF | Japan Earthquake and Tsunami Daiichi | New Entry

Closed Entries

Team Tasks | My Requests | All Tasks | Site Tasks | Search

Priority	Originator Date/Time Requested	Description/Response	Assigned To Date/Time	Time Due/ Completed	Requestor	Status	Edit
1 High	Record #: 2733 RST Coordinator *Brett Rini* 03/24/2011 22:47:20	Desc: Evaluate data from Len Ward on salt accumulation Response:	RST (All) 03/24/2011 22:47:20	03/25/2011 11:47:00	Bill Ruland	1: Unassigned	Edit
Request Attachment:			Response Attachment:				
1 High	Record #: 2731 RST Director *William Ruland* 03/24/2011 22:56:55	Desc: Confirm plant conditions for input to Source Terms calculations for each unit, if possible Response:	RST (All) RST Accident Seq Analyst 03/24/2011 22:56:55	03/25/2011 05:57:00	RST director	2: Assigned	Edit
Request Attachment:			Response Attachment:				
1 High	Record #: 2715 EST Actions Officer *Dori Votolato* 03/24/2011 21:23:52	Desc: Identify potential management personnel to serve as a Liaison from NRC to the Adm. Willard in the Pacific Command in Honolulu. Requested on 3/24 at 8:30pm by telephone from Piccuta, Foreign Policy Advisor to Adm Willard. Update to Tasking - Contact Mr. Piccuta to elicit the type of expertise that would best serve the Admirals needs. For example, dose projections, reactor systems, SAMG's, Naval background, etc. Consulted with NR rep in Ops Ctr, who recommended talking with the aide directly, and also not offering what we don't have. Response:	EST Executive Support Team (All) 03/24/2011 21:23:52	03/25/2011 10:28:00	ET	2: Assigned	Edit
Request Attachment:			Response Attachment:				
1 High	Record #: 2241 EST Actions Officer *Dori Votolato* 03/22/2011 18:50:21	Desc: Coordinate with Bechtel concerning Public inquires of Bechtel efforts to support Japanese Reactors in concert with Embassy. Want status of efforts to send Bechtel equipment to Japan. Response: What do you want?	OPA (All) 03/22/2011 18:50:21	03/23/2011 01:51:00	ET	2: Assigned	Edit
Request Attachment:			Response Attachment:				
1 High	Record #: 2708 EST Actions Officer *Dori Votolato* 03/24/2011 20:45:09	Desc: Establish points where we are consistently receiving data on radiation levels at the site (e.g., at the main gate) and provide trending data. Response: Meteorlogist (PMT01) is currently working on this specific task.	PMTR (All) 03/24/2011 20:45:09	03/25/2011 03:47:00	ET	3: Accepted	Edit
Request Attachment:			Response Attachment:				
1 High	Record #: 2695 EST Actions Officer *Dori Votolato* 03/24/2011 19:01:50	Desc: Please provide a more detailed input to the Chairman on the status of the cooperative effort between our team and the Japanese, any challenges or concerns, specific requests he should make of the Ambassador, any questions the Ambassador may ask him, and any other relevant information. Due to OIP from ET by 8:30am. See email attached. Response:	PMTR (All) 03/24/2011 19:01:50	03/25/2011 08:02:00	ET/OIP	3: Accepted	Edit
Request Attachment:			Response Attachment:				
		Desc: Respond to Congressional questions: 1) Two workers were reported to have been hospitalized due to radiation exposure. Have there been any more workers hospitalized, and do we know how they were exposed?					

Priority	Record	Description / Response	Assigned To	Due	Category	Status	
1 High	Record #: 2688 EST Actions Officer *Dori Votolato*	2) Three workers were reported to have received radiation burns to their feet by spending too much time walking in contaminated water. Do we have any more information on this? 3) It was reported that the iodine levels in the Tokyo drinking water went down below allowable limits. Do we know what this is attributable to? Was it due to a shift in wind direction? Did the releases from the plant go down"?	PMTR (All)	03/25/2011 12:00:00	ET	3: Accepted	Edit
	03/24/2011 18:37:51	Response: 1. We do not know of any more workers that were hospitalized. We will be confirming this on 0300 call. 2. They were working in the basement of Unit 3 Turbine building where contaminated water was on the floor; exposure was 180mSv, 179mSv, and 173 mSv. Two of the workers had severely contaminated their feet and were transfered to Fukushima Prefecture Medical University. 3. We do not have information on this.	03/24/2011 18:37:51				
	Request Attachment:		Response Attachment:				
1 High	Record #: 2660 EST Actions Officer *Wendy Reed*	Desc: In response to PMT briefing to ET: For MELCOR Transpacific model, find out dose estimate for Alaska.	PMTR (All) PMTM/T Rad Assessment Assistant Dir	03/24/2011 15:57:00	ET	3: Accepted	Edit
	03/24/2011 13:57:31	Response:	03/24/2011 13:57:31				
	Request Attachment:		Response Attachment:				
1 High	Record #: 2536 EST Dir and Response Advisor *Tim McGinty*	Desc: NISA requests, via Mike Scott, insights on information related to steps for recovery based on our experience with TMI. Consider asking NRC Historian	OST (All)	03/25/2011 16:23:23	ET	3: Accepted	Edit
	03/24/2011 06:23:23	Response: LT Director to discuss this assignment to ensure it is tasked to the apporpriate folks. Tony McMurtry assigning to organization outside this tasking list	03/24/2011 06:23:23				
	Request Attachment:		Response Attachment:				
1 High	Record #: 2356 PMTR Deputy Director *Sandra Wastler*	Desc: Call scheduled with Nuclear Technical Advisory Group/White House this Monday, March 28, 2011 at 12:30 EST. Dial in Phone Number: 202-395-6392 Passcode: (b)(6) NEW). J. Bentz will be sending information on this meeting.	PMTR (All)	03/28/2011 13:58:13	White House	3: Accepted	Edit
	03/23/2011 13:58:13	Response:	03/23/2011 13:58:13				
	Request Attachment:		Response Attachment:				
1 High	Record #: 2665 EST Actions Officer *Wendy Reed*	Desc: Please confirm that Steve Aoki and Pete Lyons (both DOE) have the contact info for the 1000 daily call (as per email).	LT (All)	03/24/2011 21:28:00	ET	4: In Progress	Edit
	03/24/2011 14:28:24	Response:	03/24/2011 14:28:24				
	Request Attachment:		Response Attachment:				
1 High	Record #: 2657 PMTR Prot Actions Assistant Dir *Sandra Wastler*	Desc: Request sent to Julia Bentz, EOP, to have a telecon between NRC, DOE, and EPA to discuss Management of Environmental Data from US Nuclear Power Plants (see e-mail from T. Reis to J. Bentz on 3/24). Follow-up if we do not hear back from Julie (202-456-2289) tomorrow aft (Friday noon).	PMTR (All)	03/25/2011 12:00:00	PMT	4: In Progress	Edit
	03/24/2011 13:39:29	Response:	03/24/2011 13:39:29				
	Request Attachment:		Response Attachment:				
1 High	Record #: 2631 EST Actions Officer *Wendy Reed*	Desc: NRC 90 day review should not interfere with ongoing response to Japan.	PMTR (All) PMTR Director	03/31/2011 14:51:00	EST	4: In Progress	Edit
	03/24/2011 12:51:28	Response:	03/24/2011 12:51:28				
	Request Attachment:		Response Attachment:				

Priority	Record	Description / Response	Assigned	Dates	Owner	Status	
1 High	Record #: 2630 EST Actions Officer *Wendy Reed* 03/24/2011 12:48:56	Desc: NRC 90 day review should not interfere with ongoing response to Japan. Response:	RST (All) 03/24/2011 12:48:56	03/24/2011 14:49:00 03/31/2011 12:51:58	EST	4: In Progress	Edit
Request Attachment:			Response Attachment:				
1 High	Record #: 2594 EST Actions Officer *Wendy Reed* 03/24/2011 10:56:38	Desc: Formulate list of source terms send to NARAC. Format: Date and time, what it is called (ex: Trans-pacific, Melcor, Toyko model, etc), what are the assumptions, why was it generated. Provide a copy to Undine Shoop when completed. Response:	PMTR (All) PMTM/T Rad Assessment Assistant Dir 03/24/2011 10:56:38	03/27/2011 12:00:00	ET	4: In Progress	Edit
Request Attachment:			Response Attachment:				
1 High	Record #: 2574 PMTR Prot Actions Assistant Dir *Sandra Wastler* 03/24/2011 09:51:49	Desc: Reconcile differenced in the containment leakage/sfp criteria used in the NARAC plausible realistic case for Tokoyo. Numbers used are unconservative. Can numbers be scaled up or is a rerun necessary Response:	PMTR (All) PMTR Rad Assessment Assistant Dir 03/24/2011 09:51:49	03/24/2011 16:51:00	PMT	4: In Progress	Edit
Request Attachment:			Response Attachment:				
1 High	Record #: 2521 EST Actions Officer *Kelly Grimes* 03/24/2011 01:13:48	Desc: Support Dept of State regarding desire to allow personnel to re-enter the 12 to 50 miles zone to retrieve personal items Response:	PMTR (All) PMTR Director 03/24/2011 01:13:48	03/24/2011 16:00:00	ET	4: In Progress	Edit
Request Attachment:			Response Attachment:				
1 High	Record #: 2314 EST Actions Officer *Melissa Ralph* 03/23/2011 10:48:14	Desc: Check on what can be provided to industry from the State Department minutes of the cabinet meetings. If minutes cannot be provided, is there another summary that we can provide to industry? Response: Contacted Rick Devercelly who was sitting night shift today. He did not know the answer but will contact Chuck Casto as soon as it's a reasonable hour. We are expecting a response from Chuck. Sent another email to Chuck for the meeting minutes and did not receive a response.	LT (All) LT International Liaison 03/23/2011 10:48:14	03/23/2011 17:48:00	ET	4: In Progress	Edit
Request Attachment:			Response Attachment:				
1 High	Record #: 2310 EST Actions Officer *Melissa Ralph* 03/23/2011 10:46:45	Desc: Check on the level of international (non-US) participation in daily cabinet meetings and provide response back to ET and the Consortium. Response: Contacted Rick Devercelly who was sitting night shift today. He did not know the answer but will contact Chuck Casto as soon as it's a reasonable hour. We are expecting a response from Chuck.	LT (All) LT International Liaison 03/23/2011 10:46:45	03/23/2011 17:48:00	ET	4: In Progress	Edit
Request Attachment:			Response Attachment:				
1 High	Record #: 2242 EST Actions Officer *Dori Votolato* 03/22/2011 19:08:14	Desc: Craft response to inquiry by R. Reed which asked that the NRC assess the ability of the US infrastructure to handle the current emergency in Japan (earthquake, tsunami, reactor, etc) if it were to occur to a domestic reactor. Response: When SRM is issued forward to R. Reed for response.	OST (All) 03/22/2011 19:08:14	03/23/2011 08:14:00 03/29/2011 06:22:14	White House	4: In Progress	Edit
Request Attachment:			Response Attachment:				
1 High	Record #: 2122 EST Actions Officer *Melissa Ralph* 03/22/2011 08:06:19	Desc: Priorities established by the ET must be communicated to PMT, LT, and RST on turnover to ensure follow through. Response:	ET (All) 03/22/2011 08:06:19	04/15/2011 13:35:04	M. Weber	4: In Progress	Edit
Request Attachment:			Response Attachment:				

Priority	Record	Description / Response	Assigned To	Due Date	Org	Status	
1 High	Record #: 2080 LT Coordinator *Charles Murray* 03/22/2011 01:02:47	Desc: Website(sovereignindependent.com) has a faked plume map with NRC logo. Please investigate having this removed. Response:	OPA (All) 03/22/2011 01:45:55	03/22/2011 14:05:00	ET	4: In Progress	Edit
	Request Attachment:		Response Attachment:				
1 High	Record #: 1890 EST Actions Officer *Dori Votolato* 03/21/2011 04:24:51	Desc: Marty will discuss the possibility of sharing the Ops Center Status Updates with Congressional Staffers with OCA. Should NRC also evaluate whether other shareholders could be included in this update (NEI, INPO). The Updates should remain OUO information and we should ask the recipients to protect them as such. Response: Update: M. Virgilio discussed feasibility of sharing HOC Status Updates with OCA and the Chairman's Office - ET currently evaluating whether a one-pager to be sent to the Chairman's Office should also be used to share with Congressional Staffers.	ET (All) 03/21/2011 04:24:51	03/20/2011 17:30:00	ET	4: In Progress	Edit
	Request Attachment:		Response Attachment:				
1 High	Record #: 1496 PMTR Coordinator *Duane Hardesty* 03/18/2011 06:47:08	Desc: Perform a realistic RASCAL assessment based on monitoring data or other information that characterizes the event in terms of the actual impact to public. Response: PMT RASCAL initially tasked with determining offsite dose estimate using field monitoring from MEXT on Mar 18 (overtaken by work on US source term run). Re-initiated on Mar 19 using MEXT and agreeing AMS data.	PMTR (All) PMTR Director 03/18/2011 06:47:08	03/22/2011 23:00:00	ET	4: In Progress	Edit
	Request Attachment:		Response Attachment:				
1 High	Record #: 2710 RST Coordinator *Brett Rini* 03/24/2011 20:52:43	Desc: E-mail request from Josh Batkin (3/24 @ 1818) Can you please have your staffs work together to provide more detailed information than he has now for his call tomorrow morning? The Chairman is interested in more detail on the status of the cooperative effort between our team and the Japanese, any challenges or concerns about that coordination, specific requests he should make of the Ambassador, any knowledge you might have about what the Ambassador may ask him, and any other information you think is relevant. Response: Requested that action be sent to Kirk Foggie, OIP in Japan for best response.	RST (All) LT International Liaison 03/24/2011 20:52:43	03/25/2011 07:00:00 03/24/2011 21:59:09	ET	6: Rejected	Edit
	Request Attachment:		Response Attachment:				

Lee, Richard

From: Hoxie, Chris
Sent: Friday, March 25, 2011 10:35 AM
To: Gibson, Kathy
Cc: Lee, Richard; Wagner, Katie
Subject: RE: QUESTION FROM JAPAN
Attachments: ACRS.Hydrogen.Plant.Analysis.v1.ppt; image001.jpg

It is a long shot, but since Mike was in NARB, he might be remembering these?????
I would also check with Charlie Tinkler...

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6)

From: Gibson, Kathy
Sent: Friday, March 25, 2011 8:36 AM
To: Schaperow, Jason; Bush-Goddard, Stephanie; Elkins, Scott; Hoxie, Chris; Lee, Richard; Santiago, Patricia; Scott, Michael; Bajorek, Stephen; Boyd, Christopher; Rubin, Stuart; Sherbini, Sami; Tinkler, Charles; Voglewede, John; Zigh, Ghani
Subject: FW: QUESTION FROM JAPAN

Anybody recall what Mike is referring to and can you send Richard a copy of the slides?

Thanks!

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Scott, Michael
Sent: Friday, March 25, 2011 5:44 AM
To: Gibson, Kathy; Lee, Richard; Voglewede, John; Santiago, Patricia
Subject: QUESTION FROM JAPAN

I seem to remember someone sending out a slide show on hydrogen since I've been in RES. I can't remember who our expert was, but I need to get a copy of the slide show he or she had developed on the subject. Can any of you recall?

Thanks

Mike

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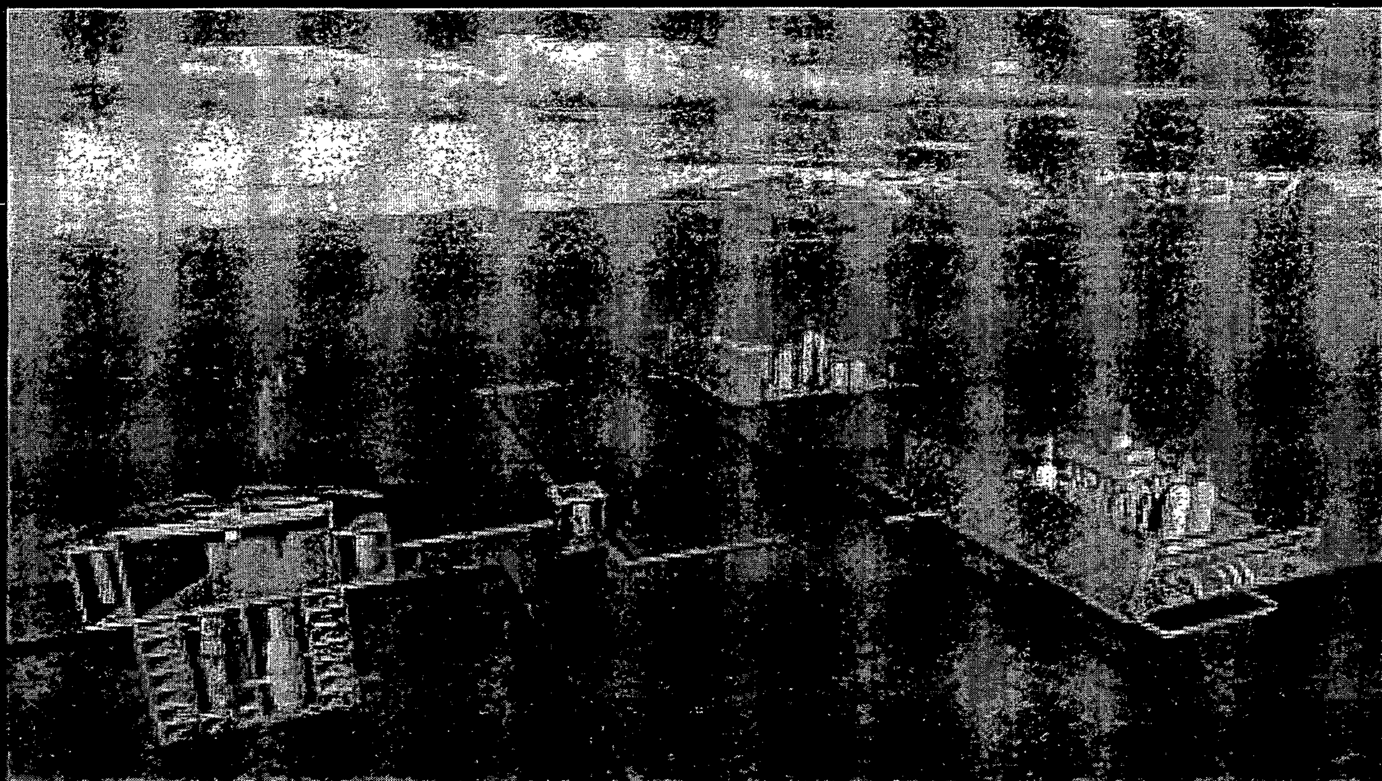
Hydrogen and Process Plant Analysis

Nathanael Hudson, RES/CDB

ACRS Meeting, January 11-15, 2008



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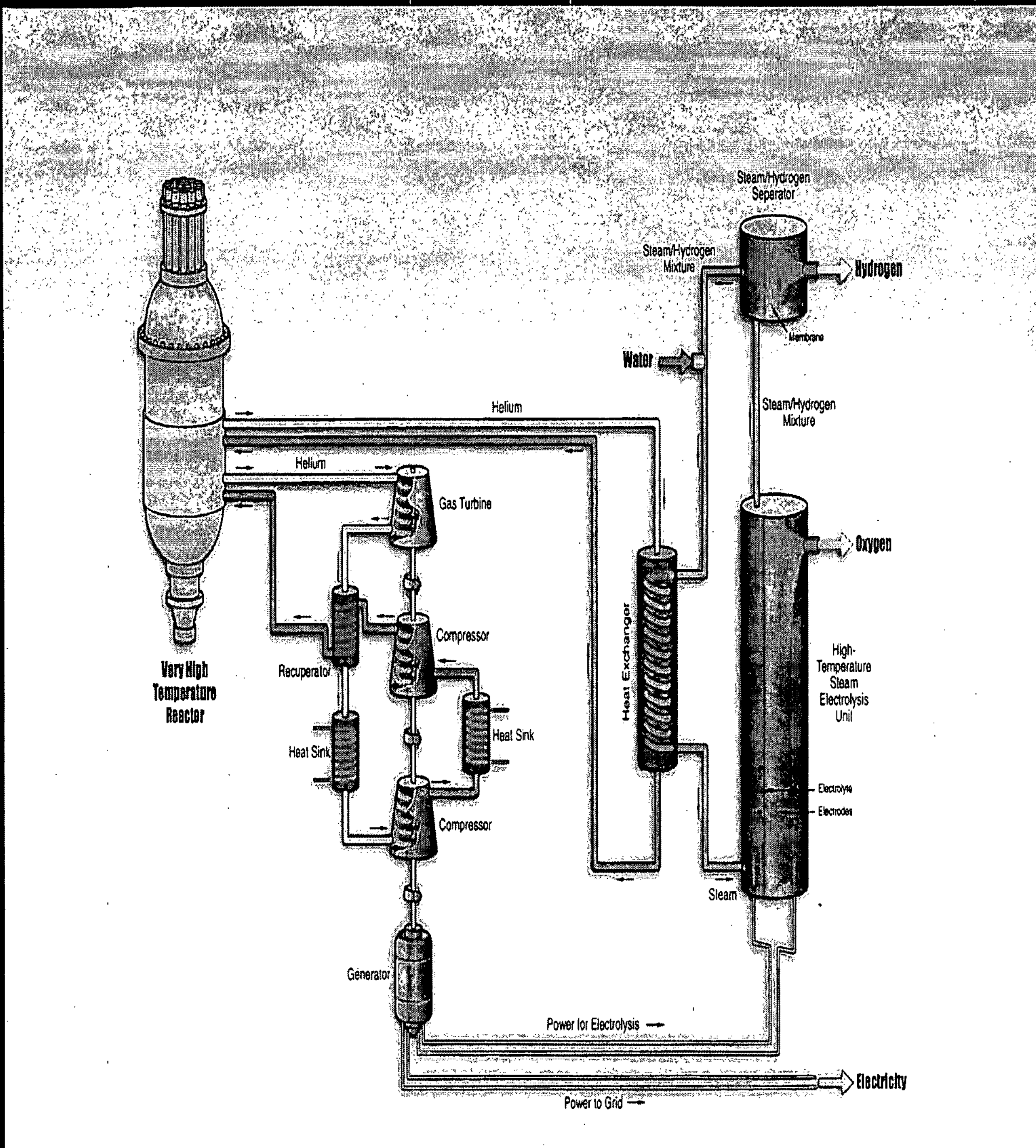

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Hydrogen and Process Plant Performance Safety issues

Chemical Releases:

- Ground hugging heavy gas release (e.g., oxygen, suffocants, and toxic gases)
- Hydrogen gas detonation from H_2 plant
- Combustion of another flammable gas or liquid

Process Heat Transport System:

- Transients in chemical plant that lead to reactor trip or component failures
- IHX tube failures, PHX tube failures, piping failures

VHTR Events that Effect Hydrogen Plant

- Tritium transport

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H2 and Process Plant R&D Objectives

- To develop independent expertise, tools, and capabilities to support staff review of the safety implications on the VHTR posed by the NGNP hydrogen production facility.
- Evaluation Model (EM) concept as defined within RG 1.20317
  - **Collection of tools & methods**
- Tools & methods to be implemented should be accurate to the extent that they are not unnecessarily overly-conservative.

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Chemical Releases

- Large volumes of chemicals stored on-site in tanks or in piping
- NRC must consider the effects of heavy gas releases (O2, suffocates, toxic gases, etc.) on both plant equipment and workers
- Licensing must also consider the effects of flammables upon the structural integrity of the High Pressure Boundary (HPB)

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Chemical Releases

- The risk due to chemical releases upon HPB will mostly be a function of:
  - Volume of stored chemicals
  - Separation distance between VHTR & process heat facility
  - Quality & height of protective berms, concrete blast walls, & extent to which VHTR is located below-grade

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Heavy Gas Dispersion & Plumes

- "Ground-Hugging" gases could exhibit plume behavior, in addition to accumulating in bulk to detriment of safe plant operation
- These gases could effect plant works in addition to impacting plant equipment.
  - corrosive, toxic, or suffocation effects
- Toxic gases: Harm VHTR plant workers necessary for safe shutdown of reactor

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Heavy Gas Dispersion & Plumes

- Suffocation gases: Could incapacitate VHTR plant works, or smother equipment necessary for emergency power (for example, Emergency Diesel Generators)
- Corrosive gases: Could degrade safety-related control systems, circuit relays, detectors, and I&C.

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Heavy Gas Dispersion & Plumes

- If steam-reforming of methane or high temperature electrolysis is used to make hydrogen, then large volumes of oxygen produced on site (either being piped away or stored on-site).
- Long-term impact of oxygen upon plant Systems, Structures, and Components (SSC's) is unknown.

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Flammables

- An appropriate Figure-of-Merit (FOM) when dealing with the associated flammables of the NGNP is the ***structural integrity*** of the reactor building "civil structure" (containment, confinement, brick & mortar)
- Would entail some form of structural analysis with varying assumptions

Flammables

- Blast overpressure from volatiles explosion ->
  - estimate incident loading & structural response to that loading
- For sustained fire ->
  - Radiant heat flux from a carburizing medium could project large heat signature
  - Convective heat currents from fire could impact civil structure

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Flammables

- Existing tools & methods will be used to predict effect of hydrogen process facility on VHTR reactor building
  - experimental data, analytical methods, or computational tools
- Whatever approach & assumptions would need to be assessed for the range of conditions prevalent at the NGNP

Flammables

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- Complexity of analysis (1-D/3-D, hand calculation/code/combination) will depend upon the final protective configuration (berms or barriers) & complexity of the piping
- CFD tools to predict gas mixing & dispersion
- Possibly AutoReaGas (commercial) or CONWEP (U.S. Army) to predict blast overpressure

Flammables

- EM assessment against experimental data for range of physical conditions (environmental & process) obtained at the NGNP
- Calculational uncertainties, range of parameters, & simplifying assumptions to be thoroughly understood & justified
  - For example, extension of TNT equivalence to hydrogen?

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Flammables

- EM Framework

Methodology to predict flammable effects on civil structures:

•Blast incident overpressure

•Reflective overpressure

•Impulse shape (rise & decay times),

•Heat flux

→

Methodology to predict response of civil structure to flammables

•Shear, tensile, & compressive stresses

•Deformations and structural changes

Chemical Release: Research Plan

- Develop EM for hydrogen deflagration & detonation events.
  - Hydrogen deserves a special treatment due to its highly buoyant & diffusive properties
  - EM to implement already existing analytical tools, correlations, or software.
  - EM to be able to predict incident blast over-pressure loading on reactor containment as a function of separation distance between containment & H2 plant
  - Assess H2 EM against historical experimental data

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Chemical Release: Research Plan

- Develop EM for general deflagration & combustion events at the hydrogen plant, excluding H2
- Should be able to approximate radiative & convective heat flux projected upon the reactor building(s)
  - blast over-pressure & impulse shape from combustion event
  - Assess combustion EM

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Chemical Release: Research Plan

- Develop EM to approximate concentrations of a heavy gas release at specified distances from the reactor building(s)
  - To estimate what a release concentration would be, subject to environmental conditions
- Commercial codes such as FLUENT or PHOENICS would be ideal

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UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Process Heat Transport Events

- Secondary process loop events that are propagated through IHX
- Loss of heat sink to reactor, mass transfer to-from primary due to IHX failure, & general transients that are propagated to VHTR from chemical process plant

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UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Coupling: Loss of Heat Sink

- Analogous to a Main Steam Line Break (MSLB) in a PWR
- A break in IHX, PHX, or connecting piping that would lead to loss of secondary (or tertiary) fluids
- Initial break would dump much coolant, leading to overcooling of the core

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Coupling: Loss of Heat Sink

- Drastic cooling would lead to power oscillations (through Doppler coefficient) & adjustments of the VHTR control rods as VHTR came into equilibrium with the new heat transfer state
- Complete dumping of secondary coolant would result in a situation with eventual primary coolant heat up
- Eventual reactor trip, depending upon severity & design (i.e., thermal mass of secondary coolant)

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Coupling: Loss of Primary Coolant through IHX

- Analogous to Steam Generator Tube Rupture (SGTR) in PWR's. (DPLOFC)
- Initial overcooling as coolant escapes through break and pulls heat
- Power oscillations as core and CR's come into equilibrium
- Severity of the effects would depend upon location of IHX, relative pressures between primary and secondary, & thermal mass of intermediate loop

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Coupling: Mass Transfer into Primary Loop

- Would occur through break in IHX if secondary pressure is greater than primary pressure
- Effect would depend upon choice of secondary coolant (molten salt, He, N2, water), pressures, size of break, & time scales
- Long time scales would lead to corrosion & changing of heat transfer coefficients within core
- Short time scales with hydrogenous entry (water or steam) could result in chemical attack of TRISO layers or prompt criticality excursion due to over-moderation

U.S.NRC
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Protecting People and the Environment

Coupling: Loss of Heat Load

- A break in the piping that feeds the chemical reactions (or break in PHX) would lead to a loss of heat consumption by endothermic reactions
- A large break would result in rapidly diminished heat transfer through intermediate loop & effects would be similar (but less magnitude) to Loss of Heat Sink transient

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Protecting People and the Environment

Coupling: Loss of Heat Load

- This problem studied by Japanese within the context of coupling HTTR with steam reforming of methane process
- Found that a loss of chemical load can be dampened by a Steam Generator (SG), translated to Helium temperature leaving SG being within an acceptable band
- For NGNP, issue would be an acceptable band for the variation of He temp. leaving IHX

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UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Coupling: Loss of Heat Load

- PHX will be designed from advanced materials, and will be subject to great thermal and pressure stresses due to chemical process transients
- Any break in PHX would put strain on IHX
  - Quick temperature change could rupture IHX
  - Slow chemical leak into intermediate loop would result in corrosion of IHX

Process Heat Transport Research Plan

- The effect of process heat transients propagated on the VHTR is difficult to quantify without experiments & simulations
  - At issue is effect of Anticipated Operational Occurrences (AOO's) of process heat plant on VHTR performance
  - How will a transient effect the inlet temperature of VHTR? Will temperature remain within "acceptable" band, that is, a band that can be handled by control system of VHTR

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Protecting People and the Environment

Process Heat Transport Research Plan

- Plan to develop an Evaluation Model (EM) to predict response of VHTR to transients undertaken in the hydrogen production plant and vice versa.
  - Extend VHTR core EM to include connecting heat exchangers and piping
  - Couple this extended EM to existing chemical process software through a software interface
  - Result would be analogous to TRACE/PARCS suite for LWR's

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Protecting People and the Environment

Process Heat Transport Research Plan

- Develop detailed fluid flow and solid stress models for the connecting process heat exchangers and piping using existing tools (i.e., finite element tools to calculate the stresses in the solid components & CFD software to calculate the coupled flow fields)

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Protecting People and the Environment

Tritium Transport

- In HTGR's, tritium (T) is a natural product of three sources:
  - Ternary fissions
  - Activation of graphite impurities (Li-6, B-10)
  - Helium reaction, $^{3}He(n,p)T$
- Tritium will be transported through primary and secondary loops, & will diffuse through IHX, PHX, & associated piping
- Tritium contamination of the product gas **<u>will</u>** occur
- Can model tritium level in product gas, but consequent dose to public & plant workers would need to be estimated

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Protecting People and the Environment

Tritium Transport: Preliminary Research Plan

- Need to await more detailed designs

1. Estimate source term & release rate of T (much of T is absorbed in fuel and graphite)
2. Estimate an amount of T propagated to metallic surfaces through convection
3. Estimate T permeation through metal, in consideration of: amount of H2 on opposing side, metallic properties, etc.
4. Employee dose reconstruction models to estimate public dose from T within product gas
5. Establish regulatory activity of T to be detected/calculated in product gas

Hoxie, Chris

From: Hoxie, Chris
Sent: Friday, March 25, 2011 10:35 AM
To: Gibson, Kathy
Cc: Lee, Richard; Wagner, Katie
Subject: RE: QUESTION FROM JAPAN
Attachments: ACRS.Hydrogen.Plant.Analysis.v1.ppt

It is a long shot, but since Mike was in NARB, he might be remembering these?????
I would also check with Charlie Tinkler...

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6)

From: Gibson, Kathy
Sent: Friday, March 25, 2011 8:36 AM
To: Schaperow, Jason; Bush-Goddard, Stephanie; Elkins, Scott; Hoxie, Chris; Lee, Richard; Santiago, Patricia; Scott, Michael; Bajorek, Stephen; Boyd, Christopher; Rubin, Stuart; Sherbini, Sami; Tinkler, Charles; Voglewede, John; Zigh, Ghani
Subject: FW: QUESTION FROM JAPAN

Anybody recall what Mike is referring to and can you send Richard a copy of the slides?

Thanks!

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

From: Scott, Michael
Sent: Friday, March 25, 2011 5:44 AM
To: Gibson, Kathy; Lee, Richard; Voglewede, John; Santiago, Patricia
Subject: QUESTION FROM JAPAN

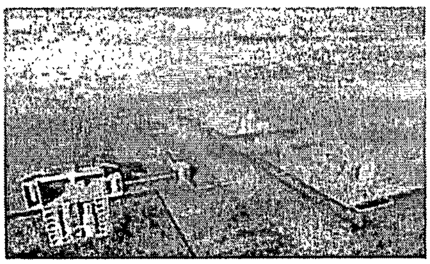
I seem to remember someone sending out a slide show on hydrogen since I've been in RES. I can't remember who our expert was, but I need to get a copy of the slide show he or she had developed on the subject. Can any of you recall?

Thanks

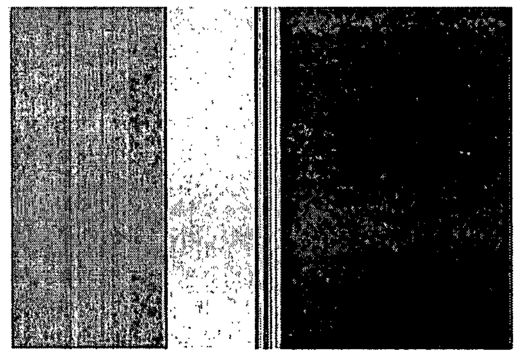
Mike

55\99

Hydrogen and Process Plant Analysis
Nathanael Hudson, RES/CDB
ACRS Meeting, January 11-15, 2008



1



2

Hydrogen and Process Plant Performance Safety issues

Chemical Releases:

- Ground hugging heavy gas release (e.g., oxygen, suffocants, and toxic gases)
- Hydrogen gas detonation from H_2 plant
- Combustion of another flammable gas or liquid

Process Heat Transport System:

- Transients in chemical plant that lead to reactor trip or component failures
- IHX tube failures, PHX tube failures, piping failures

VHTR Events that Effect Hydrogen Plant

- Tritium transport

3

H2 and Process Plant R&D Objectives

- To develop independent expertise, tools, and capabilities to support staff review of the safety implications on the VHTR posed by the NGNP hydrogen production facility.
- Evaluation Model (EM) concept as defined within RG 1.20317
  - **Collection of tools & methods**
- Tools & methods to be implemented should be accurate to the extent that they are not unnecessarily overly-conservative.

4

Chemical Releases

- Large volumes of chemicals stored on-site in tanks or in piping
- NRC must consider the effects of heavy gas releases (O2, suffocates, toxic gases, etc.) on both plant equipment and workers
- Licensing must also consider the effects of flammables upon the structural integrity of the High Pressure Boundary (HPB)

5

Chemical Releases

- The risk due to chemical releases upon HPB will mostly be a function of:
  - Volume of stored chemicals
  - Separation distance between VHTR & process heat facility
  - Quality & height of protective berms, concrete blast walls, & extent to which VHTR is located below-grade

6

Heavy Gas Dispersion & Plumes

- "Ground-Hugging" gases could exhibit plume behavior, in addition to accumulating in bulk to detriment of safe plant operation
- These gases could effect plant works in addition to impacting plant equipment.
  - corrosive, toxic, or suffocation effects
- Toxic gases: Harm VHTR plant workers necessary for safe shutdown of reactor

7

Heavy Gas Dispersion & Plumes

- Suffocation gases: Could incapacitate VHTR plant works, or smother equipment necessary for emergency power (for example, Emergency Diesel Generators)
- Corrosive gases: Could degrade safety-related control systems, circuit relays, detectors, and I&C.

8

Heavy Gas Dispersion & Plumes

- If steam-reforming of methane or high temperature electrolysis is used to make hydrogen, then large volumes of oxygen produced on site (either being piped away or stored on-site).
- Long-term impact of oxygen upon plant Systems, Structures, and Components (SSC's) is unknown.

9

Flammables

- An appropriate Figure-of-Merit (FOM) when dealing with the associated flammables of the NGNP is the ***structural integrity*** of the reactor building "civil structure" (containment, confinement, brick & mortar)
- Would entail some form of structural analysis with varying assumptions

10

Flammables

- Blast overpressure from volatiles explosion ->
  - estimate incident loading & structural response to that loading
- For sustained fire ->
  - Radiant heat flux from a carburizing medium could project large heat signature
  - Convective heat currents from fire could impact civil structure

11

Flammables

- Existing tools & methods will be used to predict effect of hydrogen process facility on VHTR reactor building
  - experimental data, analytical methods, or computational tools
- Whatever approach & assumptions would need to be assessed for the range of conditions prevalent at the NGNP

12

Flammables

- Complexity of analysis (1-D/3-D, hand calculation/code/combination) will depend upon the final protective configuration (berms or barriers) & complexity of the piping
- CFD tools to predict gas mixing & dispersion
- Possibly AutoReaGas (commercial) or CONWEP (U.S. Army) to predict blast overpressure

13

Flammables

- EM assessment against experimental data for range of physical conditions (environmental & process) obtained at the NGNP
- Calculational uncertainties, range of parameters, & simplifying assumptions to be thoroughly understood & justified
  - For example, extension of TNT equivalence to hydrogen?

14

Flammables

- EM Framework

Methodology to predict flammable effects on civil structures:	→	Methodology to predict response of civil structure to flammables
•Blast incident overpressure •Reflective overpressure •Impulse shape (rise & decay times), •Heat flux		•Shear, tensile, & compressive stresses •Deformations and structural changes

15

Chemical Release: Research Plan

- Develop EM for hydrogen deflagration & detonation events.
  - Hydrogen deserves a special treatment due to its highly buoyant & diffusive properties
  - EM to implement already existing analytical tools, correlations, or software.
  - EM to be able to predict incident blast over-pressure loading on reactor containment as a function of separation distance between containment & H2 plant
  - Assess H2 EM against historical experimental data

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Chemical Release: Research Plan

- Develop EM for general deflagration & combustion events at the hydrogen plant, excluding H2
- Should be able to approximate radiative & convective heat flux projected upon the reactor building(s)
  - blast over-pressure & impulse shape from combustion event
  - Assess combustion EM

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Chemical Release: Research Plan

- Develop EM to approximate concentrations of a heavy gas release at specified distances from the reactor building(s)
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29

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- Need to await more detailed designs

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3. Estimate T permeation through metal, in consideration of: amount of H2 on opposing side, metallic properties, etc.
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5. Establish regulatory activity of T to be detected/calculated in product gas

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Hoxie, Chris

From: Hoxie, Chris
Sent: Friday, March 25, 2011 4:21 PM
To: Wagner, Katie
Cc: Lee, Richard
Subject: RE: BWR-3 and Mark I

This is complete. I have responded to Tomasz that the decks and information that RSAB has are proprietary to the vendor and the licensee; therefore, we can't share them. Tomasz says he understands. And so the matter is closed.

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6)

From: Wagner, Katie
Sent: Friday, March 25, 2011 4:11 PM
To: Hoxie, Chris
Cc: Lee, Richard
Subject: RE: BWR-3 and Mark I

Chris,

Is this "completed" or still "pending"?

42	3/23/2011	Tomasz Kozlowski ! NEW	tomasz@safety.sci.kth.se	Chris Hoxie	CDB	Request for any BWR-3 and/or Mark I documentation that is publicly available. Also MELCOR input for BWR-3 that could be made available; the requester would like to do some simulations of Fukushima.	Request for any BWR-3 and/or Mark I documentation that is publicly available. Also MELCOR input for BWR-3 that could be made available.	Pending

Thanks,
Katie

-----Original Message-----
From: Hoxie, Chris
Sent: Thursday, March 24, 2011 7:55 AM
To: Gibson, Kathy; Lee, Richard; Wagner, Katie
Subject: RE: BWR-3 and Mark I

The public stuff I would simply coordinate with Tom Kardaras and Shane Rupinta and have it put right on www.nrc.gov
The main limitation there is that no file can be bigger than 7MB. Larger files we either break up, or I send them via www.yousendit.com.

55\100

FISMA makes the password protected site rather difficult if it is to go outside our agency to, say, another agency. But within the NRC it would not be hard to do... I would need to know more about the exact nature of the information (i.e., how sensitive is it...) before I could make better recommendations.

It is likely that any BWR-3 Decks we have contain proprietary info. So that will make it more difficult. We have to obtain a release first from the information owner. Because of the FISMA constraints and size constraints on files, we often resort to sending a DVD or CD...(for example, most TRACE code distributions are done that way...).

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6)

-----Original Message-----
From: Gibson, Kathy
Sent: Thursday, March 24, 2011 7:30 AM
To: Hoxie, Chris; Lee, Richard; Wagner, Katie
Subject: Re: BWR-3 and Mark I

This may be thinking way outside the box, but can we put up an external website with all the info we can make public there and then reference people to it? We could also have a password protected link to OUO etc that we could give to a smaller set of people. What do you think?

----- Original Message -----
From: Hoxie, Chris
To: Lee, Richard; Wagner, Katie
Cc: Gibson, Kathy
Sent: Thu Mar 24 04:13:58 2011
Subject: FW: BWR-3 and Mark I

First request from a CAMP member for information...
Richard, I will be by to discuss.

-----Original Message-----
From: Tomasz Kozlowski [mailto:tomasz@safety.sci.kth.se]
Sent: Wednesday, March 23, 2011 7:26 PM
To: Hoxie, Chris
Subject: BWR-3 and Mark I

Hi Chris,

I assume that you and NRC get this a lot these days, but I would like to ask if you have any BWR-3 and/or Mark I documentation that is publicly available that you could send me?

Is there MELCOR input for BWR-3 that could be made available, also?

We would like to do some simulations of Fukushima.

Thank you!

Tomasz

Bano, Mahmooda

From: Scott, Michael
Sent: Friday, March 25, 2011 3:48 AM
To: RST01 Hoc
Subject: RE: RST tracker for Japan

Yes - thanks

-----Original Message-----
From: RST01 Hoc
Sent: Friday, March 25, 2011 3:05 AM
To: Scott, Michael
Subject: RE: RST tracker for Japan

Attached what you are looking for?

-----Original Message-----
From: Scott, Michael
Sent: Friday, March 25, 2011 3:02 AM
To: RST01 Hoc
Subject: RE: RST tracker for Japan

What we were asking for was the color-coded RST tracker spreadsheet that comes out of the RST computer system About three pages in the older version we had. Does that parallel the list in the e-mail you sent?

-----Original Message-----
From: RST01 Hoc
Sent: Thursday, March 24, 2011 9:36 PM
To: Scott, Michael
Subject: RE: RST tracker for Japan

Mike,

Let me know if this helps.

Due 3/25 0700
Desc: E-mail request from Josh Batkin (3/24 @ 1818)
Can you please have your staffs work together to provide more detailed information than he has now for his call tomorrow morning? The Chairman is interested in more detail on the status of the cooperative effort between our team and the Japanese, any challenges or concerns about that coordination, specific requests he should make of the Ambassador, any knowledge you might have about what the Ambassador may ask him, and any other information you think is relevant.

Due 3/25 0045
Desc: Review AREVA Fukushima Daiichi Incident report, dated 3/24/11 report for possible additional/new insights that could change our current status, and therefore change our assessment or recommendations.

Due 3/25 0345
Desc: Develop trend data of relevant reactor system parameters as instrumentation at the Fukushima reactors becomes available and dependable.

Thanks,

55\101

Brett Rini
RST Coordinator

-----Original Message-----
From: Scott, Michael
Sent: Thursday, March 24, 2011 9:10 PM
To: RST01 Hoc
Subject: RST tracker for Japan

Hi. Can I please get an e-copy of your latest Japan task tracker?

Thanks

Mike Scott
Japan team

Sent from my NRC blackberry
Michael Scott
(b)(6) [redacted]

----- Original Message -----
From: Nakanishi, Tony
To: RST01 Hoc
Cc: Blamey, Alan; Scott, Michael
Sent: Thu Mar 24 18:33:47 2011
Subject: Integrated Response Team Procedure for Core cooling

I received this from NISA. It documents the response plan for cooling the reactor.
It's written in Japanese. If possible, please have it translated and provide our evaluation.
It provides some cautionary measures on preventing H2 explosion, steam explosion, etc.

Esmaili, Hossein

From: Esmaili, Hossein
Sent: Friday, March 25, 2011 6:45 PM
To: Carlson, Donald; Scott, Harold
Subject: RE: Berkeley NE Dept says Zr can't burn in air or H2O and joins Nils Diaz in saying graphite burns like coal

Thanks Don for sharing the info. I never heard from Zigh after that.

hossein

From: Carlson, Donald
Sent: Friday, March 25, 2011 4:24 PM
To: Scott, Harold; Esmaili, Hossein
Subject: FW: Berkeley NE Dept says Zr can't burn in air or H2O and joins Nils Diaz in saying graphite burns like coal

FYI

From: Carlson, Donald
Sent: Friday, March 25, 2011 4:23 PM
To: Madni, Imtiaz
Subject: RE: Berkeley NE Dept says Zr can't burn in air or H2O and joins Nils Diaz in saying graphite burns like coal

Imtiaz,

Indeed! I have now seen the SFP Phase I video. See my response to Ghani, attached.

I suppose a careful comparison of time-at-temperature conditions, etc., in UCB's torch demo versus the Phase I test would make perfect sense.

Bottom line: UCB is fooling themselves and the audience with their pointless torch demo and ludicrous assertions about Zr and graphite. How embarrassing for them. I have to wonder how the department head (Per Peterson?) feels about all this. Mortified, I hope.

It would be nice if we could someday share something like the Phase I video, just to set the record straight.

Don

From: Madni, Imtiaz
Sent: Friday, March 25, 2011 4:02 PM
To: Carlson, Donald
Subject: RE: Berkeley NE Dept says Zr can't burn in air or H2O and joins Nils Diaz in saying graphite burns like coal

Don,

Very interesting. The SFP Zr fire expts whose videos we saw recently, clearly showed Zr burning in air!

Thanks for the entertaining and thought-provoking email

Imtiaz

55\102

From: Carlson, Donald
Sent: Thursday, March 24, 2011 5:55 PM
To: Scott, Harold; Esmaili, Hossein; Madni, Imtiaz; Zigh, Ghani; Helton, Donald
Subject: FW: Berkeley NE Dept says Zr can't burn in air or H2O and joins Nils Diaz in saying graphite burns like coal

Forwarding for your reading and viewing pleasure...

FYI – I had an e-mail exchange from home with Atomic Insights blogger Rod Adams. I was hoping to get him to at least acknowledge the role of Zr-water reactions at TMI when he came up with this bizarre UC-Berkeley-NE news video. Now it's their word against ours. ;-)

Don

From: Carlson, Donald
Sent: Monday, March 21, 2011 11:56 AM
To: Srinivasan, Makuteswara; Ward, Leonard; 'burchelltd@ornl.gov'
Subject: Berkeley NE Dept says Zr can't burn in air or H2O and joins Nils Diaz in saying graphite burns like coal

Srini, Tim, and Len:

As you may have noticed, Rod Adams' stridently pro-nuclear Atomic Insights blog has been getting some attention for criticizing NRC's response to Fukushima Daiichi (see March 17 blog).

But Adams doesn't stop there. He dismisses in-core energetic zirconium-water reactions as a likely source of exploding hydrogen, insists that spent fuel fires are impossible, and even finds support for these views in a very recent local TV news report. The news report features professors at the UC-Berkeley Nuclear Engineering Department claiming that (a) zirconium cannot burn in air or water and (b) graphite is essentially coal (see March 20 blog). With regard to graphite burning like coal, Nils Diaz said the same on CNN last week in reference to Chernobyl.

If Rod Adams and UC-Berkeley are right about zirconium, then this would seem to be a historic new insight worthy of the highest praise. Our understanding of TMI would have to be revised along with many NE textbooks. Or maybe they're wrong. What do you think, Len?

UC-Berkeley's blowtorch demo on zirconium tubing is similar to some of the torch demos on nuclear graphite we've seen where the graphite emerges unscathed. It would be interesting to see such a demo on coal.

My own limited understanding of what happened with the Chernobyl graphite after the explosive core reactivity excursion is as follows:

A considerable amount of graphite does indeed seem to have oxidized or "burned" after the explosion. A former Chernobyl worker (Vladimir Khotylev, since employed by the CNSC in Ottawa) told me several years ago that much of the graphite is no longer there, presumably having been oxidized (to CO or CO2). But Chernobyl was water cooled. Furthermore, given its use of robust zircalloy pressure tubes as well as zircalloy fuel cladding, Chernobyl had much more zirconium than any conventional LWR. So it seems likely that lots of ultra-hot zirconium burned in the air and residual steam after the Chernobyl explosion. The hot zirconium fires then played a significant role in promoting exothermic air oxidation of graphite. Without the energetic zirc-water and zirc-air reactions, it seems likely that much less graphite would have "burned" at Chernobyl.

Similarly for the 1957 Windscale accident, very little graphite would have burned there had it not been for combustion of the metallic fuel elements (and some say secret lithium targets) as a result of Wigner-energy overheating of the air-cooled graphite core.

Graphite "burning" or oxidation is of course being analyzed for postulated severe air-ingress accidents in proposed modular HTGR designs like NGNP and PBMR. With the metal-free all-ceramic cores that define HTGRs, it seems that any comparison of graphite to coal is especially unwarranted.

What do you think, Srini, Tim, and Len?

Best regards,
Don

Dr.-Ing. Donald E. Carlson
Senior Project Manager
NRO/ARP/ARB1
Office: 301-415-0109
Cell: (b)(6) [redacted]
T6-F67/MS T6-E4

Lee, Richard

From: Hoxie, Chris
Sent: Friday, March 25, 2011 4:21 PM
To: Wagner, Katie
Cc: Lee, Richard
Subject: RE: BWR-3 and Mark I
Attachments: image001.gif

This is complete. I have responded to Tomasz that the decks and information that RSAB has are proprietary to the vendor and the licensee; therefore, we can't share them. Tomasz says he understands. And so the matter is closed.

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6)

From: Wagner, Katie
Sent: Friday, March 25, 2011 4:11 PM
To: Hoxie, Chris
Cc: Lee, Richard
Subject: RE: BWR-3 and Mark I

Chris,

Is this "completed" or still "pending"?

42	3/23/2011	Tomasz Kozlowski I NEW	tomasz@safety.sci.kth.se	Chris Hoxie	CDB	Request for any BWR-3 and/or Mark I documentation that is publicly available. Also MELCOR input for BWR-3 that could be made available; the requester would like to do some simulations of Fukushima.	Request for any BWR-3 and/or Mark I documentation that is publicly available. Also MELCOR input for BWR-3 that could be made available.	Pending

Thanks,
Katie

-----Original Message-----
From: Hoxie, Chris
Sent: Thursday, March 24, 2011 7:55 AM
To: Gibson, Kathy; Lee, Richard; Wagner, Katie
Subject: RE: BWR-3 and Mark I

The public stuff I would simply coordinate with Tom Kardaras and Shane Rupinta and have it put right on www.nrc.gov
The main limitation there is that no file can be bigger than 7MB. Larger files we either break up, or I send them via www.yousendit.com.

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FISMA makes the password protected site rather difficult if it is to go outside our agency to, say, another agency. But within the NRC it would not be hard to do... I would need to know more about the exact nature of the information (i.e., how sensitive is it...) before I could make better recommendations.

It is likely that any BWR-3 Decks we have contain proprietary info. So that will make it more difficult. We have to obtain a release first from the information owner. Because of the FISMA constraints and size constraints on files, we often resort to sending a DVD or CD...(for example, most TRACE code distributions are done that way...).

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6)

-----Original Message-----
From: Gibson, Kathy
Sent: Thursday, March 24, 2011 7:30 AM
To: Hoxie, Chris; Lee, Richard; Wagner, Katie
Subject: Re: BWR-3 and Mark I

This may be thinking way outside the box, but can we put up an external website with all the info we can make public there and then reference people to it? We could also have a password protected link to OUO etc that we could give to a smaller set of people. What do you think?

----- Original Message -----
From: Hoxie, Chris
To: Lee, Richard; Wagner, Katie
Cc: Gibson, Kathy
Sent: Thu Mar 24 04:13:58 2011
Subject: FW: BWR-3 and Mark I

First request from a CAMP member for information...
Richard, I will be by to discuss.

-----Original Message-----
From: Tomasz Kozlowski [mailto:tomasz@safety.sci.kth.se]
Sent: Wednesday, March 23, 2011 7:26 PM
To: Hoxie, Chris
Subject: BWR-3 and Mark I

Hi Chris,

I assume that you and NRC get this a lot these days, but I would like to ask if you have any BWR-3 and/or Mark I documentation that is publicly available that you could send me?

Is there MELCOR input for BWR-3 that could be made available, also?

We would like to do some simulations of Fukushima.

Thank you!

Tomasz

Bano, Mahmooda

From: Scott, Michael
Sent: Saturday, March 26, 2011 6:17 AM
To: (b)(6)
Subject: FW: TMI experience with Sr-90

Pls print

From: Jackson, Todd
Sent: Saturday, March 26, 2011 6:15 AM
To: Scott, Michael
Cc: Miller, Marie
Subject: TMI experience with Sr-90

Mike,

At TMI a surprise came up during that accident. Samples were routinely being screened at the plant by gamma spec before sending to the chem lab outside. One sample was unremarkable when screened by gamma spec, but when the plastic bag was opened at the lab it set off the area monitor alarms and was eventually determined to contain significant Sr-90, which had not been previously encountered. When confirmed the Sr-90 resulted in significant changes in PPE for in-plant workers, including heavy firemans rubber boots, thick rubber gloves, beta shielding goggles, and multiple dosimetry due to the relatively short range of the Sr-90 beta vs. gamma.

Considering the TMI experience, this may explain some of the current plant conditions workers are encountering and it could be worthwhile to analyse samples for Sr-90.

Todd

Todd J. Jackson, CHP

Sr. Health Physicist

Division of Nuclear Materials Safety

USNRC Region I

475 Allendale Road

King of Prussia, PA 19406

(610)337-5308 / Fax (610)337-5269

BlackBerry (b)(6)

Email: Todd.Jackson@nrc.gov

55/104

Staudenmeier, Joseph

From: Staudenmeier, Joseph
Sent: Friday, March 25, 2011 4:32 PM
To: Hoxie, Chris; Wagner, Katie
Cc: Lee, Richard
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

We still need to send them the input decks and calculation notebooks. They want to use them to get an estimate of liquid volume vs. vessel level. I'm waiting for the Monticello input (similar to Unit 1) from RSAB.

From: Hoxie, Chris
Sent: Friday, March 25, 2011 4:23 PM
To: Wagner, Katie
Cc: Lee, Richard; Staudenmeier, Joseph
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Joe tells me this is complete. He responded with some simple calculations and he gave them some information regarding availability of BWR models.

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6)

From: Wagner, Katie
Sent: Friday, March 25, 2011 4:09 PM
To: Hoxie, Chris
Cc: Lee, Richard
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Chris,

Is this "completed" or still "pending"?

41	3/22/2011	Ops Center/Jim Gilmer ! NEW	Email: RST09 Hoc James.Gilmer@nrc.gov	Joe Staudenmeier	CDB	Assistance in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4, relating to developing a TRACE model. Note: J. Staudenmeier had responded to two requests as of EOB on 3/23.	Assistance in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4, relating to developing a TRACE model. Note: J. Staudenmeier had responded to two requests as of EOB on 3/23.	Pending

Thanks,
Katie

55\105

From: Hoxie, Chris
Sent: Wednesday, March 23, 2011 5:51 PM
To: Wagner, Katie; Lee, Richard
Subject: FW: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

fyi

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6)

From: Staudenmeier, Joseph
Sent: Wednesday, March 23, 2011 5:13 PM
To: Gilmer, James
Cc: Uhle, Jennifer; Hoxie, Chris; Donoghue, Joseph
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Jim,

The available input decks we have in RES that may be useful are

Monticello BWR3 206 inch vessel. This may be close to Unit 1.

River Bend class BWR6 218 inch vessel. This is the same vessel diameter as Hatch but the internals are different (more channels, smaller jet pumps and downcomer in BWR6 vs. BWR4). The volume vs. elevation are different but it may be close to Units 2 and 3.

Joe

From: Gilmer, James
Sent: Wednesday, March 23, 2011 10:24 AM
To: Staudenmeier, Joseph
Cc: Uhle, Jennifer; Hoxie, Chris; Donoghue, Joseph
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Good Morning!
I just came in after being off most of yesterday. When I left the Ops Center yesterday morning, we had RV water level readings of ~1700 mm on both Units 2 and 3, which means the cores are about half covered (if the level instruments can be believed). I have not received an update this morning, but expect that the level remains about the same. I was attempting to develop a table of free internal volume as a function of vessel elevation based on detailed BWR/4 drawings I have from Hatch, so we could estimate the height of the salt buildup in the channels. I was finding it difficult to do because of the complex geometry in the lower plenum. I was hoping that the TRACE BWR/4 model would have some of that detail, so that a more accurate estimate could be made than with hand calculations. I will give you a call to discuss how the TRACE model could be used.

From: Staudenmeier, Joseph
Sent: Tuesday, March 22, 2011 2:12 PM
To: RST09 Hoc; Gilmer, James

Cc: Uhle, Jennifer; Hoxie, Chris
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Jim,

I did a simple calculation for how much salt is in the vessel assuming it is all retained.

The calculation uses Wikipedia obtained information of 35 g/L of salt in seawater and ~400 g/kg of solubility in seawater.

48 gpm for 8 days gives ~73,000 kg of salt in the vessel.

At 0.4 kg of salt per kg water solubility you would need ~183,000 kg of water in the vessel to dissolve it. Any idea how much water is in the vessel?

If the salt comes out of solution at the boiling boundary it could be coming out of solution and falling into the bottom of the channels at vessel average concentrations lower than the solubility limit.

Joe

From: RST09 Hoc
Sent: Tuesday, March 22, 2011 6:20 AM
To: Staudenmeier, Joseph
Cc: Uhle, Jennifer
Subject: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Good Morning, Joe!
Could you please come to the Operations Center this morning? We have been asked to do a calculation of the salt buildup and core blockage as a function of time. I believe the TRACE model could be used to do this. I also have detailed design drawings for a US BWR/4 (Hatch) which might be useful. The lower vessel internals geometry is too complex to do a hand calculation of the free volume as a function of vessel elevation. I attempted to, but thought that there may be enough detail in the TRACE model to get a reasonable estimate.

I have other data which you would need, such as:

Sea water flow rate.....48 gpm (injected through recirculation line)
Seawater specific gravity (approx)......1.03
Temperature unknown, but assume 45°F
Injection started 54 hours after shutdown
Rated thermal power (Units 2 through 5).......2381 MWt
Unit 1......1380
I will be handing off to Ed Fuller as the RST Severe Accident/PRA analyst at 7:00 EDT this morning, so I will make sure he has all the information. I will come back to the office later this afternoon after getting some sleep. My cell phone number is (b)(6) if you need additional information. Please copy my NRC e-mail address (james.gilmer@nrc.gov) on any correspondence.

Thanks. And good luck!
Jim Gilmer

Hoxie, Chris

From: Hoxie, Chris
Sent: Saturday, March 26, 2011 4:54 PM
To: Gibson, Kathy; Uhle, Jennifer
Subject: Fw: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

From: Staudenmeier, Joseph
To: Gilmer, James
Cc: Uhle, Jennifer; Hoxie, Chris; Donoghue, Joseph
Sent: Wed Mar 23 17:12:38 2011
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Jim,

The available input decks we have in RES that may be useful are

Monticello BWR3 206 inch vessel. This may be close to Unit 1.

River Bend class BWR6 218 inch vessel. This is the same vessel diameter as Hatch but the internals are different (more channels, smaller jet pumps and downcomer in BWR6 vs. BWR4). The volume vs. elevation are different but it may be close to Units 2 and 3.

Joe

From: Gilmer, James
Sent: Wednesday, March 23, 2011 10:24 AM
To: Staudenmeier, Joseph
Cc: Uhle, Jennifer; Hoxie, Chris; Donoghue, Joseph
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Good Morning!
I just came in after being off most of yesterday. When I left the Ops Center yesterday morning, we had RV water level readings of ~1700 mm on both Units 2 and 3, which means the cores are about half covered (if the level instruments can be believed). I have not received an update this morning, but expect that the level remains about the same. I was attempting to develop a table of free internal volume as a function of vessel elevation based on detailed BWR/4 drawings I have from Hatch, so we could estimate the height of the salt buildup in the channels. I was finding it difficult to do because of the complex geometry in the lower plenum. I was hoping that the TRACE BWR/4 model would have some of that detail, so that a more accurate estimate could be made than with hand calculations. I will give you a call to discuss how the TRACE model could be used.

From: Staudenmeier, Joseph
Sent: Tuesday, March 22, 2011 2:12 PM
To: RST09 Hoc; Gilmer, James
Cc: Uhle, Jennifer; Hoxie, Chris
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Jim,

I did a simple calculation for how much salt is in the vessel assuming it is all retained.

55\106

The calculation uses Wikipedia obtained information of 35 g/L of salt in seawater and ~400 g/kg of solubility in seawater.

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If the salt comes out of solution at the boiling boundary it could be coming out of solution and falling into the bottom of the channels at vessel average concentrations lower than the solubility limit.

Joe

From: RST09 Hoc
Sent: Tuesday, March 22, 2011 6:20 AM
To: Staudenmeier, Joseph
Cc: Uhle, Jennifer
Subject: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Good Morning, Joe!
Could you please come to the Operations Center this morning? We have been asked to do a calculation of the salt buildup and core blockage as a function of time. I believe the TRACE model could be used to do this. I also have detailed design drawings for a US BWR/4 (Hatch) which might be useful. The lower vessel internals geometry is too complex to do a hand calculation of the free volume as a function of vessel elevation. I attempted to, but thought that there may be enough detail in the TRACE model to get a reasonable estimate.

I have other data which you would need, such as:

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Unit 1......1380
I will be handing off to Ed Fuller as the RST Severe Accident/PRA analyst at 7:00 EDT this morning, so I will make sure he has all the information. I will come back to the office later this afternoon after getting some sleep. My cell phone number is (b)(6) f you need additional information. Please copy my NRC e-mail address (james.gilmer@nrc.gov) on any correspondence.

Thanks. And good luck!
Jim Gilmer

Bano, Mahmooda

From: Scott, Michael
Sent: Saturday, March 26, 2011 8:55 PM
To: Smith, Brooke
Subject: FW: Radioactive source security: details of discussion item

One more to print please

From: Jackson, Todd
Sent: Saturday, March 26, 2011 8:41 PM
To: Scott, Michael
Subject: Radioactive source security: details of discussion item

Mike,

Issue we discussed is the question of whether any radioactive materials located in the areas impacted by earthquake and tsunami are secure and have not become an exposure hazard to the public. In the US following hurricane Katrina, radioactive sources in Louisiana and Mississippi along the coast became lost. When local state personnel went searching for the location of record licensed for the sources they found many addresses obliterated by the hurricane, buildings missing, etc and were not able to verify the sources. So the question raised is whether there are any significant radiation sources missing or displaced, are there any radiation hazards not related to the Fukushima plant, in the debris?

If there are such sources, aerial monitoring may pick them up, and if they pick them up they could confuse interpretation of data related to Fukushima plant releases.

Todd

Todd J. Jackson, CHP

Sr. Health Physicist

Division of Nuclear Materials Safety

USNRC Region I

475 Allendale Road

King of Prussia, PA 19406

(610)337-5308 / Fax (610)337-5269

BlackBerry (b)(6)

Email: Todd.Jackson@nrc.gov

53/107

Bano, Mahmooda

From: Scott, Michael
Sent: Sunday, March 27, 2011 2:46 AM
To: RST01 Hoc; Taylor, Robert; Giessner, John; Blamey, Alan; Dorman, Dan; Casto, Chuck; Monninger, John
Subject: Fw: ANS Technical Brief: MOX Fuel & Fukushima
Attachments: ANS-Technical-Brief-MOX-Fukushima.pdf

Fyi

Sent from my NRC blackberry
Michael Scott
(b)(6)

----- Original Message -----
From: ANS Broadcasts <broadcasts@ans.org>
To: Scott, Michael
Sent: Sat Mar 26 09:23:50 2011
Subject: ANS Technical Brief: MOX Fuel & Fukushima

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

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

http://www.ans.org/

55/108

AMERICAN NUCLEAR SOCIETY

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

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

Date: March 25, 2011

To: Joe Colvin
ANS President

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

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

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

American Nuclear Society Technical Brief – March 2011

Conclusion

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

Summary

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

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

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

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

Background

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

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

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

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

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

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

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

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

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

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

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

Bano, Mahmooda

From: Scott, Michael
Sent: Sunday, March 27, 2011 7:00 AM
To: Miller, Chris; Casto, Chuck; Monninger, John
Cc: Blount, Tom; McDermott, Brian
Subject: Re: Have you heard anything from J village about work on problems at Dai-ni site?

We understand that all units are in cold shutdown on offsite power and being adequately cooled by normal means.

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: Miller, Chris
To: Scott, Michael; Casto, Chuck; Monninger, John
Cc: Blount, Tom; McDermott, Brian
Sent: Sun Mar 27 06:48:25 2011
Subject: Have you heard anything from J village about work on problems at Dai-ni site?

NR heard from someone who heard etc that people at the village were working on Dai-ini issues as well.

Christopher Miller
Director, Division of Reactor Safety
Region One
US Nuclear Regulatory Commission

55/109

Baño, Mahmooda

From: Scott, Michael
Sent: Sunday, March 27, 2011 7:46 AM
To: Taylor, Robert
Subject: Re: Status & Recommendations 3-26-11 21 hrs.docx

Yes - and inform him we plan to provide it to Japanese tomorrow morning Japan time. Thx

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: Taylor, Robert
To: Scott, Michael
Sent: Sun Mar 27 07:02:50 2011
Subject: Re: Status & Recommendations 3-26-11 21 hrs.docx

RST confirms it is. Presuming no feedback from the industry bosses. Can I send it to the President's science advisor.

Sent from an NRC BlackBerry
Robert Taylor
(b)(6)

From: Scott, Michael
To: Taylor, Robert
Sent: Sun Mar 27 06:57:55 2011
Subject: Re: Status & Recommendations 3-26-11 21 hrs.docx

Maybe you should verify it's the latest and greatest.

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: Taylor, Robert
To: Scott, Michael
Sent: Sun Mar 27 06:52:23 2011
Subject: Re: Status & Recommendations 3-26-11 21 hrs.docx

I did not realize this was the blessed version. The RST continues to pursue "briefings" of industry managenment. Does Chuck want to wait for that before distributing?

Sent from an NRC BlackBerry
Robert Taylor
(b)(6)

From: Scott, Michael
To: Taylor, Robert
Sent: Sun Mar 27 06:45:00 2011
Subject: Fw: Status & Recommendations 3-26-11 21 hrs.docx

55\110

You already had it.

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: Scott, Michael
To: Giessner, John; Taylor, Robert; Blamey, Alan; Ali, Syed; Sheikh, Abdul
Cc: Dorman, Dan; Casto, Chuck; Monninger, John
Sent: Sun Mar 27 02:32:54 2011
Subject: Fw: Status & Recommendations 3-26-11 21 hrs.docx

Reactor/sfp team: pls review this carefully and be prepared to discuss tonight after the 5:30 meeting. Thanks

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: RST01 Hoc
To: Blamey, Alan; Casto, Chuck; Dorman, Dan; GE Hitachi <GE.HitachiNuclearResponseTeam@ge.com>; Giessner, John; INPO ERC Main <inpoerc@inpo.org>; INPO ERC Tech <inpoerctech@inpo.org>; John Kelly - DOE <johne.kelly@nuclear.energy.gov>; Monninger, John; Richard Stark - DOE <Richard.Stark@nuclear.energy.gov>; Rob Versluis - DOE <ROB.VERSLUIS@nuclear.energy.gov>; RST01B Hoc; RST03 Hoc; Sal Golub - DOE <sal.golub@nuclear.energy.gov>; Scott, Michael; Taylor, Robert
Cc: Ruland, William; RST07 Hoc; RST08 Hoc; RST09 Hoc; RST03 Hoc; LIA07 Hoc; Orr, Mark
Sent: Sat Mar 26 22:55:51 2011
Subject: Status & Recommendations 3-26-11 21 hrs.docx

Team:

Attached is the RST's Consensus Assessment of Fukushima Daiichi Units with input from the team.

Mark Orr
RST Coordinator

Ok to release

Hoxie, Chris

From: Hoxie, Chris
Sent: Monday, March 28, 2011 10:54 AM
To: Staudenmeier, Joseph
Subject: RE: Brian's Q

Ok...

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6) Ex 6

-----Original Message-----
From: Staudenmeier, Joseph
Sent: Monday, March 28, 2011 10:54 AM
To: Hoxie, Chris
Subject: RE: Brian's Q

I didn't see anything related to that.

-----Original Message-----
From: Hoxie, Chris
Sent: Monday, March 28, 2011 10:41 AM
To: Staudenmeier, Joseph
Subject: FW: Brian's Q

If there is anything in the DOE Council material that would touch on this subject (see below), I would be interested. I believe, however, that Brian has already seen the DOE Council materials.

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6)

-----Original Message-----
From: Lee, Richard
Sent: Sunday, March 27, 2011 10:36 AM
To: Hoxie, Chris; Uhle, Jennifer
Cc: Gibson, Kathy
Subject: RE: Brian's Q

55\111

Consulted both Mike and Dana on the matter - Salt effects on molten core materials:

From Mike Corradini:

This will not likely generate a more energetic effect. It will be a dilution to the melt composition and energy. Think of this like any solid that must be melted and mixes with the melt. So no effect there. So if it does stop the melt there with in-vessel retention (which I suspect it would), it would add to the melt volume as it remelts and mixes and dilutes the corium.

I would then expect it to lower the solidus temperature of the mixture. How much, I do not know, but we can see the effect on energetics by altering the solidus. Remember that the if we assume triggering (which we always do), steam explosions are a thermodynamic phenomenon altered minimally by local heat transfer.

From: Dana Powers

Core debris will hit the salt and cause it to melt and vaporize. Some fraction of it will be incorporated into the core debris, but much will vaporize - removing heat from the core debris. Vaporized salt will condense on upper internals of the BWR vessel. Salt in the core debris will cause some vaporization of materials - including some fission products - as chlorides, but I would not expect the effect to be especially significant. Again vaporized chlorides will condense on upper internal surfaces.

From: Hoxie, Chris
Sent: Saturday, March 26, 2011 9:41 PM
To: Uhle, Jennifer
Cc: Lee, Richard; Gibson, Kathy
Subject: Brian's Q

In regards to Brian's question about how salt water may influence the dynamics of a fuel coolant interaction:

Here are two references:
http://www.iaea.org/inis/collection/NCLCollectionStore/_Public/42/006/42006251.pdf

On page 396, states that pure water vs. salt water made no difference in an experiment designed to measure peak pressures for fuel coolant interactions in a lab setting.

Reference 2:
Although it might not be one-for-one, here is a reference to research that indicates the salt might actually dampen the steam explosion (or at least it does maybe when lava hits sea water....)

Caveats: This reference 2 is not nuclear oriented. Not specific to the Japan case. This is really complex and should be answered by an expert. Depends so much on the actual conditions in the Japan plants...

At least I did not find anything that says salt makes things worse!

Impure coolants and interaction dynamics of phreatomagmatic eruptions

James D. L. WhiteE-mail The Corresponding Author, *

Geology Department, University of Otago P.O. Box 56, Dunedin 9015, New Zealand Received 12 January 1996; revised 18 June 1996; accepted 18 June 1996. ; Available online 26 February 1999.

Abstract

Phreatomagmatic eruptions resulting from interaction of magma with groundwater are common in many terrestrial settings, and their explosivity is widely accepted to result from fuel-coolant interaction (FCI) processes. Relatively little attention has been given to the precise nature of the volcanic settings in which phreatomagmatic FCI's take place, but several lines of evidence indicate that they almost inevitably involve mixing of magma with impure, sediment-laden water. Consideration of the effects of these impure coolants on the fuel-coolant interaction process suggests that: (1) impure coolants enhance the ability of magma to mix with large volumes of coolant; and (2) maximum unit-volume explosivity of FCI's is damped relative to interactions with pure water. It is probably unrealistic to back-calculate water-magma mass ratios for most, if not all, phreatomagmatic eruptions because: (1) effects of impure coolants on fragmentation efficiency and eruption explosivity are not yet known; and (2) aspects of the vent environments in which phreatomagmatism occurs may influence fragmentation processes, explosive efficiency, and resultant particle populations as or more strongly than water-magma mass ratios. To estimate mass ratios for individual bursts, or for eruptions as a whole, one must distinguish particle populations resulting from many different processes in phreatomagmatic vents, including primary fragmentation, induced fragmentation, vent-wall collapse and pyroclast recycling. Incorporation of accidental blocks beyond the zone of phreatomagmatic interaction and ejection of unvaporized water further complicate efforts at reconstruction.

Bano, Mahmooda

From: Scott, Michael
Sent: Monday, March 28, 2011 6:13 PM
To: Valentin, Andrea
Subject: RE: Japan debrief?

Thanks!

-----Original Message-----
From: Valentin, Andrea
Sent: Monday, March 28, 2011 7:09 AM
To: Scott, Michael
Subject: RE: Japan debrief?

I don't know if it is official yet, but congratulations on the DSA position.

Andrea

-----Original Message-----
From: Scott, Michael
Sent: Monday, March 28, 2011 5:31 AM
To: Uhle, Jennifer; Gibson, Kathy; Valentin, Andrea
Subject: Re: Japan debrief?

Sure. Andrea, can PMDA please help with logistics (schedule a room and announce)?

Sent from my NRC blackberry
Michael Scott
(b)(6)

----- Original Message -----
From: Uhle, Jennifer
To: Scott, Michael; Gibson, Kathy
Sent: Mon Mar 28 05:24:34 2011
Subject: Re: Japan debrief?

Yes for RES. Please ensure the material is okay for the broad audience. Great idea. J

----- Original Message -----
From: Scott, Michael
To: Gibson, Kathy; Uhle, Jennifer
Sent: Mon Mar 28 05:22:59 2011
Subject: Japan debrief?

If RES or DSA would like a debrief on my Japan "vacation" and what's going on here, I'd be happy to provide (e.g., week of April 11). Pls advise.

Mike

Sent from my NRC blackberry
Michael Scott
(b)(6)

35\112

Lee, Richard

From: Lee, Richard
Sent: Tuesday, March 29, 2011 6:46 PM
To: 'Dana Powers (Home)'; 'Dana Powers (SNL)'
Subject: FW: plots

fyi

From: Michael Salay (b)(6)
Sent: Tuesday, March 29, 2011 6:43 PM
To: Lee, Richard
Cc: Esmaili, Hossein
Subject: plots

Someone has reconstructed plots from publicly available data

http://www.ic.unicamp.br/~stolfi/EXPORT/projects/fukushima/plots/v6/Main.html

They explain data sources and issues and provide their typed-in text data files.

-Mike

--

Michael Salay
(b)(6)
(b)(6) (cell)

55\113

Lee, Richard

From: Lee, Richard
Sent: Tuesday, March 29, 2011 12:35 PM
To: Schaperow, Jason
Cc: Wagner, Katie
Subject: FW: Spent fuel q's
Attachments: image001.jpg

Hi, Jason:

Please respond to this. Consult Charlie as you see appropriate before responding..

Thx, Richard

From: Burnell, Scott
Sent: Tuesday, March 29, 2011 12:27 PM
To: Lee, Richard
Cc: Gibson, Kathy; Wagner, Katie
Subject: RE: Spent fuel q's

Hi Richard;

This wouldn't necessarily be Japan-specific, but any spent-fuel related projects. Thanks.

Scott

From: Gibson, Kathy
Sent: Tuesday, March 29, 2011 12:26 PM
To: Burnell, Scott; Lee, Richard
Cc: Scott, Michael; Correia, Richard; Coe, Doug; Wagner, Katie
Subject: RE: Spent fuel q's

Scott,

Please use Richard Lee for DSA's single POC for all things related to Japan. He will put you in contact with the right people.

Thanks,

K

55\114

Kathy Halvey Gibson
Director
Division of Systems Analysis

Kathy.Gibson@nrc.gov
(301) 251-7499 Work
(b)(6) Cell

US Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Protecting People and the Environment

From: Burnell, Scott
Sent: Tuesday, March 29, 2011 12:22 PM
To: Coe, Doug; Correia, Richard; Gibson, Kathy; Scott, Michael
Subject: FW: Spent fuel q's
Importance: High

Hello all;

Would DRA or DSA have the relevant contacts for spent-fuel related work at Sandia (or another lab)? If we don't have any active work with them on this, then I can direct the reporter to go through DOE. Thanks.

Scott

#4 release

From: Eli Kintisch [mailto:ekintisch@aaas.org]
Sent: Thursday, March 17, 2011 6:17 PM
To: Burnell, Scott
Subject: Spent fuel q's deadline 1pm EST Fri

Scott:

1. Which researchers at Sandia perform work for NRC in this area?
2. Who is the program manager on this research, and may I speak to them for an interview?
3. Are there any publically available reports on spent fuel pool incidents that are available?
4. I was unable to find Nils Diaz response in 2004 to NAS report on spent fuel pools risk. Could you send?

thanks, e

Eli Kintisch, Reporter
Science Magazine
202 326 6446

>>> "Burnell, Scott" <Scott.Burnell@nrc.gov> 3/17/2011 5:49 PM >>>

Hello Eli;

I've most likely missed your deadline anyway, and I apologize – in the future it helps to put a deadline in the subject line to attract attention. In any case, I'm not aware of any publicly available modeling on spent-fuel pool incidents. Please let me know if you need anything else. Thanks.

Scott

From: Eli Kintisch [mailto:ekintisch@aaas.org] #6 release
Sent: Thursday, March 17, 2011 2:18 PM
To: Burnell, Scott
Subject: Science mag: Are there publicly available

research studies modeling the loss of coolant from spent nuclear fuel pools that the NRC has done?

Could you send me them or refer me to them?

Deadline: 430pm today; but if we miss that, would still be useful tomorrow.

Thanks, Eli

Eli Kintisch, Reporter
Science Magazine
202 326 6446

Hoxie, Chris

From: Hoxie, Chris
Sent: Tuesday, March 29, 2011 12:08 PM
To: Sheron, Brian; Gibson, Kathy; Uhle, Jennifer; Lee, Richard
Subject: Answer to Brian's Question: Who in Japan invited PNNL-DOE engineers?

PNNL has been asked by the Japanese Prime Minister's Office for advice and counsel.
They will be sending over "waves" of technical people.
PNNL is NOT doing this under NRC contract.
The first wave of three will leave at 11:00 EST today.
NRC employees and employees from various national labs might be requested in the future.

The answer to Brian's Question is, PNNL is attending at the request of the PMs office.

Key points of contact:
Tom Michener
PNNL – DOE Laboratories in WA
509-375-2162

Wayne Johnson, Division Director
PNNL – DOE Laboratories in WA
509-372-4791

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6)

55/115

Yarsky, Peter

From: Yarsky, Peter
Sent: Tuesday, March 29, 2011 9:55 AM
To: Carlson, Donald
Subject: RE: Support for Japan - SFP Criticality Potential Update

Don,

Just got your email and my 3 minute response is: consequences of uncover are worse than a criticality event in my opinion

-Pete

From: Carlson, Donald
Sent: Monday, March 28, 2011 9:14 PM
To: Wagner, John C.; Parks, Cecil V.; Hopper, Calvin Mitchell; Lee, Richard; Wood, Kent; VanWert, Christopher
Cc: Scott, Michael; Ulses, Anthony; Yarsky, Peter; Giessner, John; Taylor, Robert
Subject: RE: Support for Japan - SFP Criticality Potential Update
Importance: High

All,

Rob Taylor (NRC/NRR, on Cc) called from Japan to revisit the Unit 4 pool criticality issue. He provides the following details:

- Unit 4 racks are not borated
- Switching to unborated fresh water injection on 3/29
- Shutdown last November with 1/3 of the core offload being 1st cycle fuel
- 204 fresh fuel assemblies were present in the pool
- Japanese concerns that the racks may have shifted
- Fuel damage due to uncovery

Our NRC+ORNL technical opinion as of March 19 was as follows:
Statement: Criticality is very unlikely for any likely configuration in the SFP, especially if boron is being added. Moreover, if criticality were to occur, it would be of much less consequence than an empty pool. (The statement also included reminders that the water in BWR SFPs is generally not borated and that criticality is not possible without water.)

That opinion may have been based in part on a preliminary understanding that the Unit 4 SFP had low-density racks of borated stainless steel.

Question: Do we now see a need to modify or expand the above technical opinion? If so, how?

Responses or questions provided by 10:00am EST Tuesday would be especially appreciated.

As always, your help and advice is deeply appreciated.

Best regards,
Don

Donald E. Carlson

55\116

NRO/ARP/ARB1
Cell: (b)(6)
Office: 301-415-0109

From: Taylor, Robert
Sent: Monday, March 28, 2011 6:59 PM
To: Carlson, Donald; Brown, Frederick
Cc: Scott, Michael; Wood, Kent; Ulses, Anthony; Yarsky, Peter; VanWert, Christopher; Giessner, John
Subject: RE: Support for Japan - SFP Criticality Potential

Don,

The RST has given us their bridge line for a call at 2000 EST.

301-816-5120 Passcode (b)(6)

Info for consideration during the call:

Unit 4 racks are not borated
Switching to fresh water injection on 3/29
Shutdown last November with 1/3 of the core offload being 1st cycle fuel
204 fresh fuel assemblies were present in the pool
Japanese concerns that the racks may have shifted.
Fuel damage due to uncovery

Regards,
Rob

From: Carlson, Donald
Sent: Monday, March 28, 2011 6:23 PM
To: Taylor, Robert; Brown, Frederick
Cc: Scott, Michael; Wood, Kent; Ulses, Anthony; Yarsky, Peter; VanWert, Christopher; Giessner, John
Subject: RE: Support for Japan - SFP Criticality Potential

Rob,

It would be helpful to get some confirmation/clarification on which pools are of most concern and their respective rack designs and fuel loadings.

The core off-load in the Unit 4 pool was the main concern when we provided the technical opinion over a week ago, with the preliminary understanding that those racks were of borated stainless steel and not high-density.

FYI – When I call your cell phone number, AT&T says more information is needed, then asks to enter the number again to leave a voice message, and then says the voice mailbox has not been set up.

My cell phone number is (b)(6) Or I can plan to report to the RST at 2000 EDT or 0530 EST. Please let me know how I can best help.

Thanks,
Don

From: Taylor, Robert
Sent: Monday, March 28, 2011 5:59 PM
To: Carlson, Donald; Brown, Frederick
Cc: Scott, Michael; Wood, Kent; Ulses, Anthony; Yarsky, Peter; VanWert, Christopher; Giessner, John
Subject: RE: Support for Japan - SFP Criticality Potential

Don,

I missed your call last night. The cell number works but isn't my normal blackberry number so I don't know if the message is set up correctly. I would still like to chat briefly to ensure we are still aligned on this issue. Can we set up something for 0900 JST (2000 EDT) or 1830 JST (0530 EST)

Rob

From: Carlson, Donald
Sent: Monday, March 28, 2011 1:07 PM
To: Brown, Frederick
Cc: Taylor, Robert; Scott, Michael; Wood, Kent; Ulses, Anthony; Yarsky, Peter; VanWert, Christopher
Subject: RE: Support for Japan - SFP Criticality Potential

All,

Pending contact with Rob Taylor in Japan, here is a quick recap of the statement we made when asked over a week ago to advise on SFP criticality concerns:

Statement: Criticality is very unlikely for any likely configuration in the SFPs, especially if boron is being added. Moreover, if criticality were to occur, it would be of much less consequence than an empty pool.

- This statement was based in part on a preliminary understanding that the plants' SFPs have low-density racks made of borated stainless steel. The statement also included reminders that the water in BWR SFPs is generally not borated and that criticality is physically impossible without water.

- The statement was drafted and concurred on by ORNL (John Wagner, Cecil Parks, Calvin Hopper), NRC/RES (Richard Lee), and NRC/NRO (Don Carlson) and provided to the Hoc Reactor Safety Team.

- The statement was also discussed briefly last week at a meeting of the NRC Interoffice Technical Advisory Group (TAG) for Nuclear Criticality Safety. The TAG meeting was attended by Kent Wood (NRR) and Chris VanWert (NRO) in their respective roles for reviewing SFP criticality safety at existing reactors and new reactors.

Don

-----Original Message-----
From: Carlson, Donald
Sent: Monday, March 28, 2011 9:30 AM
To: Brown, Frederick
Cc: Taylor, Robert; Scott, Michael
Subject: RE: Support for Japan

Fred,

That phone number doesn't work.

Don

-----Original Message-----
From: Brown, Frederick
Sent: Sunday, March 27, 2011 9:11 PM
To: Carlson, Donald
Cc: Taylor, Robert; Scott, Michael
Subject: Support for Japan

Don,

Can you please call Rob Taylor in Japan (noting the time difference, please call very early on day shift or in the evening)? He would like to have a follow-up conversation on SFP criticality potential.

His cell is (b)(6) [redacted]

Thanks,
Fred

Hoxie, Chris

From: Hoxie, Chris
Sent: Tuesday, March 29, 2011 8:36 AM
To: Zigh, Ghani; Lee, Richard
Subject: RE: Phone message from PNNL

Thank you.

Just make sure Carlos passes on to the PNL people (Tom) that the material is Official Use Only. In particular, he is NOT to redistribute our report. And in particular, if the folks in Japan wish to get a copy of the report, they should request the copy from us (i.e., from the NRC).

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6)

From: Zigh, Ghani
Sent: Tuesday, March 29, 2011 8:31 AM
To: Hoxie, Chris; Lee, Richard
Subject: RE: Phone message from PNNL

We have the report.
I was the PM and TM for this work.
I will talk to Carlos Navarro in Pat Santiago Branch to send it to PNL.

From: Hoxie, Chris
Sent: Tuesday, March 29, 2011 2:16 AM
To: Lee, Richard
Cc: Zigh, Ghani
Subject: FW: Phone message from PNNL

Guys, I don't even have this report. I am not sure I would know it if I saw it.

Richard, I suspect that someone in your branch is the PM for the SNL project that produced this report.

I request that you have that PM take care of the transfer of the document to Tom Michener at PNNL, DOE, and to make sure that Tom understands it is OUO.

From: Gibson, Kathy
Sent: Monday, March 28, 2011 6:42 PM
To: Hoxie, Chris
Cc: Zigh, Ghani; Lee, Richard; Wagner, Katie
Subject: Re: Phone message from PNNL

It is OUO. They can have it but must treat it OUO.

35\117

From: Hoxie, Chris
To: Gibson, Kathy
Cc: Zigh, Ghani
Sent: Mon Mar 28 18:33:15 2011
Subject: FW: Phone message from PNNL

Hi Kathy,
I got through to Tom Michener, PNNL, DOE.
He wants a copy of the report done at SNL on pool fires.
Tom says he has already discussed the issue with Ghani.

The reason Tom wants the report is because he is placing two folks on a plane for Japan, and he wants to come up to speed as rapidly as possible on the latest research.

I know the NRC has been holding this report closely, and it may be pre-decisional or there may be other reasons not to distribute it at this time.

I need your guidance on how to proceed.

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6) [redacted]

From: Harrington, Holly
Sent: Monday, March 28, 2011 1:50 PM
To: Gibson, Kathy; Hoxie, Chris
Subject: FW: Phone message from PNNL

The phone message below was taken by a receptionist in OPA.

Holly

From: Royer, Deanna
Sent: Monday, March 28, 2011 1:42 PM
To: Harrington, Holly
Subject: Phone message from PNNL

Tom Michener
PNNL – DOE Laboratories in WA
509-375-2162
Re: Information regarding Japanese issues. He would like to talk with either Kathy Gibson or Chris Hoxie

Deanna Royer
Contract Secretary
Division of New Reactor Licensing
(301) 415-7158
Deanna.Royer@nrc.gov

Bano, Mahmooda

From: Scott, Michael
Sent: Tuesday, March 29, 2011 6:00 AM
To: RST01 Hoc
Subject: Re: USNRC Earthquake-Tsunami Update.032911.0430EDT.docx

Noted. We would like to discuss rationale in the call. Thanks

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: RST01 Hoc
To: Scott, Michael
Sent: Tue Mar 29 05:47:50 2011
Subject: RE: USNRC Earthquake-Tsunami Update.032911.0430EDT.docx

Scott,

Rationale is near the end of the report. It was added on 3/25 and then dropped. I added it back on in this morning's report.

Mike

RST Coordinator

From: Scott, Michael
Sent: Tuesday, March 29, 2011 5:44 AM
To: RST01 Hoc
Subject: RE: USNRC Earthquake-Tsunami Update.032911.0430EDT.docx

We in Japan believe the rationale for the unit prioritizations should be included in the report. Also, the SFP prioritizations should probably be included separately. (E.g., U-1 SFP clearly not top priority among the SFPs). Suggest we discuss during next call.

Mike

From: LIA07 Hoc
Sent: Tuesday, March 29, 2011 4:23 AM
To: Liaison Japan
Cc: LIA07 Hoc
Subject: USNRC Earthquake-Tsunami Update.032911.0430EDT.docx

Please find attached the 0430 EDT 3/29/11 NRC Status Update.

If you have any comments or edits for the next update, scheduled for 1800 EDT today, please let me know.

Thank you,

55\118

-Jim

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

Bano, Mahmooda

From: Scott, Michael
Sent: Tuesday, March 29, 2011 4:41 AM
To: Santiago, Patricia
Subject: RE: Congrats

Be careful what you ask for...

-----Original Message-----
From: Santiago, Patricia
Sent: Monday, March 28, 2011 7:14 PM
To: Scott, Michael
Subject: Re: Congrats

I may want to go. Hope to see u soon

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6)

----- Original Message -----
From: Scott, Michael
To: Santiago, Patricia
Sent: Mon Mar 28 18:51:18 2011
Subject: RE: Congrats

Havin' fun!

Thanks

-----Original Message-----
From: Santiago, Patricia
Sent: Monday, March 28, 2011 9:43 AM
To: Scott, Michael
Subject: Congrats

You need to go have some saki? And then when you get back we can all celebrate. Hope all is well!

Sent from an NRC BlackBerry
Patricia Santiago
(b)(6)

SS\119

Lee, Richard

From:	Lee, Richard
Sent:	Tuesday, March 29, 2011 12:05 PM
To:	'Michael Salay'
Subject:	RE: FW: Background 3rd team to Japan .docx

Mike:

I will check with Kathy when a decision will be taken.

Richard

From: Michael Salay (b)(6)
Sent: Tuesday, March 29, 2011 12:01 PM
To: Lee, Richard
Subject: Re: FW: Background 3rd team to Japan .docx

Richard,

Meeting is going OK.

The SARNET meeting on "benchmarks" is tomorrow at 9am (3am EDT). All would surely like to present their Fukushima calculations at the next meeting so that is likely to become a subject of discussion tomorrow. Would be willing to share the results of some of our Fukushima calculations next meeting?

I brought copies of source term docs - both our and Marksbury's NUREG collections. I think the main benefit of me being there would be to communicate with RES staff/contractors to provide info. Therefore I could either go directly or stop in DC. Benefits of a shorter trip with less jet lag vs chance for laundry/obtaining additional information if needed.

Is team staying at US embassy?

Do you know when I would hear back on whether I am going?

-Mike

On Mon, Mar 28, 2011 at 7:51 PM, Lee, Richard <Richard.Lee@nrc.gov> wrote:
Hi, Mike:

Are you enjoying yourself a lot at the meeting. Once, I know I will let you know whether to return earlier to go to Japan. Do you have all the information needed to go from the Netherlands to Japan or you need to collect all your stuff before you go to Japan.

I argue for you to come home first.

Richard

From: Case, Michael
Sent: Monday, March 28, 2011 2:08 PM
To: Lee, Richard

55\120

Subject: RE: Background 3rd team to Japan .docx

Thanks Richard. At least I had the right continent.

From: Lee, Richard
Sent: Monday, March 28, 2011 1:01 PM
To: Case, Michael
Cc: Sheron, Brian; Uhle, Jennifer; Gibson, Kathy; Hoxie, Chris; Coe, Doug; Correia, Richard; Salus, Amy; Evans, Michele
Subject: RE: Background 3rd team to Japan .docx

Mike is in the Netherlands attending the Phebus meetings and the EC Severe Accident Research program.

If he is directed to go, I will ask him to cut short his trip and return to the U.S. before he goes to Japan. I discussed this with Mike before he left for the Netherlands.

Please let me know as soon as possible.

From: Case, Michael
Sent: Monday, March 28, 2011 12:45 PM
To: Salus, Amy; Evans, Michele
Cc: Sheron, Brian; Uhle, Jennifer; Gibson, Kathy; Hoxie, Chris; Coe, Doug; Lee, Richard; Correia, Richard
Subject: RE: Background 3rd team to Japan .docx

Hi Michele,

Per your request, RES currently has one individual to nominate for the 3rd team to Japan.

Individual: Mike Salay
Background: Severe accident expertise, been serving on the RST, involved in a number of OECD agreements on fission product behavior and MELCOR modeling, good political savvy.
Endorsement: By both Brian and his division management
Passport Status: No problem
Obstacle to overcome: I think he is currently out of the country in France so would need to depart from there.

Doug Coe/Rich Correia may have one more candidate that would meet the expertise requested but are running down some of the specifics.

From: Salus, Amy
Sent: Thursday, March 24, 2011 11:35 AM
To: Case, Michael
Subject: FW: Background 3rd team to Japan .docx

From: Salus, Amy
Sent: Thursday, March 24, 2011 11:14 AM
To: Ruland, William; Holahan, Gary; Miller, Charles; Haney, Catherine; Sheron, Brian; Ordaz, Vonna; Dean,

Bill; McCree, Victor; Satorius, Mark; Howell, Art; Collins, Elmo
Subject: Background 3rd team to Japan .docx

Michael Salay
(b)(6)
(b)(6) (cell)

Lee, Richard

From: Lee, Richard
Sent: Wednesday, March 30, 2011 4:38 PM
To: Salay, Michael; 'Michael Salay'
Cc: Eisenberg, Wendy
Subject: FW: Third NRC Team to Japan
Attachments: 3rd Staff Deployment to Japan Final.docx

Importance: High

Mike:
Return home ASAP.
Richard

Wendy: Please send me Mike State Department cable. Thx.

From: Evans, Michele
Sent: Wednesday, March 30, 2011 4:29 PM
To: Call, Michel; Salay, Michael; Hay, Michael; Bernhard, Rudolph; LIA03 Hoc; LIA02 Hoc
Cc: Doane, Margaret; Mamish, Nader; Lee, Richard; Case, Michael; Sheron, Brian; Haney, Catherine; Ordaz, Vonna; McCree, Victor; Kennedy, Kriss; Casto, Chuck; Monninger, John; Virgilio, Martin; Weber, Michael; Borchardt, Bill; Bahadur, Sher; Ruland, William; Leeds, Eric; Johnson, Michael; Holahan, Gary; Pederson, Cynthia; Camper, Larry; Wiggins, Jim; Dorman, Dan; Collins, Elmo
Subject: Third NRC Team to Japan

Thank you for volunteering for deployment to Japan. This work is of highest priority for the agency and your efforts are enormously appreciated.

At this time we've identified 4 additional technical staff to support the team in Japan. **The plan is for Mike Salay (RES), Michel Call (NMSS), Mike Hay (RIV), and Rudy Bernhard (RII) to leave the USA on Saturday, April 2.** The intent is that your stay will be two weeks or less.

An additional staff member with International Programs expertise will be identified by OIP to support and provide relief in the near term.

The Operations Center Liaison Team (LT) will be contacting you later today to handle the logistic for your trip. This includes items such as flights, passports, country clearances, health immunizations, international blackberry service, dosimetry and KI tablets.

In addition, HR has requested that I provide you the information below:

-Please contact NRC Health Services at your earliest convenience on 301-415-8400 to schedule an appointment with Dr. Cadoux for health screening and counseling. If at all possible, it is important that you meet with Dr. Cadoux face-to-face. However, if you are located in the Region or if you are notified and deployed in a very short time frame so that medical screening is not possible, this screening will be conducted by phone. Please be aware that medical services available in Tokyo are limited at this time. Additionally, working conditions are such that controlling diet, sleep, exercise, and routine may be impossible. All of these factors can impact your health. Please review any medical conditions that you may have with Dr. Cadoux so that he can provide you with advice and counseling on managing you medical condition while deployed.

-Before you deploy we recommend that you speak briefly with the NRC Employee Assistance Program counselor, Sarah Linnerooth. Sarah can be reached on 301-415-7113. While you are deployed, EAP services are available to both you and your family, including extended family members such as Grandparents. The telephone number is for EAP service is 1-800-896-0276. More information is available on the EAP on the web

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at www.eapconsultants.com. To learn more about the EAP and the services provided click on the member services tab. The NRC passcode is "nuclear". Please be sure to share this information with your family.

At this point, I ask that you hold any questions that you may have until the LT contacts you directly. However, after that time, if you have any additional questions or concerns that have not been addressed, please call or email me.

Thank you.

Michele Evans
Acting Deputy OD, NSIR
Michele.evans@nrc.gov
BB: (b)(6)

Lee, Richard

From: Lee, Richard
Sent: Thursday, March 31, 2011 3:20 PM
To: Gibson, Kathy
Subject: FW: Third NRC Team to Japan
Attachments: 3rd Staff Deployment to Japan Final.docx

From: Evans, Michele
Sent: Wednesday, March 30, 2011 4:29 PM
To: Call, Michel; Salay, Michael; Hay, Michael; Bernhard, Rudolph; LIA03 Hoc; LIA02 Hoc
Cc: Doane, Margaret; Mamish, Nader; Lee, Richard; Case, Michael; Sheron, Brian; Haney, Catherine; Ordaz, Vonna; McCree, Victor; Kennedy, Kriss; Casto, Chuck; Monninger, John; Virgilio, Martin; Weber, Michael; Borchardt, Bill; Bahadur, Sher; Ruland, William; Leeds, Eric; Johnson, Michael; Holahan, Gary; Pederson, Cynthia; Camper, Larry; Wiggins, Jim; Dorman, Dan; Collins, Elmo
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55\122

Thank you.

Michele Evans
Acting Deputy OD, NSIR
Michele.evans@nrc.gov
BB: (b)(6)

Lee, Richard

From: Lee, Richard
Sent: Wednesday, March 30, 2011 5:02 PM
To: Eisenberg, Wendy
Subject: RE: Third NRC Team to Japan

Thx, Wendy

From: Eisenberg, Wendy
Sent: Wednesday, March 30, 2011 4:57 PM
To: Lee, Richard
Subject: RE: Third NRC Team to Japan

Richard –

I do not have the cable, I don't get all of them.

I'm requesting that OIP send it to you.

From: Lee, Richard
Sent: Wednesday, March 30, 2011 4:38 PM
To: Salay, Michael; Michael Salay
Cc: Eisenberg, Wendy
Subject: FW: Third NRC Team to Japan
Importance: High

Mike:
Return home ASAP.
Richard

Wendy: Please send me Mike State Department cable. Thx.

From: Evans, Michele
Sent: Wednesday, March 30, 2011 4:29 PM
To: Call, Michel; Salay, Michael; Hay, Michael; Bernhard, Rudolph; LIA03 Hoc; LIA02 Hoc
Cc: Doane, Margaret; Mamish, Nader; Lee, Richard; Case, Michael; Sheron, Brian; Haney, Catherine; Ordaz, Vonna; McCree, Victor; Kennedy, Kriss; Casto, Chuck; Monninger, John; Virgilio, Martin; Weber, Michael; Borchardt, Bill; Bahadur, Sher; Ruland, William; Leeds, Eric; Johnson, Michael; Holahan, Gary; Pederson, Cynthia; Camper, Larry; Wiggins, Jim; Dorman, Dan; Collins, Elmo
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35\123

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Thank you.

Michele Evans
Acting Deputy OD, NSIR
Michele.evans@nrc.gov
BB: (b)(6)

Lee, Richard

From: Lee, Richard
Sent: Wednesday, March 30, 2011 7:18 PM
To: Salay, Michael
Subject: RE: Third NRC Team to Japan

Have a safe trip. See you on Friday.

-----Original Message-----
From: Salay, Michael
Sent: Wednesday, March 30, 2011 6:37 PM
To: Lee, Richard
Subject: RE: Third NRC Team to Japan

Richard,

I am booked on flight UA 947
Departing Amsterdam on 12:15 March 31, 2011 Arriving Dulles 2:48

-Mike

From: Lee, Richard
Sent: Wednesday, March 30, 2011 4:38 PM
To: Salay, Michael; Michael Salay
Cc: Eisenberg, Wendy
Subject: FW: Third NRC Team to Japan

Mike:
Return home ASAP.
Richard

Wendy: Please send me Mike State Department cable. Thx.

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55\124

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Thank you.

Michele Evans
Acting Deputy OD, NSIR
Michele.evans@nrc.gov<mailto:Michele.evans@nrc.gov>
BB: (b)(6)

Lee, Richard

From: Lee, Richard
Sent: Wednesday, March 30, 2011 3:07 PM
To: (b)(6) Ex 6
Subject: RE: How are you?

Hi, Sol:

Do you where elevation of the drywell vent is located in Mark 1 containment?. I do not have a good diagram of the Mark 1 containment.

Thanks, Richard

-----Original Message-----
From: (b)(6) Ex 6
Sent: Friday, March 25, 2011 2:39 PM
To: Lee, Richard
Subject: RE: How are you?

Do not hesitate to ask. Glad to help.
Sol

-----Original Message-----
From: Lee, Richard <Richard.Lee@nrc.gov>
To: slevy112 (b)(6) Ex 6
Sent: Thu, Mar 24, 2011 11:19 am
Subject: RE: How are you?

Thanks, Sol:
Appreciate it.
Richard

-----Original Message-----
From: (b)(6) Ex 6
Sent: Thursday, March 24, 2011 3:03 PM
To: Lee, Richard
Subject: RE: How are you?

Control rod drives are ok but they are positive displacement pumps because they pump against the full reactor pressure. You can also feedwater pumps.
S. Levy

-----Original Message-----
From: Lee, Richard <Richard.Lee@nrc.gov>
To: (b)(6) b)(6) Ex 6
Sent: Tue, Mar 22, 2011 12:20 pm
Subject: RE: How are you?

Hi, Sol:

Nice to hear from you. Thanks for the 2 pages summary. We are providing technical support and advice to NRC Op Center and in turn supporting the NRC team in our Embassy in Tokyo.

55/125

In your writeup, adding water to reactor via. Different connections, can one add water through the control rod drives cooling system. I understood the control rod drives coolant pumps are the most reliable ones among all the pumps.

Richard

-----Original Message-----
From: (b)(6) [redacted] Ex 6
Sent: [redacted]
To: Lee, Richard
Subject: Re: How are you?

Trying to age gracefully. Attached is my memo of how my reactors could have been saved.I sent it to Basu because I lost your email. Nice to hear from you.
Sol -----Original Message-----
From: Lee, Richard <Richard.Lee@nrc.gov>
To: (b)(6) [redacted] Ex 6
Sent: Tue, Mar 22, 2011 11:17 am
Subject: How are you?

Hi, Sal: I see that your reactor designs been destroyed in Fukushi Dai-ichi. How are you and your family? Richard ok to release

Hoxie, Chris

From:	Hoxie, Chris
Sent:	Thursday, March 31, 2011 12:21 PM
To:	Wagner, Katie; Staudenmeier, Joseph
Cc:	Lee, Richard
Subject:	Re: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Joe, is this complete.

From: Wagner, Katie
To: Hoxie, Chris
Cc: Lee, Richard
Sent: Thu Mar 31 11:45:53 2011
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Chris,

I left the item below as "Pending" based on J. Staudenmeier's response on 3/25, is this item "Complete" or still "Pending"?

41	3/22/2011	Ops Center/Jim Gilmer	Email: RST09 Hoc James.Gilmer@nrc.gov	Joe Staudenmeier x7522	CDB	Assistance in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4, relating to developing a TRACE model. Note: J. Staudenmeier had responded to two requests as of EOB on 3/23.	Assistance in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4, relating to developing a TRACE model. Note: J. Staudenmeier had responded to two requests as of EOB on 3/23.	Pending

Thanks,
Katie

From: Staudenmeier, Joseph
Sent: Friday, March 25, 2011 4:32 PM
To: Hoxie, Chris; Wagner, Katie
Cc: Lee, Richard
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

We still need to send them the input decks and calculation notebooks. They want to use them to get an estimate of liquid volume vs. vessel level. I'm waiting for the Monticello input (similar to Unit 1) from RSAB.

From: Hoxie, Chris
Sent: Friday, March 25, 2011 4:23 PM
To: Wagner, Katie
Cc: Lee, Richard; Staudenmeier, Joseph
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Joe tells me this is complete. He responded with some simple calculations and he gave them some information regarding availability of BWR models.

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research

55\126

United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6)

From: Wagner, Katie
Sent: Friday, March 25, 2011 4:09 PM
To: Hoxie, Chris
Cc: Lee, Richard
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Chris,

Is this "completed" or still "pending"?

41	3/22/2011	Ops Center/Jim Gilmer NEW	Email: RST09 Hoc James.Gilmer@nrc.gov	Joe Staudenmeier	CDB	Assistance in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4, relating to developing a TRACE model. Note: J. Staudenmeier had responded to two requests as of EOB on 3/23.	Assistance in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4, relating to developing a TRACE model. Note: J. Staudenmeier had responded to two requests as of EOB on 3/23.	Pending

Thanks,
Katie

From: Hoxie, Chris
Sent: Wednesday, March 23, 2011 5:51 PM
To: Wagner, Katie; Lee, Richard
Subject: FW: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

fyi

Chris L. Hoxie, PhD
Branch Chief, Code Development
Division of Systems Analysis
Office of Nuclear Regulatory Research
United States Nuclear Regulatory Commission
Room: CH3-D04
Phone: 301-251-7562
Cell: (b)(6)

From: Staudenmeier, Joseph
Sent: Wednesday, March 23, 2011 5:13 PM
To: Gilmer, James
Cc: Uhle, Jennifer; Hoxie, Chris; Donoghue, Joseph
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Jim,

The available input decks we have in RES that may be useful are

Monticello BWR3 206 inch vessel. This may be close to Unit 1.

River Bend class BWR6 218 inch vessel. This is the same vessel diameter as Hatch but the internals are different (more channels, smaller jet pumps and downcomer in BWR6 vs. BWR4). The volume vs. elevation are different but it may be close to Units 2 and 3.

Joe

From: Gilmer, James
Sent: Wednesday, March 23, 2011 10:24 AM
To: Staudenmeier, Joseph
Cc: Uhle, Jennifer; Hoxie, Chris; Donoghue, Joseph
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Good Morning!
I just came in after being off most of yesterday. When I left the Ops Center yesterday morning, we had RV water level readings of ~1700 mm on both Units 2 and 3, which means the cores are about half covered (if the level instruments can be believed). I have not received an update this morning, but expect that the level remains about the same. I was attempting to develop a table of free internal volume as a function of vessel elevation based on detailed BWR/4 drawings I have from Hatch, so we could estimate the height of the salt buildup in the channels. I was finding it difficult to do because of the complex geometry in the lower plenum. I was hoping that the TRACE BWR/4 model would have some of that detail, so that a more accurate estimate could be made than with hand calculations. I will give you a call to discuss how the TRACE model could be used.

From: Staudenmeier, Joseph
Sent: Tuesday, March 22, 2011 2:12 PM
To: RST09 Hoc; Gilmer, James
Cc: Uhle, Jennifer; Hoxie, Chris
Subject: RE: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Jim,

I did a simple calculation for how much salt is in the vessel assuming it is all retained.

The calculation uses Wikipedia obtained information of 35 g/L of salt in seawater and ~400 g/kg of solubility in seawater.

48 gpm for 8 days gives ~73,000 kg of salt in the vessel.

At 0.4 kg of salt per kg water solubility you would need ~183,000 kg of water in the vessel to dissolve it. Any idea how much water is in the vessel?

If the salt comes out of solution at the boiling boundary it could be coming out of solution and falling into the bottom of the channels at vessel average concentrations lower than the solubility limit.

Joe

From: RST09 Hoc
Sent: Tuesday, March 22, 2011 6:20 AM
To: Staudenmeier, Joseph
Cc: Uhle, Jennifer
Subject: Assistance Needed in Estimating Salt Buildup and Internals Blockage for Japanese BWR/4

Good Morning, Joe!

Could you please come to the Operations Center this morning? We have been asked to do a calculation of the salt buildup and core blockage as a function of time. I believe the TRACE model could be used to do this. I also have detailed design drawings for a US BWR/4 (Hatch) which might be useful. The lower vessel internals geometry is too complex to do a hand calculation of the free volume as a function of vessel elevation. I attempted to, but thought that there may be enough detail in the TRACE model to get a reasonable estimate.

I have other data which you would need, such as:

Sea water flow rate.....48 gpm (injected through recirculation line)
Seawater specific gravity (approx)......1.03
Temperature unknown, but assume 45°F
Injection started 54 hours after shutdown
Rated thermal power (Units 2 through 5).......2381 MWt
Unit 1......1380

I will be handing off to Ed Fuller as the RST Severe Accident/PRA analyst at 7:00 EDT this morning, so I will make sure he has all the information. I will come back to the office later this afternoon after getting some sleep. My cell phone number is (b)(6) if you need additional information. Please copy my NRC e-mail address (james.gilmer@nrc.gov) on any correspondence.

Thanks. And good luck!
Jim Gilmer

Bano, Mahmooda

From: E.Bradley@iaea.org
Sent: Sunday, April 03, 2011 9:16 AM
To: Scott, Michael
Subject: RE: Supplemental Information on Venting Rev 6

Mike,

I only have the Rev 6 doc in hardcopy - can you please send me an electronic version?

Ed

Ed Bradley
Nuclear Engineer
RESEARCH REACTOR SECTION
Division of Nuclear Fuel Cycle and Waste Technology
Department of Nuclear Energy
IAEA, Vienna Austria

+43 1 2600 22759

–

From: Michael.Scott@nrc.gov [mailto:Michael.Scott@nrc.gov]
Sent: Sunday, April 03, 2011 2:09 PM
To: BRADLEY, Edward; LYONS, James E.
Cc: Casto, Chuck; MUROYA, Nobuhiro; YAMADA, Katsumi; RST01 Hoc
Subject: Re: Supplemental Information on Venting Rev 6

Ed: Not sure what happened with the attachments. But if you have the rev 6 document and the related concurrence list you have both intended attachments.

Subject of leakage and impact on H-2 issue is addressed indirectly in rev 6 but likely subject of additional discussion with nisa/tepco tomorrow. Recommendations from 3/31 are unchanged.

Sent from my NRC blackberry
Michael Scott
(b)(6) Ex 7 6

From: E.Bradley@iaea.org <E.Bradley@iaea.org>
To: Scott, Michael; J.Lyons@iaea.org <J.Lyons@iaea.org>
Cc: Casto, Chuck; N.Muroya@iaea.org <N.Muroya@iaea.org>; K.Yamada@iaea.org <K.Yamada@iaea.org>
Sent: Sun Apr 03 07:40:31 2011
Subject: RE: Supplemental Information on Venting Rev 6

Mike,

Would you also provide an E-copy of the Supplemental Information on Venting (Rev 6)? Chuck passed us hardcopies during our meeting earlier. Your Email below mentions 2 attachments, but I only received one.

I now have four documents
- Supplemental Information on Venting (Rev 6) - as mentioned above 4-2-2011
- Supplemental Information on Venting (Rev 6) - CONCURRENCE OFFICIALS 4-2-2011

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- RST Assessment of Fukushima Daiichi Units (Rev 1) 3-31-2011
- 31-March cover Email from RST08 Hoc to RST01 Hoc 3-31-2011

I would be very grateful to be added to the distribution for any revisions as they are made available.

A few questions for clarification:
Has the suspected Unit 1 primary containment leakage discussed today (Chuck to quantify) been factored into the assumptions and subsequent recommendations?
Would you confirm the recommendations for Unit 1 in the 31-March Email mentioned above remain unchanged?

Thanks,

- Ed

Ed Bradley
Nuclear Engineer
Division of Nuclear Fuel Cycle and Waste Technology
Department of Nuclear Energy
IAEA, Vienna Austria

+43 1 2600 22759

From: Michael.Scott@nrc.gov [mailto:Michael.Scott@nrc.gov]
Sent: Sunday, April 03, 2011 11:29 AM
To: LYONS, James E.; BRADLEY, Edward
Cc: Casto, Chuck
Subject: FW: Supplemental Information on Venting Rev 6

Provided at request of Chuck Casto, NRC Japan Team lead.

Mike Scott
NRC Japan Team

From: RST01 Hoc
Sent: Saturday, April 02, 2011 10:07 PM
To: Ali, Syed; Blamey, Alan; Casto, Chuck; Collins, Elmo; Emche, Danielle; Giessner, John; Jackson, Todd; Miller, Marie; Monninger, John; Scott, Michael; Sheikh, Abdul; Stahl, Eric; Taylor, Robert; Way, Ralph
Cc: RST09 Hoc; (b)(6) Bettis Contacts; (b)(6) '; RST08 Hoc; Caponiti DOE; (b)(6) (b)(6) GE Hitachi NucResponseTeam; (b)(6) INPO ERC; INPOERCTECH; (b)(6) Joel Pero (Bettis); Johne Kelly; '(b)(6) ; Lela Doyle (KAPL); Richard Stark; Rob Versluis; RST01B Hoc; RST03 Hoc; Sal Golub; (b)(6) ; '(b)(6) (b)(6) USNRC Team at USAID
Subject: Supplemental Information on Venting Rev 6

NRC Japan Team,

Please find attached the Supplemental Information on Venting, Rev 6 document, dated 4/2/11 @ 2200 EDT, for your use. The 2nd attachment is the list of concurring officials for the document.

Regards,

Brett Rini
RST Coordinator

This email message is intended only for the use of the named recipient. Information contained in this email message and its attachments may be privileged, confidential and protected from disclosure. If you are not the intended recipient, please do not read, copy, use or disclose this communication to others. Also please notify the sender by replying to this message and then delete it from your system.

Bano, Mahmooda

From: Scott, Michael
Sent: Sunday, April 03, 2011 8:16 AM
To: RST01 Hoc
Subject: Re: Supplemental Information on Venting Rev 6

If you want to resend 385 and the concurrence list to the iaea addresses just in case, that's great. I'm on bb so limited in ability to sort out who got what. Thanks.

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: RST01 Hoc
To: Scott, Michael
Sent: Sun Apr 03 08:12:13 2011
Subject: RE: Supplemental Information on Venting Rev 6

Mike – do you need the document to be re-sent to someone?

Rick Hasselberg
RST Coordinator

From: Scott, Michael
Sent: Sunday, April 03, 2011 8:09 AM
To: 'E.Bradley@iaea.org'; 'J.Lyons@iaea.org'
Cc: Casto, Chuck; 'N.Muroya@iaea.org'; 'K.Yamada@iaea.org'; RST01 Hoc
Subject: Re: Supplemental Information on Venting Rev 6

Ed: Not sure what happened with the attachments. But if you have the rev 6 document and the related concurrence list you have both intended attachments.

Subject of leakage and impact on H-2 issue is addressed indirectly in rev 6 but likely subject of additional discussion with nisa/tepco tomorrow. Recommendations from 3/31 are unchanged.

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: E.Bradley@iaea.org <E.Bradley@iaea.org>
To: Scott, Michael; J.Lyons@iaea.org <J.Lyons@iaea.org>
Cc: Casto, Chuck; N.Muroya@iaea.org <N.Muroya@iaea.org>; K.Yamada@iaea.org <K.Yamada@iaea.org>
Sent: Sun Apr 03 07:40:31 2011
Subject: RE: Supplemental Information on Venting Rev 6

Mike,

Would you also provide an E-copy of the Supplemental Information on Venting (Rev 6)? Chuck passed us hardcopies during our meeting earlier. Your Email below mentions 2 attachments, but I only received one.

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I now have four documents
- Supplemental Information on Venting (Rev 6) - as mentioned above 4-2-2011
- Supplemental Information on Venting (Rev 6) - CONCURRENCE OFFICIALS 4-2-2011
- RST Assessment of Fukushima Daiichi Units (Rev 1) 3-31-2011
- 31-March cover Email from RST08 Hoc to RST01 Hoc 3-31-2011

I would be very grateful to be added to the distribution for any revisions as they are made available.

A few questions for clarification:
Has the suspected Unit 1 primary containment leakage discussed today (Chuck to quantify) been factored into the assumptions and subsequent recommendations?
Would you confirm the recommendations for Unit 1 in the 31-March Email mentioned above remain unchanged?

Thanks,

- Ed

Ed Bradley
Nuclear Engineer
Division of Nuclear Fuel Cycle and Waste Technology
Department of Nuclear Energy
IAEA, Vienna Austria

+43 1 2600 22759

From: Michael.Scott@nrc.gov [mailto:Michael.Scott@nrc.gov]
Sent: Sunday, April 03, 2011 11:29 AM
To: LYONS, James E.; BRADLEY, Edward
Cc: Casto, Chuck
Subject: FW: Supplemental Information on Venting Rev 6

Provided at request of Chuck Casto, NRC Japan Team lead.

Mike Scott
NRC Japan Team

From: RST01 Hoc
Sent: Saturday, April 02, 2011 10:07 PM
To: Ali, Syed; Blamey, Alan; Casto, Chuck; Collins, Elmo; Emche, Danielle; Giessner, John; Jackson, Todd; Miller, Marie; Monninger, John; Scott, Michael; Sheikh, Abdul; Stahl, Eric; Taylor, Robert; Way, Ralph
Cc: RST09 Hoc; (b)(6); Bettis Contacts; (b)(6); RST08 Hoc; Caponiti DOE; (b)(6); (b)(6) GE Hitachi NucResponseTeam; (b)(6); INPO ERC; INPOERCTECH; (b)(6) Joel Pero (Bettis); Johne Kelly; (b)(6) ela Doyle (KAPL); Richard Stark; Rob Versluis; RST01B Hoc; RST03 Hoc; Sal Golub; (b)(6); (b)(6) USNRC Team at USAID
Subject: Supplemental Information on Venting Rev 6

NRC Japan Team,

Please find attached the Supplemental Information on Venting, Rev 6 document, dated 4/2/11 @ 2200 EDT, for your use. The 2nd attachment is the list of concurring officials for the document.

Regards,

Brett Rini
RST Coordinator

Lee, Richard

From: Lee, Richard
Sent: Saturday, April 02, 2011 8:37 AM
To: Salay, Michael
Subject: RE:

Thanks. Mike:
I just sent an e-mail to you from home.
Have a safe trip.
Richard

From: Salay, Michael
Sent: Friday, April 01, 2011 9:30 PM
To: Lee, Richard; Esmaili, Hossein
Subject:

Just turned on my blackberry - my phone number is (b)(6)

-Mike

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Lee, Richard

From: Lee, Richard
Sent: Monday, April 04, 2011 4:26 PM
To: Marksberry, Don
Subject: FW: plots

fyi

From: Michael Salay (b)(6)
Sent: Tuesday, March 29, 2011 6:43 PM
To: Lee, Richard
Cc: Esmaili, Hossein
Subject: plots

Someone has reconstructed plots from publicly available data

http://www.ic.unicamp.br/~stolfi/EXPORT/projects/fukushima/plots/v6/Main.html

They explain data sources a (b)(6) eir typed-in text data files.

-Mike

--
Michael Salay
(b)(6)
(b)(6) cell)

(b)(6)

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Bano, Mahmooda

From: Scott, Michael
Sent: Monday, April 04, 2011 6:05 PM
To: 'Jean.GAUVAIN@oecd.org'
Subject: RE: OECD/NEA - LOFC Project - Postponement of the first PRG-MB meeting that was planned next May

Dear Jean:

In general, I am available in the period you specify.

Regards,

Mike Scott

From: Jean.GAUVAIN@oecd.org [mailto:Jean.GAUVAIN@oecd.org]
Sent: Monday, April 04, 2011 7:28 AM
To: hans.gougar@inl.gov; pat@ujv.cz; bernnat@ike.uni-stuttgart.de; parisoffice@jaea.fr; stempniewicz@nrg.eu; kunitomi.kazuhiko@jaea.go.jp; (b)(6) tothi@aeki.kfki.hu; iyoku.tatsuo@jaea.go.jp; tachibana.yukio@jaea.go.jp; mhkim@kaeri.re.kr; olivier.baudrand@irsn.fr; mayer@aeki.kfki.hu; salih.guentay@psi.ch; whitea@aecl.ca; thorsten.fass@grs.de; fuketa.toyoshi@jaea.go.jp; jlcobos@iqn.upv.es; luisen.herranz@ciemat.es; dst@ujv.cz; heikki.suikkanen@lut.fi; Gibson, Kathy; Scott, Michael; junjisu@kaeri.re.kr; vanheek@nrg.eu; geoffrey.vaughan@hse.gsi.gov.uk; andreas.pautz@grs.de; len.creswell@hse.gsi.gov.uk; k401hcw@kins.re.kr; daniel.blanc@irsn.fr; u.rohde@fz-rossendorf.de; jean.gauvain@oecd.org; patrick.bringel@grs.de; michel.durin@cea.fr
Subject: OECD/NEA - LOFC Project - Postponement of the first PRG-MB meeting that was planned next May

Dear Colleagues,

Following the event last month in Japan, the 1st Meeting of the PRG & MB of LOFC Project that was convened on 11-12 May 2011 in Oarai (Agenda distributed on 4 March 2011) will be postponed after the summer 2011.
We will come back to you when we will have a better vision on the possibilities for the rescheduled meeting.

We are sorry for any inconvenient.
In the mean time, I would appreciate knowing unavailability's members for a meeting in September-October-November 2011.

Thank you for your cooperation.
Best Regards

Jean Gauvain - NEA/NSD - Phone +33 1 45 24 10 52 - Mobile (b)(6) Ex 7C

From: iyoku.tatsuo [mailto:iyoku.tatsuo@jaea.go.jp]
Sent: Monday, April 04, 2011 10:57
To: GAUVAIN Jean, NEA/SURN
Cc: REIG Javier, NEA/SURN; 國富様; 小川センター長; 沢GL; 新見部長; 西原課長; 高田課長代理; 平野センター長; FUKETA Toyoshi [Japan]; 坂場さん
Subject: Re: LOFC Project - organisation of the first PRG-MB meeting : postponement?

Dear Jean-san,

I would like to propose you to postpone the LOFT project meeting which was planned to be held in May. Because it doesn't see ahead, the meeting schedule is not decided now. Please let me consult with you separately about the meeting schedule later.

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Although we discussed inside JAEA to hold the project meeting in May, the planned tasks of JAEA after April was significantly changed in consequence of the Magnitude 9.0 quake. And the influence of the Fukushima No. 1 nuclear power plant is prospected a long term. JAEA Oarai also is expected to support Fukushima prefecture, and to cooperate radiation survey of agricultural and marine products for Ibaraki prefecture, which will be continued even in May.

It is necessary to check the structural integrity and performance of active equipments and core internal structures in HTTR still though big damage was not founded externally in the HTTR building and facility. It is planned to perform the confirmation test at cold condition (not power-up condition) in May.

I'm sorry for putting a large trouble on you and LOFC Project's participation organizations.
I hope that you will understand our situation.
Keep in touch.
Best Regards
Tatsuo Iyoku

Bano, Mahmooda

From: Scott, Michael
Sent: Monday, April 04, 2011 6:04 PM
To: Gibson, Kathy
Subject: FW: OECD/NEA - LOFC Project - Postponement of the first PRG-MB meeting that was planned next May

FYI. My Japan trip postponed, as suspected.

Mike

From: Jean.GAUVAIN@oecd.org [mailto:Jean.GAUVAIN@oecd.org]
Sent: Monday, April 04, 2011 7:28 AM
To: hans.gougar@inl.gov; pat@ujv.cz; bernnat@ike.uni-stuttgart.de; parisoffice@jaea.fr; stempniewicz@nrg.eu; kunitomi.kazuhiko@jaea.go.jp; juasueco@hotmail.com; tothi@aeki.kfki.hu; iyoku.tatsuo@jaea.go.jp; tachibana.yukio@jaea.go.jp; mhkim@kaeri.re.kr; olivier.baudrand@irsn.fr; mayer@aeki.kfki.hu; salih.guentay@psi.ch; whitea@aecl.ca; thorsten.fass@grs.de; fuketa.toyoshi@jaea.go.jp; jlcobos@iqn.upv.es; luisen.herranz@ciemat.es; dst@ujv.cz; heikki.suikkanen@lut.fi; Gibson, Kathy; Scott, Michael; junjisu@kaeri.re.kr; vanheek@nrg.eu; geoffrey.vaughan@hse.gsi.gov.uk; andreas.pautz@grs.de; len.creswell@hse.gsi.gov.uk; k401hcw@kins.re.kr; daniel.blanc@irsn.fr; u.rohde@fz-rossendorf.de; jean.gauvain@oecd.org; patrick.bringel@grs.de; michel.durin@cea.fr
Subject: OECD/NEA - LOFC Project - Postponement of the first PRG-MB meeting that was planned next May

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Best Regards

Jean Gauvain - NEA/NSD - Phone +33 1 45 24 10 52 - Mobile (b)(6) [redacted]

From: iyoku.tatsuo [mailto:iyoku.tatsuo@jaea.go.jp]
Sent: Monday, April 04, 2011 10:57
To: GAUVAIN Jean, NEA/SURN
Cc: REIG Javier, NEA/SURN; 國富様; 小川センター長; 沢GL; 新見部長; 西原課長; 高田課長代理; 平野センター長; FUKETA Toyoshi [Japan]; 坂場さん
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55\132

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I'm sorry for putting a large trouble on you and LOFC Project's participation organizations.
I hope that you will understand our situation.
Keep in touch.
Best Regards
Tatsuo Iyoku

Bano, Mahmooda

From: Scott, Michael
Sent: Tuesday, April 05, 2011 3:20 AM
To: Lee, Richard; Esmaili, Hossein; Salay, Michael; Schaperow, Jason; Tinkler, Charles; RST01 Hoc
Cc: Marksberry, Don; Helton, Donald; Gibson, Kathy
Subject: Re: N2 inerting of the Fukushima drywell

Latest estimate is start injecting wed pm or thu am japan time. Need to sort out procedure and training - evidently not planned for originally.

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: Lee, Richard
To: Esmaili, Hossein; Salay, Michael; Schaperow, Jason; Tinkler, Charles
Cc: Marksberry, Don; Helton, Donald; Gibson, Kathy; Scott, Michael
Sent: Mon Apr 04 13:03:41 2011
Subject: N2 inerting of the Fukushima drywell

This is to let you know that the N2 inerting system has been delivered to the Fukushima site, and that TEPCO will begin inerting the drywell of the Fukushima Unit 1 commencing Tuesday (Japanese time).

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Bano, Mahmooda

From: Scott, Michael
Sent: Tuesday, April 05, 2011 5:43 AM
To: Blamey, Alan; Collins, Elmo
Subject: From laura dudes

Laura warned me not to refer to GEH in meetings with Japanese - bad kimshe. Refer instead to consortium or inpo team.

Sent from my NRC blackberry
Michael Scott
(b)(6)

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Bano, Mahmooda

From: Scott, Michael
Sent: Tuesday, April 05, 2011 6:45 PM
To: Gilles, Nanette
Subject: RE: Congratulations

Yes – pretty amazing time. Once in a lifetime (I hope!).

From: Gilles, Nanette
Sent: Tuesday, April 05, 2011 4:18 PM
To: Scott, Michael
Subject: RE: Congratulations

Wow, didn't realize you were one of the ones in Japan. Bet you'll have some stories to tell at the next happy hour!!

From: Scott, Michael
Sent: Tuesday, April 05, 2011 3:30 AM
To: Gilles, Nanette
Subject: Re: Congratulations

Thanks Nan. Best of luck as TA. I've been in Japan but planning to fly back tomorrow.

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: Gilles, Nanette
To: Scott, Michael
Sent: Mon Apr 04 10:53:26 2011
Subject: Congratulations

. . on the new SES gig! Hope you're still enjoying RES.

(b)(6)

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Bano, Mahmooda

From: Scott, Michael
Sent: Tuesday, April 05, 2011 10:49 PM
To: Taylor, Robert
Subject: Fyi - travel from japan

Pls pass on as you see fit. United counter at Narita opens 1230; no point showing up before then. Bus ride takes about 80 minutes.

Sent from my NRC blackberry
Michael Scott
(b)(6)

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Bano, Mahmooda

From: Scott, Michael
Sent: Tuesday, April 05, 2011 3:08 AM
To: Ruland, William
Subject: Fw: Stopping the Leak at Fukushima

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: Collins, Elmo
To: Scott, Michael
Sent: Mon Apr 04 23:51:56 2011
Subject: Fw: Stopping the Leak at Fukushima

From: Virgilio, Martin
To: Collins, Elmo; Casto, Chuck; Carpenter, Cynthia; Johnson, Michael
Sent: Mon Apr 04 21:34:06 2011
Subject: Fw: Stopping the Leak at Fukushima

Chuck/Elmo

FYI

From: Zigler, Gilbert <gzigler@alionscience.com>
To: Virgilio, Martin
Sent: Mon Apr 04 19:03:30 2011
Subject: Stopping the Leak at Fukushima

Marty:

The leak at Fukushima can be easily stopped using lessons learned during GSI-191 head loss testing. A combination of fibers and Min-K will stop any leak. The fibers MUST be prepared correctly so they will not easily settle by gravitational forces. Correctly prepared fibers introduced into the tank where the leak is suspected will eventually migrate to the leak and start bridging the leak. After some time then it is time to introduce Min-K, again correctly prepared to minimize settling by gravitational forces. Once the Min-K reaches the leak, now bridged by the fibers, the Min-K will form an essentially impervious barrier which will block leakage. I have conducted head loss tests where the combination of fiber + Min-K resulted in head losses greater than 15 ft water that had minimum decrease in water level when left overnight.

Simply throwing stuff in the tank hoping for blocking the leak will result in settling at the bottom of the tank without getting to the leak,

Gilbert Zigler
Senior Scientist/Engineer
Alion Science and Technology

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6200 Uptown Blvd NE, Suite 120
Albuquerque, NM 87110

Phone:
Albuquerque: (505) 872-1089 ext 126
Colorado: (970) 882-8066
Mobile: (b)(6)

From: Zigler, Gilbert
Sent: Monday, March 28, 2011 11:45 AM
To: 'Virgilio, Martin'
Subject: Alion Technical Support

Marty:

It is incredible that the Fukushima accident is still evolving. Please note that Alion continues to stand ready to offer for pro-bono technical support. Please let us know how we can be of assistance.

Cordially,

Gilbert Zigler
Senior Scientist/Engineer
Alion Science and Technology
6200 Uptown Blvd NE, Suite 120
Albuquerque, NM 87110

Phone:
Albuquerque: (505) 872-1089 ext 126
Colorado: (970) 882-8066
Mobile: (b)(6)

From: Zigler, Gilbert
Sent: Thursday, March 17, 2011 11:22 AM
To: 'Virgilio, Martin'
Subject: RE: Message

Marty:

Thanks for taking the time to respond. I would like to inform you that Bahman Atefi, Alion's Chairman & CEO, stands ready to provide pro-bono technical support (including travel to Japan) to support the request by the Japanese government for technical assistance concerning the Fukushima accident. Alion has personnel who are very experienced in the ECCS performance analysis of BWRs as well as post-accident analysis. I was personally involved in the TMI accident—arriving on-site 16 hours after the reactor scram to establish reactor vessel water level monitoring—and became very familiar with plant responses to upset conditions. Over the last 6 years I have also had significant interactions and performed multiple ECCS system analyses for TEPCO, and could facilitate obtaining additional sources of information. Dr. Peter Mast was a consultant to the Kemeny

Commission Technical Task Force that investigated the TMI accident and co-authored a report at Los Alamos to provide an early estimate of fuel damage in the plant. Steve Unikewicz just recently left the NRC and was a qualified member of the Incident Response Team as well as a Reactor Safety Team counterpart to the Protective Measure Team, Red Team. Previous to his work at NRC, Steve was a severe accident team lead at Millstone 1. Alion has been actively engaged in CFD modeling of post-accident reactor vessel thermal hydraulics by virtue of performing ECCS analysis for both PWRs and BWRs. I would suggest that Alion could provide in-depth technical support in documenting and understanding the accident progression at each of the Fukushima Daiichi plants.

Please let me know who I should contact either within the NRC or the US Agency for International Development to integrate Alion into the US team supporting the Fukushima accident response. We would like to be of assistance, and your help in facilitating our involvement would be greatly appreciated.

Gilbert Zigler
Senior Scientist/Engineer
Alion Science and Technology
6200 Uptown Blvd NE, Suite 120
Albuquerque, NM 87110

Phone:
Albuquerque: (505) 872-1089 ext 126
Colorado: (970) 882-8066
Mobile: (b)(6)

From: Virgilio, Martin [mailto:Martin.Virgilio@nrc.gov]
Sent: Wednesday, March 16, 2011 10:28 PM
To: Zigler, Gilbert
Subject: Message

Hi Gil

I understand that you have been trying to get in touch. I have been working night shift this week in support of our team in Japan. Is theer something we can discuss by e mail.

Marty

Lee, Richard

From: Lee, Richard
Sent: Tuesday, April 05, 2011 12:26 AM
To: akihide.hidaka@cao.go.jp
Cc: Salay, Michael
Subject: Mike Salay in Tokyo

Dear Akihide:

Mike Salay was dispatched by NRC to the U.S. Embassy in Tokyo. He arrived on Sunday. He is staying at (b)(6)

Hotel Info: (b)(6)
(b)(6) His cell phone is: (b)(6)

If you have a chance, please contact him to exchange notes. Perhaps, you both can get together sometime during his stay. He is scheduled to return to U.S. on April 18th. Randy Gauntt is also in Tokyo staying at the same hotel.

Best regards,
Richard

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Bano, Mahmooda

From: Scott, Michael
Sent: Wednesday, April 06, 2011 4:41 PM
To: 'Steve.LeRoy@duke-energy.com'
Subject: Re: High-resolution Fukushima photos

Thanks. I've seen a bunch. Just landed at Dulles after 14 days working that issue.

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: Le Roy, Steve <Steve.LeRoy@duke-energy.com>
To: Cheryl Le Roy <quinnleroy@comporium.net>
Sent: Wed Apr 06 08:57:58 2011
Subject: FW: High-resolution Fukushima photos

Thought you might be interested in these pictures

http://cryptome.org/eyeball/daiichi-npp/daiichi-photos.htm

Best Regards,

Steve Le Roy
Project Director
Boiler Island
Cliffside Modernization Project

828-657-2014 (O)
(b)(6) (M) Ex 6

Duke Energy

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CRYPTOME

Donate for the Cryptome collection of files from June 1996 to the present

Donate

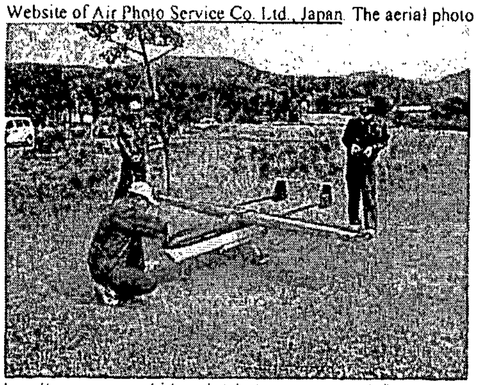
Please do not link these photos to blogs and bulletin boards due to huge bandwidth wastage of many repetitive accesses. Link to the file not the photos. Thanks.

9 April 2011. Also: **Nuclear Power Plants and Weapons Series**:

http://cryptome.org/nppw-series.htm

2 April 2011. Add top photo dated 24 March 2011, half-size here and full-size in the Zip of 11 originals.

Website of Air Photo Service Co. Ltd., Japan. The aerial photo drone:



http://www.yamazaki-k.co.jp/airphoto/sinmoe1.JPG

1 April 2011. A2 sends: High quality, detailed video of the plant shot on 24 March 2011: http://www.youtube.com/watch?v=M22Gt4sswEA

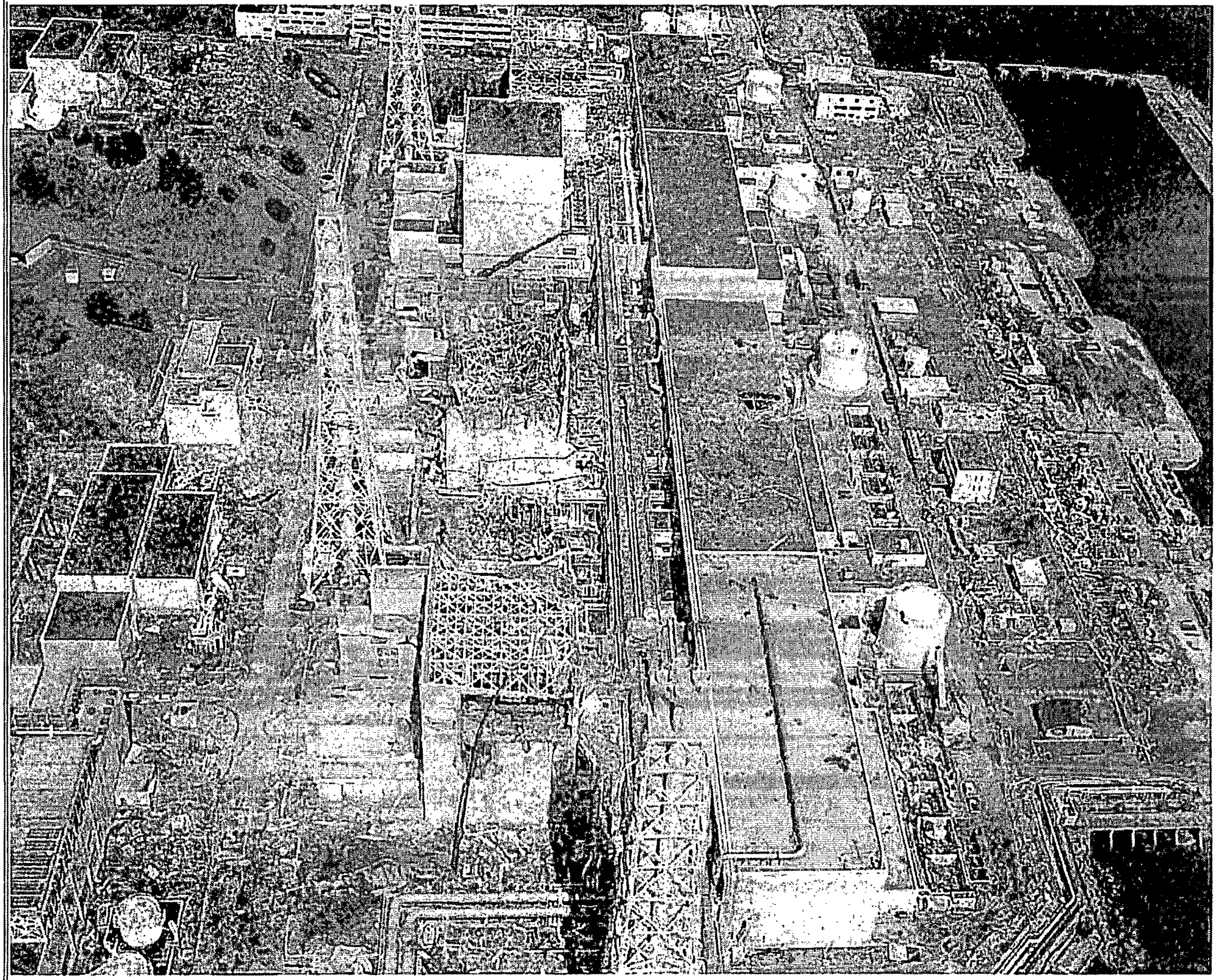
31 March 2011. A sends.

Fukushima Daiichi Nuclear Plant Hi-Res Photos

Fukushima Daiichi Nuclear Plant Hi-Res Photos

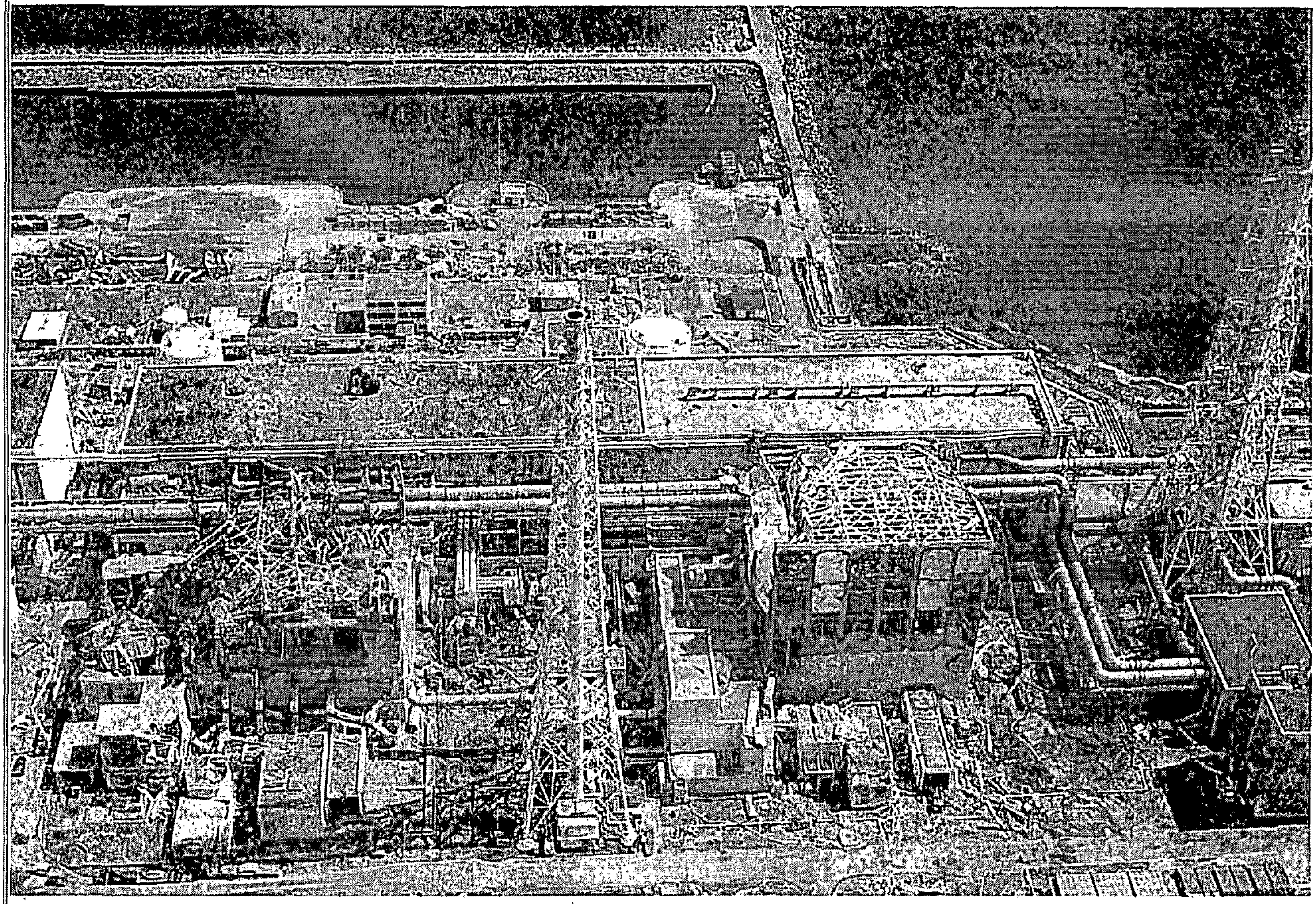
Photos shown are half-size of the originals. The 11 originals full-size: http://cryptome.org/eyeball/daiichi-npp/daiichi-photos.zip (5MB)
Dates of photos taken from the EXIF data of the originals, supported by captions and credits later obtained from the Web.

24 March 2011 (Added 2 April 2011) Compare to view on 20 March 2011.



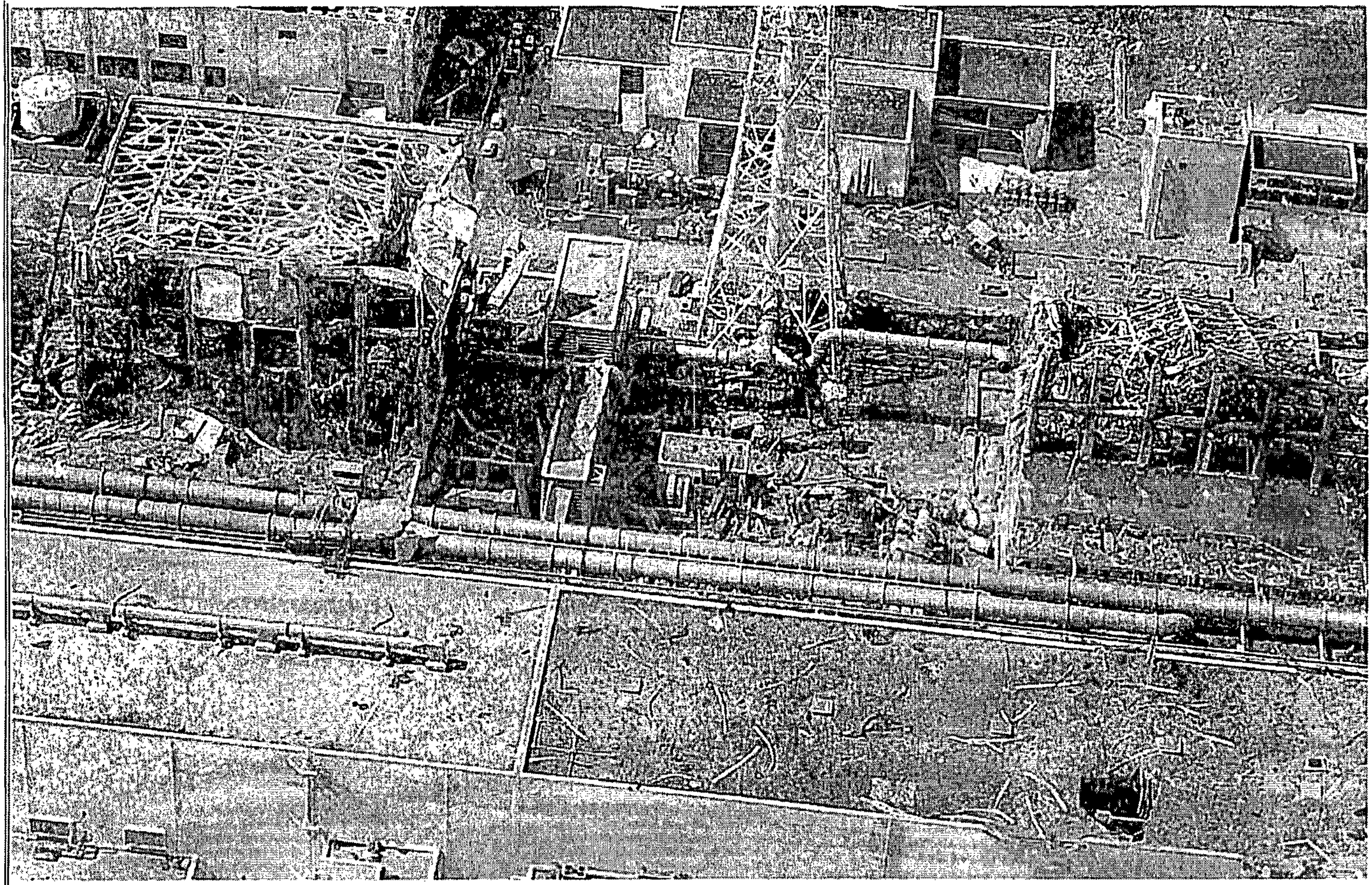
In this March 24, 2011 aerial photo taken by small unmanned drone and released by AIR PHOTO SERVICE, the crippled Fukushima Dai-ichi nuclear power plant is seen in Okumamachi, Fukushim
top to bottom, Unit 1 through Unit 4.(Air Photo Service Co. Ltd., Japan)

24 March 2011



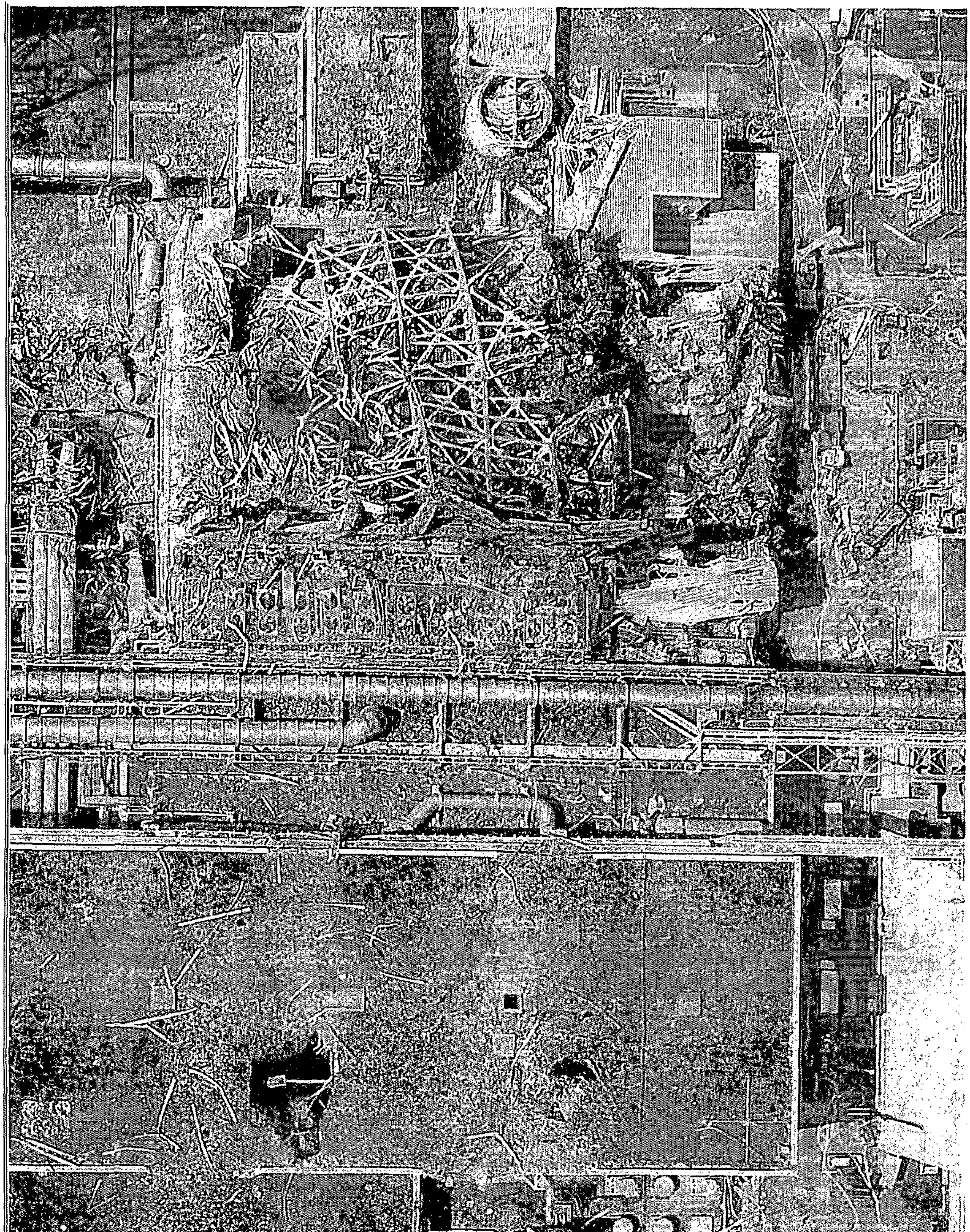
In this March 24, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE, damaged Unit 3, left, and Unit 4 of the crippled Fukushima Dai-ichi nuclear power pla
Fukushima prefecture, northern Japan. (Air Photo Service Co. Ltd., Japan)

24 March 2011



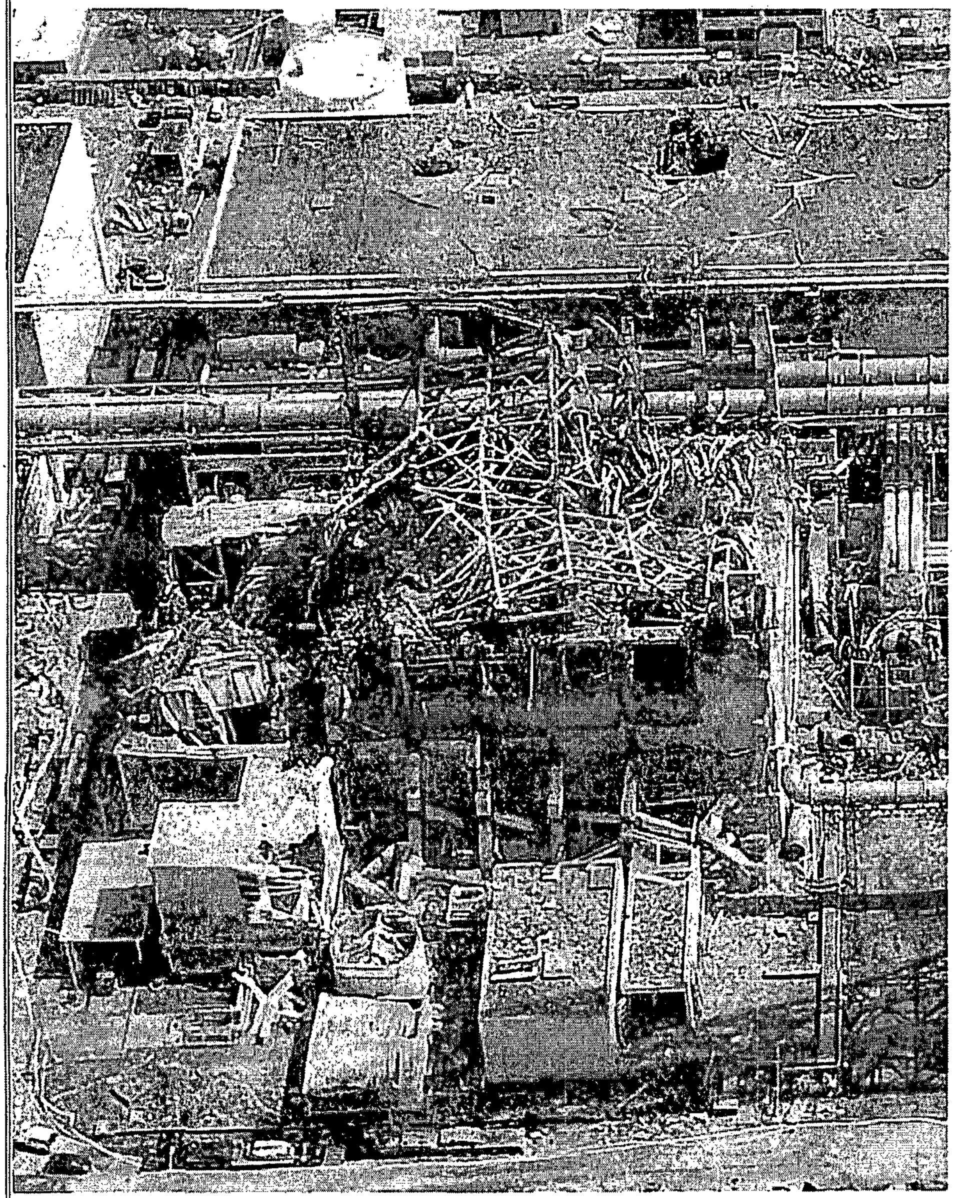
In this March 24, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE, Unit 4, left, and Unit 3 of the crippled Fukushima Dai-ichi nuclear power plant are see
prefecture, northern Japan. (Air Photo Service Co. Ltd., Japan)

24 March 2011



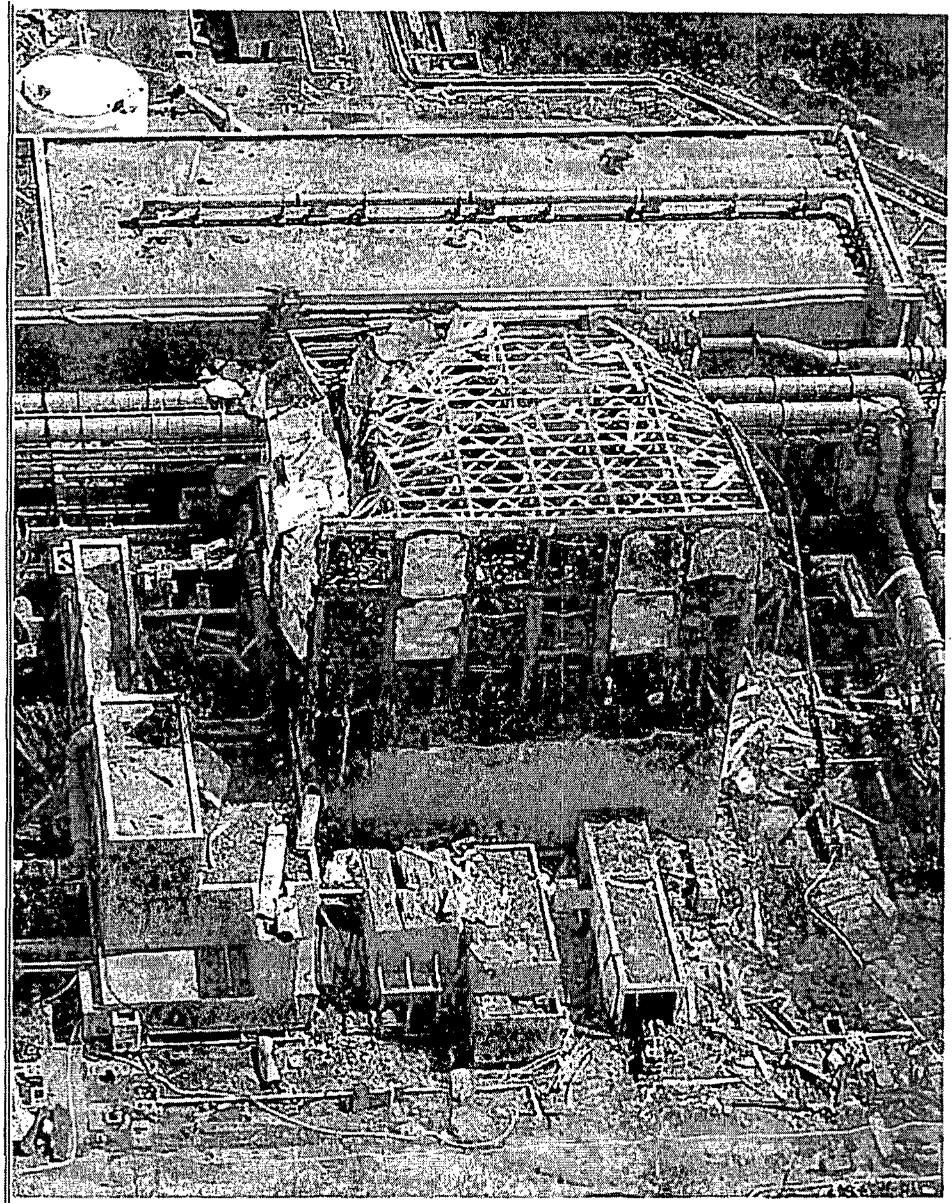
In this March 24, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE, damaged Unit 3 of the crippled Fukushima Dai-ichi nuclear power plant is seen in Oku northern Japan. (Air Photo Service Co. Ltd., Japan)

24 March 2011



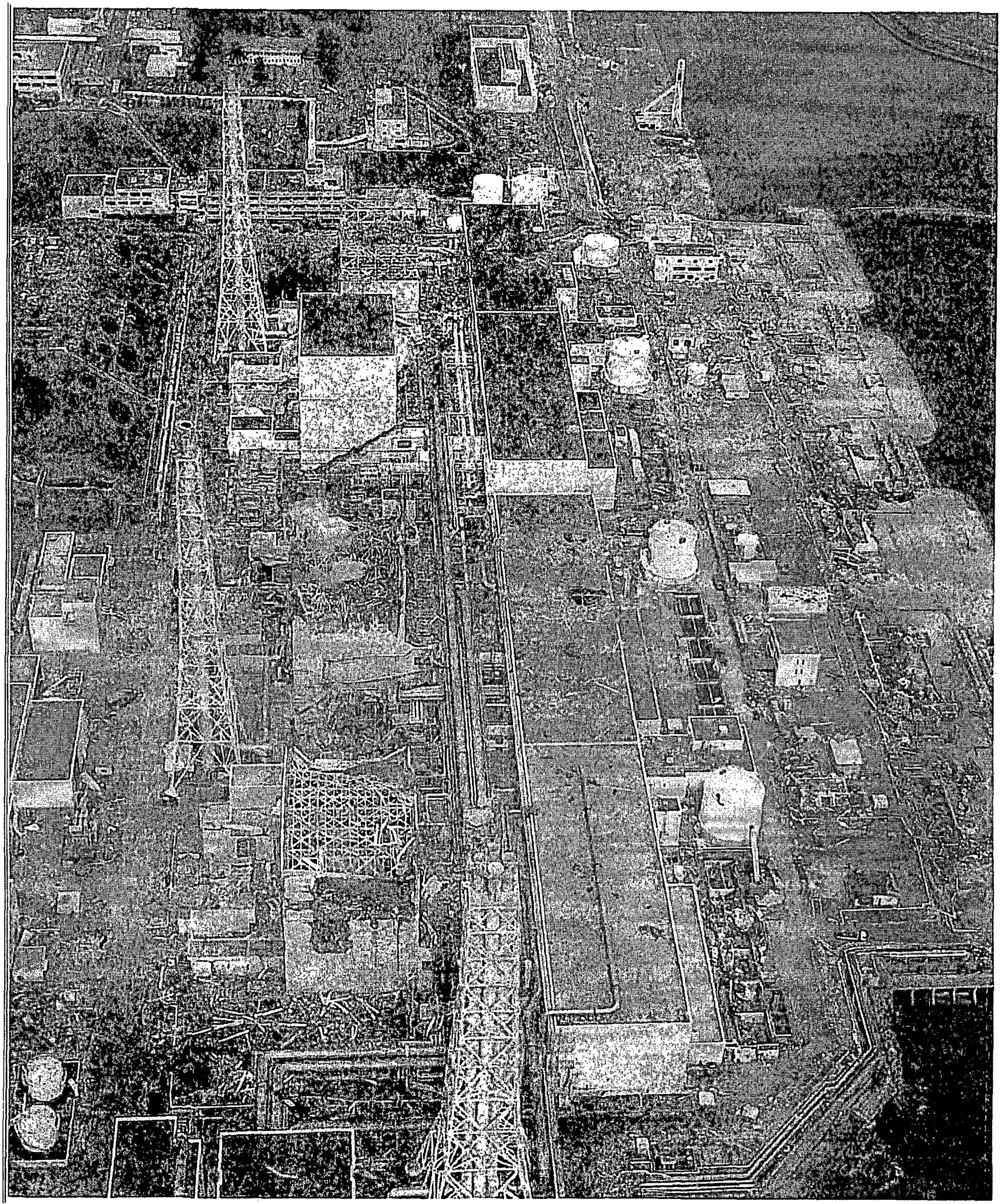
This March 24, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE shows damaged Unit 3 of the crippled Fukushima Dai-ichi nuclear power plant in Okuma northeastern Japan. (Air Photo Service Co. Ltd., Japan)

24 March 2011



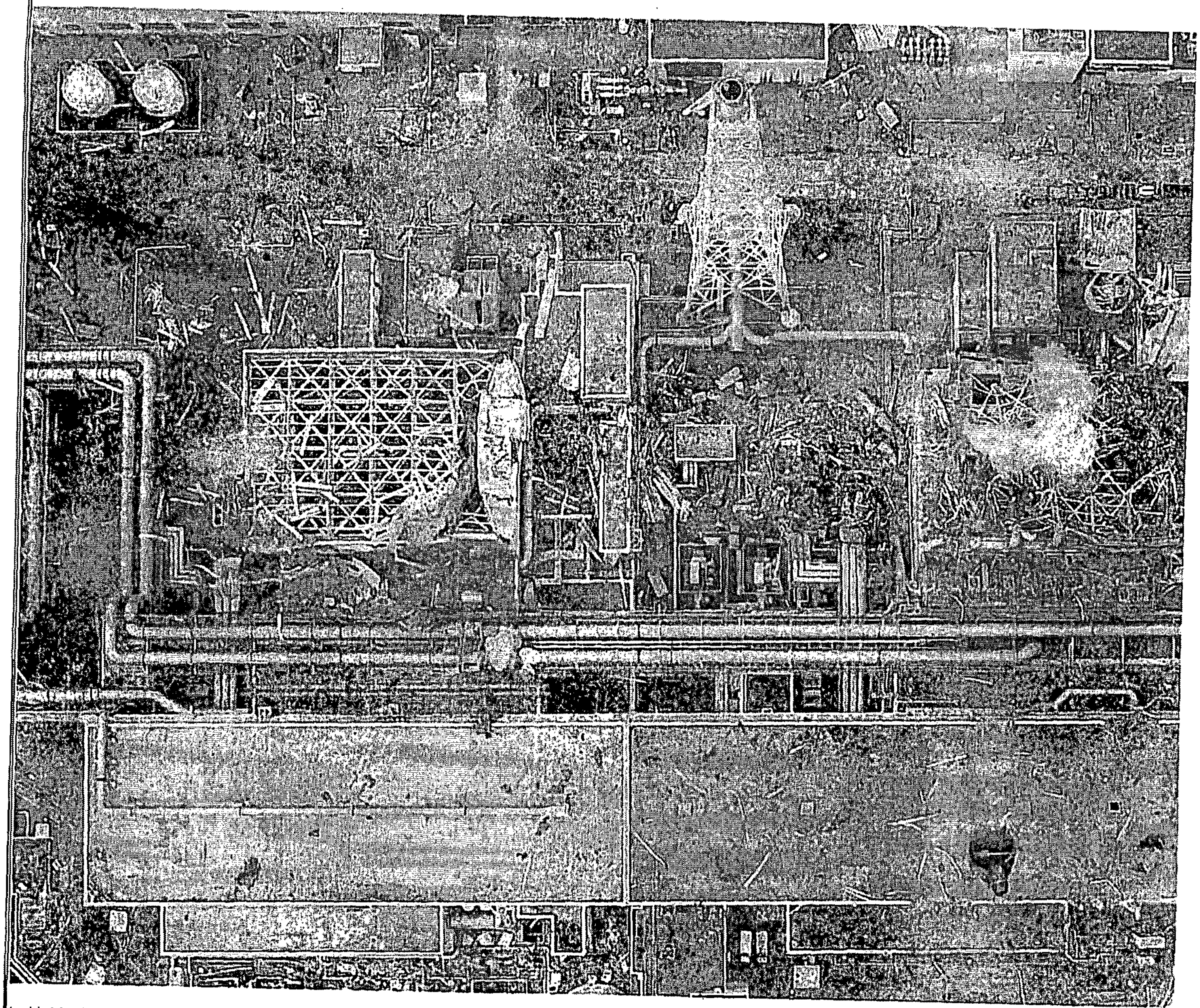
This March 24, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE shows damaged Unit 4 of the crippled Fukushima Dai-ichi nuclear power plant in Okumi northern Japan. (Air Photo Service Co. Ltd., Japan)

20 March 2011



In this March 20, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE, the crippled Fukushima Dai-ichi nuclear power plant is seen in Okumamachi, Fukushi
top to bottom: Unit 1, Unit 2, Unit 3 and Unit 4. (Air Photo Service Co. Ltd., Japan)

20 March 2011



In this March 20, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE, damaged Unit 4, left, and Unit 3 of the crippled Fukushima Dai-ichi nuclear power pla
Fukushima prefecture, northern Japan. (Air Photo Service Co. Ltd., Japan)

20 March 2011

Bano, Mahmooda

From: Scott, Michael
Sent: Wednesday, April 06, 2011 12:31 AM
To: Taylor, Robert
Subject: Re: NYT story on NRC "confidential assessment" of Fukushima

Had Nei heard about this at the 11?

Sent from my NRC blackberry
Michael Scott
(b)(6) [redacted] Ex 6

From: Taylor, Robert
To: Scott, Michael
Sent: Wed Apr 06 00:23:42 2011
Subject: FW: NYT story on NRC "confidential assessment" of Fukushima

Looks like communications are about to go in the toilet anyway.

From: Stahl, Eric
Sent: Wednesday, April 06, 2011 12:08 AM
To: Casto, Chuck; Collins, Elmo
Cc: Harrington, Holly; Emche, Danielle; Doane, Margaret
Subject: FW: NYT story on NRC "confidential assessment" of Fukushima
Importance: High

FYI, in case you haven't already seen this...

From: Morimura, Stephanie (TDY/PAS) [mailto:TDYMorimuraS@state.gov]
Sent: Tuesday, April 05, 2011 11:58 PM
To: Stahl, Eric; giulia.bisconti@hq.doe.gov
Cc: Quade, Christopher P; Largent, Dale A; Hoffmann, Phillip P
Subject: FW: NYT story on NRC "confidential assessment" of Fukushima
Importance: High

What's your take?

This email is UNCLASSIFIED.

From: Quade, Christopher P
Sent: Wednesday, April 06, 2011 11:48 AM
To: Zumwalt, James P; Hoffmann, Phillip P; Largent, Dale A; Phillips, Leslie M; Morimura, Stephanie (TDY/PAS); Basalla, Suzanne I; Fuller, Matthew G
Subject: NYT story on NRC "confidential assessment" of Fukushima
Importance: High

Not necessarily what we needed at this point...

55\140

April 5, 2011

U.S. Sees Array of New Threats at Japan's Nuclear Plant

By JAMES GLANZ and WILLIAM J. BROAD

United States government engineers sent to help with the crisis in Japan are warning that the troubled nuclear plant there is facing a wide array of fresh threats that could persist indefinitely, and that in some cases are expected to increase as a result of the very measures being taken to keep the plant stable, according to a confidential assessment prepared by the Nuclear Regulatory Commission.

Among the new threats that were cited in the assessment, dated March 26, are the mounting stresses placed on the containment structures as they fill with radioactive cooling water, making them more vulnerable to rupture in one of the aftershocks rattling the site after the earthquake and tsunami of March 11. The document also cites the possibility of explosions inside the containment structures due to the release of hydrogen and oxygen from seawater pumped into the reactors, and offers new details on how semimolten fuel rods and salt buildup are impeding the flow of fresh water meant to cool the nuclear cores.

In recent days, workers have grappled with several side effects of the emergency measures taken to keep nuclear fuel at the plant from overheating, including leaks of radioactive water at the site and radiation burns to workers who step into the water. The assessment, as well as interviews with officials familiar with it, points to a new panoply of complex challenges that water creates for the safety of workers and the recovery and long-term stability of the reactors.

While the assessment does not speculate on the likelihood of new explosions or damage from an aftershock, either could lead to a breach of the containment structures in one or more of the crippled reactors, the last barriers that prevent a much more serious release of radiation from the nuclear core. If the fuel continues to heat and melt because of ineffective cooling, some nuclear experts say, that could also leave a radioactive mass that could stay molten for an extended period.

The document, which was obtained by The New York Times, provides a more detailed technical assessment than Japanese officials have provided of the conundrum facing the Japanese as they struggle to prevent more fuel melting at the Fukushima Daiichi plant. But it appears to rely largely on data shared with American experts by the Japanese.

Among other problems, the document raises new questions about whether pouring water on nuclear fuel in the absence of functioning cooling systems can be sustained indefinitely. Experts have said the Japanese need to continue to keep the fuel cool for many months until the plant can be stabilized, but there is growing awareness that the risks of pumping water on the fuel present a whole new category of challenges that the nuclear industry is only beginning to comprehend.

The document also suggests that fragments or particles of nuclear fuel from spent fuel pools above the reactors were blown "up to one mile from the units," and that pieces of highly radioactive material fell between two units and had to be "bulldozed over," presumably to protect workers at the site. The ejection of nuclear material, which may have occurred during one of the earlier hydrogen explosions, may indicate more extensive damage to the extremely radioactive pools than previously disclosed.

David A. Lochbaum, a nuclear engineer who worked on the kinds of General Electric reactors used in Japan and now directs the nuclear safety project at the Union of Concerned Scientists, said that the welter of problems revealed in the document at three separate reactors made a successful outcome even more uncertain.

"I thought they were, not out of the woods, but at least at the edge of the woods," said Mr. Lochbaum, who was not involved in preparing the document. "This paints a very different picture, and suggests that things are a lot worse. They could still have more damage in a big way if some of these things don't work out for them."

The steps recommended by the nuclear commission include injecting nitrogen, an inert gas, into the containment structures in an attempt to purge them of hydrogen and oxygen, which could combine to produce explosions. The document also recommends that engineers continue adding boron to cooling water to help prevent the cores from restarting the nuclear reaction, a process known as criticality.

Even so, the engineers who prepared the document do not believe that a resumption of criticality is an immediate likelihood, Neil Wilmshurst, vice president of the nuclear sector at the Electric Power Research Institute, said when contacted about the document. "I have seen no data to suggest that there is criticality ongoing," said Mr. Wilmshurst, who was involved in the assessment.

The document was prepared for the commission's Reactor Safety Team, which is assisting the Japanese government and the Tokyo Electric Power Company, which owns the plant. It says it is based on the "most recent available data" from numerous Japanese and American organizations, including the electric power company, the Japan Atomic Industrial Forum, the United States Department of Energy, General Electric and the Electric Power Research Institute, an industry group.

The document contains detailed assessments of each of the plant's six reactors along with recommendations for action. Nuclear experts familiar with the assessment said that it was regularly updated but that over all, the March 26 version closely reflected current thinking.

The assessment provides graphic new detail on the conditions of the damaged cores in reactors 1, 2 and 3. Because slumping fuel and salt from seawater that had been used as a coolant is probably blocking circulation pathways, the water flow in No. 1 "is severely restricted and likely blocked." Inside the core itself, "there is likely no water level," the assessment says, adding that as a result, "it is difficult to determine how much cooling is getting to the fuel." Similar problems exist in No. 2 and No. 3, although the blockage is probably less severe, the assessment says.

Some of the salt may have been washed away in the past week with the switch from seawater to fresh water cooling, nuclear experts said.

A rise in the water level of the containment structures has often been depicted as a possible way to immerse and cool the fuel. The assessment, however, warns that "when flooding containment, consider the implications of water weight on seismic capability of containment."

Experts in nuclear plant design say that this warning refers to the enormous stress put on the containment structures by the rising water. The more water in the structures, the more easily a large aftershock could rupture one of them.

Margaret Harding, a former reactor designer for General Electric, warned of aftershocks and said, "If I were in the Japanese's shoes, I'd be very reluctant to have tons and tons of water sitting in a containment whose structural integrity hasn't been checked since the earthquake."

The N.R.C. document also expressed concern about the potential for a "hazardous atmosphere" in the concrete-and-steel containment structures because of the release of hydrogen and oxygen from the seawater in a highly radioactive environment.

Hydrogen explosions in the first few days of the disaster heavily damaged several reactor buildings and in one case may have damaged a containment structure. That hydrogen was produced by a mechanism involving the metal cladding of the nuclear fuel. The document urged that Japanese operators restore the ability to purge the structures of these gases and fill them with stable nitrogen gas, a capability lost after the quake and tsunami.

Nuclear experts say that radiation from the core of a reactor can split water molecules in two, releasing hydrogen. Mr. Wilmshurst said that since the March 26 document, engineers had calculated that the amount of hydrogen produced would be small. But Jay A. LaVerne, a physicist at Notre Dame, said that at least near the fuel rods, some hydrogen would in fact be produced, and could react with oxygen. "If so," Mr. LaVerne said in an interview, "you have an explosive mixture being formed near the fuel rods."

Nuclear engineers have warned in recent days that the pools outside the containment buildings that hold spent fuel rods could pose an even greater danger than the melted reactor cores. The pools, which sit atop the reactor buildings and are meant to keep spent fuel submerged in water, have lost their cooling systems.

The N.R.C. report suggests that the fuel pool of the No. 4 reactor suffered a hydrogen explosion early in the Japanese crisis and could have shed much radioactive material into the environment, what it calls "a major source term release."

Experts worry about the fuel pools because explosions have torn away their roofs and exposed their radioactive contents. By contrast, reactors have strong containment vessels that stand a better chance of bottling up radiation from a meltdown of the fuel in the reactor core.

"Even the best juggler in the world can get too many balls up in the air," Mr. Lochbaum said of the multiplicity of problems at the plant. "They've got a lot of nasty things to negotiate in the future, and one missed step could make the situation much, much worse."

Henry Fountain contributed reporting from New York, and Matthew L. Wald from Washington.

This email is UNCLASSIFIED.

Bano, Mahmooda

From: Le Roy, Steve [Steve.LeRoy@duke-energy.com]
Sent: Wednesday, April 06, 2011 8:58 AM
To: Cheryl Le Roy
Subject: FW: High-resolution Fukushima photos
Attachments: image001.png

Thought you might be interested in these pictures

http://cryptome.org/eyeball/daiichi-npp/daiichi-photos.htm

Best Regards,

Steve Le Roy
Project Director
Boiler Island
Cliffside Modernization Project

828-657-2014 (O)
(b)(6) (M) Ex 6

Duke Energy

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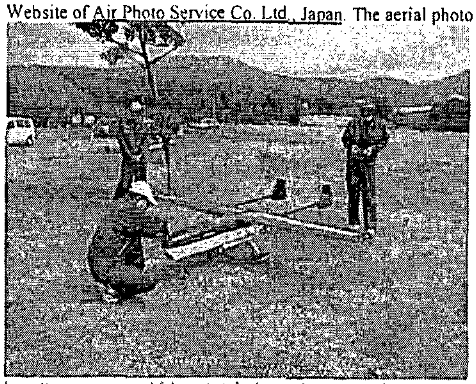
Please do not link these photos to blogs and bulletin boards due to huge bandwidth wastage of many repetitive accesses. Link to the file not the photos. Thanks.

9 April 2011. Also: **Nuclear Power Plants and Weapons Series**:

http://cryptome.org/nppw-series.htm

2 April 2011. Add top photo dated 24 March 2011, half-size here and full-size in the Zip of 11 originals.

Website of Air Photo Service Co. Ltd., Japan. The aerial photo drone:



http://www.yamazaki-k.co.jp/airphoto/sinmoe1.JPG

1 April 2011. A2 sends: High quality, detailed video of the plant shot on 24 March 2011: http://www.youtube.com/watch?v=M22Gt4sswEA

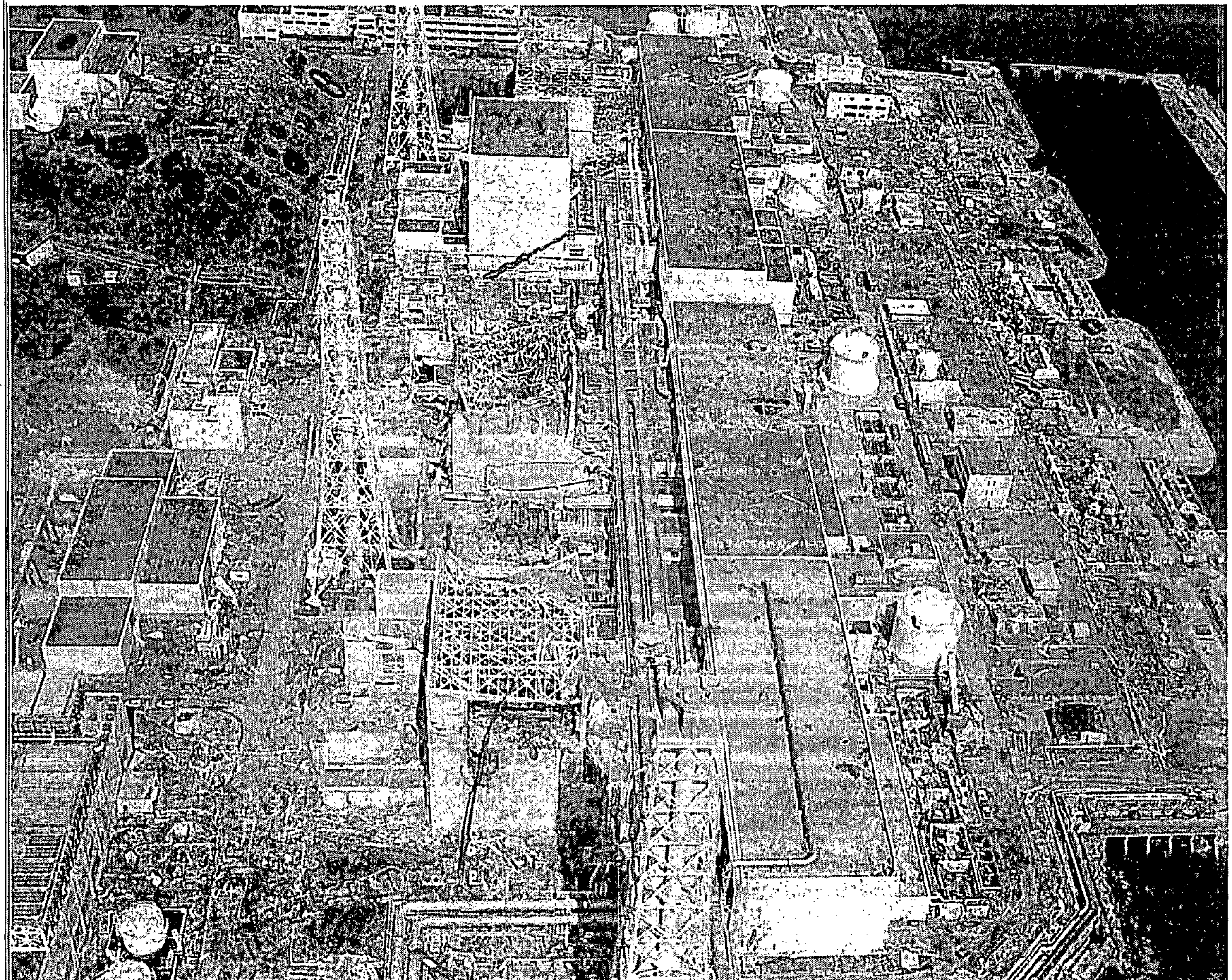
31 March 2011. A sends.

Fukushima Daiichi Nuclear Plant Hi-Res Photos

Fukushima Daiichi Nuclear Plant Hi-Res Photos

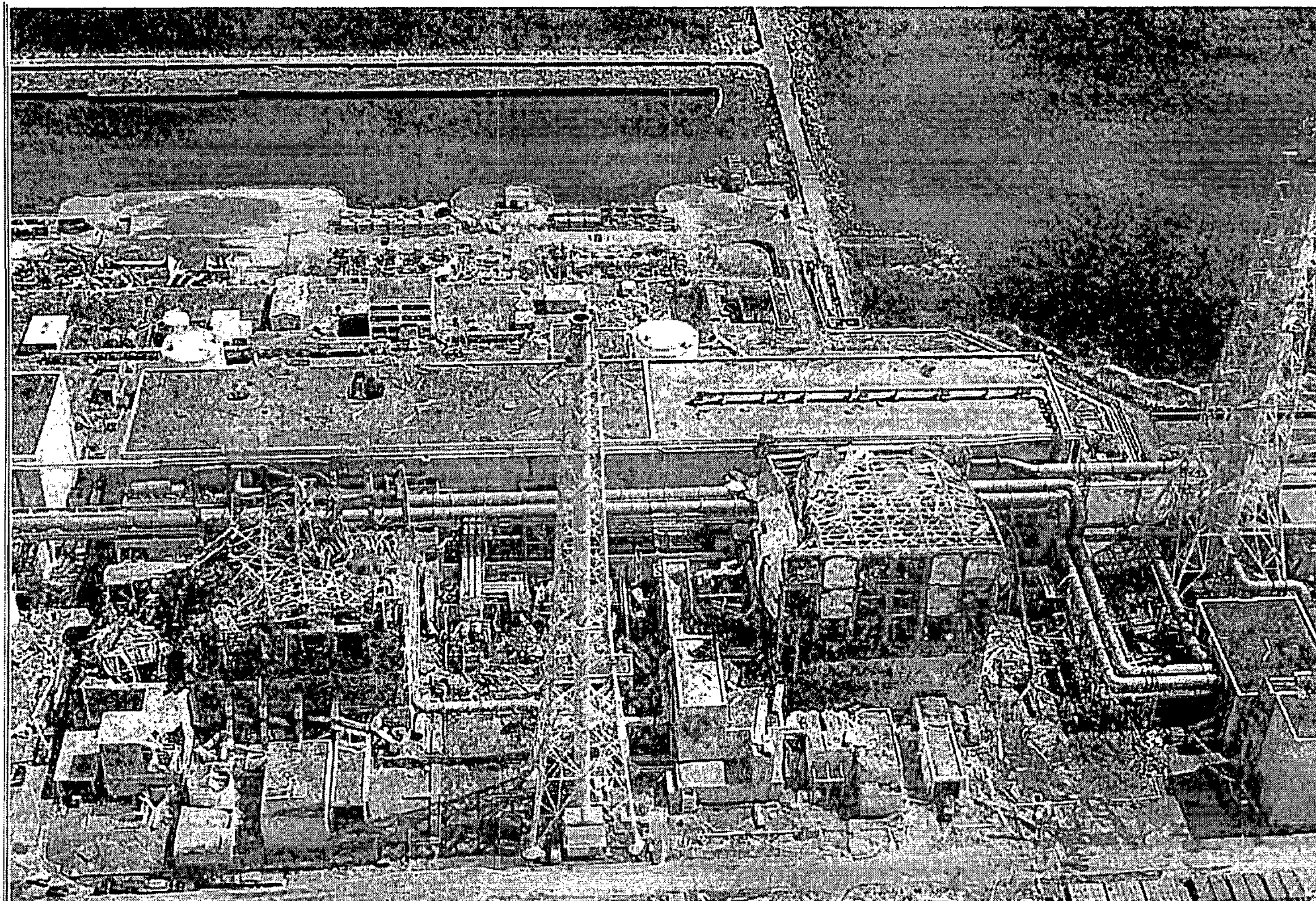
Photos shown are half-size of the originals. The 11 originals full-size: http://cryptome.org/eyeball/daiichi-npp/daiichi-photos.zip (5MB)
Dates of photos taken from the EXIF data of the originals, supported by captions and credits later obtained from the Web.

24 March 2011 (Added 2 April 2011) Compare to view on 20 March 2011.



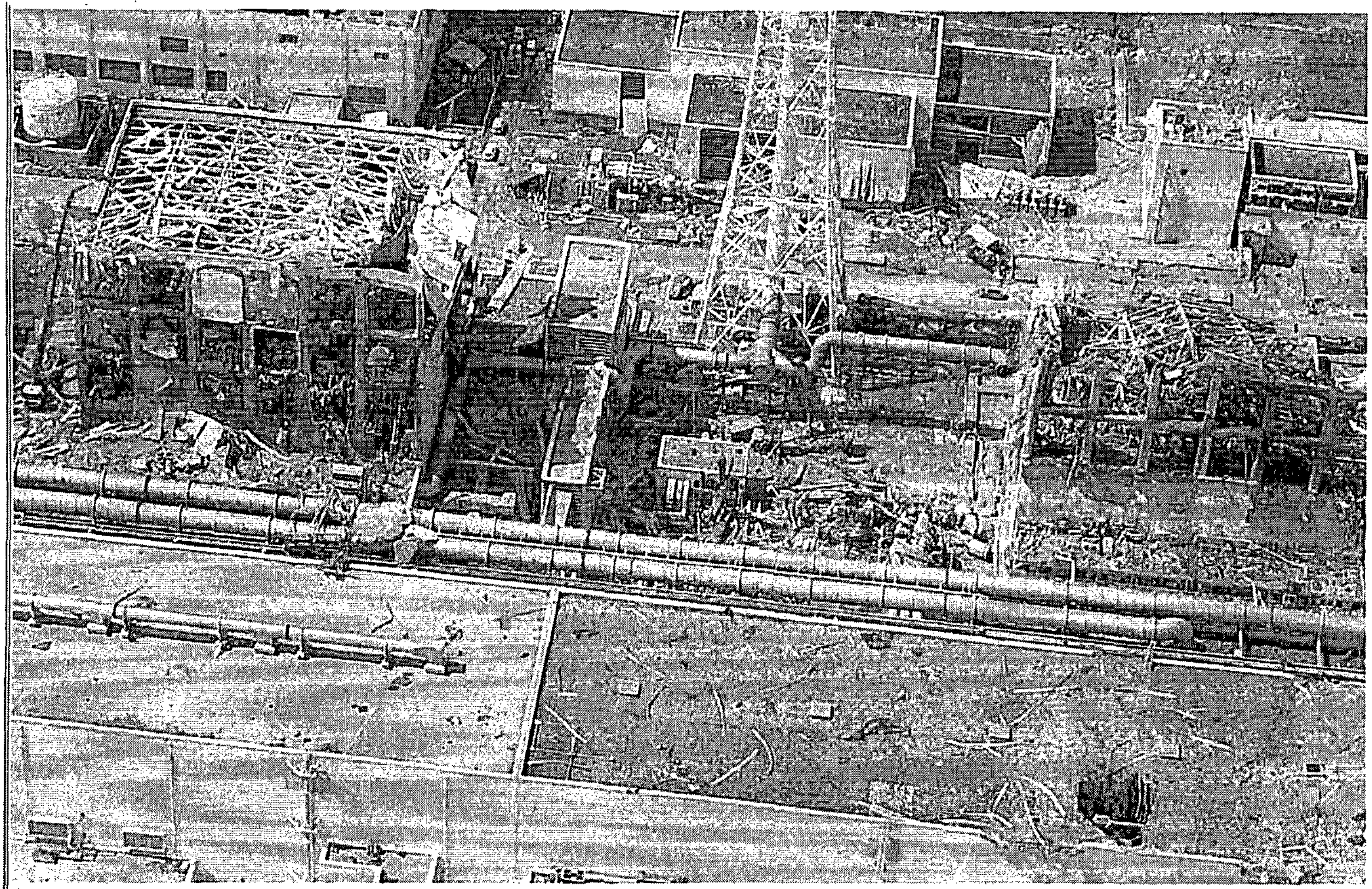
In this March 24, 2011 aerial photo taken by small unmanned drone and released by AIR PHOTO SERVICE, the crippled Fukushima Dai-ichi nuclear power plant is seen in Okumamachi, Fukushim top to bottom, Unit 1 through Unit 4.(Air Photo Service Co. Ltd., Japan)

24 March 2011



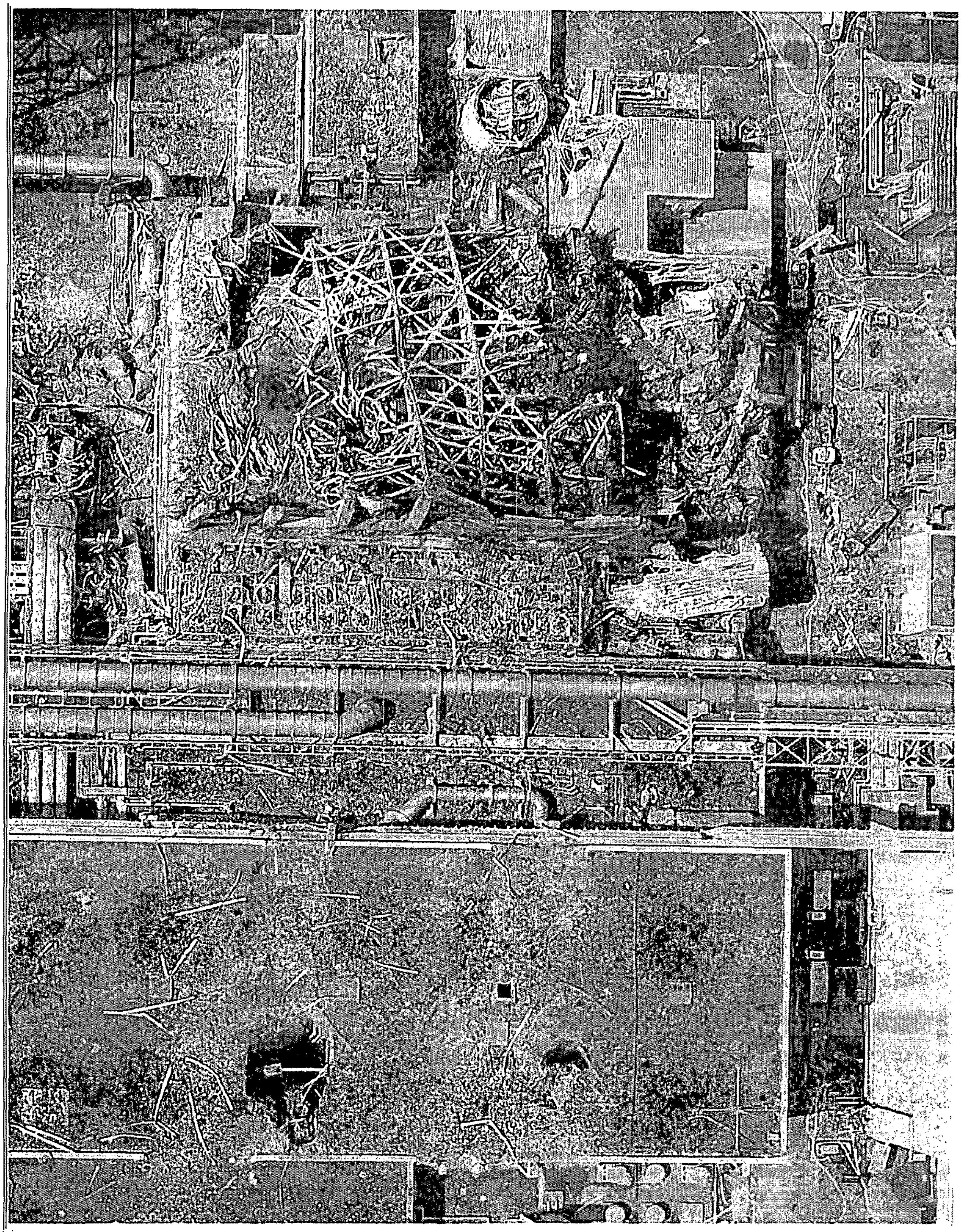
In this March 24, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE, damaged Unit 3, left, and Unit 4 of the crippled Fukushima Dai-ichi nuclear power pla
Fukushima prefecture, northern Japan. (Air Photo Service Co. Ltd., Japan)

24 March 2011



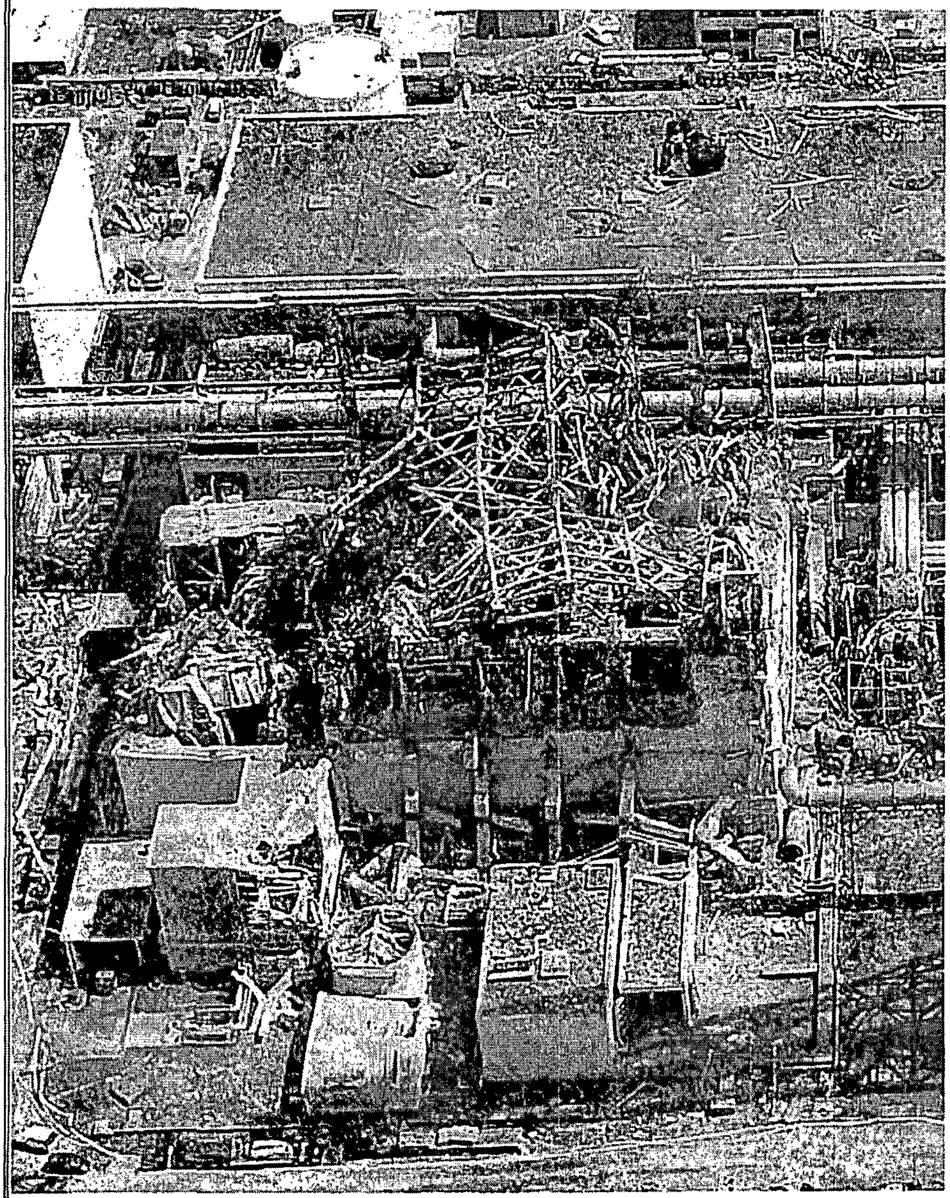
In this March 24, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE, Unit 4, left, and Unit 3 of the crippled Fukushima Dai-ichi nuclear power plant are see prefecture, northern Japan. (Air Photo Service Co. Ltd., Japan)

24 March 2011



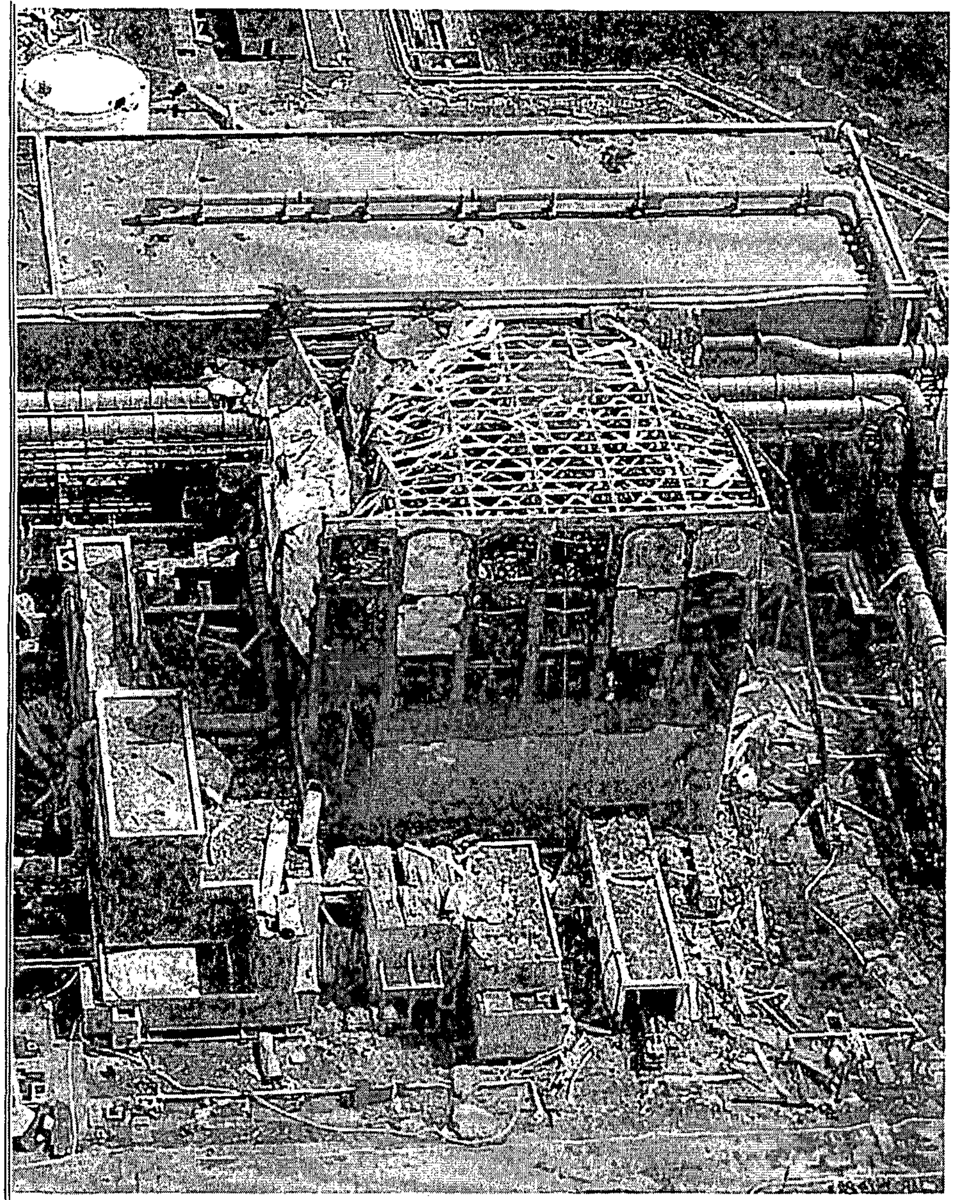
In this March 24, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE, damaged Unit 3 of the crippled Fukushima Dai-ichi nuclear power plant is seen in Okı northern Japan. (Air Photo Service Co. Ltd., Japan)

24 March 2011



This March 24, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE shows damaged Unit 3 of the crippled Fukushima Dai-ichi nuclear power plant in Okumı northeastern Japan. (Air Photo Service Co. Ltd., Japan)

24 March 2011



This March 24, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE shows damaged Unit 4 of the crippled Fukushima Dai-ichi nuclear power plant in Okumi-
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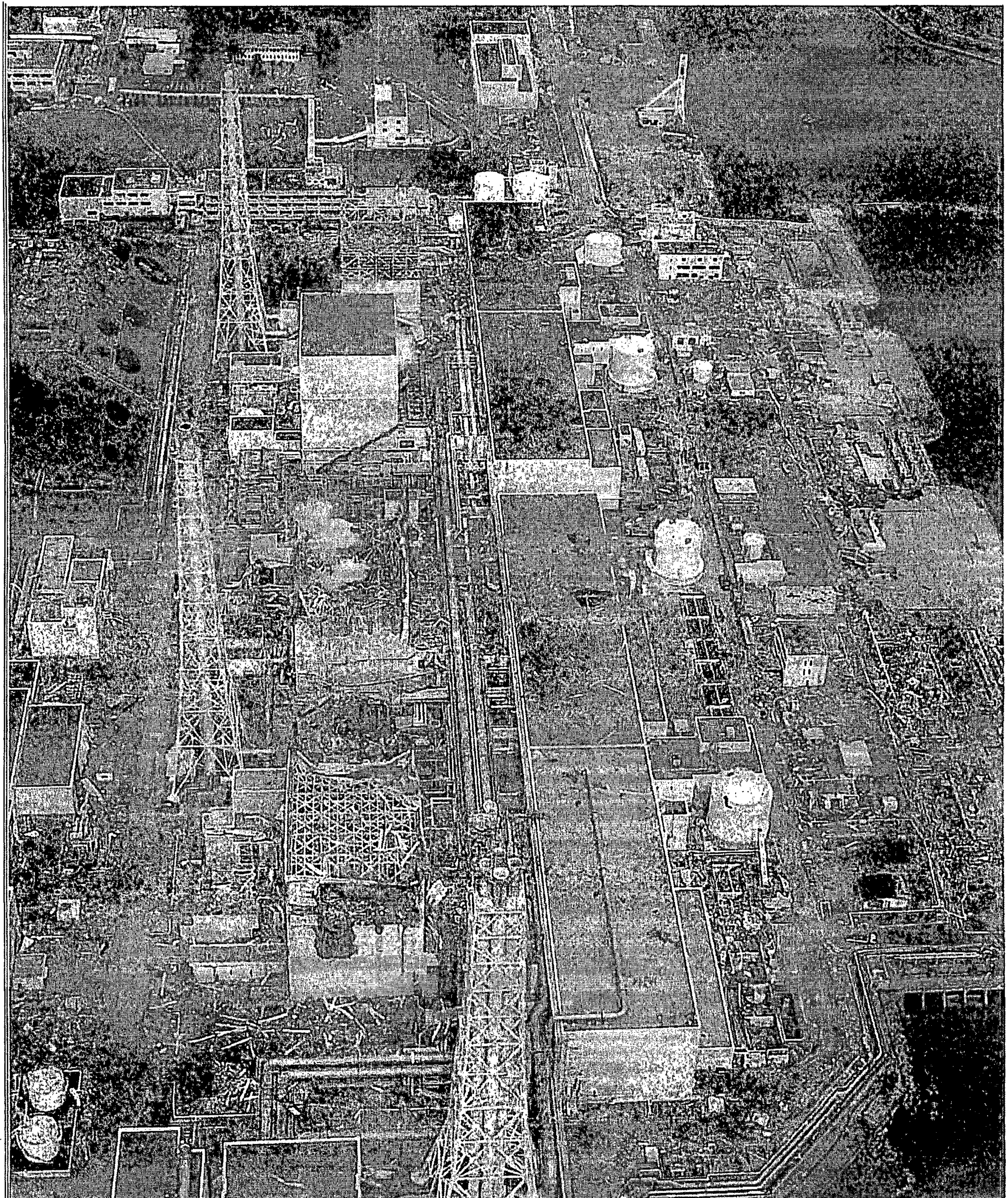
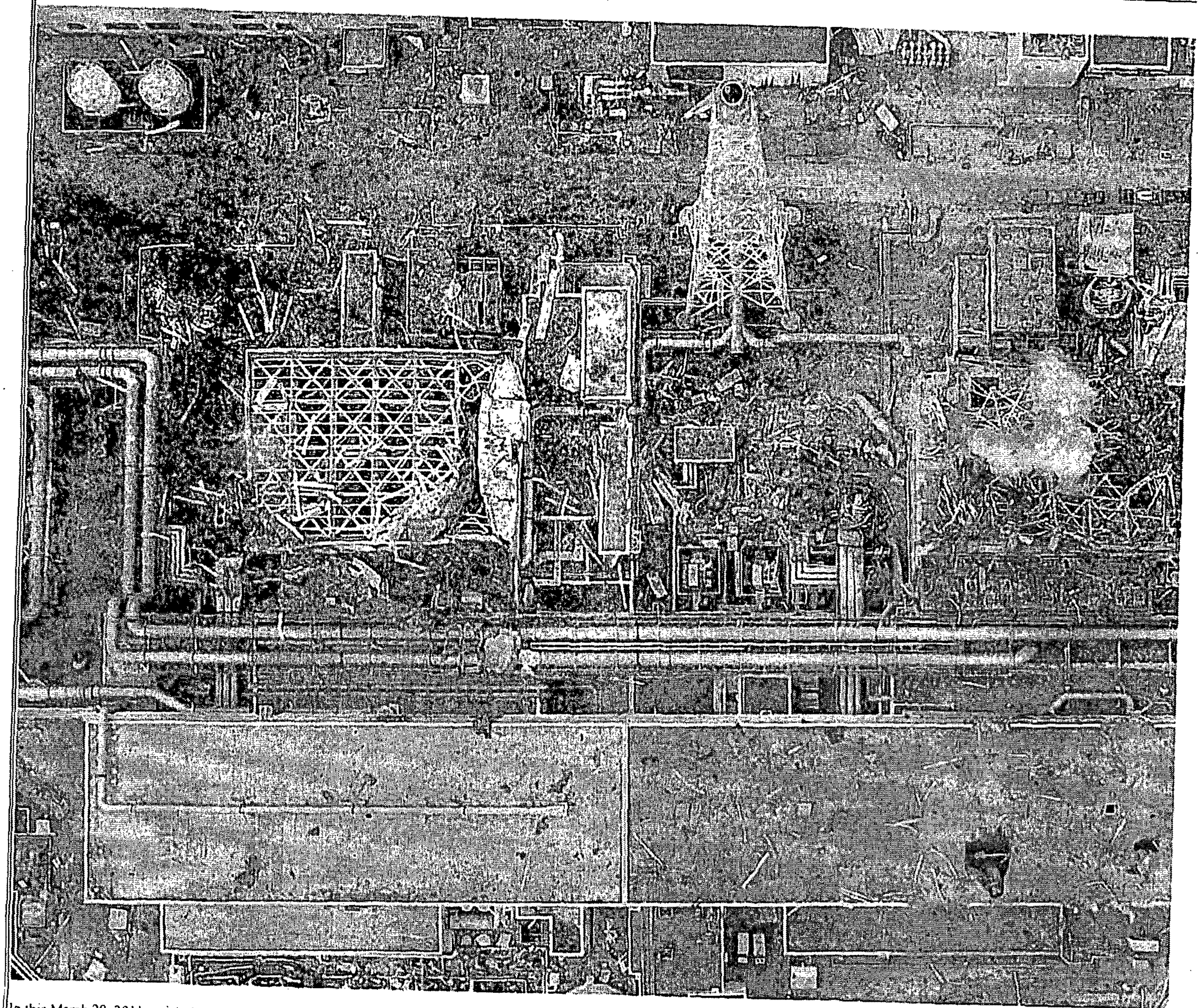
20 March 2011



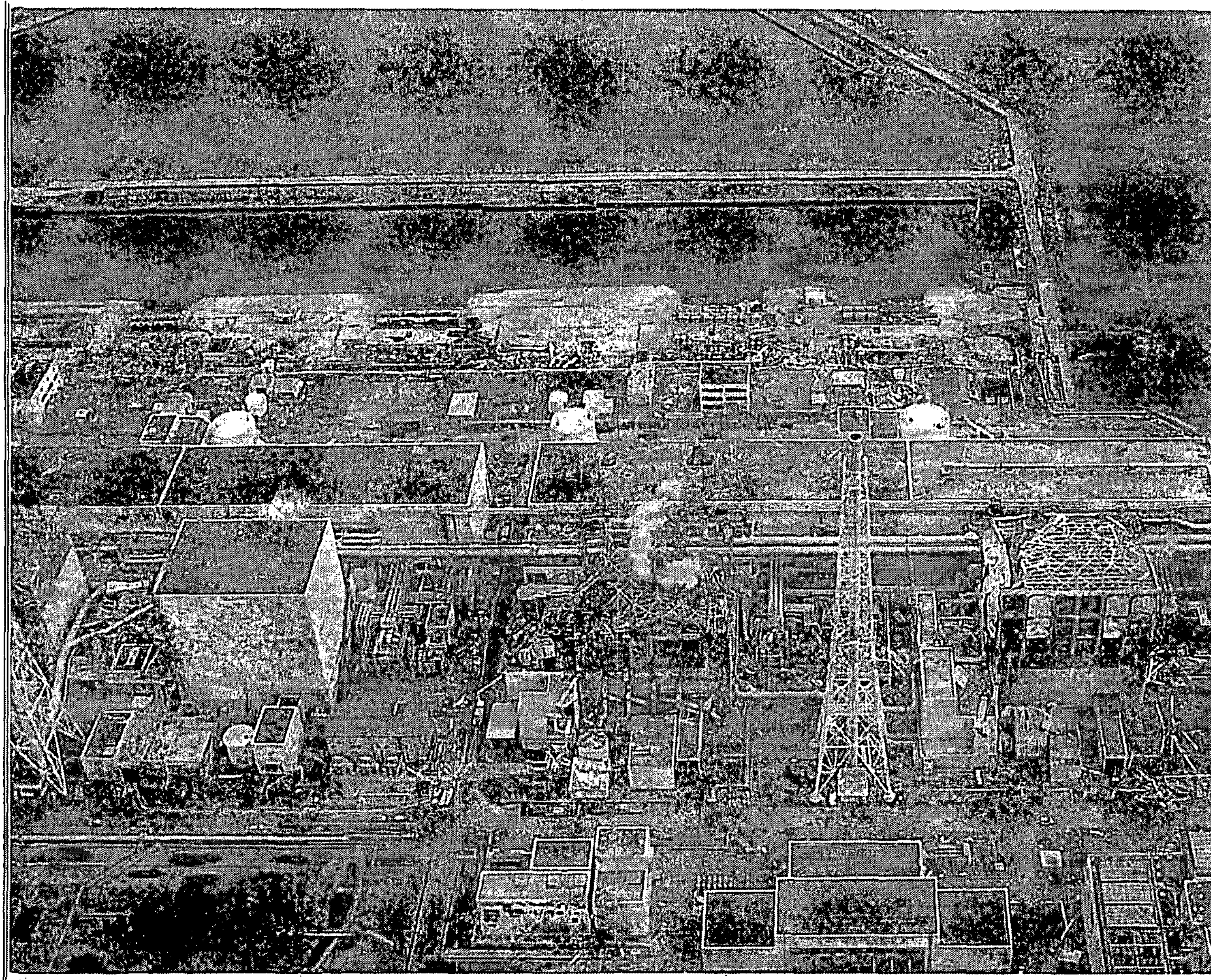
In this March 20, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE, the crippled Fukushima Dai-ichi nuclear power plant is seen in Okumamachi, Fukushi top to bottom: Unit 1, Unit 2, Unit 3 and Unit 4. (Air Photo Service Co. Ltd., Japan)

20 March 2011



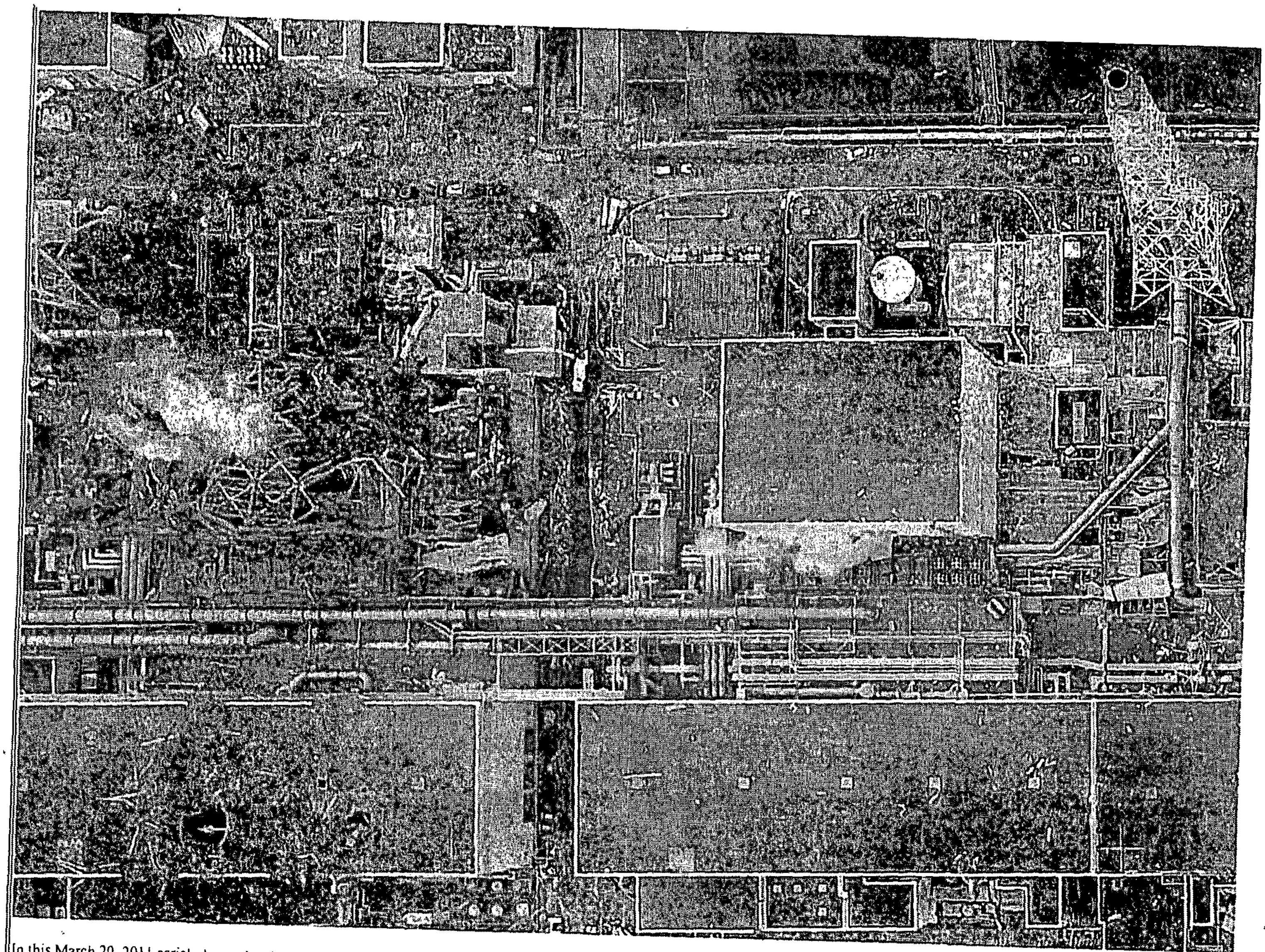
In this March 20, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE, damaged Unit 4, left, and Unit 3 of the crippled Fukushima Dai-ichi nuclear power pla Fukushima prefecture, northern Japan. (Air Photo Service Co. Ltd., Japan)

20 March 2011



In this March 20, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE, the crippled Fukushima Dai-ichi nuclear power plant are seen in Okumamachi, Fukusł
left: Unit 1, partially seen; Unit 2, Unit 3 and Unit 4. (Air Photo Service Co. Ltd., Japan)

20 March 2011



In this March 20, 2011 aerial photo taken by a small unmanned drone and released by AIR PHOTO SERVICE, the crippled Fukushima Dai-ichi nuclear power plant is seen in Okumamachi, Fukushi right to left: Unit 1, Unit 2 and Unit 3. (Air Photo Service Co. Ltd., Japan)

20 March 2011

Bano, Mahmooda

From: Scott, Michael
Sent: Wednesday, April 06, 2011 4:43 PM
To: Santiago, Patricia
Subject: Re:

I thought Chairman directed no use of MACCS for Japan. I have email to that effect and forwarded to Japan team.

Sent from my NRC blackberry
Michael Scott
(b)(6)

From: Santiago, Patricia
To: Navarro, Carlos
Cc: Gibson, Kathy; Scott, Michael; Wagner, Katie; Lee, Richard
Sent: Wed Apr 06 09:09:42 2011
Subject:

Carlos,

Tony Huffert, at the PMT asked for the file format for met data to enter into MACCS. NOAH and others are requiring this info to support folks in Japan using MELCOR and MACCS. They don't want the Japan team to need to manipulate the data if we can provide the proper format. Precip, wind direction, hrly indexes. Please send info to provide to them. This item is pending.

Also they asked for a description of the MELCOR and MACCS programs and I sent them the NUREG – 1925 for their use. If they need more information then they will contact us. This item is closed

Thanks,

Pat

Patricia A. Santiago
Chief, Special Projects Branch
Division of Systems Analysis
Office of Nuclear Regulatory Research
Phone- 301-251-7982
Fax- 301-251-7426
Patricia.Santiago@nrc.gov

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Bano, Mahmooda

From: Scott, Michael
Sent: Wednesday, April 06, 2011 8:13 PM
To: Taylor, Robert
Subject: RE: Notification of your arrival in the U.S.

No. Flight over half empty. I had 3 economy seats to myself. Not same as business, but tolerable. Have a great trip.

How did Elmo-san and Nei-san do today?

From: Taylor, Robert
Sent: Wednesday, April 06, 2011 8:11 PM
To: Scott, Michael
Subject: Re: Notification of your arrival in the U.S.

Glad to hear. Did you upgrade?

Sent from an NRC BlackBerry
Robert Taylor
(b)(6)

From: Scott, Michael
To: LIA03 Hoc; Liaison Japan
Cc: LIA02 Hoc
Sent: Wed Apr 06 20:10:10 2011
Subject: RE: Notification of your arrival in the U.S.

I arrived U.S. 3:37 pm EDT 4/6/11.

From: LIA03 Hoc
Sent: Thursday, March 31, 2011 7:10 PM
To: Liaison Japan
Cc: LIA02 Hoc
Subject: Notification of your arrival in the U.S.

Dear NRC Japan Team - Upon your return, please "reply All" to this email and let the International Liaison Team know that you're back in the U.S.

Thank you in advance.
Mugeh
On behalf of the International Liaison Team

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Lee, Richard

From: Lee, Richard
Sent: Thursday, April 07, 2011 4:07 PM
To: Wagner, Katie
Subject: FW: Information request from Senate
Attachments: OUO Security Related info. - Vulneability of Spent Nuclear Fuel Pools.pdf

This item was from this morning.

E-mail came from SNL: Shawn Burns
Assign to Jason & Charlie
Completed: Jason provided modification for SNL to revise the one pager. SNL revised one pager. Richard transmitted it to OCA and asked OCA to provide to Senator Bingaman's Office.

From: Lee, Richard
Sent: Thursday, April 07, 2011 4:01 PM
To: Schmidt, Rebecca
Cc: Gibson, Kathy; Scott, Michael; Schaperow, Jason; Tinkler, Charles
Subject: FW: Information request from Senate

Hi, Betty:

Kathy Gibson suggested that I forward you the enclosed one page note on Vulnerability of Spent Nuclear Fuel Pools for transmission to Senator Jeff Bingaman's Office. The Senate staff contact is in the e-mail from Shawn Burns of SNL.

Brian Sheron wants OCA to inform Senator Bingaman's Office to request information be made to NRC and not to NRC contractor(s). Appreciate your assistance.

Best regards,
Richard

From: Burns, Shawn [mailto:spburns@sandia.gov]
Sent: Thursday, April 07, 2011 11:45 AM
To: Lee, Richard
Cc: Garcia, Mary Lou; Pickering, Susan Y; Sorenson, Ken B
Subject: Information request from Senate

Richard,

I checked with the technical folks here and they are happy with the one pager and slides that I sent to you this morning. Thank you for forwarding the information to the Senator through your Congressional Liaison Office. The point of contact in Senator Bingaman's office is Jonathan Epstein (Jonathan_Epstein@bingaman.senate.gov).

We will let Jonathan know that the information will be coming through your channels.

Best regards,

Shawn

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Shawn P. Burns, Ph.D., P.E.
Manager, Risk and Reliability Analysis
Department 6761

Sandia National Laboratories
P.O. Box 5800
Albuquerque, NM 87185-0748

Phone: (505)844-6200
Mobile (b)(6) Ex 6
Fax: (505)844-2829

e-mail: spburns@sandia.gov
Web: http://www.sandia.gov/ERN/nuclear-energy/index.html

Lee, Richard

From: Lee, Richard
Sent: Thursday, April 07, 2011 9:33 PM
To: Wagner, Katie
Subject: RE: Request for clearance to release data

Contacted: Richard Lee
By: Shawn Burns (SNL)
Subject: Response to Senator Bingaman's staff request on SNL SFP
Status: One-pager had been reviewed by Jason, Suggested revision had been incorporated by SNL; Richard e-mail (you got a copy of the e-mail) revised one pager to OCA Director (Schmidt) and requested OCA to send to Sen. Bingaman's staff and also advised Senator's staff to request info. directly from NRC and not from NRC contractor(s).

From: Wagner, Katie
Sent: Thursday, April 07, 2011 3:45 PM
To: Lee, Richard
Subject: RE: Request for clearance to release data

Richard,

Who is the staff contact for this item? Jason?
Is it complete?

84

4/7/2011

Shawn Burns of Sandia for Sen. Bingaman's staff<http://portal.nrc.gov/edo/res/DSA/Lists/Status%20of%20Japan%20Related%20Requests/DispForm.aspx?ID=84>[cid:image002.gif@01CBF53A.DEF72C00]

spburns@sandia.gov<mailto:spburns@sandia.gov>

TBD

TBD

Sandia received a request from U.S. Senator Jeff Bingaman's personal staff relating to the spent nuclear fuel fire experiments and associated analyses conducted by Sandia for the NRC in 2007. Sandia formally requested NRC permission to release this information to Senator Bingaman's office for the purpose of allowing the Senator and his staff to understand one aspect of the ongoing event at the Fukushima Dai-Ichi nuclear power reactor site in Japan.

Determine if it is appropriate to send spent nuclear fuel fire experiments and associated analyses conducted by Sandia for the NRC in 2007 and if so send the analyses and supporting materials.

Pending

Thanks,
Katie

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From: Lee, Richard
Sent: Thursday, April 07, 2011 10:12 AM
To: Zigh, Ghani
Cc: Wagner, Katie; Navarro, Carlos; Santiago, Patricia; Tinkler, Charles; Schaperow, Jason; Gibson, Kathy
Subject: RE: Request for clearance to release data

Thanks, will let SNL knows to proceed with providing the info.
Richard

From: Zigh, Ghani
Sent: Thursday, April 07, 2011 9:50 AM
To: Lee, Richard; Gibson, Kathy; Tinkler, Charles; Schaperow, Jason
Cc: Wagner, Katie; Navarro, Carlos; Santiago, Patricia
Subject: RE: Request for clearance to release data

We already shared these information and more with other people like NEI, DOE/NE, and commissioner Magwood.
You have my vote to share these two attachments with the senator.

From: Lee, Richard
Sent: Thursday, April 07, 2011 9:23 AM
To: Zigh, Ghani; Gibson, Kathy; Tinkler, Charles; Schaperow, Jason
Cc: Wagner, Katie; Navarro, Carlos; Santiago, Patricia
Subject: RE: Request for clearance to release data

I have provided printout of the 2 attachments to Ghani.

From: Zigh, Ghani
Sent: Thursday, April 07, 2011 8:37 AM
To: Gibson, Kathy; Lee, Richard; Tinkler, Charles; Schaperow, Jason
Cc: Wagner, Katie; Navarro, Carlos; Santiago, Patricia
Subject: RE: Request for clearance to release data

Where are the attachments that they want to send?

From: Gibson, Kathy
Sent: Thursday, April 07, 2011 8:34 AM
To: Lee, Richard; Tinkler, Charles; Schaperow, Jason; Zigh, Ghani
Cc: Wagner, Katie; Navarro, Carlos; Santiago, Patricia
Subject: RE: Request for clearance to release data

What do you advise?

[cid:image003.jpg@01CBF53A.DEF72C00]

From: Lee, Richard
Sent: Thursday, April 07, 2011 8:03 AM
To: Tinkler, Charles; Schaperow, Jason; Gibson, Kathy
Cc: Wagner, Katie
Subject: FW: Request for clearance to release data
Importance: High

We should give a reply as soon as possible on this request.

From: Burns, Shawn [mailto:spburns@sandia.gov]

Sent: Thursday, April 07, 2011 2:19 AM
To: Wagner, Katie; Lee, Richard
Cc: Sorenson, Ken B; Lindgren, Eric; Pickering, Susan Y; Orrell, Stanley A
Subject: [WARNING: MESSAGE ENCRYPTED]Request for clearance to release data
Importance: High

Katie and Richard,

Sandia received a request from U.S. Senator Jeff Bingaman's personal staff relating to the spent nuclear fuel fire experiments and associated analyses conducted by Sandia for the NRC in 2007. I have attached two files which contain the information that we would like to forward to Senator Bingaman's office. Sandia handles this information as Official Use Only and as such the files are encrypted. You should already have received a separate e-mail containing a link which will allow you to obtain the password required to open these files. Please be aware that the password website will only remain open until 2:00 a.m. Saturday morning Washington time.

As per the process that Sandia and NRC have established, the purpose of this e-mail is to formally request NRC permission to release this information to Senator Bingaman's office for the purpose of allowing the Senator and his staff to understand one aspect of the ongoing event at the Fukushima Dai-Ichi nuclear power reactor site in Japan.

Please let me know if you have any questions regarding this request or if you have any difficulty obtaining the password or opening the attached files. As is often the case with the Fukushima event, there is some urgency associated with this request as we are trying to respond to the Senator's office in a timely manner.

Best regards,

Shawn

Shawn P. Burns, Ph.D., P.E.
Manager, Risk and Reliability Analysis
Department 6761

Sandia National Laboratories
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Fax: (505)844-2829

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Web: http://www.sandia.gov/ERN/nuclear-energy/index.html

Bano, Mahmooda

From: Scott, Michael
Sent: Thursday, April 07, 2011 3:58 PM
To: Taylor, Robert
Subject: RE: Notification of your arrival in the U.S.

Good to be the (business class) king, yes?

From: Taylor, Robert
Sent: Thursday, April 07, 2011 3:57 PM
To: Scott, Michael; LIA03 Hoc; Liaison Japan
Cc: LIA02 Hoc
Subject: Re: Notification of your arrival in the U.S.

I'm back.

Sent from an NRC BlackBerry
Robert Taylor
(b)(6)

From: Scott, Michael
To: LIA03 Hoc; Liaison Japan
Cc: LIA02 Hoc
Sent: Wed Apr 06 20:10:10 2011
Subject: RE: Notification of your arrival in the U.S.

I arrived U.S. 3:37 pm EDT 4/6/11.

From: LIA03 Hoc
Sent: Thursday, March 31, 2011 7:10 PM
To: Liaison Japan
Cc: LIA02 Hoc
Subject: Notification of your arrival in the U.S.

Dear NRC Japan Team - Upon your return, please "reply All" to this email and let the International Liaison Team know that you're back in the U.S.

Thank you in advance.
Mugeh
On behalf of the International Liaison Team

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Bano, Mahmooda

From: Scott, Michael
Sent: Saturday, April 09, 2011 2:36 PM
To: Zaki, Tarek; Bush-Goddard, Stephanie; Elkins, Scott; Hoxie, Chris; Lee, Richard; Santiago, Patricia
Cc: Gibson, Kathy
Subject: FW: Follow-up : Planned Travel through April 18th

For info and impact on your staff.

Mike

From: Muessle, Mary
Sent: Saturday, April 09, 2011 11:35 AM
To: Scott, Michael
Subject: Re: Follow-up : Planned Travel through April 18th

More info. Yes to travel. Folks would still need orders in place so if they didn't cancel in travel they can go. If they did, they will need new orders and wouldn't be able to leave earlier than Monday..

Sent from NRC BlackBerry
Mary Muessle
(b)(6)

From: Scott, Michael
To: Muessle, Mary
Sent: Sat Apr 09 07:28:05 2011
Subject: FW: Follow-up : Planned Travel through April 18th

Hi Mary. Can canceled travel now be restored since govt evidently not shutting down?

From: Flory, Shirley
Sent: Friday, April 08, 2011 2:32 PM
To: Case, Michael; Coe, Doug; Correia, Richard; Gibson, Kathy; Richards, Stuart; Sangimino, Donna-Marie; Scott, Michael; Sheron, Brian; Uhle, Jennifer; Valentin, Andrea
Subject: FW: Follow-up : Planned Travel through April 18th

From: Muessle, Mary
Sent: Friday, April 08, 2011 1:27 PM
To: Taylor, Renee; Ellmers, Glenn; Ash, Darren; Boger, Bruce; Boyce, Thomas (OIS); Brenner, Eliot; Brown, Milton; Burns, Stephen; Carpenter, Cynthia; Casto, Chuck; Cohen, Miriam; Collins, Elmo; Dapas, Marc; Dean, Bill; Doane, Margaret; Droggitis, Spiros; Dyer, Jim; Greene, Kathryn; Grobe, Jack; Hackett, Edwin; Haney, Catherine; Hayden, Elizabeth; Holahan, Gary; Howard, Patrick; Johnson, Michael; Kelley, Corenthis; Leeds, Eric; Mamish, Nader; Lewis, Robert; McCrary, Cheryl; McCree, Victor; Miller, Charles; Moore, Scott; Pederson, Cynthia; Plisco, Loren; Poole, Brooke; Powell, Amy; Reyes, Luis; Satorius, Mark; Schaeffer, James; Schmidt, Rebecca; Sheron, Brian; Stewart, Sharon; Uhle, Jennifer; Virgilio, Martin; Weber, Michael; Wiggins, Jim; Williams, Barbara; Zimmerman, Roy; Campbell, Andy; Holahan, Patricia; Dorman, Dan; Wert, Leonard; Tracy, Glenn; Krupnick, David; Evans, Michele; Mitchell, Reggie; Flanders, Scott; Evans, Michele
Cc: Akstulewicz, Brenda; Andersen, James; Bellosi, Susan; Belmore, Nancy; Boyd, Lena; Buckley, Patricia; Casby, Marcia; Cianci, Sandra; Crawford, Carrie; Flory, Shirley; Garland, Stephanie; Higginbotham, Tina; Hudson, Sharon; Landau, Mindy; Matakas, Gina; Miles, Patricia; Pulley, Deborah; Rihm, Roger; Riner, Janet; Ronewicz, Lynn; Ross, Robin; Salus,

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Amy; Tannenbaum, Anita; Thomas, Loretta; Walker, Dwight; Warner, MaryAnn; Wright, Darlene; Wyatt, Melissa; Cannady, Ashley; Lockhart, Denise; Perez-Ortiz, Aracelis; Riddick, Nicole; King, Shannon; Penny, Melissa; Sprogeris, Patricia; Banks, Eleasah; Nagel, Cheri; Hasan, Nasreen; Call, Michel; Thaggard, Mark; Young, Gary; Moore, Mary; Daniels, Stanley; Kreuter, Jane; Schumann, Stacy; Rihm, Roger; Schwarz, Sherry; Boyer, Rachel
Subject: Follow-up : Planned Travel through April 18th

Attached find planned travel per OCFO

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

From: Taylor, Renee
Sent: Friday, April 08, 2011 8:53 AM
To: Ellmers, Glenn; Ash, Darren; Boger, Bruce; Boyce, Thomas (OIS); Brenner, Eliot; Brown, Milton; Burns, Stephen; Carpenter, Cynthia; Casto, Chuck; Cohen, Miriam; Collins, Elmo; Dapas, Marc; Dean, Bill; Doane, Margaret; Droggitis, Spiros; Dyer, Jim; Greene, Kathryn; Grobe, Jack; Hackett, Edwin; Haney, Catherine; Hayden, Elizabeth; Holahan, Gary; Howard, Patrick; Johnson, Michael; Kelley, Corenthis; Leeds, Eric; Mamish, Nader; McCrary, Cheryl; McCree, Victor; Miller, Charles; Moore, Scott; Pederson, Cynthia; Plisco, Loren; Poole, Brooke; Powell, Amy; Reyes, Luis; Satorius, Mark; Schaeffer, James; Schmidt, Rebecca; Sheron, Brian; Stewart, Sharon; Uhle, Jennifer; Virgilio, Martin; Weber, Michael; Wiggins, Jim; Williams, Barbara; Zimmerman, Roy; Campbell, Andy; Holahan, Patricia; Dorman, Dan; Muessle, Mary; Wert, Leonard; Tracy, Glenn; Taylor, Renee; Krupnick, David; Evans, Michele
Cc: Akstulewicz, Brenda; Andersen, James; Bellosi, Susan; Belmore, Nancy; Boyd, Lena; Buckley, Patricia; Casby, Marcia; Cianci, Sandra; Crawford, Carrie; Flory, Shirley; Garland, Stephanie; Higginbotham, Tina; Hudson, Sharon; Landau, Mindy; Matakas, Gina; Miles, Patricia; Pulley, Deborah; Rihm, Roger; Riner, Janet; Ronewicz, Lynn; Ross, Robin; Salus, Amy; Tannenbaum, Anita; Taylor, Renee; Thomas, Loretta; Walker, Dwight; Warner, MaryAnn; Wright, Darlene; Wyatt, Melissa; Cannady, Ashley; Lockhart, Denise; Perez-Ortiz, Aracelis; Riddick, Nicole; King, Shannon; Penny, Melissa; Sprogeris, Patricia; Banks, Eleasah; Nagel, Cheri; Hasan, Nasreen; Call, Michel; Thaggard, Mark; Young, Gary; Moore, Mary; Daniels, Stanley; Kreuter, Jane; Schumann, Stacy; Rihm, Roger; Schwarz, Sherry; Boyer, Rachel
Subject: Additional Information on a Lapse of Appropriation

For OD's and RA's

Since the Congress has not yet reached alignment on FY 2011 funding, we need to continue to take actions towards a lapse in appropriation. As you have heard from the Chairman and the EDO, the NRC will utilize carryover to continue to run at full staff for at least the next week. OCFO will monitor funds usage daily, and we will let you know (likely within a few days) if and when it will become necessary to furlough non-excepted staff.

In order to maximize the time of full NRC staffing, we ask that you cancel immediately all conference and travel related training for next week. (All TTC classes will be cancelled until FY 2011 funding is restored. Regional classes and PDC will continue but people should not travel to attend them.) We also ask that you cancel all non-critical travel (including rotations) and limit attendance at events where we are not mandated or it is not critical for us to attend. For your convenience, I have attached planned international travel from OIP and OCFO will send out general travel as well today. If the travel begins later next week or the following week, the office and traveler can wait to cancel until they would incur a hotel penalty which will vary based on the entity. We will also be sending an EDO announcement to staff with this information.

We also ask that you only use overtime during a lapse in funding for mission critical work, and that with the exception of exceptional needs that you not obligate any additional funds on purchase cards, lab agreements after Friday, April 8th until FY 2011 funding is restored.

In the event of a lapse in appropriations, we will be sending you your office "mark" for excepted staff on Monday. This will be in addition to excepted staff that for operations center shift work, Japan site work, and the Japan Task force work which will be provided separately. (Operations center work will move to dedicated shifts as of April 18^{th}.) We will likely need your lists by Tuesday. One thing to remember is that excepted staff should be available for work and not on leave for at least a 3-4 few weeks of a shutdown.

HR and ADM will be reaching out to you with additional guidance and information as required. Please continue to refer staff to our EDO update and to the EDO sharepoint site for information.
http://portal.nrc.gov/edo/staff/Lists/Announcements/DispForm.aspx?ID=16&Source=http%3A%2F%2Fportal%2Enrc%2Egov%2Fedo%2Fstaff%2Fdefault%2Easpx

Thank you for all of your efforts and your flexibility during these difficult times.
Mary

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

Lee, Richard

From: Lee, Richard
Sent: Monday, April 11, 2011 9:27 AM
To: 'Michael Salay'
Subject: RE: Your stay in Japan

Mike:

Thanks for your input. Meanwhile, I hope you are enjoying the after-shocks.

Richard

From: Michael Salay (b)(6) [redacted]
Sent: Monday, April 11, 2011 9:19 AM
To: Lee, Richard
Subject: Re: Your stay in Japan

Richard,

I do think that I help here. We are all trying to figure out what happened. While I don't know the systems as well as some of the people who worked at BWRs, I do have a different perspective than most of the others and I think having someone who is familiar with SA research/simulation and knows the people involved in SA in Research is useful. The work has been interesting.

I could stay longer if necessary.
It is hard to say where I would be more useful. I feel that I can be useful in both locations.

-Mike
On Sun, Apr 10, 2011 at 7:29 PM, Lee, Richard <Richard.Lee@nrc.gov> wrote:
Mike:

I would like to know whether your assignment in Tokyo helps the group there. Having Randy there, helps in better understanding what had happened at these units.

We are been asked t submit names for the 4th group. Asking for many severe accident analysts. Do you want to stay a little bit longer. Do you feel your role is more useful in Tokyo or back at NRC.

Richard

--
Michael Salay
(b)(6) [redacted]
(b)(6) [redacted] (cell)

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OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:07 AM
To: OIP_ITServices Resource
Subject: FW: Followup on your inquiry regarding Fukushima

(b)(6)

From: Leblanc, Mark
Sent: Friday, March 11, 2011 1:53 PM
To: Schwartzman, Jennifer
Subject: RE: Followup on your inquiry regarding Fukushima

Got it. Thank you.

From: Schwartzman, Jennifer [mailto:Jennifer.Schwartzman@nrc.gov]
Sent: Friday, March 11, 2011 1:16 PM
To: Leblanc, Mark
Subject: Followup on your inquiry regarding Fukushima

Mark,

I am the international liaison officer in the NRC Operations Center today. Bill Gott from the HOO just indicated you had spoken with him earlier regarding the situation in Japan.

He wanted me to share with you the contact information for the State and DOE operations center:

DOE Operations Center (EOC)
202-586-8100
301-903-7829 (fax)
doehqeoc@oem.doe.gov

State Department Operations Center Duty Officer
202-647-1512
202-647-1811 (fax)
SES-O@state.gov, SSOWatch@state.gov

Hope this helps!
Regards,

Jennifer Schwartzman

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OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:01 AM
To: OIP_ITServices Resource
Subject: FW: IAEA newsrelease
Attachments: News_Releases_No.2_IAEA[1].pdf

From: Rodriguez, Veronica
Sent: Friday, March 11, 2011 9:44 AM
To: Schwartzman, Jennifer
Subject: FW: IAEA newsrelease

Jen – David (DOS) sent me this as it may come up at the CNS. I'm sure everyone in OIP is on top of this but I'm sending it to you just in case. Please distribute if you think is necessary.

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News Release

経済産業省
Ministry of Economy, Trade and Industry

March 11, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 2nd Release)
(As of 16:15 March 11, 2011)

Nuclear and Industrial Safety Agency (NISA) confirmed the current conditions of Tomari Power Station, Hokkaido Electric Power Co., Inc.

Higashidori Nuclear Power Station and Onagawa Nuclear Power Station, Tohoku Electric Power Co., Inc

Higashidori Nuclear Power Station,., Fukushima Dai-ichi Nuclear Power Station and Fukushima Dai-ni Nuclear Power Station, Tokyo Electric Power Co., Inc. and works at the Japan Nuclear Fuel are as follows:

Walkdowns are continuing at these power stations.

1. Summary of Damage

1. Summary of Damage

(1) Time of Occurrence: 14:46 (UTC 5:46) March 11, 2011, Friday

(2) Epicenter: Off-Coast of Sanriku (North Latitude: 38; East Longitude: 142.9)

10km deep, M7.9

(3) Seismic Intensity in Japanese Scale

<Area of Seismic Intensity Larger Than and Including 4>

7: Northern Miyagi Prefecture

6+: Northern and southern Ibaraki Prefecture

5+: Sanpachi-Kamikita Aomori Prefecture

5-: Chuetsu, Niigata Prefecture

<Municipality of Seismic Intensity Larger than and Including 4>

6+: Naraha Machi, Tomioka Machi, Ookuma-machi, and Futaba-machi, Fukushima Prefecture

6-: Ishinomaki-city and, Onagawa town (by Seismograph of NPP)of ,

Miyagi Prefecture and Tokaimura, Ibaraki Pref.
5-: Kariwa-village, Niigata Prefecture
4: Rokkasho-village, Higashidori-village, Aomori Prefecture, Kashiwazaki-city, Niigata Prefecture and Yokosuka-city, Kanagawa Prefecture
1: Tomari-mura, Hokkaido

1. The status of operation at Power Stations
a. Tomari Power Station: Hokkaido Electric Power Co., Inc. (Tomari-mura, Furuu-gun, Hokkaido)
(1) The status of operation
Unit 1 (579MWe): In continued operation
Unit 2 (579MWe): In continued operation
Unit 3 (912MWe): In continued operation

(2) Readings at monitoring post etc.
Variation in the monitoring post readings: Yes/No
Variation in the main stack monitor readings: Yes/No
(3) Report concerning other malfunction

b. Higashidori Nuclear Power Station, Tohoku Electric Power Co., Inc. (Higashidoori-mura, Shimokita-gun, Aomori Prefecture)
(1) The status of operation
Unit 1 (1,100MWe) (outage for periodic inspection)

(2) Readings at monitoring post etc.
Variation in the monitoring post readings: No
Variation in the main stack monitoring readings: No

(3) Report concerning other malfunction
Report of fire: No

c. Onagawa Nuclear Power Station (Onagawa-machi and Ishinomaki–shi, Miyagi Prefecture)
(1) The status of operation
Unit 1 (524MWe) (Automatic shutdown)

Unit 2 (825MWe) (Automatic shutdown)
Unit 3 (825MWe) (Automatic shutdown)
(567 Gal was observed on the foundation slab.)

(2) Readings of monitoring post etc.
Variation in the monitoring post readings: No
Variation in the main stack monitor readings: No

(3) Report concerning other malfunction
Report of fire: No -Confinement function was confirmed.

d. Fukushima Dai-ichi Nuclear Power Station, Tokyo Electric Power Co., Inc. (Okuma-machi and Futaba-machi, Futaba-gun, Fukushima Prefecture)

(1) The status of operation
Unit 1 (460MWe) (Automatic shutdown)
Unit 2 (784MWe) (Automatic shutdown)
Unit 3 (784MWe) (Automatic shutdown)
Unit4(784MW): in periodic inspection outage
Unit5(784MW): in periodic inspection outage
Unit6(1,100MW): in periodic inspection outage

(2) Readings at monitoring post etc.
Variation in the monitoring post readings: No
Variation in the main stack monitoring readings: No

(3) Report concerning other malfunction
Article 10* of Act on Special Measures Concerning Nuclear Emergency Preparedness (Fukushima Dai-ichi(Units 1,2 and 3)
(* In a heightened arlert conditioning)

e. Fukushima-Daini Nuclear Power Station(TEPCO)(Naraha-cho/Tomioka-cho, Futaba-gun, Fukushima pref.)

(1) The status of operation
Unit1(1,100MW): (Automatic shutdown)
Unit2(1,100MW): (Automatic shutdown)
Unit3(1,100MW): (Automatic shutdown)
Unit4(1,100MW): (Automatic shutdown)

(2) Readings at monitoring post etc.

Variation in the monitoring post readings: No
Variation in the main stack monitoring readings: No

(3) Report concerning other malfunction
Report of fire: No-Confinement function was confirmed.

f. Tokai Dai-ni Nuclear Power Stationj(JAPC)
(1) The status of operation
Unit1(1,100MW): Automatically shut down

(2) Readings at monitoring post etc.
Variation in the monitoring post readings: No
Variation in the main stack monitoring readings: No

(3) Report concerning other malfunction
Report of fire: No- Confinement function was confirmed.

2. JNFL(Rokkasyo-mura, Kamikita-gun, Aomori Pref)
(1) The status of operation
-Reprocessing facility: Originally outage
(2) Report concerning other malfunction
Report of fire: No - Confinement function was confirmed.

3. Action taken by NISA
14:46 Set up of the NISA Emergency Preparedness Headquarters (Tokyo) immediately after the Earthquake
15:42: TEPCO reported to NISA in accordance with Article 10 of Act on Special Measures Concerning Nuclear Emergency Preparedness (Fukushima Dai-ichi(Units 1,2 and 3)

All facilities which will be confirmed safely will be eliminated from next press release

(Contact Person)
Mr. Masaomi Koyama
Deputy Director, International Affairs

News Release

経済産業省
Ministry of Economy, Trade and Industry

Office, NISA/METI
Phone:+81-(0)3-3501-1087

OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:03 AM
To: OIP_ITServices Resource
Subject: FW: This is from CTBO.....

From: Shaffer, Mark R [mailto:ShafferMr@state.gov]
Sent: Friday, March 11, 2011 11:25 AM
To: Schwartzman, Jennifer
Subject: This is from CTBO.....

Subject: CTBTO PRESS RELEASE - CTBTO contributes to tsunami warning following the devastating earthquake in Japan

CTBTO preparatory commission for the comprehensive nuclear-test-ban treaty organization
PREPARATORY COMMISSION

CTBTO contributes to tsunami warning following the devastating earthquake in Japan

Vienna, 11 March 2011

Monitoring stations belonging to the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) contributed to the rapid alerts issued by tsunami warning centres in the Pacific region following the devastating 8.9 magnitude earthquake in Japan on Friday 11 March.

The data from about 20 seismic and hydroacoustic stations were sent directly and in real time to seven warning centres in the region, including in Japan and the United States (Hawaii). This helped the centres issue swift alerts to Japan's neighbours as well as to the wider Pacific region.

"At the time of this terrible disaster we extend our sympathies to the people of Japan who are devastated by this event. At the CTBTO we will continue to make our contribution to mitigating disaster and saving lives to the utmost of our ability," said Lassina Zerbo, Director of the International Data Centre and officer-in-charge of the CTBTO.

The CTBTO monitoring data have proven to be the most reliable and speediest data, with up to three minutes lead-time compared with most data from other sources. The quick transmission of the data to tsunami warning centres in the Pacific region increases the ability for them to issue more rapid warnings both in their regions and worldwide.

The Comprehensive Nuclear-Test-Ban Treaty bans all nuclear explosions. The CTBTO is building a 337-facility network to monitor the planet for compliance with the Treaty. When complete, seismic, hydroacoustic and infrasound stations will monitor underground, the oceans and the atmosphere, and radionuclide stations will sniff the air, for any sign of a nuclear explosion.

Monitoring data have a number of other possible uses including tsunami warning, research on the Earth's core, monitoring of earthquakes and volcanoes, climate change research, atmospheric monitoring and biological research.

The CTBTO is currently contributing data from close to 50 stations to regional tsunami warning centres in Japan and the United States (Alaska and Hawaii), and to national tsunami warning centres in Australia, Indonesia, Malaysia, the

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Philippines, Thailand and France.

For further information on the CTBTO, please see www.ctbto.org – your resource on ending nuclear testing, or contact:

Annika Thunborg, Spokesperson and Chief, Public Information

T +43 1 26030-6375
E annika.thunborg@ctbto.org
M (b)(6)

Connect with CTBTO on:
facebook twitter youtube flickr

This email is UNCLASSIFIED.

OIP_ITServices Resource

From: Schwartzman, Jennifer
Sent: Friday, April 22, 2011 10:03 AM
To: OIP_ITServices Resource
Subject: FW: Any Details You Can Share From Our Japanese Colleagues on Their Ongoing Plant Event & Nearby Evacuation?
Attachments: 110311_press_release_on_earthquake1 (2).pdf; News Releases No4_IAEA.docx; News Releases No.2_IAEA.docx

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From: Ramsey, Jack
Sent: Friday, March 11, 2011 11:47 AM
To: Schwartzman, Jennifer
Subject: FW: Any Details You Can Share From Our Japanese Colleagues on Their Ongoing Plant Event & Nearby Evacuation?

From: Fragoyannis, Nancy
Sent: Friday, March 11, 2011 9:56 AM
To: Ramsey, Jack
Subject: FW: Any Details You Can Share From Our Japanese Colleagues on Their Ongoing Plant Event & Nearby Evacuation?

From: Foggie, Kirk
Sent: Friday, March 11, 2011 9:15 AM
To: Barkley, Richard
Cc: Fragoyannis, Nancy; Mamish, Nader
Subject: RE: Any Details You Can Share From Our Japanese Colleagues on Their Ongoing Plant Event & Nearby Evacuation?

Rich,

This is what we received earlier this morning. Will send you updates later.

Kirk

From: Barkley, Richard
Sent: Friday, March 11, 2011 9:13 AM
To: Foggie, Kirk
Cc: Fragoyannis, Nancy; Mamish, Nader
Subject: Any Details You Can Share From Our Japanese Colleagues on Their Ongoing Plant Event & Nearby Evacuation?

Thanks!

Richard S. Barkley, PE

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Nuclear & Environmental Engineer
(610) 337-5065 Work
(b)(6) [redacted] Cell

Effect of the earthquake on the Nuclear Facilities in North-east area of Japan
(as of 2:46pm, 11of March, 2011)

Effect of earthquake on the Nuclear Facilities from the earthquake

Current status of nuclear facilities are as follows:

1.Onagawa Nuclear Power Station
·Units 1,2 and 3: Automatically shut down.

2. Fukushima-Daini Nuclear Power Station
· Units 1,2 and 3: Automatically shut down.
· Units 4,5 and 6: in periodic inspection outage

3. Fukushima-Daini Nuclear Power Station
·Units 1,2,3 and Unit4 : Automatically shut down.

4.Higashi-Dori Nuclear Power Station
· in periodic inspection outage

5. Rokkasho reprocessing facility
· emergency diesel generator is supplying electricity

6. Tokai Dai-ni Nuclear Power Station:automatically shut down

7.Hamaoka Nuclear Power Station
·Units 4 and 5: are operating
·Unit 3:in periodic inspection outage

8. Kashiwazaki-Kariwa Nuclear Power Station
·Units 1,5,6 and 7: are operating
·Units 2,3 and 4: in periodic inspection outage

9. Tomari Nuclear Power Station
·Units 1,2 and 3: are operating

There is no report of abnormal monitoring readings around NPPs that indicate irregular value at this time.
There are no reports of fire or failure.
Staff of NISA are gathering information

Contacts: +81-(0)3-3501-1087
International Affairs Office
Nuclear and Industrial Safety Agency(NISA)

News Release

経済産業省
Ministry of Economy, Trade and Industry

March 11, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 4th Release)
(As of 18:45 March 11, 2011)

(*English version of the 3rd release has not published)

Nuclear and Industrial Safety Agency (NISA) confirmed the current conditions of Tomari Power Station, Hokkaido Electric Power Co., Inc.

Higashidori Nuclear Power Station and Onagawa Nuclear Power Station, Tohoku Electric Power Co., Inc

Higashidori Nuclear Power Station,., Fukushima Dai-ichi Nuclear Power Station and Fukushima Dai-ni Nuclear Power Station, Tokyo Electric Power Co., Inc. and works at the Japan Nuclear Fuel are as follows:

Walkdowns are continuing at these power stations.

1. Summary of Damage

(1) Time of Occurrence: 14:46 (UTC 5:46) March 11, 2011, Friday

(2) Epicenter: Off-Coast of Sanriku (North Latitude: 38; East Longitude: 142.9), 10km deep, M8.4

(3) Seismic Intensity in Japanese Scale
<Area of Seismic Intensity Larger Than and Including 4>
7: Northern Miyagi Prefecture
6+: Northern and southern Ibaraki Prefecture
5+: Sanpachi-Kamikita Aomori Prefecture
5-: Chuetsu, Niigata Prefecture
<Municipality of Seismic Intensity Larger than and Including 4>

6+: Naraha Machi, Tomioka Machi, Ookuma-machi, and Futaba-machi, Fukushima Prefecture

6-: Ishinomaki-city and, Onagawa town (by Seismograph of NPP)of , Miyagi Prefecture and Tokaimura, Ibaraki Pref.

5-: Kariwa-village, Niigata Prefecture
4: Rokkasho-village, Higashidori-village, Aomori Prefecture, Kashiwazaki-city, Niigata Prefecture and Yokosuka-city, Kanagawa Prefecture.
1: Tomari-mura, Hokkaido

1. The status of operation at Power Stations

a. Higashidori Nuclear Power Station, Tohoku Electric Power Co., Inc. (Higashidoori-mura, Shimokita-gun, Aomori Prefecture)

(1) The status of operation

Unit 1 (1,100MWe) : in periodic inspection outage

(2) Readings at monitoring post etc.

Variation in the monitoring post readings: No
Variation in the main stack monitoring readings: No

(3) Report concerning other malfunction

Report of fire: No

b. Onagawa Nuclear Power Station (Onagawa-machi and Ishinomaki-shi, Miyagi Prefecture)

(1) The status of operation

Unit 1 (524MWe): automatic shutdown
Unit 2 (825MWe): automatic shutdown
Unit 3 (825MWe): automatic shutdown

(2) Readings of monitoring post etc.

Variation in the monitoring post readings: No
Variation in the main stack monitor readings: No

(3) Report concerning other malfunction

Report of fire: CO2 extinguishment started at 17:15

c. Fukushima Dai-ichi Nuclear Power Station, Tokyo Electric Power Co.,Inc. (Okuma-machi and Futaba-machi, Futaba-gun, Fukushima Prefecture)

(1) The status of operation

Unit 1 (460MWe): automatic shutdown
Unit 2 (784MWe): automatic shutdown

Unit 3 (784MWe): automatic shutdown
Unit 4(784MW): in periodic inspection outage
Unit 5(784MW): in periodic inspection outage
Unit 6(1,100MW): in periodic inspection outage

(2) Readings at monitoring post etc.
Variation in the monitoring post readings: No
Variation in the main stack monitoring readings: No

(3) Report concerning other malfunction
Article 10* of Act on Special Measures Concerning Nuclear Emergency Preparedness (Fukushima Dai-ichi, Units 1,2 and 3)
(*A heightened alert condition)

d. Fukushima-Daini Nuclear PowerStation(TEPCO)
(Naraha-cho/Tomioka-cho, Futaba-gun, Fukushima pref.)

(1) The status of operation
Unit1(1,100MW): automatic shutdown
Unit2(1,100MW): automatic shutdown
Unit3(1,100MW): automatic shutdown
Unit4(1,100MW): automatic shutdown

(2) Readings at monitoring post etc.
Variation in the monitoring post readings: No
Variation in the main stack monitoring readings: No

(3) Report concerning other malfunction
Report of fire: No

2. JNFL(Rokkasyo-mura, Kamikita-gun, Aomori Pref)

(1) The status of operation
Reprocessing facility: Originally outage

(2) Report concerning other malfunction
Report of fire: No

2. Action taken by NISA

14:46 Set up of the NISA Emergency Preparedness Headquarters (Tokyo) immediately after the Earthquake

15:42: TEPCO reported to NISA in accordance with Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding

News Release

経済産業省
Ministry of Economy, Trade and Industry

Fukushima Dai-ichi, Units 1,2 and 3.
16:36: TEPCO notified to NISA in accordance with Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi, Units 1 and 2.

All facilities which have been confirmed safety will be eliminated from next press release.

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