



Group FR

(Records Withheld
In Part)

RST Log

Japan Earthquake and Tsunami Daiichi




Date/Time:	05/31/2011 07:33:39 (ET)	Sent agenda for 0800 Constortium telecon to group; see attached file for agenda. RST Chronologist - Andrew Hon at 16:15:10 on 9/26/2011
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	2850	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/31/2011 10:43:13 (ET)	Web EOC is being retired in favor of Sharepoint site. Last entry. RST Chronologist - Rick Hasselberg at 12:36:05 on 9/26/2011
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	2851	
Facility:		
Source:	Eva Brown	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/31/2011 10:43:13 (ET)	Web EOC is being retired in favor of Sharepoint site. Last entry.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	2862	
Facility:		
Source:	Eva Brown	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/31/2011 07:33:39 (ET)	Sent agenda for 0800 Constortium telecon to group; see attached file for agenda.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	2863	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/31/2011 07:30:46 (ET)	(late entry) Held 18:15 telecon with JST on May 27, 2011.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	

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Record:	2849	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/27/2011 14:59:05 (ET)	E-mailed agenda and Task List to the JST for this evenings 18:15 telecon.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	2848	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/27/2011 11:15:35 (ET)	JST sent information on the FD Hardened Vent System and Operator actions during evnet. Information is OUO at this time.
Position:	RST Accident Seq Analyst	
Name:	James Shea	
Record:	2847	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/27/2011 11:14:43 (ET)	RST Hardened Vent Meeting Notes
Position:	RST Accident Seq Analyst	
Name:	James Shea	Attached
Record:	2846	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/27/2011 11:13:29 (ET)	RST Hardened Vent Meeting with GE and INPO.
Position:	RST Accident Seq Analyst	
Name:	James Shea	See Attached Meeting Notes and Agenda
Record:	2845	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		

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Date/Time:	05/27/2011 09:27:50 (ET)	Held daily telecon with Japan Support team at 18:15 - Site team still needs TMI TS RST is woking on this item.
Position:	RST Accident Seq Analyst	
Name:	James Shea	
Record:	2844	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	05/25/2011 18:15:00 (ET)	Held daily telecon with Japan Support team at 18:15 - see attached agenda. For Task 5314, directed site team to the M drive Melcor analysis on SFP-4. New information regarding the FD hardened vent, site team will provide to RST when information is consolidated and pprocessed.
Position:	RST Accident Seq Analyst	
Name:	James Shea	
Record:	2843	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	05/25/2011 18:19:44 (ET)	Participated in 1815 telecon with JST from home.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	2842	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	05/25/2011 17:37:38 (ET)	Left message with John Buckley regarding 2/13 1980 Order and July 20 1979 Order. Requested that he scan and send to the RST when possible
Position:	RST Accident Seq Analyst	
Name:	James Shea	
Record:	2841	
Facility:		
Source:		

Address/Location:	
Attachment:	






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Date/Time:	05/25/2011 13:04:57 (ET)	Call with the International Consortium Canada / France / UK to discuss plant status and protective measures. UK shared that the EU has boycotts of certain areas and prefectures in Japan. NRC RST asked for the UK to send us that specific information. There was also a report that a new level gauge was being installed in the Unit-4 spent fuel pool.
Position:	RST Accident Seq Analyst	
Name:	James Shea	
Record:	2840	
Facility:		

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Facility:	The Call Agenda is attached	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/25/2011 12:58:27 (ET)	Call with the International Consortium Canada / France / UK to discuss plant status and protective measures.
Position:	RST Accident Seq Analyst	
Name:	James Shea	UK shared that the EU has boycotts of certain areas and prefectures in Japan.
Record:	2838	
Facility:		NRC RST asked for the UK to send us that specific information.
		The was also a report that a new level guage was being installed in the Unit-4 spent fuel pool.
		The Call Agenda is attached
		RST Accident Seq Analyst - James Shea at 13:04:45 on 5/25/2011
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/25/2011 12:58:27 (ET)	Call with the International Consortium Canada / France / UK to discuss plant status and protective measures.
Position:	RST Accident Seq Analyst	
Name:	James Shea	UK shared that the EU has boycotts of certain areas and prefectures in Japan.
Record:	2839	
Facility:		NRC RST asked for the UK to send us that specific information.
		The was also a report that a new level guage was being installed in the Unit-4 spent fuel pool.
		The Call Agenda is attached
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/24/2011 18:37:43 (ET)	Held daily telecon with Japan Support team at 18:15 - see attached agenda. For Task 5314, updated source term:
Position:	RST Accident Seq Analyst	The team wanted to stress that this is still needed; SFPs are the priority. They suggested we pick an effective date
Name:	Steven Laur	and describe what would happen at the time if the SFPs were to go dry, in terms of source term released.
Record:	2837	Regarding Task 5325, hardened vents, JST will be discussing later today SAMGs with JNES and NISA, who will
Facility:		bring the as-built, up-to-date plant drawings. JST should be able to determine design of hardened vents and get
		that information back to FST.
Source:	1815 telecon with JST	



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Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/24/2011 16:10:24 (ET)	Consortium Call Notes See Attached
Position:	RST Accident Seq Analyst	
Name:	James Shea	
Record:	2836	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/24/2011 15:43:58 (ET)	FD Waste Water Treatment Facility Information. RST Accident Seq Analyst - James Shea at 15:49:06 on 5/24/2011
Position:	RST Accident Seq Analyst	
Name:	James Shea	
Record:	2834	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/24/2011 15:43:58 (ET)	FD Waste Water Treatment Facility Information.
Position:	RST Accident Seq Analyst	
Name:	James Shea	
Record:	2835	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/24/2011 15:41:07 (ET)	Japan Site Team and Consortium Call Completed see attached agenda. Discussion with the Consortium on the Hardened Vent issue, there is a follow up call with the Hardened Vent issues with GE and INPO on Thursday this week.
Position:	RST Accident Seq Analyst	
Name:	James Shea	
Record:	2833	
Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	05/23/2011 18:15:00 (ET)	Phone Call with Japan Site Team Completed see agenda.
Position:	RST BWR Systems and Ops Analyst	

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Name:	James Shea	
Record:	2832	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/23/2011 17:26:43 (ET)	Added tracker item 5337 to track request of Japan Site Team for copy of TMI-2 technical specifications.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	2831	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/20/2011 14:25:12 (ET)	Phone Call with GE and INPO on the Hardened Vent Issue. Actions: SEE ATTACHED
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	2830	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/20/2011 14:54:27 (ET)	Updated Task Tracker 5305 based on information sent to the site team. I requested closure of this item if the JST has what they need.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2829	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/20/2011 10:19:10 (ET)	Concluded a phone call with the JST and our hydrologists to ensure as much clarification as possible as to the product needed. Hydrologists will submit an evaluation along with considerations for Japan regarding construction of their water curtain around the plant. This is due by Monday morning Japan time.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2828	
Facility:		
Source:		

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Address/Location:		
Attachment:		
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Date/Time:	05/20/2011 08:31:45 (ET)	Set up a 0900 call with the JST and the hydrology group to ensure HQ review addresses the site team concerns.
Position:	RST BWR Systems and Ops Analyst	Set up a 0900 call with the JST and the hydrology group to ensure HQ review addresses the site team concerns.
Name:	Timothy Kolb	Key players are Mark Miller, Bill VonTill, Ralph Cady, and Doug Mandeville.
Record:	2826	RST BWR Systems and Ops Analyst - Timothy Kolb at 08:32:49 on 5/20/2011
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/20/2011 08:31:45 (ET)	Set up a 0900 call with the JST and the hydrology group to ensure HQ review addresses the site team concerns.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2827	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/19/2011 15:32:21 (ET)	Travel Alert for Ocean has been drafted to allow shipping in the 50-mile evacuation zone of the Fukushima Daiichi Nuclear Plant.
Position:	RST BWR Systems and Ops Analyst	RST BWR Systems and Ops Analyst - James Shea at 15:37:04 on 5/19/2011
Name:	James Shea	
Record:	2824	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/19/2011 15:32:21 (ET)	Travel Alert for Ocean has been drafted to allow shipping in the 50-mile evacuation zone of the Fukushima Daiichi Nuclear Plant.
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	2825	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/19/2011 15:29:28 (ET)	Sent the Hardened Vent Agenda (attached) to GE and INPO for a Phone Call discussion tomorrow at 1300.

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Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	2823	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/19/2011 08:54:45 (ET)	RST Japan Team Call with Consortium
Position:	RST BWR Systems and Ops Analyst	Discussed plant status same as previous entry.
Name:	James Shea	
Record:	2822	Discussed the TEPCO Water Curtain Plan, Japan Team provided the additional data needed for NRC Staff evaluation.
Facility:		<p>NRC HQ requested that the Consortium would if possible provide insights or documents that outline lessons learned regarding water processing and pumping issues in post accident conditions.</p> <p>Requested from NRC Research and Consortium insights into the current Source Term fro SFPs (specifically Unit 4) and the Reactors (Unit 1-3)</p> <p>Requested Information from the Consortium specifically GE-H and INPO details on the Hardened Vent in the US and Japan. A conference call on the issue will be held at 1300 EDT on Friday May 20, 2011.</p> <p>Concern from Naval Reactors on the increased feed flow in Unit 3 and the effect this could have on the Steam Inerted environment.</p> <p>The TEPCO Revised Road Map has been posted by TEPCO the emphasis has changed from flood up to Recirc reactors and pools with a closed cooling systems.</p>
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/19/2011 12:38:55 (ET)	Provided the site team with information related to task #5305 for information on recircing water in containment or the Rx Bldg to a cooling system. Lessons from TMI would be good info to pass on to Japan. Attached is the responses.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2821	
Facility:		
Source:		
Address/Location:		
Attachment: 		

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Date/Time:	05/19/2011 12:34:44 (ET)	Provided updated information to Bill VonTill related to tasker #5310 that was received from the site team. See attached. Due date for review is still 5/23/2011.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2820	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	05/18/2011 19:37:46 (ET)	Call with Japan Team
Position:	RST BWR Systems and Ops Analyst	Injection to Unit 1 decreased to 6m3/hr
Name:	James Shea	Injection to Unit 3 increased to 18m3/hr with subsequent vessel temperature decrease.
Record:	2819	
Facility:		<p>Update Hydrology report from Japan forwarded to HQ and sent for review by NRC Staff (Task RST 5310). Additional Information on the plan will be sent by the Japan Team in the morning.</p> <p>Japan Team shared with NISA perspectives of the SAMGs.</p> <p>It was reported that NISA wants to get more in depth information and sharing of accident management and analysis.</p> <p>Planning to arrange a conference call with Sandia for review of the events using MELCOR.</p> <p>TMI Pumping containment lessons learned task RST 5305</p> <p>Potential Source Term task RST 5314</p> <p>HQ shared the information from the International group phone call. Water Processing Plant on site construction should start in the next two weeks. Plant should process 1,200 tons water a day. 100,000 tons of water inventory currently on-site.</p> <p>SFP from common pool was reported by the French representative will be transported to France.</p>
Source:		

Address/Location:


Attachment:

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Date/Time:	05/18/2011 18:01:32 (ET)	Call with Japan Team
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Position:	RST BWR Systems and Ops Analyst	Injection to Unit 1 decreased to 6m3/hr
Name:	James Shea	Injection to Unit 3 increased to 18m3/hr with subsequent vessel temperature decrease.
Record:	2817	
Facility:		<p>Update Hydrology report from Japan forwarded to HQ and sent for review by NRC Staff (Task RST 5310). Additional Information on the plan will be sent by the Japan Team in the morning.</p> <p>Japan Team shared with NISA perspectives of the SAMGs.</p> <p>TMI Pmumping containment lessons learned task RST 5305 Potential Source Term task RST 5314</p> <p>HQ shared the information from the International group phone call. It was reported that NISA wants to get more indepth information and sharing of accident management and analysis.</p> <p>Planning to arrange a conference call with Sandia for review of the events using MELCOR.</p> <p>Water Processing Plant on site construction shoud start in the next two weeks. Plant should process 1,200 tons water a day. 100,000 tons of water inventory currently on-site.</p> <p>SFP from common pool was reported by the french representative will be transported to France.</p> <p>RST BWR Systems and Ops Analyst - James Shea at 19:36:59 on 5/18/2011</p>
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	05/18/2011 18:01:32 (ET)	Call with Japan Team
Position:	RST BWR Systems and Ops Analyst	Injection to Unit 1 decreased to 6m3/hr
Name:	James Shea	Injection to Unit 3 increased to 18m3/hr with subsequent vessel temperature decrease.
Record:	2818	
		<p>Update Hydrology report from Japan forwarded to HQ and sent for review by NRC Staff (Task RST 5310). Additional Information on the plan will be sent by the Japan Team in the morning.</p> <p>Japan Team shared with NISA perspectives of the SAMGs.</p> <p>TMI Pmumping containment lessons learned task RST 5305 Potential Source Term task RST 5314</p>

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Facility:	<p>HQ shared the information from the International group phone call. It was reported that NISA wants to get more indepth information and sharing of accident management and analysis.</p> <p>Planning to arrange a conference call with Sandia for review of the events using MELCOR.</p> <p>Water Processing Plant on site construction should start in the next two weeks. Plant should process 1,200 tons water a day. 100,000 tons of water inventory currently on-site.</p> <p>SFP from common pool was reported by the french representative will be transported to France.</p>	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	05/13/2011 14:54:18 (ET)	Updated Task Tracker for: 4406, 5243, 5260
Position:	RST Accident Seq Analyst	
Name:	Larry Criscione	
Record:	2816	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	05/12/2011 22:21:41 (ET)	<p>Japan RST has requested your input on the need for the 18:30 EDT scheduled daily call for tomorrow (Friday, May 13, 2011). They are open to supporting the 18:30 EDT call if HQT (Headquarters Team) deems it necessary. They feel based on the workload and NRR requests that HQT should decide if the call should be held. Whatever is decided, please inform the Japan RST of the decision. If it is decided to cancel tomorrow's call please make sure to let the team know and when the next call will be (i.e. 18:30 EDT, Monday 16, 2011).</p>
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2814	
Facility:	<p>Forwarded this to JST:</p> <p>Unless we have some pressing issues, I suggest we let the Japan team know at the 0800 EDT call in the morning that our next call with them will be 0800 EDT on Monday morning.</p> <p>Rob - please take the lead to determine if we have pressing issues to discuss with Japan RST that cant wait until Monday.</p> <p>Call me in the morning, if we need to discuss further.</p> <p>RST Accident Seq Analyst - Antonios Zoulis at 22:44:04 on 5/12/2011</p>	

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Source:	Email	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	05/12/2011 22:21:41 (ET)	Japan RST has requested your input on the need for the 18:30 EDT scheduled daily call for tomorrow (Friday, May 13, 2011). They are open to supporting the 18:30 EDT call if HQT (Headquarters Team) deems it necessary. They feel based on the workload and NRR requests that HQT should decide if the call should be held. Whatever is decided, please inform the Japan RST of the decision. If it is decided to cancel tomorrow's call please make sure to let the team know and when the next call will be (i.e. 18:30 EDT, Monday 16, 2011).
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2815	
Facility:		
Source:	Email	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	05/12/2011 21:25:30 (ET)	Item 5277 closed based on feedback from JST as well as information provided by Chuck Casto site visit. Need for further evaluation unnecessary.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2812	
Facility:		<p>HQ RST:</p> <p>We appreciate HQ's efforts on this question.</p> <p>Based on feedback we have received this morning from the Japan Site Team members who visited Dai-ishi yesterday, we've concluded that the perceived tilt to the Unit 4 Rx Bldg is due to essentially cosmetic effects on the upper stories while the base of the building remains solid.</p> <p>Hence, we believe we have an adequate understanding of the situation with the Unit 4 Rx Bldg and HQ may consider our request with regard to an evaluation of the Unit 4 Rx Bldg tilt to be complete. Please close this tasking item.</p> <p>If we obtain additional information on this end which calls our current level of confidence into question, we may reopen a dialogue with HQ on this topic.</p> <p>Matthew Mitchell, Lead Japan RST</p> <p>RST Accident Seq Analyst - Antonios Zoulis at 21:36:26 on 5/12/2011</p>
Source:	Task Tracker and JETT	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	05/12/2011 21:25:30 (ET)	Item 5277 closed based on feedback from JST as well as information provided by Chuck Casto site visit. Need for further evaluation unnecessary.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2813	

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Facility:	
Source:	Task Tracker and JETT
Address/Location:	
Attachment:	

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Date/Time:	05/12/2011 18:38:51 (ET)	<p>All,</p> <p>Below is a high-level summary of our May 12, 2011, 18:30 EDT call:</p> <ul style="list-style-type: none"> • The Japan team indicated that they will be reviewing the information quoted in the DOE situation report on Reactor Pressure Vessel water level. It is the Japan Site Team (JST) understanding as well as the RST that this information may be new but does not impact the current status of the Fukushima reactors. • NRR's request for support on an SRM task to compare U.S. SBO requirements has been placed on hold and this has been communicated to the JST. • Informed the JST on new email RST01_F.Resource@nrc.gov for the new Headquarter Site Team (HQST) that will transition early next week out of the Operations Center. Telephone numbers and other information is still pending. Mr. Young stated that the HQST should obtain official passports in the event they are needed to travel to Japan. • Relayed a request from Naval Reactors on the basis for the structural reinforcement of the Unit 4 Spent Fuel Pool. The JST will follow-up but speculated that TEPCO is supporting the pool to reinforce the structure and to assure its ability to withstand future high magnitude earthquakes. <p>RST Antonios Zoulis</p>
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2811	
Facility:		
Source:	18:30 EDT Japan Site Team Call	

Address/Location:	
Attachment:	

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Date/Time:	05/12/2011 15:30:00 (ET)	<p>Forwarded information on Unit 4 spent fuel pool structural issue to JST and Naval Reactors:</p> <p>Official Use Only</p> <p>All,</p> <p>Below may be some insights on why TEPCO is focusing on shoring up the Unit 4 Spent Fuel Pool.</p> <p>RST</p> <p>Official Use Only</p> <p>From: Ali, Syed Sent: Thursday, May 12, 2011 3:24 PM To: RST01 Hoc; Way, Ralph; Brown, Eva; Taylor, Robert</p>
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2810	

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Facility:	Cc: Mitchell, Matthew; Hogan, Rosemary; Richards, Stuart; Case, Michael; Pires, Jose Subject: RE: Expected Due Date for Review of Structural Integrity of 1F3 and 1F4 Reactor Buildings
	<p>Here is my response for the ticket due date of May 16.</p> <p>Looking at the Unit 4 video of the leaning RB, we can also notice the picture of a high voltage tower nearby which also seems to be leaning somewhat, although not as much as the upper part of the SFP (this indicates that the camera may not have been completely plumb). While I was in Japan, we obtained sketches of the Unit 4 SFP which showed significant damage to the RB walls above the SFP and thus I would not rule out the possibility of the RB leaning, especially at the upper level. I recommend that TEPCO perform survey of the building to determine its plumb-ness and also monitor any future changes. I also understand that TEPCO was planning to shore up the SFP. This seems to be a prudent approach.</p> <p>As you said in your email, we'll wait until we get more info about the Unit 3 structural issues. Once we know the issues, we may request the supporting information we might need (structural drawings, extent of damage, etc) and then determine a date by which we can do some assessment, if necessary.</p> <p>Thanks, Syed</p>

Source: Email

Address/Location:

Attachment:

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Date/Time:	05/12/2011 14:24:57 (ET)	RST has asked Mike Brown and Chuck Norton for input regarding (1) the NR question regarding the Composite Document stability criteria and (2) a question from Trish Milligan about meeting Criterion 3 of the Composite Document to allow U.S. research vessels within 50 miles of Fukushima Daiichi. Taskers have not yet been established, until we can determine if there will be much effort involved in responding.
Position:	RST BWR Systems and Ops Analyst	
Name:	Andrew Kugler	
Record:	2809	
Facility:		
Source:	RST	

Address/Location:

Attachment: *This information is Official Use Only - Sensitive Internal Information*

Date/Time:	05/12/2011 10:48:00 (ET)	(b)(5)
Position:	RST BWR Systems and Ops Analyst	(b)(5) RST is pursuing this question.
Name:	Andrew Kugler	
Record:	2808	
Facility:		
Source:	NR	

Address/Location:

Attachment: 

(b)(6)

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Date/Time:	05/12/2011 10:18:56 (ET)	The Ops Center Executive Team was just contacted by the Chairman's office (Angela Coggins) and told to put Task 5260 on hold. (This was the task to gather information and compare the Japanese SBO requirements to U.S. SBO requirements.) It isn't clear what will happen from this point. But the Chairman's office will let us know when (if) to proceed.
Position:	RST BWR Systems and Ops Analyst	
Name:	Andrew Kugler	
Record:	2807	
Facility:		
Source:	ET	

Address/Location:

Attachment:

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Date/Time:	05/12/2011 09:57:39 (ET)	08:00am Japan Team and Consortium Call
Position:	RST BWR Systems and Ops Analyst	<p>Plant Status:</p> <p>Leak from Unit 3 through conduit has been stopped.</p> <p>Entered Unit 1, noted Rx water level may be lower than what was expected, Japan Team to get more information on this issue.</p> <p>Unit-3 temperatures which had trended up then down then up again has flattened out somewhat.</p> <p>Plan to install Unit-2 SFP cooling system from Rad-Waste area planned for the end of May.</p> <p>Path forward on Unit-3 is to assess the source term inside the building and the structural issues.</p> <p>3rd party report of leaning building has not been corroborated by TEPCO / Japan.</p> <p>New NRR Staff support structure to the NRC Japan team to replace the RST response staff is being put in place and is planned to start on Monday 5/16/2011 more details later.</p>
Name:	James Shea	
Record:	2806	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	05/12/2011 07:25:04 (ET)	Assumed the watch as BWR Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	Andrew Kugler	
Record:	2805	
Facility:		
Source:	RST	

Address/Location:

Attachment:

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Date/Time:	05/11/2011 23:42:04 (ET)	Updated the Japan one-pager, and agenda for 11:00am Consortium call for May 12, 2011.
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(b)(6)

10/23/13

~~OUO - Sensitive Internal Information~~

Position:	RST Accident Seq Analyst
Name:	See-Meng Wong
Record:	2804
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	05/11/2011 23:08:49 (ET)
Position:	RST Accident Seq Analyst
Name:	See-Meng Wong
Record:	2803
Facility:	
Source:	
Updated response section for task 5260 with due date agreed by JST.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	05/11/2011 23:07:28 (ET)
Position:	RST Accident Seq Analyst
Name:	See-Meng Wong
Record:	2802
Facility:	
Source:	
Closed task 5262 per JST concurrence.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	05/11/2011 23:06:03 (ET)
Position:	RST Accident Seq Analyst
Name:	See-Meng Wong
Record:	2801
Facility:	
Source:	
Closed task 5196 per JST concurrence.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	05/11/2011 23:04:25 (ET)
Position:	RST Accident Seq Analyst
Name:	See-Meng Wong
Record:	2800
Facility:	
Source:	
Closed task 5246 with e-mail from Travis Tate on Cesium release.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	

(b)(6)

16/495

10/23/13

~~OUO - Sensitive Internal Information~~

Date/Time: 05/11/2011 22:42:08 (ET)	Summary of 1830 EDT call:
Position: RST Accident Seq Analyst	1) JST pleased with HQ support on the site hydrology evaluation. Task 5262 closed.
Name: See-Meng Wong	2) JST agreed on due date of 5/18 for task 5260 on request for Japanese SBO requirements. Updated task response section upon receipt of ET e-mail with concurrence on due date.
Record: 2799	3) JST discussed the latest information on the Unit 3 temperature trends for update on Japan one-pager.
Facility:	4) JST requested line-up of HQ staff to support review of structural integrity of 1F3 and 1F4 reactor buildings. RST01 sent e-mails to inform named individuals of pending request.
Source:	5) Confirmed the response to task 5196 for review of Spent Fuel Pool #4 as final. Closed task 5196.

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 05/11/2011 09:30:00 (ET)	Phone call held with the International Team including representatives from Canada, UK and France. provided some information related to the SFP structural arrangement.
Position: RST BWR Systems and Ops Analyst	
Name: James Shea	
Record: 2798	
Facility:	
Source:	

Address/Location:	
Attachment:	

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Date/Time: 05/11/2011 08:00:00 (ET)	Held the 08:00 am Japan Team Conference Call. The Call centered around the NRC Staff (FISMI) recommendations concerning the plan to hydraulically encapsulate (water curtain) the site from further ground water release to the ocean.
Position: RST BWR Systems and Ops Analyst	
Name: James Shea	
Record: 2797	Bill Von-Till, Tom Nicholson and Ralph Cady along with Dr. Onishi of PNNL at the Japan Embassy participated on the phone call to summarize the NRC staff "Prespective" paper regarding the Japan encapsulation plan.
Facility:	In summary the staff suggested that TEPCO/ Japan should consider appropriate ground water monitoring, hydraulic gradient control (pumping) and processing as part of a comprehensive plan evaluation and mitigation strategy to address potential ground water releases to the ocean. The Japan Team will share these recommendations with TEPCO / JAPAN
Source:	

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 05/11/2011 07:04:02 (ET)	Assumed the watch as BWR Systems Analyst
Position: RST BWR Systems and Ops Analyst	
Name: James Shea	
Record: 2796	
Facility:	
Source:	

(b)(6)

17495

Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/11/2011 15:21:23 (ET)	Relieved Jim Shea.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2795	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/10/2011 16:46:26 (ET)	Sent email to Ron Cherry to determine if item 21b is still needed on the US-Japan Nuclear Related Assistance Tracker. See email:
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2785	
Facility:		Mr. Cherry,
		Item 21b has not been updated and yesterday during the consortium call DOE is questioning whether or not TEPCO is still requesting this equipment. Can we please close the loop on this issue and update this item accordingly?
		Thank you, RST Antonios Zoulis
		Ron Cherry indicated that the item is closed. Will follow-up to close item. RST Accident Seq Analyst - Antonios Zoulis at 20:07:43 on 5/10/2011
		Aleshia Duncan indicated the item should be closed: "Item 21b is closed by the Japanese declination of the offer in the Hosono Meeting May 10, 2011." RST Accident Seq Analyst - Antonios Zoulis at 20:35:48 on 5/10/2011
Source:	Email	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/10/2011 16:46:26 (ET)	Sent email to Ron Cherry to determine if item 21b is still needed on the US-Japan Nuclear Related Assistance Tracker. See email:
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2794	
Facility:		Mr. Cherry,
		Item 21b has not been updated and yesterday during the consortium call DOE is questioning whether or not TEPCO is still requesting this equipment. Can we please close the loop on this issue and update this item accordingly?

(b)(6)

Facility:	Thank you, RST Antonios Zoulis Ron Cherry indicated that the item is closed. Will follow-up to close item. RST Accident Seq Analyst - Antonios Zoulis at 20:07:43 on 5/10/2011	
Source:	Email	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/10/2011 19:59:44 (ET)	In order to support the needs of the Japan site team (Chuck), the JST requested that the due date for the HQ action to review the hydrology report be moved up to by 1800 Thursday, May 12 HQ time (0700 Friday, May 13 Japan time). They will review this change on the 2100 Wednesday, May 11 Japan time (0800 Wednesday, May 11 HQ time) hydrology call.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2792	
Facility:	This need to be accelerated to support our ability to provide feedback to their Japanese points of contact on Friday in Japan.	
Source:	Email	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/10/2011 19:59:05 (ET)	JST would like to know who is requesting the feedback and why on modifying the evacuation zone from 50 to 25 miles.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2791	
Facility:		
Source:	Email	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/10/2011 19:03:14 (ET)	All, Below is a high-level summary of our May 10, 2011, 18:30 EDT call:
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2788	
		<ul style="list-style-type: none"> • The Japan team indicated that the Unit 3 temperatures have been decreasing and the team will continue to monitor those trends. • Ralph Cady, Thomas Nicholson and Bill Von Till of the NRC and Dr. Onishi of PNNL will be on the 08:00 EDT call tomorrow, May 11 to discuss the proposed hydrology analysis. Industry information and other supporting documents have been forwarded to the experts and the site team. • NRR's request for support on an SRM task to compare U.S. SBO requirements to the Japanese was discussed with the Japanese Site Team (JST) and the team will obtain information on the Japanese SBO requirements and

(b)(6)

Facility:		<p>relay them to the RST.</p> <ul style="list-style-type: none"> • Informed the JST on email sent to the consortium to clarify request for feedback on the plant conditions and whether conditions at the site satisfy the criteria to reduce the evacuation zone. The JST PMT will follow-up with the HQ to make sure feedback request is clear. • Sent email to Department of State Ron Cherry on item 21b on the US-Japan Nuclear Related Assistance Tracker list to determine if equipment is still needed otherwise RST recommends closing the item. • The RST indicated that the daily 03:00 EDT call with the JST should be changed to a Tuesday and Thursday 08:00 EDT. The next routine call with the RST is scheduled 08:00 EDT, Thursday, May 12. The site team was also amicable to combining the Tuesday and Thursday consortium call with the new JST call as long as the agenda allowed for the JST items be conducted at the beginning of the meeting giving the team the option to sign-off if not needed for other items. The 18:30 EDT RST call will continue daily as scheduled. <p>RST Accident Seq Analyst - Antonios Zoulis at 19:09:55 on 5/10/2011</p> <ul style="list-style-type: none"> • Informed site team that the RST midnight shift will not be manned today May 10 - May 11 23:00 EDT to 07:00 EDT. <p>RST Accident Seq Analyst - Antonios Zoulis at 19:10:03 on 5/10/2011</p>
Source:	18:30 EDT Call Summary	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/10/2011 19:03:14 (ET)	All,
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	Below is a high-level summary of our May 10, 2011, 18:30 EDT call:
Record:	2790	
Facility:		<ul style="list-style-type: none"> • The Japan team indicated that the Unit 3 temperatures have been decreasing and the team will continue to monitor those trends. • Ralph Cady, Thomas Nicholson and Bill Von Till of the NRC and Dr. Onishi of PNNL will be on the 08:00 EDT call tomorrow, May 11 to discuss the proposed hydrology analysis. Industry information and other supporting documents have been forwarded to the experts and the site team. • NRR's request for support on an SRM task to compare U.S. SBO requirements to the Japanese was discussed with the Japanese Site Team (JST) and the team will obtain information on the Japanese SBO requirements and relay them to the RST. • Informed the JST on email sent to the consortium to clarify request for feedback on the plant conditions and whether conditions at the site satisfy the criteria to reduce the evacuation zone. The JST PMT will follow-up with the HQ to make sure feedback request is clear. • Sent email to Department of State Ron Cherry on item 21b on the US-Japan Nuclear Related Assistance Tracker list to determine if equipment is still needed otherwise RST recommends closing the item. • The RST indicated that the daily 03:00 EDT call with the JST should be changed to a Tuesday and Thursday 08:00 EDT. The next routine call with the RST is scheduled 08:00 EDT, Thursday, May 12. The site team was also amicable to combining the Tuesday and Thursday consortium call with the new JST call as long as the agenda allowed for the JST items be conducted at the beginning of the meeting giving the team the option to sign-off if not needed for other items. The 18:30 EDT RST call will continue daily as scheduled.

(b)(6)

RST Accident Seq Analyst - Antonios Zoulis at 19:09:55 on 5/10/2011

Source: 18:30 EDT Call Summary

Address/Location:

Attachment:

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Date/Time: 05/10/2011 19:03:14 (ET)

All,

Position: RST Accident Seq Analyst

Name: Antonios Zoulis

Record: 2789

Below is a high-level summary of our May 10, 2011, 18:30 EDT call:

Facility:

- The Japan team indicated that the Unit 3 temperatures have been decreasing and the team will continue to monitor those trends.
- Ralph Cady, Thomas Nicholson and Bill Von Till of the NRC and Dr. Onishi of PNNL will be on the 08:00 EDT call tomorrow, May 11 to discuss the proposed hydrology analysis. Industry information and other supporting documents have been forwarded to the experts and the site team.
- NRR's request for support on an SRM task to compare U.S. SBO requirements to the Japanese was discussed with the Japanese Site Team (JST) and the team will obtain information on the Japanese SBO requirements and relay them to the RST.
- Informed the JST on email sent to the consortium to clarify request for feedback on the plant conditions and whether conditions at the site satisfy the criteria to reduce the evacuation zone. The JST PMT will follow-up with the HQ to make sure feedback request is clear.
- Sent email to Department of State Ron Cherry on item 21b on the US-Japan Nuclear Related Assistance Tracker list to determine if equipment is still needed otherwise RST recommends closing the item.
- The RST indicated that the daily 03:00 EDT call with the JST should be changed to a Tuesday and Thursday 08:00 EDT. The next routine call with the RST is scheduled 08:00 EDT, Thursday, May 12. The site team was also amicable to combining the Tuesday and Thursday consortium call with the new JST call as long as the agenda allowed for the JST items be conducted at the beginning of the meeting giving the team the option to sign-off if not needed for other items. The 18:30 EDT RST call will continue daily as scheduled.

Source: 18:30 EDT Call Summary

Address/Location:

Attachment:

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Date/Time: 05/10/2011 17:59:09 (ET)

Position: RST Accident Seq Analyst

Name: Antonios Zoulis

Record: 2787

Facility:

Task Tracker 5260 has been open to the Japanese Site Team to obtain Japanese SBO requirements to support NRR and the SRM request. Pat Hiland is the NRR contact.

Source: Task Tracker

Address/Location:

Attachment:

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Date/Time: 05/10/2011 17:56:21 (ET)


Position: RST Accident Seq Analyst

Provided clarification on 11:00am consortium call item 3. See email below:

(b)(6)

Name:	Antonios Zoulis	All,
Record:	2786	
Facility:		<p>RST is providing clarification on the below statement:</p> <p>3) The Consortium was requested to provide feedback on whether the conditions to reduce the US Evacuation Zone from 50 miles are currently met. The Consortium participants asked for additional information regarding this request, and the NRC RST will be providing additional details.</p> <p>RST is requesting the consortium input on conditions at the site that would support the following criteria:</p> <p>Do plant conditions provide reasonable confidence that unanticipated conditions will not result in changes to evacuation recommendations and or an energetic release? Relevant plant conditions that limit the potential for an energetic release are:</p> <ul style="list-style-type: none"> a) Containment hydrogen concentration control to limit the likelihood of hydrogen deflagration or detonation; b) Containment depressurization ability; c) Adequate, redundant and reliable coolant inventory for heat removal in the cores and spent fuel pools; d) Reasonable assurance of subcriticality in the cores and spent fuel pools; e) Redundant and reliable power supplies; <p>Any feedback on whether these criteria have been met would be helpful.</p> <p>RST Antonios Zoulis</p>
Source:	Email	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/10/2011 16:46:26 (ET)	Sent email to Ron Cherry to determine if item 21b is still needed on the US-Japan Nuclear Related Assistance Tracker. See email:
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2793	Mr. Cherry,
Facility:		<p>Item 21b has not been updated and yesterday during the consortium call DOE is questioning whether or not TEPCO is still requesting this equipment. Can we please close the loop on this issue and update this item accordingly?</p> <p>Thank you, RST Antonios Zoulis</p>
Source:	Email	
Address/Location:		

(b)(6)

Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 05/10/2011 15:55:49 (ET)	Position: RST Accident Seq Analyst	Call placed to INPO in reference to the US-Japan Nuclear-Related Assistance Tracker item 21b. Request was given for INPO and DOE to discuss the details for this issue.
Name: Antonios Zoulis		
Record: 2784		
Facility:		
Source: Phone Call		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 05/10/2011 13:36:18 (ET)	Position: RST BWR Systems and Ops Analyst	Updated task #5196 with additional information from the NRC. Waiting on any consortium comments before closing task. Due date is tomorrow.
Name: Timothy Kolb		
Record: 2783		
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 05/10/2011 12:44:44 (ET)	Position: RST BWR Systems and Ops Analyst	Closed tracking item #5243 due to establishing a single point of contact for the site team for hydrology expertise.
Name: Timothy Kolb		
Record: 2782		
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 05/10/2011 12:36:06 (ET)	Position: RST BWR Systems and Ops Analyst	<p>Held 11:00 RST Consortium call. See attached agenda. When discussed input from the consortium on companies that deal with groundwater issues, the point was brought up that the NRC should not recommend companies, may be a conflict of interest.</p> <p>Consortium suggested that if the RST has a phone call with the site team at 0800 on Tuesdays and Thursdays then maybe the 11:00 am consortium call can be combined with this. This would eliminate duplication.</p> <p>The RST requested the consortium to provide comments relating to whether we meet the conditions to move the Japan US evacuation line from 50 miles to something less. The consortium requested a clarification on what exactly they are requested to provide. Agreed to develop a document that clearly identifies the consortium role.</p>
Name: Timothy Kolb		
Record: 2781		
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		

(b)(6)

10/23/13

~~OUO - Sensitive Internal Information~~

Date/Time:	05/10/2011 12:34:32 (ET)	Determined that Bill VonTill (FSME) will be the single point of contact for hydrology issues related to TEPCOs plan for a water curtain around the site. The next call with the Japan Site Team is at 0800 5/11/2011.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2780	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/10/2011 07:50:54 (ET)	Priorities for shift: Coordinate developing considerations from the hydrology specialists and the consortium regarding TEPCOs plan to install a water curtain around the plant.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2779	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/10/2011 07:50:33 (ET)	Relieved the watch as BWR Analyst at 0700.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2778	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/10/2011 07:17:02 (ET)	Turnover to Tim Kolb.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2777	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/10/2011 06:29:57 (ET)	Updated "Response" section for Tasker #5243.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2776	
Facility:		
Source:		

(b)(6)

24/495

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/10/2011 05:49:41 (ET)	Updated Japan One-Pager with follow up actions from 0300EDT call.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2775	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/10/2011 05:45:01 (ET)	Sent e-mail to Brian Holian with JST suggestions for answers to Senator Boxers questions.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2774	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/10/2011 04:49:30 (ET)	0300 EDT Call. Follow up actions are: 1. Sent e-mail to NRC hydrology experts with request to review translated hydrology analysis document and MsWord file of comments and questions. 2. Sent e-mail to LT to communicate change of 0300 EDT call to new time of 0800 EDT on Tuesday and Thursday, starting on May 12, 2011.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2773	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/09/2011 23:07:46 (ET)	Relieved Antonios Zoulis
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2772	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/09/2011 22:44:24 (ET)	Turnover to See-Meng Wong.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2771	

(b)(6)

Facility:	
Source:	Log
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	05/09/2011 21:48:00 (ET)
Position:	RST Accident Seq Analyst
Name:	Antonios Zoulis
Record:	2770
Facility:	<p>Email sent to close Japan Site Team Action. See email thread below:</p> <p>See below.</p> <p>RST Antonios Zoulis</p> <p>From: LIA08 Hoc Sent: Monday, May 09, 2011 8:43 PM To: RST01 Hoc Subject: RE: CLARIFICATION REQUESTED - attached questions about Japan emergency planning</p> <p>Closed item Earl R Libby</p> <p>Liaison Team Coordinator US Nuclear Regulatory Commission email: lia08.hoc@nrc.gov Desk Ph: 301-816-5185</p> <p>From: RST01 Hoc Sent: Monday, May 09, 2011 8:35 PM To: LIA08 Hoc Subject: FW: CLARIFICATION REQUESTED - attached questions about Japan emergency planning</p> <p>Do you have any info on this?</p> <p>From: Mitchell, Matthew Sent: Monday, May 09, 2011 8:34 PM To: RST01 Hoc Cc: Peterson, Hironori Subject: CLARIFICATION REQUESTED - attached questions about Japan emergency planning</p> <p>HQ RST:</p> <p>Japan RST requests clarification regarding whether HQ requires additional input from the Japan Site Team on the attached questions.</p> <p>If not, we will close our action item on this issue.</p>

(b)(6)

Matthew Mitchell, Lead
Japan RST

From: LIA08 Hoc
Sent: Tuesday, May 03, 2011 11:29 AM
To: Foggie, Kirk; Liaison Japan
Subject: attached questions about Japan emergency planning

Sorry...hit the SEND button too quickly. File of questions is attached. Jeff

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

Source: Email

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

Date/Time: 05/09/2011 21:45:35 (ET)

Sent DOE charts to Japan Site Team and saved file to M:\RST\Japanese Earthquake & Tsunami Response\DOE. File is also attached.

Position: RST Accident Seq Analyst

Name: Antonios Zoulis

Record: 2769

Facility:

Source: Email

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

Date/Time: 05/09/2011 21:45:14 (ET)

Updated one-pager with RST input.

Position: RST Accident Seq Analyst

Name: Antonios Zoulis

Record: 2768

Facility:

Source: One-pager

Address/Location:

Attachment:

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Date/Time: 05/09/2011 21:23:41 (ET)

Sent this to DOE:

Position: RST Accident Seq Analyst

Name: Antonios Zoulis

Record: 2767

Mr. Peko,

(b)(6)

Please see the site team response below. NRC is internally evaluating the proposal here at Headquarters.

RST

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

From: Mitchell, Matthew

Sent: Monday, May 09, 2011 8:58 PM

To: RST01 Hoc

Subject: FW: TEPCO "containemtn" and NISA directive

HQ RST:

See below for our best available information. We were asked to provide information to respond to the question below from Damian Peko (DOE) regarding the temporary secondary containment covers. Please forward to DOE as appropriate.

Note - we have already responded to the other question from Damian regarding the NISA directive that went out to the reprocessing facility.

Hence, if HQ RST concurs, we will consider our action to respond to this DOE request closed.

Matthew Mitchell, Lead
Japan RST

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

From: Temps, Robert

Sent: Monday, May 09, 2011 8:45 PM

To: Mitchell, Matthew

Subject: RE: TEPCO "containemtn" and NISA directive

Matt,

What we heard last week during the presentation was that the tarp would be made from polyester. We have been provided no further details regarding thickness, strength, etc...

Rob

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

From: Peko, Damian [mailto:Damian.Peko@Nuclear.Energy.gov]

Sent: Monday, May 02, 2011 1:09 PM

To: RST01 Hoc; Skeen, David

Subject: TEPCO "containemtn" and NISA directive

Facility:

(b)(6)

Dave, et al

I have two questions I would appreciate some help on.

As for the temporary containment TEPCO intends to build over the top of these units to help reduce/eliminate the spread of contamination, do we have any details. Is this intended to be a light fabric, poly or sheet metal type structure or something more substantial? Do we have any details?

Also, could I get a copy of the NISA directive the NPPS and reprocessing facilities to achieve enhanced safety relative to extended loss of offsite power?

Thanks

Damian

Source: Email

Address/Location:

Attachment:

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Date/Time: 05/09/2011 19:50:08 (ET)

Updated the RST01 Japan Team outlook list with current members.

Position: RST Accident Seq Analyst

Name: Antonios Zoulis

Record: 2765

Facility:

Source: Outlook Contact List

Address/Location:

Attachment:

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Date/Time: 05/09/2011 19:49:34 (ET)

All,

Position: RST Accident Seq Analyst

Name: Antonios Zoulis

Record: 2765

Below is a high-level summary of our May 9, 2011, 18:30 EDT call:

- Ralph Cady, Thomas Nicholson and Bill Von Till have been designated to support the Japan Site Team in reviewing the proposed groundwater control skirt. The RST sent the hydrology analysis to the NRC team members. The Japan Site Team will work to obtain a translation for them so that they can coordinate and provide feedback to the analysis. The analysis should focus on the feasibility of the study, any weaknesses or vulnerabilities to the proposal, suggestion to improve and increase the reliability of the system, and any comments that would help the site team support their Japanese counterparts in evaluating the analysis. The RST will coordinate providing information to the NRC experts as well as relaying back information to the site team. The NRC experts have requested a call to discuss the analysis with their Japanese counterparts and the Japan Site team will notify the RST on schedule and availability.

- The Japan team indicated that the Unit 3 rate of temperature increase has slowed and they would provide additional information for discussion during the 03:00 EDT call with the RST.

Facility:

(b)(6)

• The Japan Site team will provide their perspective on senate questions relayed to them by Brian Holian specifically:

o "Do you have an estimate of how long it will take before the Japanese are safely able to maintain cooling and effectively shutdown the reactors?"

The RST's opinion is that the senate questions should be addressed using previous assessments (i.e. Stable Conditions assessment) in lieu of developing new or potentially inconsistent statements regarding the long-term solution to the Fukushima Daiichi accident.

• The RST indicated the the daily 03:00 EDT call with the Japan Site Team should be changed to a lower frequency (M W F) and that the time be adjusted to accommodate a more reasonable time for the RST and HQ. The RST and site team will discuss these details at the May 10, 03:00 EDT call.

Source: 18:30 EDT Call

Address/Location:

Attachment:

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Date/Time: 05/09/2011 18:01:09 (ET)

Position: RST Accident Seq Analyst

Name: Antonios Zoulis

Record: 2764

Facility:

Source: Email

Emailed Cady, Ralph; Nicholson, Thomas; VonTill, Bill the hydrologist study for their review. They have been designated to support the Japan Site team.

Address/Location:

Attachment:

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Date/Time: 05/09/2011 17:01:07 (ET)

Position: RST Accident Seq Analyst

Name: Antonios Zoulis

Record: 2763

Facility:

Source: Email

Bill von Till from FSME has been offer as a hydrologist to support the Japan site team. In addition, Tom Nicholson and Ralph Cady will also be calling in for the RST call today.

Address/Location:

Attachment:

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Date/Time: 05/09/2011 16:47:29 (ET)

Position: RST Accident Seq Analyst

Name: Antonios Zoulis

Record: 2762

Facility:

Source:

Senate questions have been sent to NRR for discussion. The questions related to the period of time till the TEPCO plants will be stable. How long till permanent cooling is established? The second question concerns the issue of NRC personnel in Japan. How long to we expect the NRC to have a site team in Japan.

Address/Location:

Attachment:

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Date/Time: 05/09/2011 15:52:44 (ET)

Position: RST Accident Seq Analyst


Name: Antonios Zoulis

Tony Nakanishi translated new TEPCO presentation on U4 SFP support structure proposal. The file is attached and on the M:RST\Japanese Earthquake & Tsunami Response\TEPCO

(b)(6)

10/23/13

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Record:	2761	
Facility:		
Source:	Email	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/09/2011 15:36:28 (ET)	Farhad/Abdul stated that the U4 SFP information is similar to previous reviewed versions and still need the translation to confirm this assessment.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2760	
Facility:		
Source:	Email	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/09/2011 15:10:03 (ET)	Relieved by Antonios Zoulis.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2759	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/09/2011 14:51:23 (ET)	(b)(5)
Position:	RST BWR Systems and Ops Analyst	
Name:	Andrew Kugler	
Record:	2758	
Facility:		
Source:	RST	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/09/2011 14:14:39 (ET)	The RST 11:00 am Consortium call will now be on Tuesdays and Thursdays only unless an issue needs to be worked immediately. Updated the new contact list for Japan team and all of our contacts.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2757	
Facility:		
Source:		
(b)(6)		

31/495

Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information</i>		
Date/Time:	05/09/2011 12:30:47 (ET)	<p>Opened new task associated with supplying a Hydrologist on-call for the site team. Concerns with the water curtain that TEPCO plans to install around the site have been raised by the team. The concerns deal with underground trenches and piping and the fact that heavy rainfall would be prevented from leaving the site. Attached is the document that the site team sent to RST for review.</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2756	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information</i>		
Date/Time:	05/09/2011 11:37:56 (ET)	<p>Notes from 11:00am Call:</p> <p>(1) Plant status not much to report, U-1 reactor building doors have been opened after ventilating, TEPCO pursuing swap to feedwater line as path for makeup water for U-3.</p> <p>(2) For U-3, injecting 9 cubic meters/hr, temperatures still rising, moved up to priority 2 because of temperatures, may raise injection rate to 10 cubic meters/hr, with boron.</p> <p>(3) We received a task this AM to have a hydrogeologist on the call with the Japan Team this evening to discuss the curtain wall. RES (Don Marksburry) may be able to provide a hydrogeologist. Fred Brown said he sent a 1-page document to the Consortium on this issue last week, showing where the wall will be. This was boiled down from a TEPCO document.</p> <p>(4) No new comments from Consortium on the relaxation of the evacuation zone. DOE (Peco) indicated that it doesn't have a concern with the risk of a change in conditions (e.g., energetic release, SFP 4 failure) that would affect the recommendations.</p> <p>(5) Reminded all that comments on the planned supports for the U-4 SFP are due by 5/11/11. RST is working to get the document translated.</p> <p>(6) RST will relocate next week to make room for the National Level Exercise. We will forward any new phone numbers or email addresses when known. Asked the Consortium to email current contact information so we can be sure how to reach people.</p> <p>(7) Discussed reducing the frequency of the 11:00am call to just Tuesday and Thursday each week. The members of the Consortium were OK with this. RST will confirm this is acceptable to ET and inform everyone.</p> <p>(8) Damian Peco indicated that the Japan Team was trying to find out the protocol to have a call with Gauntt at ANL. He asked RST to give him a separate call.</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Andrew Kugler	
Record:	2755	
Facility:		
Source:		RST, Consortium
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information</i>		
Date/Time:	05/09/2011 10:21:20 (ET)	<p>Notes from 0830 EDT call with Chuck Casto.</p> <p>(1) Issue that needs attention: NRC review of TEPCO plans for a water curtain to contain groundwater around the 4 units. This document was received some time back and reviewed by NRC. Japan Team indicates that TEPCO is looking for a discussion of issues related to it. For example, is it possible to pump and treat the affected volume</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Andrew Kugler	

(b)(6)

Record:	2754	(including rainfall)? And what issues may arise related to existing underground pipes/trenches? The plan is to have a call with the Japan Team when were ready.
Facility:		<p>(2) NOAA is in Japan gathering data.</p> <p>(3) Regarding the travel advisory, the Embassy is going to take another run at getting it resolved. Theres no clear owner at State to push it and resolve any differing views (e.g., some are uncomfortable with the 50-yr PAGs).</p> <p>(4) Chubu utility announced plans to shut down its nuclear unbits at Hamaoka. Japanese press reported that the U.S. was pushing for this. The Japan Team has no knowledge of this and played no role in it. The press was reporting that DoD and the Dept. of State were involved.</p> <p>(6) Theres ben no real change in plant status. TEPCo announced a plan to change the cooling water path for U-3 because of concerns that water from the current path may no be reaching the core.</p>
Source:	RST	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/09/2011 07:44:05 (ET)	Additional information received from Japan team for SFP4 analysis was forwarded to NRR personnel for translation and review.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2753	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/09/2011 07:05:03 (ET)	Signed in as second BWR Ops Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	Andrew Kugler	
Record:	2752	
Facility:		
Source:	RST	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/09/2011 06:38:36 (ET)	Received additional information from the Japan team related to SFP4 structural support the Japanese are planning to install. Forwarded additional information to consortium for eveluation. Related to Tasker #5196 due 5/11.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2751	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		


(b)(6)

Date/Time:	05/09/2011 06:35:35 (ET)	Evaluating a recommendation from the Japan Team to increase the priority of Unit 3 to Priority 2 based on temperatures in the PCV increasing slowly.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2750	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/09/2011 06:35:09 (ET)	Manned the watch as BWR Ops Analyst.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2749	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/06/2011 15:41:00 (ET)	Securing the watch until Monday morning.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2748	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/06/2011 15:39:32 (ET)	There is a scheduled 1:00 pm call with us and the PMT on Monday regarding the relaxation criteria for the 50 mile zone. RST to supply plant status.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2747	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/06/2011 13:05:56 (ET)	Held 11:00 Consortium Call. See attached agenda.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2746	
		Chuck Norton provided a scenario that explains the increasing temperatures on Unit 3 from the coreum heating up due to decay heat and remelting the outer shell. This causes the containment parameters to increase and then when the coreum cools again the temps go down. This can happen several times (b)(4),(b)(5)
(b)(6)		

10/23/13

~~DUO - Sensitive Internal Information~~

4/5

Facility:	(b)(4),(b)(5)	
Reminded consortium that the review of the Support diagrams for SFP4 is due May 11. DOE questioned if there was any analysis that requires this extra support. Next call Monday 5/9.		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/06/2011 07:04:23 (ET)	Relieved the watch. Turnover items: TEPCO has published plans for ventilation system for 1F1 Reactor Bldg. Unit 3 vessel and containment temperatures still increasing, TEPCO to increase flow to vessel. Consortium provided comments to TEPCOs 1F4 SFP plan and TEPCO to revise with more detail.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2745	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/05/2011 23:30:21 (ET)	relieved by Rao Karipineni
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2744	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/05/2011 06:01:35 (ET)	Closed Task 4769, final RST Assessment Revision 2 issued to Consortium for concurrence on 4/22/2011, and final NRC concurrence on 4/28/2011. RST BWR Systems and Ops Analyst - Charles Norton at 23:29:36 on 5/5/2011
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2730	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/05/2011 20:05:14 (ET)	1815 call with Japan Team:
(b)(6)		

35495

Position:	RST BWR Systems and Ops Analyst	The JT indicated that the following taskers can be closed: 5027 The team has received information on the Organizational Changes following post accident response. This information was shared with the Japanese. 5019 The Japan Team has received information from HQ concerning concerning sources of water to F2 turbine building. Response is adequate to close item. 5219 The JT has the information related to mineral build up concerns with fresh water injection. They will share this information with NISA/TEPCO as appropriate. 5010 was closed not 5019 (typo) RST BWR Systems and Ops Analyst - Charles Norton at 20:41:36 on 5/5/2011
Name:	Charles Norton	
Record:	2741	
Facility:		
Source:	Japan Team	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/05/2011 20:05:14 (ET)	1815 call with Japan Team: The JT indicated that the following taskers can be closed: 5027 The team has received information on the Organizational Changes following post accident response. This information was shared with the Japanese. 5019 The Japan Team has received information from HQ concerning concerning sources of water to F2 turbine building. Response is adequate to close item. 5219 The JT has the information related to mineral build up concerns with fresh water injection. They will share this information with NISA/TEPCO as appropriate.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2742	
Facility:		
Source:	Japan Team	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/05/2011 16:27:57 (ET)	1515 Assumed the BWR analyst positon
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2740	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		

(b)(6)

Date/Time:	05/05/2011 15:18:02 (ET)	Relieved by Chuck Norton
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2739	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/05/2011 13:10:31 (ET)	Task 4691 - TMI Instrumentation
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	Provided several attachments and emails to Vince Holahans request for information on failure of gauges at TMI.
Record:	2738	See folder M:\RST\Japanese Earthquake & Tsunami Response\RST Assessment of Fukushima Daiichi\TMI Instrumentation Documentation
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/05/2011 13:09:15 (ET)	Closed task 4922 - Questions 1 and 2 answered by the RST assessment document Rev. 2
Position:	RST BWR Systems and Ops Analyst	Question 3 - Answered by (b)(4)
Name:	Michael Brown	
Record:	2737	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/05/2011 13:08:44 (ET)	Assumed the shift - 0645
Position:	RST BWR Systems and Ops Analyst	RST BWR Systems and Ops Analyst - Michael Brown at 13:09:09 on 5/5/2011
Name:	Michael Brown	
Record:	2735	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/05/2011 13:08:44 (ET)	Assumed the shift - 0645
Position:	RST BWR Systems and Ops Analyst	
		(b)(6)

Name:	Michael Brown	
Record:	2736	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/05/2011 06:58:12 (ET)	Here is NRRs response to Concerns with TARP installation over the Reactor Building
Position:	RST BWR Systems and Ops Analyst	<p>As you requested, I briefly reviewed the information you forwarded relative to the proposed reactor building tarp covering. Considering that the information in the slides provided by the NRC Japan team is high level, my observations are as follows:</p> <p>NOTE: Due to the nature of the information, some of the comments below may have already been incorporated in the design.</p> <ol style="list-style-type: none"> 1. The site team already identified the need for the inclusion of the seismic/wind, snow/ice loadings in the design of the tarp support structure. I would like to add that special attention should be made to ensure seismic/wind stability of the structure during different stages of the construction to preclude any adverse effect on the temporary cooling systems that are currently used to cool the reactor and the SFP. 2. From the review of drawings provided, it appears that the tarp support structure is being erected as modules. Specifically, to complete Step 5 and Step 6, the columns will need to be spliced in an area that may expose the workers to radiation from the SFP and/or the reactor. The modularization concept of this structure and the details for splicing the columns should be designed to minimize exposure and erection time, where possible. 3. The worst loading these preassembled modules will most probably experience is during the lift operation. Due to the size of the structure, special construction aid (construction bracing, etc.) may need to be incorporated in the design of these modules to ensure structural integrity during lift. Also, the location and logistics of all planned lifts should be evaluated to ensure the continued functionality of the reactor and SFP cooling systems. 4. It appears that there will be a column erected on the roof of the Radwaste building. The structural integrity assessment of the roof structure should consider all the recent events (earthquake, tsunami, explosion, etc.) that have occurred at the site. 5. There is not enough information on the drawings to show how the bottom edge of the tarp is sealed. If the purpose of the tarp is to seal the building, special attention to this construction detail will be needed. <p>Abdul Sheikh and Ata Istar (from License Renewal) also provided the following comments:</p> <ol style="list-style-type: none"> 6. Under the environmental and weather conditions tarp may deteriorate in an accelerated manner – thus, they may need to be replaced frequently. The frequency of replacements may be based on the locations of tarp sheets on the containment structures. Considering from the perspective of safety/radiological effects on personnel, the tarp sheet should be sized, and the end attachments of tarp sheets to the steel structures should be designed in such integrity that the replacement process should be handled without any complication and in an expeditious manner. 7. Has the designer considered wind loads acting on the tarp and its impact on the steel framing design? 8. The heavy crawler crane which will transport the steel structural assemblies from the lay down area to the Unit 1
Name:	Michael Brown	
Record:	2734	
Facility:		

(b)(6)

reactor building will travel on the site road. Usually this road is compacted and reinforced to support the crane load. In addition, there are safety related commodities located below the road surface. These commodities need to be assessed for supporting the crane load, potential damage and its impact on current status of the plant.

9. It appears that during construction, the crane will lift heavy structural assemblies over the containment/reactor head and spent fuel pool. Has the load drop scenarios on the exposed containment vessel head and spent fuel pool been considered. The containment vessel head is usually only 1-1/2 inch thick, not designed for impact loads, and can be damaged from a heavy load drop.

10. Will the trusses of the new roof structure be designed for supporting monorails/cranes to lift reactor vessel head, containment vessel head, and fuel assemblies? If not, is there adequate clearance and space to install these cranes or rigging devices to lift these commodities?

11. The vertical column and horizontal trusses will require temporary supports during installation. Has the designer considered this aspect of the design?

12. The heavy lift during step 5 of the installation sequence will require simultaneous horizontal and vertical alignment at four points. These four points will be located about 150-200 feet apart. Has the designer considered this issue in the design and detailing of the structure.

13. To design the complete structure, comprehensive field survey for as-built conditions, clearances and interferences from different commodities will be required.

Source: NRR

Address/Location:

Attachment:

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Date/Time: 05/05/2011 06:49:18 (ET)

Relieved by Mike Brown

Position: RST Accident Seq Analyst

Name: See-Meng Wong

Record: 2733

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 05/05/2011 06:13:59 (ET)

Updated NRC EOC Sitrep "Unit Status" to be consistent with Fukushima Daiichi Status Summary 5/5 0700EDT based on latest NISA and TEPCO data.

Position: RST Accident Seq Analyst

Name: See-Meng Wong

Record: 2732

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 05/05/2011 06:13:29 (ET)

Closed Task 4769, final RST Assessment Revision 2 issued to Consortium for concurrence on 4/22/2011, and final NRC concurrence on 4/28/2011.

Position: RST Accident Seq Analyst

Name: See-Meng Wong

Record: 2731

(b)(6)

Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	05/05/2011 06:01:35 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Michael Brown
Record:	2743
Facility:	
Source:	
Closed Task 4769, final RST Assessment Revision 2 issued to Consortium for concurrence on 4/22/2011, and final NRC concurrence on 4/28/2011.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	05/05/2011 05:51:13 (ET)
Position:	RST Accident Seq Analyst
Name:	See-Meng Wong
Record:	2729
Facility:	
Source:	
Updated Fukushima Daiichi Status Summary 5/5 0700 EDT with 5/4 0600 JDT NISA data.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	05/05/2011 03:49:12 (ET)
Position:	RST Accident Seq Analyst
Name:	See-Meng Wong
Record:	2728
Facility:	
Source:	
0300 Call. Japan team was not present and call was terminated after 10 minutes. Sent e-mail to Japan Site Team for consideration of 3 items that would benefit from clarifications.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	05/04/2011 23:02:58 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Charles Norton
Record:	2727
Facility:	
Source:	
Relieved by See-Meng Wong	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	05/04/2011 21:53:54 (ET)
1820 Site call with the Japan Team.	

(b)(6)

Position:	RST BWR Systems and Ops Analyst	No changes in plant status trends. The Japan team has no new issues.
Name:	Charles Norton	
Record:	2726	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/04/2011 16:06:36 (ET)	assumed BWR Analyst Position
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2725	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/04/2011 15:56:06 (ET)	Relieved by Chuck Norton
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2724	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/04/2011 14:48:07 (ET)	Agenda - Minutes
Position:	RST BWR Systems and Ops Analyst	11:00 am Consortium Call 5/4/2011
Name:	Michael Brown	
Record:	2723	
		<p>1. Plant status update [significant changes since last call]</p> <p>a. No major change in plant status</p> <p>b. Still having issues with Unit 3 instrumentation failing (DW Temperatures on Unit 3 are believed to be failing)</p> <p>c. TEPCO is investigating removing a bonnet on a Unit 1 shutdown cooling valve and connecting the line up to a closed loop cooling system</p> <p>d. TEPCO is starting to install a groundwater curtain around the site to prevent groundwater intrusion to the site and prevent contaminated groundwater from leaving the site.</p> <p>2. TEPCO provided some plans for the Superstructure/Tarp to be installed over 1F1. Site team has developed a list</p>

(b)(6)

of Hazards that could be introduced by installing this cover. We need your final comments to support the Japan Team 1800 today (May4). Consortium to discuss preliminary comments at 11:00 AM call. Final comments to Site team due by 6:15PM, May 4 (NRC HQ Time)

a. Received some comments back from NRR and the consortium

i. NRR suggested that they might want to look at the stability of the structure during construction – consider seismic effects if an aftershock should occur while structure is being built.

ii. DOE suggested that significant expertise exists in Japan to build structures similar to the one being contemplated for Unit 1. Specifically they mentioned that structures similar to the one being contemplated are build over old buildings, statues and other landmarks prior to reconstruction or renovation work being performed. DOE suggested that METI might want to reach out to these companies to enlist their assistance.

iii. DOE also had concerns about the estimated dose of workers in constructing this structure.

iv. DOE inquired if this proposed structure would include an overhead crane that could be use to remove fuel and other debris from the reactor and SFP.

v. (b)(5)

(b)(5)

vi. A concern was also raised as to how long the expected structure (assumed to be made of polyethylene) would last due to exposure to sun, rain, etc. How would the structure be replaced?

3. Requested site team to question TEPCO on whether there is a bubble under the vessel bottom head. Will provide answer when we receive it. Could be a potential problem with US plants.

a. No answer from site team.

b. (b)(5)

c. LTJG Bush provided an email indicating that Monticello (a BWR 3 of similar vintage as Fukushima 1) did not have weep holes and a 2' pocket of non-condensable gases would be trapped beneath the vessel (b)(5)

(b)(5)

(b)(5) RST indicated that they would ensure Randy Gauntt was provided this information for his analysis.

4. Any new info on TMI failed instrumentation? Send an email whether yes or no.

a. No new information was provided.

5. Created a tasker to determine if NRC is aware of any way to chemically remove fuel from the damaged reactors. Will provide info to INPO.

a. Tasker has been created. Results of review indicated that there may be chemicals that could dissolve the fuel, however, using chemicals to remove fuel is not desired. Difficult to keep track of fission products, etc.

6. Have not determined what TEPCO meant by installing a "water gauge." Will attempt to determine by tomorrow's phone call.

a. Clarified issue and issue was resolved. Removing item from list

7. Site Team sent TEPCO's support diagrams for SFP4. Consortium and NRC HQ to review and provide comments to Site Team by May 11, 2011.

a. Ensured all members of consortium have information.

Facility:

(b)(6)

8. Possible entry by TEPCO into 1F1 Reactor Building. May be planning on a RHR valve bonnet removal to connect a closed loop cooling system.

a. Verified this action was being considered.

b. No further information available

c. (b)(4)

9. Possible building of a dike around the site by TEPCO to contain radioactive water. Any more information on this?

a. No new information available

Source: 11am call

Address/Location:

Attachment:

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Date/Time: 05/04/2011 14:47:33 (ET)

Assume the watch around 7:30am

Position: RST BWR Systems and Ops Analyst

Name: Michael Brown

Record: 2722

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 05/04/2011 07:03:46 (ET)

Updated one-pager

Position: RST Accident Seq Analyst

Updated agenda for 11AM consortium call

Name: nageswara karipineni

Record: 2721

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 05/04/2011 07:01:46 (ET)

Participated in 0300 phone call. After call, forwarded CAMS updated plots to Site Team

Position: RST Accident Seq Analyst

Name: nageswara karipineni

Record: 2720

Facility:

Source:

Address/Location:

(b)(6)

Attachment:

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Date/Time: 05/04/2011 06:58:02 (ET)	Received SFP4 support drawings from Site Team. Sent them to consortium and NRR for review.
Position: RST Accident Seq Analyst	
Name: nageswara karipineni	
Record: 2719	
Facility:	
Source:	

Address/Location:

Attachment:

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Date/Time: 05/04/2011 00:13:14 (ET)	Assumed RST watch
Position: RST Accident Seq Analyst	
Name: nageswara karipineni	
Record: 2718	
Facility:	
Source:	

Address/Location:

Attachment:

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Date/Time: 05/03/2011 23:44:04 (ET)	Relieved by Rao Karipineni
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2717	
Facility:	
Source:	



Address/Location:

Attachment:

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Date/Time: 05/03/2011 19:00:43 (ET)	1820 Call with the Japan Site Team Plant Status changes: Temperatures are trending up on 1F3. Cooling has changed to challenged on the stop light indicator. Priorities for the Japan team are as follows: 1. Water Management 2. Cooling: -finding redundant injection points -filling the RPVs -closed loop cooling -Nitrogen injection to F2 & F3 PCV
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2712	

(b)(6)

Facility:	3. Degrading Instrumentation: -acoustic monitoring for level indication -targeting implementation by 5/31 4. Removing Debris 5. Supporting F4 pedestal Priority 5 is actually supporting 1F4 fuel pool not pedestal RST BWR Systems and Ops Analyst - Charles Norton at 23:34:51 on 5/3/2011	
Source:	Japan Team Call	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/03/2011 23:04:21 (ET)	The Japan team requests that we have the Consortium and HQ comment on the Japan teams concerns with the tarp coverings for the Fukushima Units.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	Information needed for 1800 call with Japan team on May 4. RST BWR Systems and Ops Analyst - Charles Norton at 23:09:07 on 5/3/2011
Record:	2714	
Facility:		
Source:	Japan Team	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/03/2011 23:04:21 (ET)	The Japan team requests that we have the Consortium and HQ comment on the Japan teams concerns with the tarp coverings for the Fukushima Units.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2715	
Facility:		
Source:	Japan Team	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	05/03/2011 23:03:22 (ET)	Closed the following taskers: 5001, 5004, 5095, 5167, 5117.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2713	

(b)(6)

10/23/13

OUO - Sensitive Internal Information



Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/03/2011 19:00:43 (ET)	1820 Call with the Japan Site Team
Position:	RST BWR Systems and Ops Analyst	Plant Status changes: Temperatures are trending up on 1F3. Cooling has changed to challenged on the stop light indicator.
Name:	Charles Norton	
Record:	2716	
Facility:		Priorities for the Japan team are as follows: 1. Water Management 2. Cooling: -finding redundant injection points -filling the RPVs -closed loop cooling -Nitrogen injection to F2 & F3 PCV 3. Degrading Instrumentation: -acoustic monitoring for level indication -targeting implementation by 5/31 4. Removing Debris 5. Supporting F4 pedestal
Source:	Japan Team Call	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/03/2011 15:21:56 (ET)	Relieved Tim Kolb as BWR Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2711	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		

(b)(6)

46/495

Date/Time:	05/03/2011 15:10:05 (ET)	Relieved by Chuck Norton.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2710	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/03/2011 14:59:57 (ET)	Forwarded proposed U-1 Superstructure pictures to Consortium for information. They are located on the N: drive.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2709	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/03/2011 13:55:10 (ET)	Attended Commissioner TIA briefing. Sent email to site team to address question from a TIA regarding an article he read this past weekend that mentions high levels of Cs 134 and Iodine 131 in turbine building water which may indicate ongoing criticalities. Requested the team to address this on the 0300 call.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2708	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/03/2011 13:53:15 (ET)	Closed out tracker item 5157 which deals with the request from TEPCO for chemical removal of core material. NRC did not identify a viable chemical means.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2707	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/03/2011 12:18:41 (ET)	Forwarded responses to Congressman Markey staffer questions to appropriate NRC staff for review. This version has the Site Team comments incorporated. Closing Task Tracker #5142.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2706	

(b)(6)

Facility:	
Source:	
Address/Location:	
Attachment:	
<i>This information is Official Use Only - Sensitive Internal Information.</i>	
Date/Time: 05/03/2011 12:08:24 (ET)	Held the 11:00 Consortium call. See attached agenda with plant status. Consortium requested copies of design of the superstructure/tarp planned to cover unit 1. Design is on the N: drive under "drawings." Agreed to send to consortium.
Position: RST BWR Systems and Ops Analyst	
Name: Timothy Kolb	
Record: 2705	
Facility:	
Source:	(b)(4), (b)(5)
Address/Location:	
Attachment:	
<i>This information is Official Use Only - Sensitive Internal Information.</i>	
Date/Time: 05/03/2011 07:11:00 (ET)	Relieved the midnight shift. Main priority is to work on the Markey responses.
Position: RST BWR Systems and Ops Analyst	
Name: Timothy Kolb	
Record: 2704	
Facility:	
Source:	
Address/Location:	
Attachment:	
<i>This information is Official Use Only - Sensitive Internal Information.</i>	
Date/Time: 05/03/2011 05:16:54 (ET)	Updated Japan one-pager to state that Japan Site Team and INPO have not received any information from TEPCO regarding the ability of noncondensables gasses (bubble) to vent through the support skirt.
Position: RST Accident Seq Analyst	
Name: See-Meng Wong	
Record: 2703	
Facility:	
Source:	
Address/Location:	
Attachment:	
<i>This information is Official Use Only - Sensitive Internal Information.</i>	
Date/Time: 05/03/2011 05:14:42 (ET)	Reviewed updated Japan one-pager prepared by Rao Karipineni.
Position: RST Accident Seq Analyst	
Name: See-Meng Wong	
Record: 2702	
Facility:	
Source:	
Address/Location:	

Attachment:

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Date/Time:	05/03/2011 05:05:34 (ET)	Received Japan Site Team comments on RST draft responses to Congressman Ed Markeys letter (see Mark Millers e-mail). Japan Site Team comments confirmed that RCIC at 1F2 continued to operate for 67 hours. Forwarded Japan Team comments to ET (OST01).
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2701	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	05/03/2011 05:02:41 (ET)	Per 0300 call, sent Rob Taylors e-mail of April 26, 2011 to Japan Site Team for followup review to determine completion of Tasker 5001. RST Accident Seq Analyst - See-Meng Wong at 05:05:08 on 5/3/2011
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2699	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	05/03/2011 05:02:41 (ET)	Per 0300 call, sent Rob Taylors e-mail of April 26, 2011 to Japan Site Team for followup review to determine completion of Tasker 5001.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2700	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	05/03/2011 00:11:23 (ET)	Briefed ET on the main items for discussion with Japan Team at 0300 call.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2698	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	05/02/2011 23:30:27 (ET)	Came on shift.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2697	
Facility:		
Source:		

(b)(6)

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/02/2011 15:10:30 (ET)	Relieved by Ray Skarda.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2696	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/02/2011 14:42:21 (ET)	Sent a list of people that are in Japan to DOE to help with coordinating efforts. The list provides no PII.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2695	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/02/2011 13:53:20 (ET)	Received several questions from Congressman Markeys staff via David Decker 5/2/2011. These need answers based on a hearing this Wednesday.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2694	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/02/2011 11:56:46 (ET)	<p>Attended the 11:00 am Consortium call. Discussed plant status as of 5/2/2011. INPO requested if anyone knew of a chemical process that could be used to remove fuel from the damaged vessels instead of mechanical removal. DOE will look into this.</p> <p>(b)(4), (b)(5)</p> <p>will be asked of the site team at the 0300 phone call.</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2693	
Facility:		
Source:		
Address/Location:		


(b)(6)

Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/02/2011 06:47:15 (ET)	Assumed the watch.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2692	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	05/01/2011 07:32:35 (ET)	L. Vick "on-call" duty.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2691	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/30/2011 20:23:16 (ET)	See RST01 email from Dave Skeen to/from Larry Vick regarding mass balance spreadsheet from NRR. Dave forwarded same to site team for their use and discussion on Monday.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	L. Vick logging off.
Record:	2690	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/30/2011 18:52:45 (ET)	At approximately 1830 EST I received a call from the NRC/HOC. NRC/Japan Site Team member Steve Garchow called into NRC/HOC/RST - The OPs operator transferred the call to me. Steve mentioned that 1F1 temperatures were increasing and that 1F4 spent fuel pool radio analysis indicated less values than the values 2 weeks ago.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	Steve and I believe this could be due to the amount of fresh water being added to the pool. Also He is very interested in obtaining the mass balance results being worked on by the RST. I mentioned that the RST was working on the mass balance task Friday and hopefully feedback would be available by COB Monday if not sooner. I also let Steve know that the RST was "on call" until Monday 0700 start of day shift. Steve mention that things could wait until Monday. End of log entry.
Record:	2689	
Facility:		

(b)(6)

10/23/13

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Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/29/2011 15:23:16 (ET)	L. Vick off duty.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2688	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/29/2011 14:56:26 (ET)	Per Dave Skeen, HOC/RST "On Call" week-end shift coverage to start with evening shift today through midnight shift Sunday. HOC/RST 24/7 coverage to resume with day shift Monday 5/2/2011. L. Vick RST BWR on call for Sat & Sun.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2687	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/29/2011 14:10:04 (ET)	Joy L Rempe is providing a daily e-mail on "DOE Trend Plots and plant Data From TEPCO." This information should be reviewed and e-mailed to the technical consortium. See example attachment.
Position:	RST Accident Seq Analyst	
Name:	Donnie Harrison	
Record:	2686	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/29/2011 13:20:16 (ET)	Chuck Norton incorporating final comments received from Naval Reactors on the TEPCO Road Map. GEH and INPO have no additional comments. RST BWR Systems and Ops Analyst - Lawrence Vick at 13:50:46 on 4/29/2011
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2683	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/29/2011 13:23:38 (ET)	RST work on mass balance (RST Tasker 5010) needs to be addressed the week of May 2.


(b)(6)

52/495

Position:	RST Accident Seq Analyst	
Name:	Donnie Harrison	
Record:	2684	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/29/2011 13:20:16 (ET)	Chuck Norton incorporating final comments received from Naval Reactors on the TEPCO Road Map.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2685	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/29/2011 13:18:20 (ET)	Agenda
Position:	RST BWR Systems and Ops Analyst	11:00 am Consortium Call
Name:	Lawrence Vick	4/29/2011
Record:	2682	
Facility:		<p>1. Plant status update [significant changes since last call]</p> <p>a. Regarding 1F2 and 1F3 SFP, latest information from NRC site team indicates that TEPCO is using the fuel pool cooling system piping (not the associated FPC pumps or heat exchangers) to inject fresh water into the fuel pool. No new update for 1F1 or 1F4.</p> <p>2. The NRC site team has indicated that waste water management (mass balance being assessed by NRC) remains the highest priority issue at the site</p> <p>3. Site team indicated that the next highest priority is erratic and failing instrumentation.</p> <p>4. Regarding 1F1 RPV integrity/assessment- flooding of the bottom head. RST review of Sandia assessment found calculation errors - team is following up. Will call next week to discuss.</p> <p>5. Discuss Consortium's TEPCO Road Map feedback- expect final comments COB today. NRC consolidating comments and preparing final version today.</p> <p>6. NRC weekend HOC/RST coverage will be "On-Call" basis - will resume Consortium 11:00 am call next Monday May 2/2011.</p>
Source:		

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/29/2011 10:23:46 (ET)	Laurel A. Steinhurst (naval reactors) provided significant comment on DOE comment regarding corrosion on TEPCO roadmap Discussed at 4/29/2011 1100 consortium call, with planned follow-on call to resolve comment between Chuck Norton, Laurel Steinhurst, and DOE rep. RST Accident Seq Analyst - Donnie Harrison at 11:57:51 on 4/29/2011
Position:	RST Accident Seq Analyst	
Name:	Donnie Harrison	
Record:	2680	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/29/2011 10:23:46 (ET)	Laurel A. Steinhurst (naval reactors) provided significant comment on DOE comment regarding corrosion on TEPCO roadmap
Position:	RST Accident Seq Analyst	
Name:	Donnie Harrison	
Record:	2681	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/29/2011 08:46:38 (ET)	Updated Tasker 5028 on review of Japan team risk assessment to reflect upon Tasker 5017 closeout that assessed lower head failure potential
Position:	RST Accident Seq Analyst	
Name:	Donnie Harrison	
Record:	2679	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/29/2011 08:26:05 (ET)	Tasker 5017 closed out, with close-out information provided to staff working on Tasker 5026 for consideration in their assessment/review.
Position:	RST Accident Seq Analyst	
Name:	Donnie Harrison	
Record:	2678	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/29/2011 07:06:25 (ET)	Turnover to Larry Vick
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	

(b)(6)

Record:	2677	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/29/2011 06:35:13 (ET)	Response to Task tracker 5017
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2676	
Facility:		
Source:	Brain Holian	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/29/2011 06:18:31 (ET)	Updated task trackers with completion due dates. Sent e-mail to NRR POCs for confirmation.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2675	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/29/2011 06:16:46 (ET)	Japanese Holidays:
Position:	RST BWR Systems and Ops Analyst	April 29 (national holiday)
Name:	Eva Brown	Showa Day (Showa no hi):
Record:	2674	The birthday of former Emperor Showa. Before 2007, April 29 was known as Greenery Day (now celebrated on May 4). Showa Day is part of the Golden Week.
Facility:		May 3 (national holiday)
		Constitution Day (kenpo kinenbi):
		A national holiday remembering the new constitution, which was put into effect after the war. More information is available on the Golden Week page.
		May 4 (national holiday)
		Greenery Day (midori no hi):
		Until 2006, Greenery Day was celebrated on April 29, the former Emperor Showa's birthday, due to the emperors love for plants and nature. It is now celebrated on May 4 and is part of the Golden Week.
		May 5 (national holiday)




(b)(6)

		Childrens Day (kodomono hi): Also called boys festival. More information is available on the Golden Week page.
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/29/2011 03:57:54 (ET)	- Unit 1 RPV stable 75 degrees F below where it was due to flow
Position:	RST BWR Systems and Ops Analyst	- TEPCO to reduce flow to prevent drawing a vacuum on the Unit 1 drywell
Name:	Eva Brown	- Discussed TT 4691 - All instruments unreliable - Unit 4 thermocouple is temporary, NUREG/EPRI document to be forwarded so Tracker can be closed
Record:	2673	- Japanese holidays : Friday; Tuesday-Thursday
Facility:		- ACTION to contact Site Team and Consortium to inform of decision whether to secure from the watch on swings and nights over the weekend
		- NRR to provide SFP risk assessment to Site Team by Monday (TT 5068)
		- Site Team looking for Unit 2 mass balance as soon as possible. RST recommended May 2 due date (TT5010)
Source:	0300 Site Team/Consortium Call	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/29/2011 00:44:26 (ET)	
Position:	RST BWR Systems and Ops Analyst	From: Reynolds, Steven
Name:	Eva Brown	Sent: Friday, April 29, 2011 12:44 AM
Record:	2672	To: LIA08 Hoc; RST01 Hoc; LIA07 Hoc
		Cc: Casto, Chuck; Mitchell, Matthew; Young, Francis; Plasse, Richard; Temps, Robert
		Subject: Japan Team - next wave
Facility:		One half of the next wave of our Japan Site Team are here and working on turnover.
		Here are the list of folks that are here and there respective positions:
		Skip Young - Liaison and Emergency Response Coordinator (b)(6)
		Matt Mitchell - RST Team Leader (b)(6)
		Rob Temps - RST Team Member (b)(6)
		Richard Plasse - RST Team Member (b)(6)
		We expect four more members to start on Sunday.
		Tomorrow (Saturday in Japan), the following folks will be leaving for the states:
		Sean Meighan
		Tony Huffert

(b)(6)


		Don Norword Tim Lupold
Source:	Steve Reynolds - Site Team	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/28/2011 23:54:35 (ET)	Late entry: Assumed the watch from Andy Kugler
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2671	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/28/2011 22:49:14 (ET)	Briefed Andrzej Droz at turnover.
Position:	RST Accident Seq Analyst	
Name:	Raj Iyengar	
Record:	2670	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/28/2011 19:44:03 (ET)	Summary of call between the Site Team and the RST at 1815 EDT on 4/28/11.
Position:	RST BWR Systems and Ops Analyst	
Name:	Andrew Kugler	
Record:	2669	
Facility:		
		<ol style="list-style-type: none"> 1. Most plant status is static. In U-1, the increased flow is reducing vessel bottom head temperature and drywell pressure. TEPCo may reduce injection flow to avoid causing the drywell to become subatmospheric. 2. The proposed water treatment plant for Fukushima Daiichi will be designed to process 300,000 gpd. 3. Turbine building trench levels remain static despite pumping water out of them. The Site Team asked the status of the mass balance evaluation. RST responded that it is due from NRR on 4/29. 4. The Site Team asked the status of the review of Jeff Mitmans simplified risk assessment. RST responded that this is also due from NRR on 4/29. The Site Team asked if it would include confirmatory calculations. RST responded that this hadnt specifically been requested. However, there is an expectation that if NRR disagreed with the risk assessment, it would have to provide its basis. NOTE: After the call, Rich Corriea told us that Chuck Casto stated that the Site Team was looking for more information and details in support of the analysis. We should have the NRR analysts talk to the Site Team to make sure we provide what they need. 5. The Site Team plans to have the daily calls with RST over the weekend. If RST isnt going to be staffed, they want to know what number(s) to call. NOTE: After the call, ET Rich Correia informed RST that Chuck Casto said the Japanese had changed their position and they wouldnt be working this weekend. He may have his team take time off. They will let us know. 6. The Site Team hasnt been able to get an electronic version of the dose data along the Tokyo to Sendai road.

(b)(6)

		They may try to take a photo of the large dose map and send that. They'll coordinate with the Ops Center PMT.
Source: Site Team, RST		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time: 04/28/2011 19:23:03 (ET)	Chuck Norton provided Rev 5 of the evaluation of the TEPCo Roadmap, to be distributed to the industry consortium for a final round of comments.	
Position: RST BWR Systems and Ops Analyst		
Name: Andrew Kugler		
Record: 2668		
Facility:		
Source: NRR, Chuck Norton		
Address/Location:		
Attachment: 		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time: 04/28/2011 17:50:00 (ET)	Added Desiree' Govans (DOE) to the Consortium Distribution list.	
Position: RST Accident Seq Analyst		
Name: Raj Iyengar	Requested by Damian Peko.	
Record: 2667		
Facility:		
Source:		
Address/Location:		
Attachment: 		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time: 04/28/2011 17:29:00 (ET)	Randy Gauntt sent a correction to his previous analysis. As revised, vessel meltthrough remains a concern without some cooling.	
Position: RST BWR Systems and Ops Analyst		
Name: Andrew Kugler		
Record: 2666		
Facility:		
Source: Randy Gauntt, SNL		
Address/Location:		
Attachment: 		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time: 04/28/2011 17:09:10 (ET)	Sent revised Tasker 4691 to NRR to gather and provide information from the TMI experience regarding failure of gauges in the harsh post-accident environment. The information will be provided to the site team.	
Position: RST BWR Systems and Ops Analyst		
Name: Andrew Kugler		
Record: 2665		
Facility:		
Source: RST		
Address/Location:		

Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/28/2011 15:34:00 (ET)	Relieved by Andy Kugler
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2664	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/28/2011 15:24:56 (ET)	Took over from Donnie Harrison. Briefed on Tasker sent to NRR/DRA on Spent Fuel Pool, as requested from Chuck Casto. Report due: May 2, 2011.
Position:	RST Accident Seq Analyst	
Name:	Raj lyengar	
Record:	2663	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/28/2011 15:06:42 (ET)	Sent tasker to NRR to perform risk assessment of affected spent fuel pools, Due 05/02/2011.
Position:	RST Severe Accident Analyst	
Name:	Donnie Harrison	
Record:	2662	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/28/2011 15:05:08 (ET)	Turned over to Evening Shift - used RST BWR System and Ops Analyst log for turn over.
Position:	RST Severe Accident Analyst	
Name:	Donnie Harrison	
Record:	2661	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/28/2011 14:42:02 (ET)	From the 8:30am call with Chuck Casto Unit 1 injection rate was increased and temperature has turned and dropped about 50°F. It appears DW water level has reached the lower RPV
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2660	

(b)(6)

Facility:	<p>Japanese are thinking about increasing injection on Unit 3</p> <p>Unit 3 instrumentation is becoming more suspect.</p> <p>Chuck would like to have bi-weekly meetings with DOE (Damian Peco) to ensure coordination between DOE and NRC</p> <p>DOD indicated that they will suspend travel restrictions on USFJ personnel traveling the Tokyo-Sendai highway</p> <p>Japan Site team indicated they were very happy with the risk assessment performed on the reactors and asked us to perform one on the SFPs</p>	
Source: 8:30 am call		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/28/2011 14:40:16 (ET)	See the attached for how to get the latest up to date information from the NISA website.
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2659	
Facility:		
Source:		
Address/Location:		
Attachment: 		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/28/2011 14:38:08 (ET)	<p>Here is a link to enable to you access Web EOC from your work computer and/or via Citrix from home.</p> <p>http://148.184.213.135/eoc7</p> <p>After you click on the link it should ask you for your name and password. It will then enable you to access Web EOC to see the Task Tracker and RST logs.</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2658	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/28/2011 14:37:22 (ET)	<p>Agenda</p> <p>11:00 am Consortium Call</p> <p>4/28/2011</p>
Position:	RST BWR Systems and Ops Analyst	

(b)(6)

Name:	Michael Brown	
Record:	2657	
Facility:		<p>1. Plant status update/ information from 0300 call and 0830 call</p> <p>a. Unit 1 increased injection rate to 10 m3/hr</p> <p>i. Also, it appears that DW water level has reached the bottom of the RPV, RPV lower head temperature is at 97.5°C</p> <p>b. Reported Japanese may be thinking of raising injection rate on Unit 3</p> <p>c. Unit 3 Instrumentation still degrading</p> <p>d. Unit 4 SFP – TEPCO is now reporting no leak on Unit 4 SFP (yesterday they reported a leak), GEH indicated that there is no leak below the SFP transfer canal gate (~2-3 m above fuel). Tel-tale drains are not showing any liner leakage.</p> <p>e. PACOM is looking for the status of gauges – action taken by Site team to provide answers</p> <p>i. INPO to provide information on harsh effects on water level instruments.</p> <p>f. Radiation data on the road from Tokyo to Sendai was taken within the 50 mile evacuation zone of Fukushima and it indicates very low radiation levels along the road. Based on this information, DOD has indicated that travel restrictions on USFJ for the Tokyo – Sendai will be lifted tomorrow (4/29/11)</p> <p>2. The NRC site team has indicated that waste water management is now the highest priority issue at the site and that a possible change in hydrology as a result of the earthquake may have contributed to the increased water inventory seen at the site. This may need long term support but no immediate action from the Consortium is needed. One area of possible investigation would be to do a more detailed review of the mass balance (water in, water out, and steaming rate) to determine how much extra water there is and other possible sources. (mass balance being worked at NRC)</p> <p>a. Received information from INPO on previous information sent to Japan, still awaiting on information from GEH</p> <p>b. GEH indicated that their information is similar to INPO's – this item will be considered closed and removed from further discussion.</p> <p>3. PNL sent 3 experts to Japan to assist with the groundwater issues. NRC headquarters, site team and DOE discussed this. PNL experts are on their way back to Japan. They will meet with Chuck Casto and be prepared to address this issue in about a week.</p> <p>a. DOE corrected, the information – only 1 expert is in Japan.</p> <p>4. Site team indicated that the next highest priority right now is erratic and failing instrumentation. Instrumentation has always been an issue, but the reliability of some instruments is getting worse. The Japanese have apparently brought in a U.S. expert to support them on this issue. No current action, but Consortium may be asked to provide input regarding ways to slow the degradation of instrumentation and/or get new instrumentation into the reactors/spent fuel pools.</p> <p>a. INPO indicated on the 0300 call that they will evaluate harsh effects on water level instruments</p> <p>i. Spoke with INPO on this issue, information has previously been provided.</p> <p>ii. Wrote a Task Tracker up for the NRC to locate TMI information on instruments failing and provide it to the Site Team</p> <p>b. Whether PACOM is still looking for status of gauges, reliability of instrumentation and how TEPCO is getting the data. Action was taken by Site Team to draft answers and provide to PACOM.</p>

5. Randy Gauntt from SNL has done an analysis (in Japan) that indicates that assuming the fuel is not ex-vessel, decay heat has dropped to the point that even without water cooling the fuel will not melt though the bottom head of the reactor pressure vessel, that is that radiation heat rejection off the bottom head will accommodate the decay heat load even if water contact with the lower head cannot be attained by containment flooding.

a. RST took an action item to determine if information provided was just for Unit 1 or for Units 1, 2 and 3.

b. In addition, RST took an action to resend this information to the consortium

6. The NRC analysis of the TEPCO Road Map has been provided to the NRC site team for discussion with the Japanese government. NRC received favorable comments from Japanese government. Agreed on comments related to using risk assessment to reduce risk safety culture, human factors, sharing information and lessons learned, and independent oversight (IAEA, WANO). The introduction has been modified to assure that everyone knows that it is only an NRC analysis. NR provided their comments on Tuesday 4/26/11; DOE provided their comment on Wednesday 4/27/11. NRC consolidating comments and preparing final version.

a. All comments have been received and are being incorporated. The NRC expects to have the revised analysis out to the consortium by COB today

b. Late Breaking information - contrary to what was stated on the call today. NRC expects to get revised analysis out today and needs to have any comments back by COB on Friday 4/29/11.

7. Concerns still exist about the Unit 4 SFP, Site team would like us to address

a. What are the ways to reduce the risk to associated with the Unit 4 SFP

b. What are the possible ways to increase the diversity of equipment/cooling methods associated with the Unit 4 SFP

c. These were new questions being asked and will be brought up for consideration tomorrow.

8. RST took an action to determine how the Safety Culture was added to the Analysis of the TEPCO road map.

Source: 11am Call information

Address/Location:

Attachment:

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Date/Time: 04/28/2011 06:55:49 (ET)

Signed out from shift.

Position: RST Accident Seq Analyst

Name: See-Meng Wong

Record: 2656

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 04/28/2011 06:43:21 (ET)

Turnover to Mike Brown

(b)(6)


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OUO - Sensitive Internal Information

Position:	RST BWR Systems and Ops Analyst
Name:	Eva Brown
Record:	2655
Facility:	
Source:	
Address/Location:	
Attachment:	
<i>This information is Official Use Only - Sensitive Internal Information.</i>	
Date/Time:	04/28/2011 05:00:28 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Eva Brown
Record:	2652
Facility:	<p>Items to add to 11:00 Consortium Call</p> <ul style="list-style-type: none"> - Whether PACOM is still looking for status of gauges, reliability of instrumentation and how TEPCO is getting the data. Action was taken by Site Team to draft answers and provide to PACOM. INPO to evaluate harsh effects on water level instruments - TT 4922 questions for Site Team + What are the ways to reduce the risk to associated with the Unit 4 SFP + What are the possible ways to increase the diversity of equipment/cooling methods associated with the Unit 4 SFP + Does it still make sense to set up a misting system as a backup of "diverse" system? <p>DOE data regarding bullet train info needed</p> <p>RST BWR Systems and Ops Analyst - Eva Brown at 06:42:33 on 4/28/2011</p>
Source:	Task Tracker 4691
Address/Location:	
Attachment:	
<i>This information is Official Use Only - Sensitive Internal Information.</i>	
Date/Time:	04/28/2011 05:43:22 (ET)
Position:	RST Accident Seq Analyst
Name:	See-Meng Wong
Record:	2653
Facility:	
Source:	
Address/Location:	
Attachment:	
<i>This information is Official Use Only - Sensitive Internal Information.</i>	
Date/Time:	04/28/2011 05:00:28 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Eva Brown
Record:	2654
Facility:	<p>Items to add to 11:00 Consortium Call</p> <ul style="list-style-type: none"> - Whether PACOM is still looking for status of gauges, reliability of instrumentation and how TEPCO is getting the data. Action was taken by Site Team to draft answers and provide to PACOM. INPO to evaluate harsh effects on water level instruments - TT 4922 questions for Site Team + What are the ways to reduce the risk to associated with the Unit 4 SFP + What are the possible ways to increase the diversity of equipment/cooling methods associated with the Unit 4 SFP

(b)(6)

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		+ Does it still make sense to set up a misting system as a backup of "diverse" system?
Source: Task Tracker 4691		
Address/Location:		
Attachment:		
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Date/Time: 04/28/2011 05:01:30 (ET)	Updated response for Task 5026.	
Position: RST Accident Seq Analyst		
Name: See-Meng Wong		
Record: 2651		
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 04/28/2011 04:52:43 (ET)	Updated Fukushima Daiichi Status Summary for 4/28, 0700EDT from 4/27 IAEA data, DOE SitRep, TEPCO and Japan Site Team information.	
Position: RST Accident Seq Analyst		
Name: See-Meng Wong		
Record: 2650		
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 04/28/2011 04:59:55 (ET)	One-pager updated and provided to OST01	
Position: RST BWR Systems and Ops Analyst		
Name: Eva Brown		
Record: 2649		
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 04/28/2011 04:25:49 (ET)	INPO discussed that feedback had been provided by industry to TEPCO. Per NRC recommendation Gilbert Zeigler contacted. Zeigler traveled to Japan to perform testing at Japan decommissioned site of proposed acoustic monitoring. Test successful, but doses seem prohibitive to apply at Daiichi.	
Position: RST BWR Systems and Ops Analyst		
Name: Eva Brown		
Record: 2648		
Facility:		
Source: 0400 INPO Follow-Up (TT4691)		
Address/Location:		
Attachment:		
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OUO - ~~Sensitive Internal Information~~

Date/Time:	04/28/2011 03:50:48 (ET)	<ul style="list-style-type: none"> - TEPCO has increased flow on Unit 1 from 6 m3/hr to 10 m3/hr with the intent to go to 14 m3/hr in the future; Have seen a significant reduction in DW pressure and temperature. - Units 2 and 3 remain static; Unit 3 instrumentation data still suspect due to diverging trends - TEPCO indicates possible Unit 4 SFP leak as a result of review of flows which do not appear to match boil-off rate; TEPCO has gone to daily make-up - Unit 4 SFP level determined using thermocouples - Naval Reactors requested forwarding of latest trend information sent by Site Team & DONE; - Site Team requested verification that task tracker had been assigned to do a mass balance in support of determining the source of leakage for Unit 2 & DONE; - Questioned status of harsh water analyses (TT4691); INPO indicated that they would call at 0400 to status
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2647	
Facility:		
Source:	0300 Site Team Consortium Call	

Address/Location:

Attachment:

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Date/Time:	04/28/2011 03:49:24 (ET)	Forwarded PACOM request to LIA08 for action.
Position:	RST BWR Systems and Ops Analyst	The request was to provide a Sandia National Lab report written by Randy Gauntt which addressed the decay heat being produced by the fuel in the reactors to PACOM
Name:	Eva Brown	
Record:	2646	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/28/2011 02:16:19 (ET)	In light of the 0930 Commission Meeting (Thursday 4/28), the 1000 TAs & CAs Briefing with the ET has been rescheduled for 1300 (Thursday, 4/28).
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2645	
Facility:		
Source:	ET Director	

Address/Location:

Attachment:

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Date/Time:	04/28/2011 01:41:12 (ET)	Reviewed DOE SITREP
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2644	
Facility:		
Source:		


Address/Location:

Attachment:


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(b)(6)

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Date/Time:	04/28/2011 01:38:24 (ET)	Provided editorial comments to C. Norton on Rev. 4 to the Roadmap assessment. Rev. 4 attached.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2643	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/27/2011 23:24:36 (ET)	Late entry: Assumed the watch from Andy Kugler
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2642	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/27/2011 23:08:10 (ET)	Relieved Steve Arndt from Swing Shift.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2641	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/27/2011 23:00:13 (ET)	Turned over to midnight shift.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2640	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/27/2011 21:44:37 (ET)	Provided responses to task tracker questions (4896, 4899 and 4902) to site team.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2639	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		

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Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/27/2011 21:10:19 (ET)	LTJG Bush has requested a copy of the Gauntt report (SNL) on decay heat in Unit 2. Before sending it, we've sent a message requesting clearance to do so to Mr. Peko at DOE (in his role as our primary DOE contact).
Position:	RST BWR Systems and Ops Analyst	
Name:	Andrew Kugler	
Record:	2638	
Facility:		
Source:	PACOM	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/27/2011 19:25:17 (ET)	Received DOE input on the NRC assessment of TEPCO Roadmap by e-mail. RST BWR Systems and Ops Analyst - Andrew Kugler at 19:34:46 on 4/27/2011
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2635	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/27/2011 19:26:10 (ET)	Received from NRR review of site team risk assessment. Sent several e-mail on this input/NRR will provide updated version tomorrow AM to be sent to site team.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2636	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/27/2011 19:25:17 (ET)	Received DOE input on the NRC assessment of TEPCO Roadmap by e-mail.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2637	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/27/2011 18:45:51 (ET)	Held 1830 call with Japan Site team. Not a lot of additional information. Unit one injection has been increased to 14 cubic meters per hour. Site team is
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	

(b)(6)

10/23/13


~~OUO - Sensitive Internal Information~~

Record:	2634	waiting to receive the updated NRC assessment of the TEPCO Roadmap, Consolidated report and review of the risk assessment.
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	04/27/2011 16:39:49 (ET)	Chris forwarded a powerpoint plot of CMAS data and site survey data for the Fukushima Daiichi site.
Position:	RST BWR Systems and Ops Analyst	
Name:	Andrew Kugler	
Record:	2633	
Facility:		
Source:	ANL, Chris Grandy	

Address/Location:	
Attachment:	

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Date/Time:	04/27/2011 15:13:18 (ET)	Relieved by Andy Kugler
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2632	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	04/27/2011 15:11:18 (ET)	Received approval from DOE to forward DOE plots from Joy Rempe to the consortium members
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2631	
Facility:		
Source:	DOE	

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/27/2011 15:09:18 (ET)	relieved day shift
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2630	
Facility:		
Source:		

Address/Location:	
Attachment:	

(b)(6)

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Date/Time:	04/27/2011 14:32:51 (ET)	Generated Task 5017
Position:	RST BWR Systems and Ops Analyst	Email to RST 4/26/2011:
Name:	Michael Brown	There is a preliminary report from Randy Gantt, SNL, that concludes that if the fuel has not gone ex vessel, decay heat has dropped to the point that the fuel will not go ex vessel.
Record:	2629	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/27/2011 14:31:59 (ET)	Generated Task 5026
Position:	RST BWR Systems and Ops Analyst	NRR to review Draft Risk Assessment performed by Jeff Mittman of the Japan Team as an independent check prior to providing information to Japan
Name:	Michael Brown	
Record:	2628	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/27/2011 14:26:09 (ET)	Generated Task 5027
Position:	RST BWR Systems and Ops Analyst	Japan Site Team requested that guidance be provided to NISA on Organization Changes following Post Accident Response. For example, after 9/11, the NRC made significant organizational changes. Other examples would be actions taken after Davis-Besse, Y2K and TMI (TMI information may be dated)
Name:	Michael Brown	
Record:	2627	
Facility:		<p>What changes were made?</p> <p>What worked well?</p> <p>What didnt work well?</p> <p>Dave recommended that as documents are located (e.g. IMC 0350) that these documents be provided to the Japan Site Team and NISA ASAP.</p> <p>The goal is that in ~ 2 weeks a document can be provided to NISA with our recommendations.</p>
Source:		

Address/Location:

Attachment:

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Date/Time:	04/27/2011 14:01:15 (ET)	TEPCO has revised the core damage estimates: Unit#1-55%, Unit #2 - 35% and Unit #3- 30%
Position:	RST Accident Seq Analyst	SFP for unit #4 has a leak.
Name:	Thomas Koshy	

(b)(6)

Record:	2626	Water level will be raised to top of active fuel by May 3, 2011 for Unit#1 Unit# 3 Instrumentation continues to degrade. TEPCO has started moving debris. 56 containers of 3 X 2X 4 meter were removed off site. Castro indicated 5 topics with specific teams for management under TEPCO 1. Covering - Long term and short term 2. Ground water 3. Survey and Analysis (Evaluating TMI, entombment, etc.) 4. Remote & Unmanned work 5. After shock Group (Worst case scenario planning) A steering committee will be established that consists of TEPCO, NISA, & NRC DOE may be better suited in this committee because of their relevant skills
Source:	8:30 conference call-Japan Team	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/27/2011 14:09:00 (ET)	Spoke with Damian Peco (DOE) (b)(6) about better coordinating actions between DOE and NRC.
Position:	RST BWR Systems and Ops Analyst	Damian indicated that he should be our point of contact for DOE. He is in the process of determining all Fukushima related DOE actions and should have a list of DOE actions/ projects by COB on Friday 4/29/11.
Name:	Michael Brown	
Record:	2625	
Facility:		
Source:	DOE	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/27/2011 14:06:44 (ET)	Answered question from INPO regarding NRC actions post-Fukushima related to station batteries.
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2624	
Facility:		
Source:	INPO	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/27/2011 14:05:38 (ET)	Received a list of Portable Water processing companies from INPO that has been provided to Japan - forwarded this information to the Japan Team
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2623	
Facility:		
Source:	INPO	
Address/Location:		

(b)(6)

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Attachment: *This information is Official Use Only - Sensitive Internal Information.*

Date/Time:	04/27/2011 14:02:11 (ET)	GEH - Curt Robert (b)(6) agreed to discuss GEHs Core Breach assessment with Ed Fuller (301) 415-1975, and Don Dube 301-415-1483. Ed Fuller was contacted to arrange telecon with GEH.
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2622	
Facility:		
Source:	Mike Brown	

Address/Location:

Attachment:

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Date/Time:	04/27/2011 13:41:34 (ET)	More of Randys analysis
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2621	
Facility:		
Source:	Randy Gauntt	

Address/Location:

Attachment: *This information is Official Use Only - Sensitive Internal Information.*

Date/Time:	04/27/2011 13:41:04 (ET)	More of Randys analysis
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2620	
Facility:		
Source:	Randy Gauntt	

Address/Location:

Attachment: *This information is Official Use Only - Sensitive Internal Information.*

Date/Time:	04/27/2011 13:38:38 (ET)	Randy Gauntt from SNL analysis that indicates that assuming fuel is not ex-vessel, decay heat has dropped to point where core will not melt through bottom head of the vessel even without water cooling.
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2619	
Facility:		
Source:	Randy Gauntt	

Address/Location:

Attachment: *This information is Official Use Only - Sensitive Internal Information.*

Date/Time:	04/27/2011 07:31:45 (ET)	Relieved by Mike Brown as BWR Analyst.
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Position:	RST BWR Systems and Ops Analyst
Name:	kerby scales
Record:	2618
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/27/2011 05:19:35 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	kerby scales
Record:	2617
Facility:	
Source:	
0300 Call with The Japan team.	
1. TEPCO increased flow to Unit 1 RPV from 5.9 m ³ /hr to 10 m ³ /hr for 6hrs attempting to raise primary containment water level from 2 ft below RPV lower head to above lower RPV head. It is expected to change RPV lower temp. indication.	
2. NRC received favorable comments from Japanese government. Agreed on comments related to using risk assessment to reduce risk, safety culture, human factors, sharing information and lessons learned, and independent oversight (IAEA, WANO).	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/27/2011 05:15:52 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	kerby scales
Record:	2616
Facility:	
Source:	
Updated task record 4775. Decision made to no longer work on updating the interim assessment. (see 4/26/2011 J. Uhle ET log entry).	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/26/2011 23:12:28 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	kerby scales
Record:	2615
Facility:	
Source:	
Assumed BWR Analyst. Relieved Charles Norton.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/26/2011 23:09:57 (ET)
Relieved by Kerby Scales	

(b)(6)

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Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2614	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/26/2011 23:03:18 (ET)	turned over to midnight shift
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2613	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/26/2011 20:28:50 (ET)	Sent e-mail to GE requesting that they talk to Don Dube and other NRC staff on the postulated core breach analysis.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2612	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/26/2011 19:39:01 (ET)	RST provided input to PMT on the new version of the composit report, specifically edits on the section on new version of the reactor and spent fuel pool stability.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2611	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/26/2011 19:05:39 (ET)	1815 Call with The Japan team.
Position:	RST BWR Systems and Ops Analyst	The Japan team assess that the top 3 priorities for the Japanese are:
Name:	Charles Norton	
Record:	2610	
		1. Water Management
		2. Erratic and Failing Instrumentation

(b)(6)

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Facility:	3. Decay Heat Removable	
	The team mentioned that Zigler Company with expertise in acoustic measuring from TMI is on site to help with instrumentation degradation issues.	
	There is a preliminary report from Randy Gantt, SNL, that concludes that if the fuel has not gone ex vessel, decay heat has dropped to the point that the fuel will not go ex vessel.	
Source:	Japan Team Call	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/26/2011 19:37:24 (ET)	NR has provided comments on the NRC staff assessment of the TEPCO Road Map.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2609	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/26/2011 17:57:15 (ET)	The Operation Center was visited by a TV film crew and the Chairman. They filmed an interview on how the center and the NRC as a whole is responding to the event.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2608	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/26/2011 16:02:28 (ET)	Assumed BWR Analyst Position
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2607	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/26/2011 15:16:13 (ET)	Released the day shift.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2606	

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Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/26/2011 13:39:17 (ET)	test
Position: RST Accident Seq Analyst	
Name: andrzej drozd	
Record: 2605	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/26/2011 13:30:43 (ET)	Forwarded to Mike Brown: Ed Fullers and my comments on GEHs review of our postulation of partial RPV breach at Unit 2.
Position: RST Accident Seq Analyst	
Name: Donald Dube	
Record: 2604	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/26/2011 13:27:39 (ET)	Forwarded Ed Fullers and my comments on GEHs review of our postulation of partial RPV breach at Unit 2.
Position: RST Accident Seq Analyst	RST Accident Seq Analyst - Donald Dube at 13:30:33 on 4/26/2011
Name: Donald Dube	
Record: 2602	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/26/2011 13:27:39 (ET)	Forwarded Ed Fullers and my comments on GEHs review of our postulation of partial RPV breach at Unit 2.
Position: RST Accident Seq Analyst	
Name: Donald Dube	
Record: 2603	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/26/2011 09:38:15 (ET)	Following phone call with C. Casto in Japan, RST assessment rev. 2 has been put on-hold
Position: RST Accident Seq Analyst	

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Name:	Donald Dube	
Record:	2601	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/26/2011 06:57:02 (ET)	assuming shift
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	relieving See-Meng Wong, assuming shift
Record:	2599	RST Accident Seq Analyst - Donald Dube at 07:33:08 on 4/26/2011
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/26/2011 06:57:02 (ET)	assuming shift
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	2600	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/26/2011 05:54:08 (ET)	Kerby Scales updated the Japan One-Pager document, 04/26/2011.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2598	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/26/2011 05:50:42 (ET)	Kerby Scales updated Fukushima Daiichi Status Summary based on current information from DOE SitRep and IAEA documents.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2597	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/26/2011 05:45:56 (ET)	After 0300 call with Japan Site Team, INPO & KAPL, sent e-mails to Pat Hiland and Dave Skeen regarding: (a)

(b)(6)

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Position:	RST Accident Seq Analyst	Hold on RST Assessment Revision 2 document, and (b) draft risk analysis by Jeff Mitman.
Name:	See-Meng Wong	
Record:	2596	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/26/2011 05:43:03 (ET)	Updated Task Tracker # 4769 to hold continued revisions of RST Assessment Revision 2 document per Japan Site Team request.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2595	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/25/2011 23:10:10 (ET)	Relieved Steve Arndt
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2594	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/25/2011 23:02:52 (ET)	Relieved by Kerby Scales
Position:	RST Accident Seq Analyst	
Name:	Charles Norton	
Record:	2593	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/25/2011 22:16:39 (ET)	Modified TEPCO Road map Analysis distributed to the consortium for comment. Asked consortium to suspend comment on the RST Assessment REV 2 until the comments from the TEPCO road map assessment can be assimilated RST Accident Seq Analyst - Charles Norton at 22:22:24 on 4/25/2011
Position:	RST Accident Seq Analyst	
Name:	Charles Norton	
Record:	2591	
Facility:		
Source:		
Address/Location:		
Attachment: 		
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Date/Time: 04/25/2011 22:16:39 (ET)	Modified TEPCO Road map Analysis distributed to the consortium for comment. Asked consortium to suspend comment on the RST Assessment REV 2 until the comments from the TEPCO road map assessment can be assimilated
Position: RST Accident Seq Analyst	
Name: Charles Norton	
Record: 2592	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/25/2011 18:28:50 (ET)	Held call with Chuck Castro (site team) regarding the NRC recommendation/assessment of the TEPCO Road Map. Main discussion point was that he needed to discuss our assessment today with Japanese Government, so he will us the NRC version. Requests that Industry Consortium provide only factual inaccuracy comments. The next priority is to get the RST assessment document to be re-set to align with the Comments on the Road map.
Position: RST Severe Accident Analyst	
Name: Steven Arndt	
Record: 2590	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/25/2011 18:03:09 (ET)	Talked to Amy Powell, OCA to provide information on the time at which Unit 2 RCIC failed (70.7 hours in to the event).
Position: RST Severe Accident Analyst	
Name: Steven Arndt	
Record: 2589	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/25/2011 17:29:14 (ET)	Assumed the BWR Analyst Position
Position: RST Accident Seq Analyst	
Name: Charles Norton	
Record: 2588	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/25/2011 15:30:59 (ET)	signed-in for swing shift
Position: RST Severe Accident Analyst	
Name: Steven Arndt	
Record: 2587	
Facility:	
Source:	
Address/Location:	
Attachment:	

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Date/Time:	04/25/2011 13:51:27 (ET)	1. Discussed Changes in SFP #4 Temperature and level, GEH gave an update:
Position:	RST BWR Systems and Ops Analyst	a. 4/22 - Temperature measured by Thermocouple
Name:	Stephen Campbell	i. Level was 5.5 meters below the floor and 1.67 meters above the fuel
Record:	2586	b. 4/23 - TEPCO added 140 tons of water
Facility:		i. Level was 2.58 meters above the fuel
		c. 4/24 - TEPCO added 140 tons of water
		i. Level was 3.7 meters above the fuel
		d. 4/25 - TEPCO added 175 tons of water - water injection and water losses appear to be consistent with evaporative losses, which indicates that there is no leak in SFP #4
		2. Discussed the TEPCO Roadmap assessment and the RST assessment, after much discussion the consortium determined that comments on the roadmap could not be provided by COB Monday, April 25. The consortium can provide comments on both the TEPCO Roadmap assessment and the RST Assessment Rev 2 by COB on Wednesday 4/27/11.
		a. One major difference in the two documents is that the RST assessment puts a lot of weight on flooding the RPV, while the TEPCO roadmap puts a lot of weight on dealing with radioactive waste water that is being generated.
		3. Discussed possible methods to determine water level in the DW/ RPV
		a. It was noted that HPCI/RCIC suction pressure transmitter may be used, even if reading is above top of scale by measuring voltage output from the transmitter.
		b. GEH is also developing a list of methods of determining water level in the RPV and will provide that list to the consortium.
		4. It was also noted that TEPCO is investigating installing a heat exchanger to cool the water in the DW in Unit 1. This HX would take suction off the Nitrogen injection line and discharge back into the RPV. No timeline for HX being connected was discussed.
		5. INPO has copies of various Fukushima drawings and is investigating whether or not they can be released to the consortium.
		6. GEH will see if they have drawings for Unit 2 or 3 that can be released to the consortium
Source:	Dave Skeen record of 4/25/11 Consortium Call	

Address/Location:

Attachment:

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Date/Time:	04/25/2011 13:04:20 (ET)	Briefing with Casto - Prioritization of documents:
Position:	RST BWR Systems and Ops Analyst	1) TEPCO Roadmap for near term plant stability - recommended that changes to this document to make it clearer that piping will be hardened pipes with seismic protection, that there are multiple injection points and the importance of operator training and procedures. Fred Brown was asked to provide feedback by COB today on the roadmap. Fred will look at what the site team had added. Marty V stated that the site teams addition were good.
Name:	Stephen Campbell	
Record:	2585	
		During the consortium call, Naval Reactors (b)(5)
		(b)(5)

(b)(6)

Facility:	2) RST Assessment second revision - this needs to be reviewed in conjunction with the Roadmap document. Changes made to either of these documents will affect each. This is due 4/27/2011 3) Global assessment document 4) Composite document - is a PMT document that has a stability caveat - this should not be receiving too much comment by the RST.	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	04/24/2011 13:12:53 (ET)	L. Vick logging off RST Log.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2584	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	04/24/2011 07:03:38 (ET)	L. Vick "On Call" available as needed.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2583	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	04/23/2011 15:08:12 (ET)	L. Vick logging off of RST log. Received no calls while "on call" during day.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2582	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		


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Date/Time:	04/23/2011 06:47:35 (ET)	L. Vick "On Call" duty. Available as needed.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2581	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/22/2011 15:55:14 (ET)	Secured the watch to on-call personnel.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2580	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/22/2011 15:53:05 (ET)	Sent the latest version of the RST Assessment, Rev. 2 to the consortium and site team for final concurrence.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2579	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/22/2011 15:51:18 (ET)	Sent the RST Consortium review of the TEPCO roadmap to the site team. The document has been approved by the ET.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2578	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/22/2011 14:41:46 (ET)	Items required to be done prior to starting weekend:
Position:	RST BWR Systems and Ops Analyst	1) Provide Roadmap assessment to site Team.
Name:	Timothy Kolb	2) Provide RST Assessment, Rev. 2 to consortium for final concurrence. Their deadline for comments is
Record:	2576	Wednesday next week.

(b)(6)

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Facility:	3) Meeting agenda for 11:00 am Consortium call on Monday sent out already. 4) Eva Brown still working on Spent Fuel Pool questions but Spent Fuel Pool assessment has been sent to the site team. RST BWR Systems and Ops Analyst - Timothy Kolb at 14:48:40 on 4/22/2011	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 04/22/2011 14:41:46 (ET)	Items required to be done prior to starting weekend:	
Position: RST BWR Systems and Ops Analyst	1) Provide Roadmap assessment to site Team.	
Name: Timothy Kolb	2) Provide RST Assessment, Rev. 2 to consortium for final concurrence. Their deadline for comments is Wednesday next week.	
Record: 2577	3) Meeting agenda for 11:00 am Consortium call on Monday sent out already.	
Facility:	4) Eva Brown still working on Spent Fuel Pool questions but Spent Fuel Pool assessment has been sent to the site team.	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 04/22/2011 14:40:26 (ET)	1500 brief to Marty Virgilio for the RST Assessment of the Roadmap will be the final approval to send to site team.	
Position: RST BWR Systems and Ops Analyst		
Name: Timothy Kolb		
Record: 2575		
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 04/22/2011 13:20:58 (ET)	Provided April 22 11:00 am Consortium meeting minutes and agenda for April 25th phone call to all members of the consortium and site team.	
Position: RST BWR Systems and Ops Analyst		
Name: Timothy Kolb		
Record: 2574		
Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time: 04/22/2011 11:50:04 (ET)	Held 11:00 am consortium call. Minutes will be attached. Discussed RST Assessment Rev. 2 will go back out to consortium possibly this afternoon. Need concurrence by next Wednesday to support Final Version to Site Team by COB Thursday. Provided RST Assessment of Unit 4 Spent Fuel Pool assessment conducted by JNES.	
Position: RST BWR Systems and Ops Analyst	Basically, we concur that JNES assessment is reasonable, however, more information is needed and that keeping	
Name: Timothy Kolb		

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10/23/13

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Record:	2573	the fuel covered is top priority. The Roadmap will be briefed with M. Virgilio this afternoon for approval to send to Site Team.
Facility:		
Source:		
Address/Location:		
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Date/Time:	04/22/2011 10:29:40 (ET)	Held 8:30 am call with Chuck Casto. No new plant conditions of note. Discussed on-call watchbill for this weekend. Priorities are to get the NRR Review of the Roadmap to ET and then on to the Site Team for final review. Site team has a draft copy.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2572	
Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	04/22/2011 07:28:42 (ET)	Relieved the watch. Priorities are to be prepared for the 11:00am consortium call and process the RST Assessment, Rev.2.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2571	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/22/2011 07:23:09 (ET)	Relieved by Don Algama.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2570	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/22/2011 07:23:22 (ET)	Relieved by Tim Colb
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	2569	
Facility:		
Source:		
Address/Location:		
Attachment:		

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Date/Time:	04/22/2011 05:49:49 (ET)	Report this morning that Unit 2 reactor water level is decreasing indicating an increased leak rate from the RPV to containment. Requested a confirmation of this information from the Japan Team from RST01.
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	2568	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/22/2011 05:47:57 (ET)	Japan Team 3:00am Call.
Position:	RST Accident Seq Analyst	Clarified item 13 on 11:00am call notes 4/21 regarding "get water out of the DW or RPV after flooding up to TAF," Suggested strategy of establishing a closed loop cooling system to cool core until fuel can be removed.
Name:	See-Meng Wong	
Record:	2567	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/22/2011 05:25:22 (ET)	Japan Team had requested basis for water level 4 above drywell floor in SAMG
Position:	RST BWR Systems and Ops Analyst	Ans If fuel as gone X-vessel this is the level that will keep debris in primary containment submerged.
Name:	James Shea	
Record:	2566	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/22/2011 04:42:27 (ET)	Japan Team 3:00am Phone Call
Position:	RST BWR Systems and Ops Analyst	Participants: NRC OPS Center NRC Japan Team INPO NR No Major Plant Status Changes information from yesterday Injection Flow rates are as follows: U-1 6m3/ hr via feed-water line (26 gal/min) U-2 7m3/ hr via fire protection line (30 gal/min)
Name:	James Shea	
Record:	2565	


(b)(6)

Facility:		<p>U-3 7m3/ hr via fire protection line (30 gal/min)</p> <p>Inerted:</p> <p>U1 N2 20m3/hr</p> <p>U2 No N2</p> <p>U3 Are attempting or progressing toward establishing Inerting to the PCV</p> <p>Fuel Pool Water added: No new information today</p> <p>Unit 4 SFP will be sampled for isotopic analysis following water addition in the near future. A water level in the pool will be determined also at that time.</p> <p>The Japan team discussed the Consortium Agenda Items and the clear focus for Japan is Water Management.</p> <p>Need to start processing and removing approximately 60-70,000 Tons of water or 15 million gallons of water. This issue is preventing Tepco from flooding up the Rx Vessel. The Consortium is working on providing recommendations associated with this item.</p> <p>New Agenda Items and follow up by japan Team on locating Operator Logs and the Fire loading in Unit-4 prior to the event.</p> <p>A question on the Consortium meeting notes related to how to remove water from the RPB and PCV is associated with a method to get to recirc instead of injection for the Units 1-3.</p> <p>Ideas included taking water from Torus in some fashion (Sump lines, hose, Cont / HPSI / RICS suction) and then pump through a filter and heat exchanger back to the Rx Vessel through a convenient source of some kind such as a Cleanup System valve or RHR return line est.</p>
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/22/2011 04:49:48 (ET)	Updated Fukushima Daiichi Status Summary for 4/22 0700 from latest DOE SitRep 4/21 0600.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2564	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
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Date/Time:	04/22/2011 02:42:56 (ET)	Responded to Tim Lupold question regarding stopping water leakage from Unit 2 Torus Room/ Corner Room. Quick Thoughts are that drilling thru 4' reinforced concrete would not be a good idea would take many hours if not days. Two of the corner rooms are readily accessed on the north side but the south side corner rooms take some getting too and would have High Rad even under normal operations (RBEDT). The Torus Room adjacent to the Corner Rooms have access plugs above on the ground floor (railway access level) which would be the way to get concrete in to the Torus Room and the Corner Rooms. There is open ventilation space between the Torus Room and Corner Rooms. One of these corner rooms has the 12" CST line most likely the North East that penetrates the room to supply one of the Core Spray trains, this may be the highway to the TB from the fire barrier penetration seals. If you had to pick a room to try to seal this one may be the first priority.
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	2563	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/21/2011 23:28:33 (ET)	Assumed the watch as BWR Systems and Ops Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	2562	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/21/2011 23:15:44 (ET)	Relieved Antonios Zoulis.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2561	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/21/2011 23:05:09 (ET)	Turnover to See-Meng Wong and Jim Shea
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2560	
Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	04/21/2011 21:05:22 (ET)	The below email documents the discussion of the water treatment contract. It was forwarded to the Japan Site

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Position:	RST Accident Seq Analyst	Team:
Name:	Antonios Zoulis	
Record:	2559	David, et al
Facility:		<p>I checked into the issue passed on by Alice Caponiti, below. I contacted out lab person who attended meetings where this was discussed. As of his last update, a week ago, he was not aware of a contract. However, it was considered a given that this was going to happen. He specifically said AREVA will provide a co-precipitation system to remove cesium and strontium, as well as an evaporator to convert sea water to freshwater. He could not confirm if TEPCO/Hitachi/Toshiba actually signed a contract with AREVA to get these water treatment systems but he was clear that they had decided to use AREVA's systems for these two processes. Note: TEPCO verbally asked both AREVA and the US DOE, in a meeting, to review TEPCO's water treatment system when they complete a flow chart of the overall system. But there is no specific contractual agreement to do so.</p> <p>I am not sure this adequately addresses the concern. I will pass on anything more I hear. Let me know if you have any questions.</p> <p>Damian Peko</p> <p>—Original Message— From: Caponiti, Alice Sent: Wednesday, April 20, 2011 11:35 AM To: Schneider, Steve; DL-NERT-All; Busby, Jeremy T; Burns, Douglas Subject: What do we know about contract with AREVA for water management?</p> <p>All:</p> <p>In the 4/20 1100 EDT NRC RST consortium call today, the question came up about what specific role AREVA will have for water treatment. There were media reports of AREVA's involvement. Do we know of specific agreements that have been finalized about the use of AREVA technology for treatment of turbine building water?</p> <p>Alice</p>
Source:	Email	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/21/2011 17:02:26 (ET)	Information on Spent Fuel Pools:
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2558	Analysis of the water in the Unit 4 spent fuel pool released Friday showed low levels of radioactivity consistent with little or no significant fuel damage (~90 Bq/cm ³ Cs-137). The relatively high I-131:Cs-137 activity ratio (2.5:1) in the water is consistent with a release from the reactor cores of units 1-3 (perhaps from early injection of contaminated seawater into the pool and/or condensation of vented steam).

Facility:	<p>But an analysis of the water in the Unit 2 spent fuel pool released today indicates fuel damage: 150,000 Bq/cm³ Cs-137. The low I-131:Cs-137 ratio (1:40) precludes the possibility that the Cs in the pool water could have come from the reactor core. I was unaware the spent fuel in the unit 2 pool might have been damaged.</p> <p>The water capacity of the unit 2 pool is 1425 m³. A concentration of 150,000 Bq/cm³ is therefore equal to a total of about 200 TBq dissolved in the pool water.</p> <p>The core inventory of Cs-137 for an average discharge burnup of 50 MWd/kgU is about 6 TBq/kgU.* The unit 2 pool has 587 assemblies, each of which contain 183 kgU, for a total of about 100,000 kgU, so the inventory is about 600,000 TBq of Cs-137. The amount of Cs-137 in the water therefore represents about 200/600,000 ~ 0.03% of the amount in the fuel.</p> <p>RASCAL table 2.1 assumes that spent fuel that is mechanically damaged while under water will release 0.3% of the Cs (a "cold gap" release). RASCAL assumes a 3% release of Cs if the cladding is damaged due to overheating, but there is no cladding fire (a "hot gap" release). So the concentration of Cs-137 in the pool is consistent with mechanical damage to about 10 percent of the fuel, or thermal damage to 1 percent.</p> <p>This is another puzzle. Unit 2 is the only unit not to have experienced an explosion that destroyed the service floor area. Thus, it seems unlikely that spent fuel could have experienced extensive mechanical damage (e.g., due to falling debris). Unit 2 also is the only unit to have a functioning cooling system for the spent fuel pools. Does the fuel damage indicate that this system did not work for an extended period of time?</p> <p>*$(50 \text{ MWd/kgU})(\text{fission}/190 \text{ MeV})(\text{MeV}/1.6\text{E-}13 \text{ J})(1\text{E}6 \text{ J/MW-s})(24*3600 \text{ s/d})(0.061 \text{ Cs137/fission})(\text{Bq-s/dis})(\ln(2) \text{ dis}/30.17 \text{ y})(\text{y}/3.15\text{E}7 \text{ s}) = 6 \text{ TBq/kgU}$</p>	
Source:	Email	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/21/2011 15:53:24 (ET)	Resent out Potential Leakage paths from Reactor Building to turbine building to Japan team
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2557	
Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	04/21/2011 15:52:39 (ET)	Relieved by Antonios Zoulis
Position:	RST BWR Systems and Ops	

Analyst	
Name:	Michael Brown
Record:	2556
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/21/2011 15:52:15 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Michael Brown
Record:	2555
<p>11 am call notes 4/21/11</p> <p>1. How to process large volumes of highly contaminated dirty (oil, sludge, debris, etc) water? Methods to process highly contaminated waste water in large volumes is of the highest priority.</p> <p>a. GEH mentioned that they had previously provided information to TEPCO indicating methods of dealing with sludge. These included</p> <ul style="list-style-type: none"> • Resins capable of processing sludge • Manufacturers of Evaporation Treatment Systems for removing the water and then handling the dry material <p>b. DOE indicated that they are working with TEPCO as a reviewer of concepts</p> <p>2. What are possible alternative methods of adding N2 purge to Unit 3 RPV and Containment, given that the N2 equipment in the reactor building is inaccessible due to debris and equipment damage plus very high radiation?</p> <p>a. One method of getting N2 into RPV and DW may be to put an eductor on the end of the piping near the reactor building and connect N2 to the eductor. N2 would enter the RPV with the water and start purging the RPV and DW as it came out of solution</p> <ul style="list-style-type: none"> • INPO and GEH both voiced concerns that accumulation of non-condensable gases in the RPV could disrupt cooling flow and suggested monitoring of RPV pressure, temperature and radiation levels. An increasing trend in any of these parameters would be an indication of non-condensable gas accumulation disrupting flow. <p>b. Other methods</p> <ul style="list-style-type: none"> • If there is access to HPCI/RCIC rooms, try using the RCIC exhaust line – also mentioned that gaining access to the HPCI/RCIC rooms would be beneficial because there is additional shielding in this room. • If there is access to the CST, try injecting N2 via HPCI suction line <p>3. What instrumentation should TEPCO use to determine containment level when flooding up?</p> <p>a. A number of ideas were presented.</p> <ul style="list-style-type: none"> • Could look at temperature instruments which NR understands are at various heights within the PCV to determine water level height by noting when indications change from steam temperature to sub-cooled temperatures. • Identify an appropriate location within the turbine building (drain and vent line or other PCV penetration) to set up a pressure gage and monitor water level within the PCV. • Other ideas <p>1. Look at differential pressure between Torus and DW</p> <p>2. Look at HPCI/RCIC suction pressure or connect a temporary gauge there.</p>	

3. ECCS installed gauges

4. What are possible flowpaths from the Unit 2 reactor building to the turbine building.

a. See Document – "03-28-2011-2130 Potential Leakage Paths to the Turbine Buildingmod2.doc"

b. Consensus seemed to be water is leaking from seals in the Corner rooms to the turbine building via failed penetrations.

- Leakage seems to be very high due to inability of TEPCO to drain the turbine building.

- Based on this recommendation seemed to be just fill the corner rooms with "liquid glass" the compound used to seal the trench leaks to the ocean.

- It was pointed out that the best way to access the corner rooms would be from hatches that may be opened from the outside or to just drill a hole down into the corner room and then pump "liquid glass" or concrete into the hole.

5. What are possible methods of stopping the flow of water out of Unit 2? Also, need to provide suggestions of determining where the water is coming from?

a. See suggestion above

6. Regarding the TEPCO road map, what are the end states and how would they know they have completed step 1 and step 2?

a. For example – Road Map Step 1 for Cooling the Reactors states: "Maintain Stable Cooling", 3 bullets are listed

- Nitrogen gas injection

- Flooding up to top of active fuel

- Examination and implementation of heat exchange function

b. Nitrogen gas injection is in progress

- How would they know they have flooded up to TAF?

- What does examination and implementation of heat exchange function mean? Any thoughts? What type of Heat Exchanger is being considered? How would it be connected? Where would it take a suction from? Any thoughts are appreciated.

7. Attached is the Spreadsheet that gives various trends of Unit 1 data, along with 2 pdf files also containing plant data. INPO is going to check with TEPCO to see if it is acceptable to continue to provide this data to the technical consortium.

a. INPO provided a link to the TEPCO site. However, I was unable to locate the data, I've emailed INPO to see where location of data is. I will provide link when I locate it.

8. Here is a list of systems that the RST would like to obtain P&IDs for. GEH is to check to see if they have copies of P&IDs for these systems for Units 1 and 2 and provide them to the consortium if possible.

Systems – Note Names of Systems were taken from U.S. Plant P&ID's from a BWR 4

1. Primary Containment & Atmosphere Control System
2. Hard Pipe Vent System
3. RHR System – Sheets 1 and 2
4. RHR Service Water and Emergency Service Water
5. Vessel Instrumentation Nuclear Boiler System
6. Recirc Loops Nuclear Boiler System – Sheet 1
7. Core Spray System
8. Primary Containment Nitrogen Control System
9. Standby Gas Treatment Flow Diagram

GEH indicated that they would provide the drawing by close of business today. Received Unit 1 drawings and forwarded them to the consortium.

Facility:

9. Feedback is desired on Assessment of the Spent Fuel Pool of Fukushima Daiichi Unit 4. Specifically, what do we think caused the explosion on Unit 4? Do we think any of their 4 scenarios are plausible or do we have any different theories that should be investigated?

a. A number of possibilities were explored.

• GEH indicated that based on the sample of the Unit 4 SFP indicating no fuel damage, they made an argument that it is possible that U3 hydrogen could have made it to unit 4.

1. Unit 4 Vent valves would have failed open
2. Could have pressurized vent header and pushed H2 into U4 Reactor building. May have enter SBT system and been distributed throughout Rx building
3. H2 can ignite via static charge.

• Another possibility was acetylene bottles or other combustible gas bottles leaking in the reactor building. Japan Site team to approach TEPCO about list of combustibles in the Reactor building on U4.

RST Mid night shift analysis - was U4 building and SFP damaged from U3 explosion and/or missile that caused leakage or increased an existing leak path from the pool? Pool boiled off, H2 generation that caused explosion that failed the gate in the fuel canal refilling the SFP. H2 from U3 is unlikely due to safety features that isolate normal bld ventilation dampers on loss of power. Water sample may be suspect due to water stagnation

10. Just wanted to provide you with an update on dealing with contaminated water. Apparently, the contract signed was not a project contract but more of an agreement of understanding between AREVA and TEPCO to pursue the concept of high volume water processing.

a. Does DOE/NR have any skid mounted equipment that could be rapidly transported to Japan to assist with water cleanup?

b. Does anybody know of any skid or trailerable equipment that could be rapidly transported to Japan to assist with water cleanup?

• Apparently this issue has already been addressed by the industry consortium and a list of suppliers has been provided to TEPCO, we are attempting to locate this list and then provide it to our Japan team to provide it to the

TEPCO engineers they are working with.

RST Mid night shift analysis- Water processing should emphasis getting to a stable Rx condition with plants in cold shutdown using a method that recircs rather than injects water into the plant. Using plant piping that could be rigged from outside sources of pumps and heat exchangers.

Short Term strategies to process water on-site –

1) Process cleanest water from Rx bld Torus Room, Corner Rooms use normal plant RadWaste processing in common RAD WASTE facilities as much as possible, emphasis should be placed on Unit-2, try to use existing piping with diesel pumps or air driven pumps to push water to RadWaste for Processing and Release to Ocean as normal. Thought is that the water from the Rx Bld would be the cleanest water on site if the Fuel has not exited into Torus or Corner Rooms.

2) Process Turbine Bld Water and equipment tunnel via a Aux system established on-site using various temporary trailers and tanks, the challenge would be to first remove oil, sludge, ect before rad-processing in filters and Demins. Pump water to a lined or similar holding pond where the water can be processed in various stages up to a point where it could be further processed by the Common Rad-Waste Facility or a temporary Filtration/ Demin/ Evaporator System. Concentrated Wastes would be processed by mixing in concrete for disposal.

3) Remove solids from the site using remote equipment and Robotics that can determine acceptable dose rates for various post extraction handling strategies including Hi level waste, Low Level Waste and Un-Restricted Waste Materials.

11. Any update on GEH accident progression analysis of vessel breach (GEH Analysis and NRC analysis). NRC is waiting to received detailed data from TEPCO via GEH to further refine their analysis.

a. Analysis done, waiting on ok from TEPCO to release.

12. Update on the RST Assessment document

a. NRC is revising the assessment, nothing to be done by the consortium until next week.

13. Any other items we need to discuss?

a. New item from Japan team –

• How do they get water out of the DW or RPV after they have flooded up to TAF?

1. This item was discussed and a number of suggestions were made, GEH indicated that they would write down a list of suggestions and provide it to us.

2. Suggestions included:

a. Not draining the DW or RPV and just let water in RPV boil off and vent DW to maintain pressure.

b. Want to try and vent outside the Torus

c. See if TEPCO can open the MSL drain valves inside and outside containment

d. Vent using safeties that go to the DW atmosphere

e. Look at draining via HPCI drain and RCIC drain

- f. Suggestion made about seeing if cooling can be restored to the Isolation condenser on Unit 1
 i. Concern raised that introducing cold water to IC could cause failure.
 ii. TEPCO may be hesitant to open valves due to fear that they may fail

14. Followup items from 11am:

- a. Trying to locate the operator logs on what actions were taken from the time of the triple earthquake until the Tsunami hit to what the status of certain valves may be
 • INPO indicated that torus cooling had not been put into service on Unit 2.
 b. Japan Site team to ask TEPCO about
 • Amount of acetylene in Unit 4
 • Do they have a list of combustible material in Unit 4 reactor building during the outage?
 • Equipment and indications available in the control room.
 1. Do any valves work?
 2. Do any pumps work?
 3. Can they get any power to any equipment above the flood line and see if it is operational (e.g. SFP cooling pumps and demins)?

Source: 11 am call

Address/Location:

Attachment:

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Date/Time: 04/21/2011 14:16:24 (ET)

Received some Fukushima Unit 1 P&IDs

Position: RST BWR Systems and Ops Analyst

located on at M:\RST\Japanese Earthquake & Tsunami Response\Daichi Drawings

Name: Michael Brown

Record: 2554

Facility:

Source:

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

Date/Time: 04/21/2011 07:29:40 (ET)

Relieved by Mike Brown

Position: RST BWR Systems and Ops Analyst

Name: James Shea

Record: 2553

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 04/21/2011 07:21:00 (ET)

turned over day shift

(b)(6)

10/23/13

OUO - Sensitive Internal Information

Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2552	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/21/2011 06:24:25 (ET)	The Japan RST would like assistance in determining the potential leak pathways from the reactor building to the turbine building. Please develop a list of potential pathways. Any insights on how to stop any such potential leaks would be appreciated.
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	2551	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/21/2011 05:16:28 (ET)	sent e-mail to site team requesting clarification on Unit 3 temperatures discussed in "NRC Daily Assessment of Daiichi" documents.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2550	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/21/2011 05:15:33 (ET)	provided update to one-pager
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2549	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/21/2011 04:48:43 (ET)	Updated the task tracker (#4899 and 4896) to included additional information requested on sources of leakage in to Unit 2 turbine building, and if the leak is from the U2 torus, how its location can be determined.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2548	
Facility:		
Source:		
Address/Location:		
Attachment:		

(b)(6)

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Date/Time:	04/21/2011 04:47:33 (ET)	Updated the Fukushima Daiichi Status Summary
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2547	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/21/2011 04:19:14 (ET)	Japan Team 3:00am Phone Call
Position:	RST BWR Systems and Ops Analyst	Participants: NRC OPS Center NRC Japan Team INPO No Major Plant Status Changes information from yesterday Injection Flow rates are as follows: U-1 6m3/ hr via feed-water line (26 gal/min) U-2 7m3/ hr via fire protection line (30 gal/min) U-3 7m3/ hr via fire protection line (30 gal/min) Inerted: U1 N2 20m3/hr U2 No N2 U3 Are attempting or progressing toward establishing Inerting to the PCV Fuel Pool Water added: No new information today U-2 47 Ton yesterday 4/19 U-3 30 Ton 4/20 U-4 100 Ton later today 4/20 The Unit 3 reactor pressure vessel upper vessel wall temperature has been steadily increasing over the past several days. This temperature has increased approximately 40 degrees since 4/18/11. The cause for the increase is not known and is being evaluated. The Unit 2 spent fuel pool was sampled and has high levels of cesium but not iodine. This is suspected to be from mechanical damage to the fuel. The pool sample also showed a CI level of 22,000 ppm.
Name:	James Shea	
Record:	2546	
Facility:		

(b)(6)

The High CI level could cause excessive corrosion of the fuel elements.

The Japan Team re-emphasized two issues of great concern that they would like the RST / Consortium to focus on:

Water leakage paths specifically Unit 2

Water Processing strategies for the Site.

These topics have been added to the Agenda for the 11:00am morning call

Discussed getting N2 into U2 & U3 containment buildings. Japan is reluctant to add N2 to the feed injection system due to multi fold problems including potential disruptions of feed flow as well as potential N2 blanket in vessel causing loss of heat xfer.

Another approach would be to get in the building on the Rail Road air lock entrance and hook N2 up to an instrument line from the DW that may be near the air lock as part of the DW & RB Vacuum Breaker valve.

Source:

Address/Location:

Attachment:

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Date/Time: 04/20/2011 23:36:00 (ET)

Assumed the watch as BWR Systems and Ops Analyst

Position: RST BWR Systems and Ops Analyst

Name: James Shea

Record: 2545

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 04/20/2011 23:31:41 (ET)

Assumed accident analyst position for midnight shift

Position: RST Severe Accident Analyst

Name: Steven Arndt

Record: 2544

Facility:

Source:

Address/Location:

Attachment:

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10/23/13

OUO - Sensitive Internal Information

Date/Time:	04/20/2011 22:22:24 (ET)	Forwarded 1F Plant DATA (4/21/2011) to Industry, OST01, PMT12, and LI08
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2543	
Facility:		
Source:	Email	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/20/2011 22:16:47 (ET)	Site team has requested any request to them be logged and track in M:\RST\Japanese Earthquake & Tsunami Response\Site Team\Site Team Requests.xlsx
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2542	
Facility:		
Source:	Site Team	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/20/2011 21:31:45 (ET)	Chuck Casto Steve Reynolds PMT Tony Huffert Heather Geptford Sean Meighan RST Steve Garchow Jeff Mitman Carl Moore Tim Lupold International Brian Wittick
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2541	
Facility:		
Source:	Japan Site Team Contact Numbers	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/20/2011 19:39:03 (ET)	Japan site team is trying to obtain drawings for the RST. There first attempt was unsuccessful but they are continuing to search for the correct contact person to obtain the information.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>		

(b)(6)

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10/23/13

OUO - Sensitive Internal Information

Record:	2540	
Facility:		
Source:	Email	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/20/2011 18:54:28 (ET)	Call with Japan Site Team at 16:30.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	Plant status was unchanged. Indicated the increase in the Unit 4 Spent Fuel Pool temperature. There was speculation that TEPCO did not add as much water as was needed on the previous day which could have accounted for the jump in temperature. The site team mentioned TEPCO was preparing to inject 100 tons of water into the pool. In addition, TEPCO was preparing to install a semi-permanent level, temperature and sampling instrument to monitor the spent fuel pool conditions.
Record:	2538	
Facility:		<p>The daily briefing between TEPCO, INPO, Japan regulators, and the Site Team will occur Mondays, Wednesdays and Fridays and not daily.</p> <p>The Japan Site Team shared their concerns over the lack of emphasis on resolving the waste management issues at the site. Chuck Casto had a call with the Ops Center ET and Marty Virgilio at 06:30pm EDT. The issue of waste management came up and he indicated that contracts were in place and that the "NRC does not need to engage" on this issue. There seems to be a disconnect between the Site Team and information we are hearing from Chuck. This was conveyed to the team and they will follow-up with Chuck to resolve.</p> <p>The Japan Site Team also mentioned the discussion of staffing for the Operations Center over the weekend. They indicated as Dave Skeen did that there has to be team members on call over the weekend in the event issues arise which required support from the Reactor Safety Team and other teams.</p> <p>Japan Site Team re-emphasized the RST should review the JNES spent fuel analysis and see if any other scenarios were possible to explain the explosion in the Unit 4 reactor building.</p> <p>Japan Site Team mentioned that single-point vulnerabilities exist that could result in loss of cooling to the units. More emphasis needs to be given to establish redundancy in injection sources and flow paths.</p> <p>RST Accident Seq Analyst - Antonios Zoulis at 19:30:56 on 4/20/2011</p>
Source:	16:30 Site Team Call	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/20/2011 18:54:28 (ET)	Call with Japan Site Team at 16:30.
Position:	RST Accident Seq Analyst	

(b)(6)

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10/23/13

OUO - ~~Sensitive Internal Information~~

Name:	Antonios Zoulis	<p>Plant status was unchanged. Indicated the increase in the Unit 4 Spent Fuel Pool temperature. There was speculation that TEPCO did not add as much water as was needed on the previous day which could have accounted for the jump in temperature. The site team mentioned TEPCO was preparing to inject 100 tons of water into the pool. In addition, TEPCO was preparing to install a semi-permanent level, temperature and sampling instrument to monitor the spent fuel pool conditions.</p> <p>The daily briefing between TEPCO, INPO, Japan regulators, and the Site Team will occur Mondays, Wednesdays and Fridays and not daily.</p> <p>The Japan Site Team shared their concerns over the lack of emphasis on resolving the waste management issues at the site. Chuck Casto had a call with the Ops Center ET and Marty Virgilio at 06:30pm EDT. The issue of waste management came up and he indicated that contracts were in place and that the "NRC does not need to engage" on this issue. There seems to be a disconnect between the Site Team and information we are hearing from Chuck. This was conveyed to the team and they will follow-up with Chuck to resolve.</p> <p>The Japan Site Team also mentioned the discussion of staffing for the Operations Center over the weekend. They indicated as Dave Skeen did that there has to be team members on call over the weekend in the event issues arise which required support from the Reactor Safety Team and other teams.</p> <p>Japan Site Team re-emphasized the RST should review the JNES spent fuel analysis and see if any other scenarios were possible to explain the explosion in the Unit 4 reactor building.</p> <p>Japan Site Team mentioned that single-point vulnerabilities exist that could result in loss of cooling to the units. More emphasis needs to be given to establish redundancy in injection sources and flow paths.</p>
Record:	2539	
Facility:		
Source:	16:30 Site Team Call	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/20/2011 18:11:33 (ET)	<p>Modified 4/21 11:00am agenda to add comments from Japan Site Team over questions on how to process large volumes of contaminated water.</p>
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2537	
Facility:		
Source:	11:00am Call Agenda	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/20/2011 18:09:26 (ET)	<p>GEH responded to Mike Browns request for feedback on the NRCs assessment. This is there response:</p> <p>Mike,</p> <p>We received comments on our earlier in the week submittal to the NRC from Ed Fuller and Don Dube of the NRC RST through the RST01 e-mail on 4/19/11. We are currently reviewing his comments to determine if any response is necessary.</p>
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2536	
Facility:		

(b)(6)

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		Paul Nichols
Source:	GEH	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/20/2011 18:00:20 (ET)	The link to the Japan SharePoint site which will move tasks and information to one location. http://nsir-ops.nrc.gov/default.aspx
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2535	
Facility:		
Source:	SharePoint Site	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/20/2011 17:57:02 (ET)	Obtained DOE summary of April 20 Meeting with NISA and TEPCO: In a daily scheduled meeting on April 20, the U.S. NRC and DOE discussed status of the actions related to stabilizing the Fukushima Daiichi reactors with NISA, Japan Nuclear Energy Safety Organization (JNES), and TEPCO. Representatives from the Institute of Nuclear Power Operations (INPO) and the U.S. Industry Consortium also attended the meeting. (See attached)
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2534	
Facility:		
Source:	DOE	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/20/2011 17:46:55 (ET)	Updated Outlook Contact list with current Japan team members.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2533	
Facility:		
Source:	Contact List	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/20/2011 16:57:29 (ET)	Added NRRs response to Markeys followup questions and responded to open questions. Sent file to Pat Hilland for review and to forward to Tim Riley.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2532	
Facility:		
Source:	Email	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/20/2011 15:36:08 (ET)	Relieved by Antonios Zoulis
	RST BWR Systems and Ops	

Position:	Analyst	
Name:	Michael Brown	
Record:	2531	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/20/2011 15:20:11 (ET)	Completed 1500 One Pager Turnover Document (in One Pager Folder)
Position:	RST Coordinator	
Name:	Peter Alter	
Record:	2530	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/20/2011 14:50:16 (ET)	11 am call notes 4/20/11
Position:	RST BWR Systems and Ops Analyst	Questions/Comments from 11 am call
Name:	Michael Brown	
Record:	2529	
		<p>1. What are possible alternative methods of adding N2 purge to Unit 3 RPV and Containment, due to the reactor building being inaccessible due to debris and equipment damage in the N2 piping area plus very high radiation?</p> <p>2. What instrumentation should TEPCO use to determine containment level when flooding up?</p> <p>3. What are possible flowpaths from the Unit 2 reactor building to the turbine building.</p> <p>4. What are possible methods of stopping the flow of water out of Unit 2? Also, need to provide suggestions of determining where the water is coming from?</p> <p>5. Regarding the TEPCO road map, what are the end states and how would they know they have completed step 1 and step 2?</p> <p>a. For example – Road Map Step 1 for Cooling the Reactors states: "Maintain Stable Cooling", 3 bullets are listed</p> <ul style="list-style-type: none"> • Nitrogen gas injection • Flooding up to top of active fuel • Examination and implementation of heat exchange function <p>b. Nitrogen gas injection is in progress</p> <ul style="list-style-type: none"> • How would they know they have flooded up to TAF? • What does examination and implementation of heat exchange function mean? Any thoughts? What type of Heat Exchanger is being considered? How would it be connected? Where would it take a suction from? Any thoughts are appreciated.

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Facility:	<p>6. Attached is the Spreadsheet that gives various trends of Unit 1 data, along with 2 pdf files also containing plant data. INPO is going to check with TEPCO to see if it is acceptable to continue to provide this data to the technical consortium.</p> <p>7. Here is a list of systems that the RST would like to obtain P&IDs for. GEH is to check to see if they have copies of P&IDs for these systems for Units 1 and 2 and provide them to the consortium if possible.</p> <p>Systems – Note Names of Systems were taken from U.S. Plant P&ID's from a BWR 4</p> <ol style="list-style-type: none"> 1. Primary Containment & Atmosphere Control System 2. Hard Pipe Vent System 3. RHR System – Sheets 1 and 2 4. RHR Service Water and Emergency Service Water 5. Vessel Instrumentation Nuclear Boiler System 6. Recirc Loops Nuclear Boiler System – Sheet 1 7. Core Spray System 8. Primary Containment Nitrogen Control System 9. Standby Gas Treatment Flow Diagram 8. Feedback is desired on Assessment of the Spent Fuel Pool of Fukushima Daiichi Unit 4. Specifically, what do we think caused the explosion on Unit 4? 	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	04/20/2011 07:32:52 (ET)	Relieved by Mike Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	2528	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	04/20/2011 07:19:38 (ET)	Turned over to day shift
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2527	
Facility:		
Source:		
Address/Location:		

Attachment:

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Date/Time:	04/20/2011 05:00:21 (ET)	updated Fukushima Daiichi Status Summary and provided input to revision of one-pager.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2526	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/20/2011 04:23:47 (ET)	Japan Team 3:00am Phone Call
Position:	RST BWR Systems and Ops Analyst	Participants:
Name:	James Shea	
Record:	2525	

NRC OPS Center
NRC Japan Team
INPO
NR

No Major Plant Status Changes

Injection Flow rates are as follows:
U-1 6m3/ hr via feed-water line (26 gal/min)
U-2 7m3/ hr via fire protection line (30 gal/min)
U-3 7m3/ hr via fire protection line (30 gal/min)

Inerted:

U1 N2 20m3/hr
U2 No N2
U3 Are attempting or progressing toward establishing Inerting to the PCV

Fuel Pool Water added:

U-2 47 Ton yesterday
U-3 30 Ton
U-4 100 Ton later today

Pumping water directly or indirectly out of the Turbine Building which some measurable water drop. Pumping to Common Rad-Waste Facility on SW side of the Site.

Tepco - has provided an Assessment of the Spent Fuel Pool of Fukushima Daiichi Unit 4 and have requested the

(b)(6)

Facility:	<p>advice from NRC / Consortium on thoughts and advice on what caused the damage to the Unit 4 Reactor Building.</p> <p>Specifically The Japan Team would like to provide Tepco with our recommendations / assessment on this topic before the EOB Thursday Swing Shift EST to provide feedback to Japan at a meeting scheduled for Thursday Japan time at 4:00pm.</p> <p>Specifically the Japan Teams needs</p> <ol style="list-style-type: none"> 1) Advice on other possible U4 SFP damage scenarios 2) How to improve defense in-depth to preclude energetic release from U4 SFP and 3) Should a Misting device (such as the Oconnee B5b Nozzle) be staged in the event of an unisolable leak from the SFP. <p>This is important because if the spent fuel has not been previously damaged then there is a potential for additional significant release of radionuclides and H2 if further damage to the pool would occur.</p> <p>A list of Day/Swing Shift questions from the 11:00am call and turnover sheet was forwarded to the Japan Team. No discussion of these occurred on the 3:00am call.</p> <p>There appears to be some missed communication between the Japan Team and the EOC. It was requested that we send requests and informaiton directly to the members of the Japan Team.</p> <p>Lupold, Timothy; Mitman, Jeffrey; Garchow, Steve; PMT_japan Resource</p> <p>Not sure if the PMT_japan Resource goes anywhere?</p> <p>The Five Questions Sent are as follows:</p> <ol style="list-style-type: none"> 1. Ask TEPCO what is the strategy once unit 1 is at TAF. Is there a way to recirc and cool containment/torus? Are they going to continue to inject at a low rate to make up for boiling and vent steam? What affect will this have on salt/boron etc.? 2. What is the current pump head/max RPV injection rate for all units (1, 2, 3)? 3. Send basis as to why TEPCO believes unit 1 is only at 4 ft in containment? 4. How accurate are the injection rates to each vessel how is that determined by TEPCO? 5. How accurate (valid) is other instrumentation associated with SFP and PCV level and temperatures?
Source:	
Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/20/2011 04:20:57 (ET)	Sent these Qs that were turned over from swing shift from NRR / Consortium to Japan Team they had not gotten them yet. Provide response to Tim Collins. The following questions came out of the RST EOC day shift Consortium Call, for the Japan Site Team: 1. Ask TEPCO what is the strategy once unit 1 is at TAF. Is there a way to recirc and cool containment/torus? Are they going to continue to inject at a low rate to make up for boiling and vent steam? What affect will this have on salt/boron etc.? 2. What is the current pump head/max RPV injection rate for all units (1, 2, 3)? 3. Send basis as to why TEPCO believes unit 1 is only at 4 ft in containment? 4. How accurate are the injection rates to each vessel how is that determined by TEPCO? 5. How accurate (valid) is other instrumentation associated with SFP and PCV level and temperatures?
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	2524	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/20/2011 04:17:41 (ET)	Sent Task to NRR to provide input to on SFP #4 questions (Task Tracker #4922). RST will need to include NRR and consortium comments in a response to Site team by end of day Thursday.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2523	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/20/2011 03:48:31 (ET)	provided IAEA e-mail to NR to partially answer there (NR) question on current pumping status.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2522	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/20/2011 01:50:52 (ET)	At the request of the site team sent the attached an analysis performed by the Japanese government on spent fuel pool #4. Japanese government has requested some "experts" review it and provide any recommendations. It was prepared by the Japanese version of the Sandia guys. The NRC site team, attended a meeting last night and went
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2521	

(b)(6)

10/23/13

OUO - Sensitive Internal Information

Facility:	through the analysis with them. (b)(5)	
	Japanese government would like any thoughts on the analysis or any other accident progressions that may be possible other than those analyzed.	
	The documents are marked confidential but Japanese requested that it be forwarded to the consortium for review and comment.	
	This will be discussed at the 11:00 AM (EST) call today.	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/19/2011 23:24:33 (ET)	Assumed the watch as the BWR Systems and Ops Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	2520	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/19/2011 23:05:25 (ET)	Relieved by Jim Shea
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2519	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/19/2011 23:01:36 (ET)	Reviewed Rev 2 of RST Assessment and provided comments to Tim Collins. RST BWR Systems and Ops Analyst - Charles Norton at 23:03:12 on 4/19/2011
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2517	
Facility:		
Source:		
Address/Location:		

(b)(6)

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Attachment: ~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/19/2011 23:01:36 (ET)	Reviewed Rev 2 of RST Assessment and provided comments to Tim Collins.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2518	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/19/2011 22:55:34 (ET)	Reviewed DOE assessments and forwarded to Japan team. Long term Passive Cooling U4 explosion Reactor coolant options Options for contaminated water treatment Marine Discharge Perspective on Corrosion Corrosion Mitigation
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2516	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/19/2011 22:59:52 (ET)	Turnover to Steve Arndt
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2515	
Facility:		
Source:		


Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/19/2011 17:13:36 (ET)	Recieved GEH final response to Nitrogen Inerting Q473. See attached. Also located M:IRSTJapanese Earthquake & Tsunami Response\GEH Information forward to Technical Consortium, Japan Site Team, and NRR. RST Accident Seq Analyst - Antonios Zoulis at 17:27:13 on 4/19/2011 Assessment forwarded to Donnie Harrison and Fred Brown. RST Accident Seq Analyst - Antonios Zoulis at 20:30:25 on 4/19/2011
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2505	
Facility:		

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Source:	GEH
Address/Location:	
Attachment:	

This information is Official Use Only - Sensitive Internal Information.

Date/Time:	04/19/2011 19:16:10 (ET)	<p>1800 call with NRC Japan Team. The units status steady.</p> <p>TEPCO and NISA area asking for input on the following concerns. These items will be added to the 1100 consortium agenda for April 20.</p> <ol style="list-style-type: none"> 1. Need to provide suggestions as to how to stop the flow of water out of unit 2; how to make it solid. 2. Need to provide suggestions as to how to get nitrogen into Unit 3 RPV. 3. Need to provide suggestions as to where are all the possible water flow (leak) paths from or to Unit 2 reactor bldg. 4. Need to provide suggestions as to how to speed up the processing of the contaminated water. <p>The Japan Team asked for increased email space.</p> <p>Fuel Pool 4 sample shows minimal damage. Still unclear what caused explosion on Unit 4. This will be made a topic for the technical consortium call.</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2513	
Facility:		
Source:		

Address/Location:	
Attachment:	

This information is Official Use Only - Sensitive Internal Information.




Date/Time:	04/19/2011 18:13:18 (ET)	<p>Pat Hiland sent back the follow-up questions from Rep. Markeys office. We resent the questions back to NRR indicating that we were unable to address them at this time.</p>
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2512	
Facility:		
Source:	Rep. Markeys Questions	

Address/Location:	
Attachment:	

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Date/Time:	04/19/2011 17:51:21 (ET)	<p>Sent email to Stephen Bell (b)(6) on 1F Plant DATA. Site team has indicated Mr. Bell will be put on Tepco distribution to receive the data. However, The spreadsheet was a document a state department interpreter that was embedded at the NRC Ops Center developed. We are trying to see if we can recreate that document.</p>
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2511	
Facility:		
Source:	Email	

(b)(6)

Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/19/2011 17:28:59 (ET)	Ed Fuller has had conversation with Phil Ellison from GEH on vessel breach analysis. The GEH analysis was performed using confidential TEPCO provided data.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	The RST requested GEH to provide the confidential data for inclusion in the NRC independent assessment of vessel breach.
Record:	2510	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/19/2011 17:33:45 (ET)	Recieve Tim Collins revision of the RST assessment. See below:
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	Please review the first 12 pages of Tims revised write up, and share with Jim Shea later this evening, so that I can provide comments to Tim first thing in the morning, so that he can fill in the information for the other units.
Record:	2509	
Facility:		Document attached and also located in M:\RST\Japanese Earthquake & Tsunami Response\RST Assessment of Fukushima Daiichi
Source:	NRR	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/19/2011 17:16:44 (ET)	Received comments on TEPCO roadmap from GEH Q472 and Q459. Located M:\RST\Japanese Earthquake & Tsunami Response\GEH
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2506	Information forward to Technical Consortium, Japan Site Team, and NRR.
Facility:		RST Accident Seq Analyst - Antonios Zoulis at 17:28:49 on 4/19/2011
Source:	GEH	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/19/2011 17:13:36 (ET)	Recieved GEH final response to Nitrogen Inerting Q473. See attached. Also located
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	M:\RST\Japanese Earthquake & Tsunami Response\GEH
Record:	2514	
Facility:		Information forward to Technical Consortium, Japan Site Team, and NRR.
		RST Accident Seq Analyst - Antonios Zoulis at 17:27:13 on 4/19/2011
Source:	GEH	
Address/Location:		
Attachment:		

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/19/2011 17:16:44 (ET)	Received comments on TEPCO roadmap from GEH Q472 and Q459. Located M:IRSTJapanese Earthquake & Tsunami Response\GEH
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2508	
Facility:		
Source:	GEH	

Address/Location:

Attachment: ~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/19/2011 17:13:36 (ET)	Recieved GEH final response to Nitrogen Inerting Q473. See attached. Also located
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2507	
Facility:		
Source:	GEH	

Address/Location:

Attachment: ~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/19/2011 15:58:16 (ET)	Turnover with Larry Criscione
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2504	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/19/2011 15:29:27 (ET)	This is the summary of the 11:00am 4/19/2011 Technical Consortium Call: Summary of Technical Consortium 11:00 a.m. Call of 4/19/2011 NRC - D. Skeen, L. Criscione, L. Vick Consortium - Representatives from GEH, INPO, EPRI, AFRI, BETIS, and Naval Reactors Regarding N2 injection into a containment with a high steam generation rate It was pointed out by one Consortium member that Unit 1 is generating approximately 266 cubic feet of O2 per day which would take some time to build up a significant concentration. Overall, TEPCO's Unit 1 approach appears to mitigate any H2 concerns at this time. However, source of coolant leak remain unknown to-date and is contributing to uncertainties for re-flooding the vessel/containment.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2503	

(b)(6)

Recommendations/comments regarding N2 strategy/discussion for Unit 2 and 3 continues.

TEPCO Road Map

Overall, Consortium is reviewing the roadmap for comment feedback. Generally, the time line should be shorter rather than longer. More detail is needed for practical implementation.

Site Team Feedback (Casto)

Site team reported that TEPCO is transferring about 480 TONS per day of water to Radwaste – it will take about 26 days to complete the task.

Robot information regarding Unit 2 indicates that Unit 2 reactor building is full of steam, 40 Degrees C. TEPCO is looking for a way to entomb the reactor building basement. Site team suspects that bellows may be ruptured/failed.

Mr. Casto mentioned 4 long term issues: 1) Stopping the leak from the suppression pool; 2) water getting into turbine building trenches may be coming from Unit cross-connect piping associated with the radioactive waste system; 3) TEPCO need help with high level waste processing – Maybe DOE labs has suggestions; 4) Unit 3 reactor building is inaccessible due a lot of debris and equipment damage in the N2 piping area plus very high radiation areas – TEPCO is looking for alternate ways of injecting Nitrogen; 5) Unit 2 precludes N2 due to inability to maintain pressure in the drywell.

The following was sent to the Japan Site Team:

1. Ask TEPCO what is the strategy once unit 1 is at TAF. Is there a way to recirc and cool containment/torus? Are they going to continue to inject at a low rate to make up for boiling and vent steam? What affect will this have on salt/boron etc.?
2. What is the current pump head/max RPV injection rate for all units (1, 2, 3)?
3. Send basis as to why TEPCO believes unit 1 is only at 4 ft in containment?
4. Please see email immediately following concerning data which used to be supplied from TEPCO (SUBJ: FW: 1F Plant DATA (4/4/2011)- PLEASE address at 0300).

Source: 11:00 am Consortium Call

Address/Location:

Attachment: 

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Date/Time: 04/19/2011 15:22:39 (ET)

Assumed the BWR Analyst position.

Position: RST BWR Systems and Ops Analyst

Name: Charles Norton

Record: 2502

Facility:

Source:

(b)(6)

10/23/13

OUO - Sensitive Internal Information

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/19/2011 15:08:59 (ET)	Relieved by Chuck Norton.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2501	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/19/2011 14:49:10 (ET)	Forwarded DOE analysis documents related to Fukushima event from email dated 4/14/2011 to Pat Hiland. Will determine if individual tasks are required to evaluate documents. All documents also sent to consortium.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2500	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/19/2011 14:15:01 (ET)	Updated one pager to include additional questions received from Congressman Markeys staff related to Michael Freedhoffs questions dated 4/13/2011.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2499	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/19/2011 14:07:04 (ET)	Minutes of 1100 call for 4/19 are being sent to Consortium for verification and understanding and to the Site Team (C.Castor and S. Reynolds).
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2498	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/19/2011 13:02:12 (ET)	Tim Kolb is back as BWR Analyst.
	RST BWR Systems and Ops	

(b)(6)

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10/23/13

~~OUO - Sensitive Internal Information~~

Position:	Analyst
Name:	Lawrence Vick
Record:	2497
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/19/2011 08:40:01 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Timothy Kolb
Record:	2496
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/19/2011 08:06:54 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Timothy Kolb
Record:	2495
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/19/2011 07:30:08 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Timothy Kolb
Record:	2494
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/19/2011 04:53:40 (ET)
Position:	RST Accident Seq Analyst
Name:	Steven Arndt
Record:	2493
Facility:	
Source:	

(b)(6)

113/495

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/19/2011 04:52:58 (ET)	Updated the Fukushima Daiichi Status document with 4/18 1700 IAEA data.
Position:	RST Accident Seq Analyst	
Name:	Steven Arndt	
Record:	2492	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/19/2011 03:37:29 (ET)	03:00 am phone call was held, but the Japan team could not attend due to a meeting commitment in Japan.
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	On the phone call GE-H and NR participated and we had a brief discussion of the agenda for the 11:00am Consortium Call later today as well as a discussion of the high level comments and recommendations on the Tepco "Road Map" We requested in an e-mail to Japan team to get back with us if they needed anything added to the current agenda draft or on the N2 recommendations for Units 2 & 3 from NRR / Consortium.
Record:	2491	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/18/2011 23:33:10 (ET)	Assumed the watch as the BWR Systems and Ops Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	2490	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/18/2011 22:56:03 (ET)	Relieved by Jim Shea.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2489	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/18/2011 22:48:03 (ET)	Sent GEH analysis of NRC U2 Accident progression and the NRC assessment of the GEH analysis to the technical
	RST BWR Systems and Ops	

(b)(6)

Position:	Analyst	consortium for discussion on the April 19 1100 am technical consortium call.
Name:	Charles Norton	
Record:	2488	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/18/2011 22:50:46 (ET)	Turnover to Steve Arndt
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2487	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/18/2011 22:44:57 (ET)	Fred Brown has reviewed the TEPCO Roadmap against the composite document. Possible that conditions for reentry are met.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2486	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/18/2011 22:47:06 (ET)	Sent Ed Fuller and Don Dube accident progression analysis to Japan Site Team M: RST Japanese Earthquake & Tsunami Response Reactor Vessel Breach
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2485	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/18/2011 22:14:39 (ET)	Provided High Level comments from NRR and Navel Reactors on the TEPCO Roadmap to The Japan team.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2484	
Facility:		
Source:		
Address/Location:		

(b)(6)

Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/18/2011 21:46:51 (ET)	1800 call with NRC Japan Team.
Position:	RST BWR Systems and Ops Analyst	No change in plant status except that U3 DW head temperature is coming down.
Name:	Charles Norton	The Japan Team asked that the consortium provide a rate to flood containment should TEPCO decide to maximize flooding.
Record:	2483	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/18/2011 19:24:57 (ET)	Discussed the final revision of Enclosure 2 of the Composite document with Fred Brown. No need to address critically in the reentry criteria.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2482	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/18/2011 20:27:58 (ET)	Updated the Fukushima Daiichi Status document with 4/18 IAEA data.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2481	
Facility:		
Source:	RST Checklist	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/18/2011 19:19:08 (ET)	1600 Dave Skeen Briefed the EOC on the NRR high level review of the TEPO Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	The following was noted:
Record:	2480	
Facility:		<ul style="list-style-type: none"> •The document is on the right track and encompasses all the elements needed for recovery. •There is could be some questions as to the accuracy of the time line. •Be cautious in that the Roadmap assumes that the RPVs are intact. •TEPCO should consider having spare equipment stored in a safe place to be prepared in the event of another earthquake or tsunami.

(b)(6)

Forwarded this information to the consortium and the NRC Japan Team.

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 04/18/2011 15:43:45 (ET)

Assumed the BWR Analyst Position

Position: RST BWR Systems and Ops Analyst

Name: Charles Norton

Record: 2479

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 04/18/2011 15:08:54 (ET)

Relieved by Chuck Norton.

Position: RST BWR Systems and Ops Analyst

Name: Timothy Kolb

Record: 2478

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 04/18/2011 14:15:53 (ET)

Senator Mikulsky toured the Ops Center.

Position: RST BWR Systems and Ops Analyst

Name: Timothy Kolb

Record: 2476

Facility:

Source:

Senator Mikulsky toured the Ops Center. Accompanied by the Chairman and EDO.
RST BWR Systems and Ops Analyst - Timothy Kolb at 14:24:25 on 4/18/2011

Address/Location:

Attachment:

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Date/Time: 04/18/2011 14:15:53 (ET)

Senator Mikulsky toured the Ops Center.

Position: RST BWR Systems and Ops Analyst

Name: Timothy Kolb

Record: 2477

Facility:

Source:

Address/Location:

(b)(6)

Attachment:

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Date/Time: 04/18/2011 12:39:18 (ET)

Commenced moving RST01 to the office next to ET.

Position: RST BWR Systems and Ops Analyst

Name: Timothy Kolb

Record: 2475

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 04/18/2011 12:25:39 (ET)

Held 11:00 Consortium call which was led by Dave Skeen. He will be leading the call the rest of this week.

Position: RST BWR Systems and Ops Analyst

Attended by NR, Kapl, GEH, Bettis, DOE, INPO. Discussed agenda items that are attached and updated info. All parties will review the TEPCO Roadmap towards Restoration and provide high level comments back by 1500 today. Everyone has the document.

Name: Timothy Kolb

Record: 2474

Facility:

With respect to determining containment water level, TEPCO plans to have water level at TAF by April 27. Will use indirect means to determine level, i.e., thermocouples, injection rate, etc.

Source:

Address/Location:

Attachment:

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Date/Time: 04/18/2011 07:32:31 (ET)

Relieved by Tim Kolb.

Position: RST BWR Systems and Ops Analyst

RST BWR Systems and Ops Analyst - James Shea at 07:33:14 on 4/18/2011

Name: James Shea

Record: 2472

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 04/18/2011 07:32:31 (ET)

Relieved by Tim Kolb.

Position: RST BWR Systems and Ops Analyst

Name: James Shea

Record: 2473

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 04/18/2011 07:06:51 (ET)

turned over to Day shift

Position:

(b)(6)

RST Severe Accident Analyst	
Name:	Steven Arndt
Record:	2471
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/18/2011 05:03:17 (ET)
Position:	RST Severe Accident Analyst
Name:	Steven Arndt
Record:	2470
Facility:	<p>A task was assigned to NRR and NSIR to review the TEPCO Roadmap against the composite review (re-entry). Since TEPCO is looking at 3-9 months to achieve its criteria for stability, it's schedule likely will impact when US personnel can re-enter the 50 mile-to-30km ring around the Fukushima plant. Are we still satisfied that the short-term re-entry criteria are appropriate or should they be altered to permit entry earlier than when TEPCO will complete its activities. Due 4/18.</p> <p>The action is to look at the stability requirements (enclosure 3 of the composite report) for short term re-entry to see if they can be modified (if appropriate) to line up with steps in the TEPCO roadmap that are less than completing everything in steps 1 and 2 (i.e. nine months from now). If this is appropriate provide input for modifications in time for them to be incorporated into the composite report before it goes out (4/18/20110).</p>
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/18/2011 04:02:04 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	James Shea
Record:	2469
Facility:	<p>Japan Team 3:00am Phone Call</p> <p>Participants:</p> <p>NRC OPS Center NRC Japan Team INPO</p> <p>Major status change was the continued DW head temperature decrease 20C in past day and half.</p> <p>Injection Flow rates are as follows: U-1 6m3/ hr via feed-water line U-2 7m3/ hr via fire protection line U-3 7m3/ hr via fire protection line</p> <p>Fuel Pool Water added:</p> <p>U-2 5 Ton/day U-3 25 Ton/day U-4 ton/day</p>

Plant personnel used robots for the first time to get general pictures and Rad levels at various plant locations.

Unit 3 air-lock Rad level from use of Robots indicated 27R/hr.

INL personnel on-site to assist in the use of robotics for gathering information.

Question of N2 inerting (referring to the 3 Questions on Consortium Agenda) regarding Units 2 & 3, Japan team notes some pushback on recommendation for inerting when the containments are in a steam inerted state. Request that we provide a more concise recommendation for why N2 inerting would be needed at this time in units 2 & 3. The question is not how much dose to personnel but rather on the reason or need to pursue N2 for Units 2 & 3 at this time.

It was noted that the SAMG would require inerting when the H2 & O2 levels are unknown in the containment.

Key phone call question for the 11:00am consortium call is.....

Do we really need to push Tepco into inerting Unit 2 & 3 at this time?

Answers to Questions 1-7 from the Consortium Call for tomorrow:

- 7 questions (the answer to these questions go to PACOM)

1 What size Tsunami was the plant designed to withstand?

Ans - 10 M design, 15 M actual Tsunami
GEH to confirm!

a. What size earthquake was the plant designed to withstand.

Ans .18grams - Operational design

.grams - safe shutdown
Japan Team needs to get confirmation from GEH.

Q 2 & 3 previously answered.

4. Any thoughts on having TEPCO getting a better flow path that could handle higher pressures?
Recommendations

Ans - More info tomorrow (b)(5)

(b)

Facility:

5. Any word on when they might stop inerting Unit 1?

Ans - No, the plan is to continue to inert Unit 1.

6. Any concerns that may have more instrument failures due to operating in a high radiation / high temperature environment?

Yes, Team has shared a TMI lessons learned document on predicting Instrument failures and there have been personnel offers to help with this issue through the INPO connections.

7. Received report today that TEPCO thinks they have 4' of water in DW, I thought we believed they had 10-12' any effort to reconcile differences?

Ans - Understand that they have 4 of water in containment not more.

We discussed the Tepco Road map for plant recovery with the 5 immediate actions to enable STEP 1 (dose rates declining) and STEP 2 (dose release under control). The time scale to reach the end of STEP 2 is 6-9months.

The team felt the Road-Map is a good start and has similar attributes as previous Consortium recommendations.

The Japan team relayed to us that Tepco would be interested in any further ideas to ensure the immediate actions which include cooling the Rx and the SFP could be enhanced with redundant and diverse injection systems.

The Japan Team noted that there are many details left out of the road-map purposely so as not to confuse the Public. Tepco plans to share additional technical details with the Japan Team as the information becomes available.

In addition to the above it was discussed that the end states and how they would know that they have completed Step 1 and Step 2? These would need to be defined in greater detail for enhanced confidence on the completion of these two Road-Map Steps.

Additional discussions centered around how Tepco could provide diverse power systems to the plants to ensure reliable power going forward. These may be another discussion point for the Consortium and NRC staff.

The Japan Team noted that the staffing level on-site is currently 730 people and the highest reported exposure has been (b)(6)

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

(b)(6)

10/23/13

~~OUO - Sensitive Internal Information~~



Date/Time:	04/18/2011 05:00:10 (ET)	As a result of discussion with the Site team at the 0300, 18 April 2011 call the issues associated with the nitrogen inerting were clarified. The site team needs information on the advantages (if any) of nitrogen inerting if steam inerting is already in place. The concern is the resources needed to start nitrogen inerting, when TEPCO believes that they have effective steam inerting in units 2 and 3.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2468	
Facility:		<p>The SAMG's say to purge with nitrogen and we have been recommending purging with nitrogen. We need to provide the site team with a discussion of the advantages (if any) of nitrogen inerting if a plant (general discussion not specific to Fukushima Daiichi Unit 2 and 3) is steam inerted with venting.</p> <p>Task assigned to NRR to provide input to RST by 1100 18 April 2011. If this is not possible NRR will provide RST with estimated completion time.</p> <p>Will be discussed at the 1100 18 April call.</p>
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/18/2011 00:39:28 (ET)	Assumed watch as BWR Ops Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	2467	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/17/2011 23:46:58 (ET)	Relieved by Jim Shea important turnover items include: Enclosure 2 composite document. TEPCO Road Map 1100 technical consortium agenda
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2466	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/17/2011 23:07:07 (ET)	Turn over to Steve Arndt.
Position:	RST Accident Seq Analyst	
Name:	Raj Iyengar	
Record:	2465	
Facility:		
Source:		
Address/Location:		

(b)(6)

122/495

10/23/13

OUO - Sensitive Internal Information

Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/17/2011 20:24:49 (ET)	DOE sent a response to Q3 of the seven questions. This was forwarded to the Japan site team (Steve G.).
Position:	RST Accident Seq Analyst	A presentation file containing the modeling study that provides the basis for DOE answer to Q3 is in the folder: M:\RST\Japanese Earthquake & Tsunami Response\April (3-11)\April 17. 0414 S-1 Briefing rev1- April 14.pptx .
Name:	Raj Iyengar	
Record:	2464	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/17/2011 19:39:23 (ET)	1830 Call With NRC Japan Team.
Position:	RST BWR Systems and Ops Analyst	Plant Status-DW head temperature on U3 is decreasing otherwise no changes in plant status. There was another earthquake last night that awoke the NRC Japan Team. The team did not report that the earthquake caused additional problems at the plant. The Japan team is aware of the questions that came out of todays consortium call concerning N2 injection into containment with a high steam generation rate. They will try to provide answers on 0300 call.
Name:	Charles Norton	
Record:	2463	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/17/2011 19:35:55 (ET)	Received Japan Site teams comments on the (PMT) Composite document. The coomments were forwarded to the PMT staff.
Position:	RST Accident Seq Analyst	
Name:	Raj Iyengar	
Record:	2462	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/17/2011 16:56:31 (ET)	1600 EOC team meeting.
Position:	RST BWR Systems and Ops Analyst	Need to ask NRC Japan Team when and if TEPCO wants comments back on Road Map towards Restoration from the Accident at Fukushima Daiichi Nuclear power Station. Does enclosure 2 of the composite document need to address criticality in the bullets for re-entry?
Name:	Charles Norton	
Record:	2460	
Facility:		


(b)(6)

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123/495

		The ET director will task the line organization with the review of the TEPCO Road Map document. RST BWR Systems and Ops Analyst - Charles Norton at 17:11:14 on 4/17/2011
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/17/2011 16:56:31 (ET)	1600 EOC team meeting.
Position:	RST BWR Systems and Ops Analyst	Need to ask NRC Japan Team when and if TEPCO wants comments back on Road Map towards Restoration from the Accident at Fukushima Daiichi Nuclear power Station.
Name:	Charles Norton	
Record:	2461	
Facility:		Does enclosure 2 of the composite document need to address criticality in the bullets for re-entry?
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/17/2011 16:55:51 (ET)	Assumed BWR Analyst Position
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2459	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/17/2011 15:30:42 (ET)	L. Vick off duty. Chuck Norton on duty.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2456	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/17/2011 14:40:47 (ET)	Turn over items:
Position:	RST BWR Systems and Ops Analyst	1) Summary of Consortium call - see CRN entry. 2) Inerting Questions for site team - see CRN log entry above attachment 3) Composite document - comments being accepted by internal stakeholders - time sensitive (due by 3 PM) PMAT has doc 4) GEH Unit 2 doc still under review
Name:	Lawrence Vick	
Record:	2455	
Facility:		

(b)(6)

Source:	
Address/Location:	
Attachment:	
This Information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/17/2011 11:42:52 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Lawrence Vick
Record:	2449
Facility:	<p>Summary of 11:00 am Consortium Conference Call of 4/17/11:</p> <p>1) Early this morning NRC team received "TEPCO Roadmap Toward Restoration" document (see email log with attachment) for review and comment. The document was sent to the Consortium prior to the conference call for information (and comment) - The Consortium will provide a response early next week.</p> <p>2) Conducted brief hydrogen inerting discussion on current/future strategy for Unit 1, 2, and 3. Several questions were raised by Naval Reactors regarding the status of TEPCO inerting strategy (see attached email). RST will send questions to NRC site representative (Steve Garchow) for answers.</p> <p>3) Informed Consortium that RST's review of GEHs "NRC Postulated Core breach on 1F2 Review" document is ongoing with no response at this time. GEH will look into sharing the document with the Consortium.</p> <p>4) Comments on composite document ("Guidance for the Re-entry and Return of US Citizens to Areas Around Fukushima Daiichi NPP" is being received by internal stakeholders. NRC intends to share the composite document with the Consortium and federal family once NRC management approves the document.</p> <p>RST BWR Systems and Ops Analyst - Lawrence Vick at 12:56:21 on 4/17/2011 RST BWR Systems and Ops Analyst - Lawrence Vick at 12:56:41 on 4/17/2011</p> <p>RST BWR Systems and Ops Analyst - Lawrence Vick at 12:57:05 on 4/17/2011</p> <p>5) Secretary of State Clinton visit to Japan went well. NRC team provided bullets and detailed comments.</p> <p>2) Also mentioned that an Unusual Event declared at Surry Unit 1 / 2 due to a loss of offsite power (LOOP) from tornado damage to switch yard. EDG providing power. The NRC is monitoring the situation. RST BWR Systems and Ops Analyst - Lawrence Vick at 12:57:56 on 4/17/2011</p> <p>Attached email regarding nitrogen injection for inerting hydrogen. RST Accident Seq Analyst - Larry Criscione at 13:09:38 on 4/17/2011</p>
Source:	
Address/Location:	
Attachment:	

(b)(6)

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Date/Time:	04/17/2011 11:42:52 (ET)	Summary of 11:00 am Consortium Conference Call of 4/17/11: 1) Early this morning NRC team received "TEPCO Roadmap Toward Restoration" document (see email log with attachment) for review and comment. The document was sent to the Consortium prior to the conference call for information (and comment) - The Consortium will provide a response early next week. 2) Conducted brief hydrogen inerting discussion on current/future strategy for Unit 1, 2, and 3. Several questions were raised by Naval Reactors regarding the status of TEPCO inerting strategy see attached email). RST will send questions to NRC site representative (Steve Garchow) for answers. 3) Informed Consortium that RSTs review of GEHs "NRC Postulated Core breach on 1F2 Review" document is ongoing with no response at this time. GEH will look into sharing the document with the Consortium. 4) Comments on composite document ("Guidance for the Re-entry and Return of US Citizens to Areas Around Fukushima Daiichi NPP" is being received by internal stakeholders. NRC intends to share the composite document with the Consortium and federal family once NRC management approves the document. RST BWR Systems and Ops Analyst - Lawrence Vick at 12:56:21 on 4/17/2011 RST BWR Systems and Ops Analyst - Lawrence Vick at 12:56:41 on 4/17/2011 RST BWR Systems and Ops Analyst - Lawrence Vick at 12:57:05 on 4/17/2011 5) Secretary of State Clinton visit to Japan went well. NRC team provided bullets and detailed comments. 2) Also mentioned that an Unusual Event declared at Surry Unit 1 / 2 due to a loss of offsite power (LOOP) from tornado damage to switch yard. EDG providing power. The NRC is monitoring the situation. RST BWR Systems and Ops Analyst - Lawrence Vick at 12:57:56 on 4/17/2011
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2454	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/17/2011 11:42:52 (ET)	Summary of 11:00 am Consortium Conference Call of 4/17/11: 1) Early this morning NRC team received "TEPCO Roadmap Toward Restoration" document (see email log with attachment) for review and comment. The document was sent to the Consortium prior to the conference call for information (and comment) - The Consortium will provide a response early next week.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2453	

(b)(6)

Facility:

2) Conducted brief hydrogen inerting discussion on current/future strategy for Unit 1, 2, and 3. Several questions were raised by Naval Reactors regarding the status of TEPCO inerting strategy (see attached email). RST will send questions to NRC site representative (Steve Garchow) for answers.

3) Informed Consortium that RSTs review of GEHs "NRC Postulated Core breach on 1F2 Review" document is ongoing with no response at this time. GEH will look into sharing the document with the Consortium.

4) Comments on composite document ("Guidance for the Re-entry and Return of US Citizens to Areas Around Fukushima Daiichi NPP" is being received by internal stakeholders. NRC intends to share the composite document with the Consortium and federal family once NRC management approves the document.

RST BWR Systems and Ops Analyst - Lawrence Vick at 12:56:21 on 4/17/2011

RST BWR Systems and Ops Analyst - Lawrence Vick at 12:56:41 on 4/17/2011

RST BWR Systems and Ops Analyst - Lawrence Vick at 12:57:05 on 4/17/2011

Source:

Address/Location:

Attachment:

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Date/Time: 04/17/2011 11:42:52 (ET)

Summary of 11:00 am Consortium Conference Call of 4/17/11:

Position: RST BWR Systems and Ops Analyst

Name: Lawrence Vick

Record: 2452

1) Early this morning NRC team received "TEPCO Roadmap Toward Restoration" document (see email log with attachment) for review and comment. The document was sent to the Consortium prior to the conference call for information (and comment) - The Consortium will provide a response early next week.

2) Conducted brief hydrogen inerting discussion on current/future strategy for Unit 1, 2, and 3. Several questions were raised by Naval Reactors regarding the status of TEPCO inerting strategy (see attached email). RST will send questions to NRC site representative (Steve Garchow) for answers.


3) Informed Consortium that RSTs review of GEHs "NRC Postulated Core breach on 1F2 Review" document is ongoing with no response at this time. GEH will look into sharing the document with the Consortium.

4) Comments on composite document ("Guidance for the Re-entry and Return of US Citizens to Areas Around Fukushima Daiichi NPP" is being received by internal stakeholders. NRC intends to share the composite document with the Consortium and federal family once NRC management approves the document.

Facility:

(b)(6)

		RST BWR Systems and Ops Analyst - Lawrence Vick at 12:56:21 on 4/17/2011 RST BWR Systems and Ops Analyst - Lawrence Vick at 12:56:41 on 4/17/2011
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/17/2011 11:42:52 (ET)	<p>Summary of 11:00 am Consortium Conference Call of 4/17/11:</p> <p>1) Early this morning NRC team received "TEPCO Roadmap Toward Restoration" document (see email log with attachment) for review and comment. The document was sent to the Consortium prior to the conference call for information (and comment) - The Consortium will provide a response early next week.</p> <p>2) Conducted brief hydrogen inerting discussion on current/future strategy for Unit 1, 2, and 3. Several questions were raised by Naval Reactors regarding the status of TEPCO inerting strategy see attached email). RST will send questions to NRC site representative (Steve Garchow) for answers.</p> <p>3) Informed Consortium that RSTs review of GEHs "NRC Postulated Core breach on 1F2 Review" document is ongoing with no response at this time. GEH will look into sharing the document with the Consortium.</p> <p>4) Comments on composite document ("Guidance for the Re-entry and Return of US Citizens to Areas Around Fukushima Daiichi NPP" is being received by internal stakeholders. NRC intends to share the composite document with the Consortium and federal family once NRC management approves the document.</p> <p>RST BWR Systems and Ops Analyst - Lawrence Vick at 12:56:21 on 4/17/2011</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2451	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/17/2011 11:42:52 (ET)	<p>Summary of 11:00 am Consortium Conference Call of 4/17/11:</p> <p>1) Early this morning NRC team received "TEPCO Roadmap Toward Restoration" document (see email log with attachment) for review and comment. The document was sent to the Consortium prior to the conference call for information (and comment) - The Consortium will provide a response early next week.</p> <p>2) Conducted brief hydrogen inerting discussion on current/future strategy for Unit 1, 2, and 3. Several questions were raised by Naval Reactors regarding the status of TEPCO inerting strategy see attached email). RST will send questions to NRC site representative (Steve Garchow) for answers.</p> <p>3) Informed Consortium that RSTs review of GEHs "NRC Postulated Core breach on 1F2 Review" document is</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2450	
Facility:		

Facility:	ongoing with no response at this time. GEH will look into sharing the document with the Consortium.	
	4) Comments on composite document ("Guidance for the Re-entry and Return of US Citizens to Areas Around Fukushima Daiichi NPP" is being received by internal stakeholders. NRC intends to share the composite document with the Consortium and federal family once NRC management approves the document.	
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/17/2011 07:07:32 (ET)	Turnover to Larry Vick
Position:	RST BWR Systems and Ops Analyst	- Priorities include GEH comments
Name:	Eva Brown	- Two items for 11:00 am call (N2 and MDRIR issue)
Record:	2448	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/17/2011 06:58:24 (ET)	Updated Fukushima Daiichi Status Summary as of 0700EDT, 04/17/2011. Provided support to BWR analyst on preparing comments on Japanese Proposal document for SoS visit.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2447	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/17/2011 06:16:17 (ET)	Provided input for transmittal to the Site Team in support of bullets for the Secretary of State concerning TEPCO's recovery plan and METIs response. See attached.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2446	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/17/2011 06:02:10 (ET)	Requested generation of bullets for the Secretary of State concerning newly released plans from TEPCO and

Position:	RST BWR Systems and Ops Analyst	comments from METI
Name:	Eva Brown	
Record:	2445	
Facility:		
Source:	Glenn Tracy	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/17/2011 03:51:38 (ET)	- No change in unit status
Position:	RST BWR Systems and Ops Analyst	- Secretary of State expected to be in Embassy by 1700 JPT
Name:	Eva Brown	- Discussed nitrogen inerting concern
Record:	2441	- Notified Site Team that comments need to be to the OPs Center at least by 0600 April 18th (TT4771)
Facility:		RST BWR Systems and Ops Analyst - Eva Brown at 03:58:08 on 4/17/2011
Source:	0300 Consortium Call	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/17/2011 03:52:58 (ET)	From sent e-mail comment for the Composite Document:
Position:	RST BWR Systems and Ops Analyst	Concerning Chuck's recommendation regarding asking additional questions regarding the MDRIR rate. I believe the problem is that the sentence is too specific, given the different opinions regarding the positions of the Daiichi unit cores. In lieu of starting a new research project for the industry, I recommend deleting the sentence and replacing it with the performance objective.
Name:	Eva Brown	
Record:	2442	
Facility:		RECOMMENDATION: Demonstrated ability to provide and reliably remove decay heat from the core debris.
		Plant conditions that would support a recommendation for Reentry include:
		• Demonstrated ability to provide and reliably maintain MDRIR for Units 1, 2, and 3. Reasonable confidence that injected water is reaching the core material. Demonstrated ability to provide and reliably remove decay heat from the core debris for Units 1, 2 and 3. Whenever possible, it is desirable to maintain RPV water level above top of the active fuel (TAF) or containment water levels covering the reactor pressure vessel (RPV) lower head. Functional and reliable power source for the water injection equipment. Functional and clean water source of sufficient capacity to ensure adequate core cooling. Boron addition as necessary to maintain sub-criticality with consideration of pH and boron solubility limitations.
		The use of the performance objective allows for any core debris location and subsequent TEPCO revelation. This may mean maintaining the vessel at the MDRIR and the drywell submerged to above top of active fuel (TAF) or at the MDSL (minimum debris submergence level). I discussed this with Steve Garchow of the Site Team, and he had a similar thought.
		Therefore, I recommend just confirming the adequacy of the revised wording at the 11:00am Consortium Call.

Proposal is to delete first two sentences of bullet:

Demonstrated ability to provide and reliably maintain MDRIR for Units 1, 2 and 3. Reasonable confidence that injected water is reaching core material.

Had proposal reviewed by ET Director (Tracy) and Site Team (Garchow)
RST BWR Systems and Ops Analyst - Eva Brown at 03:54:34 on 4/17/2011

Source:

Address/Location:

Attachment:

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Date/Time: 04/17/2011 03:52:58 (ET)

From sent e-mail comment for the Composite Document:

Position: RST BWR Systems and Ops Analyst

Name: Eva Brown

Record: 2443

Concerning Chuck's recommendation regarding asking additional questions regarding the MDRIR rate. I believe the problem is that the sentence is too specific, given the different opinions regarding the positions of the Daiichi unit cores. In lieu of starting a new research project for the industry, I recommend deleting the sentence and replacing it with the performance objective.

RECOMMENDATION: Demonstrated ability to provide and reliably remove decay heat from the core debris.

Plant conditions that would support a recommendation for Reentry include:

- Demonstrated ability to provide and reliably maintain MDRIR for Units 1, 2, and 3. Reasonable confidence that injected water is reaching the core material. Demonstrated ability to provide and reliably remove decay heat from the core debris for Units 1, 2 and 3. Whenever possible, it is desirable to maintain RPV water level above top of the active fuel (TAF) or containment water levels covering the reactor pressure vessel (RPV) lower head. Functional and reliable power source for the water injection equipment. Functional and clean water source of sufficient capacity to ensure adequate core cooling. Boron addition as necessary to maintain sub-criticality with consideration of pH and boron solubility limitations.

The use of the performance objective allows for any core debris location and subsequent TEPCO revelation. This may mean maintaining the vessel at the MDRIR and the drywell submerged to above top of active fuel (TAF) or at the MDSL (minimum debris submergence level). I discussed this with Steve Garchow of the Site Team, and he had a similar thought.

Therefore, I recommend just confirming the adequacy of the revised wording at the 11:00am Consortium Call.

Source:

Address/Location:

Attachment:

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Date/Time: 04/17/2011 03:51:38 (ET)

- No change in unit status

RST BWR Systems and Ops

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10/23/13

~~OOO - Sensitive Internal Information~~

Position:	Analyst	- Secretary of State expected to be in Embassy by 1700 JPT
Name:	Eva Brown	- Discussed nitrogen inerting concern
Record:	2444	
Facility:		
Source:	0300 Consortium Call	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/17/2011 02:57:53 (ET)	Discussed revisions/responses to proposed questions for 11:00 am Consortium call with ET Director
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2440	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/16/2011 23:28:38 (ET)	Assumed the watch from Chuck Norton
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2439	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/16/2011 23:27:37 (ET)	Relieved by Eva Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2438	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/16/2011 23:25:05 (ET)	Took over from Nate Hudson.
Position:	RST Accident Seq Analyst	
Name:	See-Meng Wong	
Record:	2437	
Facility:		
Source:		

(b)(6)

132/495

Address/Location:		
Attachment:		
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Date/Time:	04/16/2011 23:10:20 (ET)	Turned over shift to See Meng Wong
Position:	RST Severe Accident Analyst	
Name:	Nathanael Hudson	
Record:	2436	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/16/2011 22:27:42 (ET)	Sent Bill Ruland, Pat Hiland, Dave Skeen and Tim Collins the latest drafts of the following documents.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2433	
Facility:		
		1. Interim Comprehensive Assessment
		2. Slide presentation for Interim Comprehensive Assessment
		3. Composite Analysis
		RST BWR Systems and Ops Analyst - Charles Norton at 22:55:00 on 4/16/2011
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/16/2011 22:52:57 (ET)	Helped to develop draft agenda for tomorrows Japanese Consortium call.
Position:	RST Severe Accident Analyst	
Name:	Nathanael Hudson	
Record:	2434	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/16/2011 22:27:42 (ET)	Sent Bill Ruland, Pat Hiland, Dave Skeen and Tim Collins the latest drafts of the following documents.
	RST BWR Systems and Ops	

Position:	Analyst	1. Interim Comprehensive Assessment
Name:	Charles Norton	
Record:	2435	2. Slide presentation for Interim Comprehensive Assessment
Facility:		3. Composite Analysis
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/16/2011 22:18:44 (ET)	1830 status call with Japan Site Team. Sent Steve Garchow generic SAMG guidance and an EPRI report.
Position:	RST Severe Accident Analyst	
Name:	Nathanael Hudson	
Record:	2432	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/16/2011 22:17:30 (ET)	1830 call with NRC Japan Team. No major changes in plant status.
Position:	RST BWR Systems and Ops Analyst	Japan team want the interting question for unit two discussd on the consortium call tomorrow.
Name:	Charles Norton	
Record:	2431	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/16/2011 15:18:43 (ET)	Assumed the BWR Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2430	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/16/2011 15:04:47 (ET)	Assumed the SA Position at 15 East.
Position:	RST Severe Accident Analyst	
Name:	Nathanael Hudson	
Record:	2429	
Facility:		
Source:		

(b)(6)

Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/16/2011 15:01:59 (ET)	Relieved by Chuck Norton
Position: RST BWR Systems and Ops Analyst	
Name: Lawrence Vick	
Record: 2428	
Facility:	
Source:	
Address/Location:	
Attachment:	
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Date/Time: 04/16/2011 14:17:17 (ET)	Shift turnover items:
Position: RST BWR Systems and Ops Analyst	See CRN log for summary of Consortium 11:00 am conference call.
Name: Lawrence Vick	
Record: 2427	RST reviewed plant status for any significant changes - none to report.
Facility:	Reviewed RST emails from last shift and newer.
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/16/2011 13:18:41 (ET)	Updated Fukushima Daiichi Status Summary with information from IAEA 4/16 03:00 UTC Update and DOE 4/16 06:00 EDT SITREP
Position: RST Accident Seq Analyst	
Name: Tina Ghosh	
Record: 2426	
Facility:	
Source: IAEA, DOE SitRep	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/16/2011 12:15:57 (ET)	Larry Vick suggests RST team members to read the following report for a better understanding of the Japanese apparent approach to maintain and mitigate the accident: "Recriticality Calculation with GENFLO Code for the BWR Core After Steam Explosion in the Lower Head," VTT Processes, Finland, 2002. It may change/inform your opinion about the current strategy the Japanese are implementing (limiting re-flood flow rate).
Position: RST Accident Seq Analyst	We have placed this report in the following M: drive location: M:/RST/Japanese Earthquake and Tsunami Response/Recrit Study for BWR Core by VTT via IAEA source.pdf
Name: Tina Ghosh	
Record: 2425	
Facility:	
Source: via IAEA	

Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/16/2011 11:37:37 (ET)	Summary of 11:00 a.m. Consortium Conference Call on 4/16/2011
Position: RST BWR Systems and Ops Analyst	1) Reiterated that NRC/RST has the lead for the call effective 4/15/11 [apologized for yesterdays NRC communications regarding the call].
Name: Lawrence Vick	2) Unit 1, 2, 3, and 4 status/conditions remain unchanged.
Record: 2424	3) NRC Japan team (Mr. Casto) provided new information that common radwaste building low contaminated liquid waste pump out to the ocean has been completed. TEPCO will start putting highly contaminated (HC) liquid waste into the radwaste building. TEPCO will bring up a barge in mid-May that can hold 27,000 tons of liquid waste. Approximately 50,000 tons of HC waste is expected. Overall storage capacity will be about 60,400 tons of HC waste. TEPCO will seal the radwaste building.
Facility:	4) Recent (b)(5) Cesium levels are less than other values previously sampled. Apparent error made in calculations - the issue has been resolved.
	5) "Interim Comprehensive Assessment" document (b)(5)
	(b)(5)
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/16/2011 07:03:25 (ET)	Turnover to Larry Vick
Position: RST BWR Systems and Ops Analyst	
Name: Eva Brown	
Record: 2423	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/16/2011 06:25:30 (ET)	Task Tracker 4752 Closed based on following Site Team E-mail:
Position: RST BWR Systems and Ops Analyst	From: Salay, Michael
Name: Eva Brown	Sent: Thursday, April 14, 2011 5:58:55 AM
Record: 2422	To: RST01 Hoc
(b)(6)	

Subject: FW: Unit 4 Spent Fuel Pool Isotopic Analysis
Auto forwarded by a Rule

From: Gard, Lee A (INPO) [mailto:GardLA@INPO.org]

Sent: Thursday, April 14, 2011 4:36 AM

To: Blamey, Alan; Wittick, Brian; Moore, Carl; Casto, Chuck; Collins, Elmo; Gauntt, Randall O; Mitman, Jeffrey; michael.call@nrc.gov; Hay, Michael; Miller, Marie; richard.kondo@crbard.com; Bernhard, Rudolph; Salay.

Michael; Garchow, Steve; Steve Reynolds

Subject: FW: Unit 4 Spent Fuel Pool Isotopic Analysis

See attached SFP isotopic analysis data taken from U4 pool, based on water sample obtained, handed out at 11 am meeting today.

At status meeting today, TEPCO analysis personnel discussed these results.

They have concluded that fuel in Unit 4 pool did not experience fuel damage from a drop of pool inventory and uncover of assemblies.

They estimate that 1/3 of the U4 pool contains seawater.

Lee Gard

INPO

cell (b)(6)

gardla@inpo.org

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Source: TEPCO

Address/Location:

Attachment:

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Date/Time: 04/16/2011 05:48:10 (ET)

Updated Fukushima Daiichi Status Summary with IAEA data from 4/15 1500 UTC.

Position: RST Accident Seq Analyst

Name: Larry Criscione

Record: 2421

Facility:

Source:

(b)(6)

Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/16/2011 05:05:26 (ET)	Possible Info Regarding U4 Dose rate
Position: RST BWR Systems and Ops Analyst	
Name: Eva Brown	
Record: 2420	
	<p>From: Sheron, Brian Sent: Wednesday, April 13, 2011 5:45:47 PM To: ET01 Hoc; RST01 Hoc Subject: FW: Unit 4 pool--why is the water level so low? Auto forwarded by a Rule</p> <p>More.....</p> <p>From: Per F. Peterson [mailto:peterson@nuc.berkeley.edu] Sent: Wednesday, April 13, 2011 5:11 PM To: Fetter, Steve Cc: DL-NITSolutions Subject: Re: Unit 4 pool--why is the water level so low?</p> <p>Steve,</p> <p>High dose rates above the surface of the water pool, with this much water inventory, would be consistent with cesium aerosols being deposited on surfaces above the pool that would have been released when fuel uncovered, overheated, and oxidized to release hydrogen. A more unambiguous assessment could be obtained if the remote equipment could be used to take some swipes from the surfaces of debris above the pool to check for cesium contamination.</p> <p>The temperature instrumentation in the Unit 4 pool is at a high elevation and would read the air temperature if a significant fraction of the pool water inventory had been lost. Since there was steam coming from the pool on March 16, the 82°C temperature measurement on March 16 was clearly the air temperature, not the water temperature.</p> <p>The evidence is beginning to accumulate that the water level on March 12 was already low, and thus the 32°C measurement could have been an air temperature measurement then. If the temperature sensor was covered on March 12, then there should have been a slow heating up to around 100°C before the evaporation rate would have become rapid enough to uncover the sensor. Im not sure how frequently they were taking temperature measurements between March 12 and 16, but it would be helpful to see the data if its available.</p> <p>Were working on the design of a scaled sloshing experiment to put on our shake table in our Civil Engineering department (see attached sketch). It would be very helpful to get a plan-view drawing of the refueling deck. Also, if anyone has a digital record of the ground motion observed at Fukushima, that would be very helpful; otherwise</p>

well work with some records from near-by locations.

-Per

According to the news report:

The Tokyo Electric Power Company, or TEPCO, says the water temperature in the spent fuel storage pool at the No. 4 reactor in the crippled Fukushima nuclear plant has risen to about 90 degrees Celsius. TEPCO took the temperature on Tuesday using an extending arm on a special vehicle. To cool the fuel, TEPCO sprayed 195 tons of water for 6 hours on Wednesday morning. The company thinks the pool's water level was about 5 meters lower than normal, but 2 meters above the fuel rods. TEPCO believes the water level is likely to rise by about one meter after the water spraying on Wednesday. TEPCO says high levels of radiation at 84 millisieverts per hour were detected above the water surface, where radiation is rarely detected.

First, a dose rate of 84 mSv/h (8.4 rem/h) does not appear to be consistent with a water level of 2 m above the top of the fuel rods. The calculations that were presented two days ago indicated dose rates of 0.02 rem/h for a water level of 6 m, which is less than 2 m above the top of the fuel. Based on the slides, a dose rate of 8.4 rem/h is more consistent with a water level of 5.1 m, which is only 0.5 m above the top of the fuel. How is TEPCO estimating the water level? Is it using dose rate as an indicator? If TEPCO is correct about the water level, could the higher dose rate be due to radioactive material (even pieces of spent fuel dispersed by the explosion) on the service floor? If so, that could make it difficult to use dose rate as a measure of water level.

Second, temperature measurements as of 12 April indicated a temperature of 37 C. The rate of temperature increase can indicate water level. I estimate a maximum rate of 33 C/day for a full pool (12 m), so a rise of 53 C in one day would indicate a water level of about 7.5 m.

Third, I do not understand why the water level is so low in the unit 4 pool. There are daily reports of TEPCO adding water to the pool. Is TEPCO unable to get the water in the pool? Is the pool leaking? The concrete truck reportedly pumps 50 t/h, so it should take 18 hours to fill the pool starting from the top of the fuel and less than 2 hr/d to keep it full. (Assuming a heat rate of 2.3 MW, about 88 tons/day of water must be added to compensate for evaporation; it would take about 10 days for the top of the fuel to become exposed, starting with a full pool.)

From: Kelly, John E (NE) [mailto:JohnE.Kelly@Nuclear.Energy.Gov]

Sent: Wednesday, April 13, 2011 11:18 AM

To: Lyons, Peter; Holdren, John P.; Fetter, Steve; Trautman, Stephen J SES CIV NAVSEA 08 NR; Aoki, Steven; Sheron, Brian

Cc: Russel, Daniel R.; Zerr, Thomas J.; Reed, Richard A.; Bader, Jeffrey A.

Subject: RE: Consensus view on risks to people living in the Tokyo area

btw - reports from TEPCO indicate that pool # 4 temperature has increased to 90C and high radiation levels were detected above the pool

http://www3.nhk.or.jp/daily/english/13_35.html

Per F. Peterson
 Professor and Chair
 Department of Nuclear Engineering
 University of California
 4153 Etcheverry Hall
 Berkeley, California 94720-1730
peterson@nuc.berkeley.edu
 Office: (510) 643-7749 Fax: (510) 643-9685
http://www.nuc.berkeley.edu/People/Per_Peterson

Source:

Address/Location:

Attachment:

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Date/Time:	04/16/2011 03:20:51 (ET)	*Units 1-4 condition static
Position:	RST BWR Systems and Ops Analyst	* Unit 1 inerting still losing ~ 30%
Name:	Eva Brown	* Site Team proposed hypothetical regarding the need to inert with steam condensing ongoing. Will send e-mail in support of Consortium comments
Record:	2418	
Facility:		Comment on Hypothetical: - The SAMGs suggest not inerting if H2/O2 levels are below 5% - The last information I saw indicated a worst case H2 level of 3% - As long as samples are being routinely pulled and concentration remains below 5%, I'm not sure that there is an issue. RST BWR Systems and Ops Analyst - Eva Brown at 03:24:02 on 4/16/2011
Source:	0300 Site Team - Consortium Call	


Address/Location:


Attachment:

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Date/Time:	04/16/2011 03:20:51 (ET)	*Units 1-4 condition static
Position:	RST BWR Systems and Ops Analyst	* Unit 1 inerting still losing ~ 30%
Name:	Eva Brown	* Site Team proposed hypothetical regarding the need to inert with steam condensing ongoing. Will send e-mail in support of Consortium comments
Record:	2419	

Facility:		
Source:	0300 Site Team - Consortium Call	
Address/Location:		
Attachment:		
This Information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/16/2011 01:58:21 (ET)	Reviewed GEH Q466 Assessment Regarding Unit 2 core breach
Position:	RST BWR Systems and Ops Analyst	Comments:
Name:	Eva Brown	
Record:	2413	
Facility:	(b)(4)	
Source:	GEH - TT4706	
Address/Location:		
Attachment:		
This Information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/14/2011 14:20:28 (ET)	1100 Call Notes
Position:	RST BWR Systems and Ops Analyst	Decision made to change the format of the meeting from being run by INPO to being run by the RST. Call changing from discussing RST Assessment to discussing plant conditions and items of concern among consortium members.
Name:	Michael Brown	
Record:	2360	
		On Tuesdays and Thursday s, call will also address changes to the RST Assessment document.
		INPO and EPRI indicated that they will still support the Tuesday and Thursday calls but will not listen in on the other calls.
		Questions/Comments from the 1100 Call
		1. What size Tsunami was the plant designed to withstand?
		a. What size earthquake was the plant designed to withstand.
		(b)(4)
		2. Does anybody have a copy of the paper that was previously generated on potential interactions between boron and seawater?
		3. Any thoughts on how high radiation levels should be in SFP with water level 2.5 m above TAF? Currently reading 8 rem/hr
		4. Any thoughts on having TEPCO getting a better flow path that could handle higher pressures?
		Recommendations
		5. Any word on when they might stop inerting Unit 1?
		6. Any concerns that may have more instrument failures due to operating in a high radiation / high temperature
(b)(6)		

Facility:	<p>environment?</p> <p>7. Received report today that TEPCO thinks they have 4' of water in DW, I thought we believed they had 10-12' any effort to reconcile differences?</p> <p>Comments</p> <ol style="list-style-type: none"> 1. Concern about Alternate Vent methods of venting Unit 1 RPV <ol style="list-style-type: none"> a. Method of venting all RPV's b. Concern about covering up the SRV's if they flood up DW <ol style="list-style-type: none"> i. Do we have that concern? ii. SRV may close and lose all injection and vent capability 2. Appears no damage to #4 SFP fuel – may not have had a fire <ol style="list-style-type: none"> a. Radiation levels appear to be high 8 rem/hr for level of 2.5 m over top of stored fuel 3. RST Assessment is being farmed out to NRR, all comments and changes will still go through RST 4. Unit 2 trench pumped down – refilled again 5. DOE indicated that they would send out information copies of documents that they had been working on. <ol style="list-style-type: none"> a. Want feedback/comments by Close of business on Monday. 6. GEH had a question about Chairman Jaczko's comments in the NY Times, regarding the source of Hydrogen for all 3 explosions might have been the SFPs. <ol style="list-style-type: none"> a. I spoke with the ET director about this and we agreed that the Chairman mis-spoke on this point. <ol style="list-style-type: none"> i. My belief is that the H2 generated on Units 1 and 3 came from fuel damage in the reactor core. While attempting to vent the H2 from primary containment to the plant vent, H2 escaped to the top of the reactor building where an ignition source provided the impetus for an explosion. ii. On Unit 4 my initial belief was that the H2 was generated from a zirc fire in the Unit 4 SFP, however, more recent information has caused me to re-think that explanation. Currently, I'm not sure what caused the explosion in Unit 4, if the isentropic analysis of the SFP water indicates that there was no fuel damage. <ol style="list-style-type: none"> 1. May be combustible gases (acetylene) that were released during the earthquake. 2. May be H2 gas coming from Unit 3. <p>RST Accident Seq Analyst - Larry Criscione at 02:11:05 on 4/16/2011</p>
Source:	11am Call
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/16/2011 01:54:02 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Eva Brown
Record:	2412
Actions from 00:00 Brief - Update/Close TT 4769; 4772 - During 0300 Consortium + Have Alan Blamey call Liaison Team + Clarify who is requesting Sandia support	
(b)(6)	

Facility:	+ Have they received comments on Interim Comprehensive Assessment + Confirm RST Rev. 2 Assessment to be provided back to Site Team (TT 4769) Per ET MDRIR concern in Enclosure 2 to Composite document is not to be discussed with Consortium RST BWR Systems and Ops Analyst - Eva Brown at 01:59:48 on 4/16/2011 RST BWR Systems and Ops Analyst - Eva Brown at 02:10:18 on 4/16/2011	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 04/16/2011 01:54:02 (ET)	Actions from 00:00 Brief	
Position: RST BWR Systems and Ops Analyst	- Update/Close TT 4769; 4772	
Name: Eva Brown	- During 0300 Consortium	
Record: 2415	+ Have Alam Blamey call Liason Team	
Facility:	+ Clarify who is requesting Sandia support	
	+ Have they received comments on Interim Comprehensive Assessment	
	+ Confirm RST Rev. 2 Assessment to be provided back to Site Team (TT 4769)	
	Per ET MDRIR concern in Enclosure 2 to Composite document is not to be discussed with Consortium	
	RST BWR Systems and Ops Analyst - Eva Brown at 01:59:48 on 4/16/2011	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 04/16/2011 01:58:21 (ET)	Reviewed GEH Q466 Assessment Regarding Unit 2 core breach	
Position: RST BWR Systems and Ops Analyst		
Name: Eva Brown		
Record: 2417		
Facility:		
Source: GEH - TT4706		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 04/16/2011 01:54:02 (ET)	Actions from 00:00 Brief	
Position: RST BWR Systems and Ops Analyst	- Update/Close TT 4769; 4772	
	- During 0300 Consortium	

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Name:	Eva Brown	+ Have Alam Blamey call Liason Team
Record:	2414	+ Clarify who is requesting Sandia support
Facility:		+ Have they received comments on Interim Comprehensive Assessment
		+ Confirm RST Rev. 2 Assessment to be provided back to Site Team (TT 4769)
Source:		
Address/Location:		
Attachment:		
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Date/Time:	04/15/2011 23:44:21 (ET)	Late Entry: Assumed the watch
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2411	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/15/2011 23:42:53 (ET)	Relieved by Eva Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2410	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/15/2011 22:55:46 (ET)	Turnover from Antonios Zoulis
Position:	RST Accident Seq Analyst	
Name:	Larry Criscione	
Record:	2409	
Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	04/15/2011 22:48:14 (ET)	Emailed NRC Japan Team to provide audience and purpose for the REV 2 RST Assessment. This will help the author focus the assessment.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2408	

(b)(6)

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Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	04/15/2011 22:09:07 (ET)	1800 Site call with Japan team. The Japanese want to not add H2 to U2 containment because there is steam generation at the rate of 2300 cubic meters per hour which is more than sufficient to inert the containment.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	Correction: The Japanese do not want to add N2 to the containment.
Record:	2404	
Facility:		Ask consortium to address this on the next consortium technical call. RST BWR Systems and Ops Analyst - Charles Norton at 22:35:22 on 4/15/2011
Source:		
Address/Location:		
Attachment:		
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Date/Time:	04/15/2011 22:18:58 (ET)	Reviewed the re-entry document.
Position:	RST BWR Systems and Ops Analyst	We should probably address the first bullet of "Plant conditions that would support a recommendation for Reentry" in enclosure 2 of the guidance for re-entry document which reads,
Name:	Charles Norton	
Record:	2406	• Demonstrated ability to provide Minimum Debris Retention Injection Rates (MDRIR) for Units 1,2, and 3.
Facility:		I think we should address the following questions: 1. Does MDRIR mean MDRIR as calculated or does it mean a flow rate that can retain the fuel in the vessel? 2. If the fuel is determined to be ex vessel, is this bullet been satisfied? 3. If this bullet cannot be satisfied because it cannot be demonstrated that MDRIR has been provided, what would be an acceptable alternative? (for example containment flooded to TAF)
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/15/2011 22:14:59 (ET)	Sent questions to Japan team to have ready and returned to the RST for the 11am call tomorrow. See log entry 2360.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2405	
Facility:		
Source:		

(b)(6)

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Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/15/2011 22:09:07 (ET)	1800 Site call with Japan team. The Japanese want to not add H2 to U2 containment because there is steam generation at the rate of 2300 cubic meters per hour which is more than sufficient to inert the containment.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2407	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/15/2011 21:48:53 (ET)	Developed RST checklist for each shift, ET reviewed and concurs with its use.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2403	
Facility:		
Source:	RST	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/15/2011 21:27:35 (ET)	Additional information and measures for maintaining stability of units:
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2402	
Facility:		<p>From: Hidehiko Yamachika [mailto:yamachika-hidehiko@jnes-usa.org] Sent: Friday, April 15, 2011 9:25 PM To: LIA02 Hoc Cc: aono-kenjiro@jnes-usa.org; Michael W. Chinworth Subject: Supplemental measures to enhance outside power supply credibility</p> <p>On top of the following measures announced the other day in order to enhance power supply credibility;</p> <ul style="list-style-type: none"> 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 <p>NISA issued additional following measures on April 15;</p> <ul style="list-style-type: none"> 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 <p>*Official translation will be notified when it will be ready.</p>
Source:	Email	

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/15/2011 20:35:55 (ET)	GEH has sent their analysis on whether or not Fukushima Daiichi Unit 2 reactor vessel is breached. This was in response to a request from Rep. Markees office. Document is attached. Tim Riley has been notified of the results.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2398	
Facility:		
Source:	GEH Response	Analysis has been shared with Japan Site Team. RST Accident Seq Analyst - Antonios Zoulis at 20:40:21 on 4/15/2011
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/15/2011 20:38:06 (ET)	Ed Fuller has completed his analysis on the accident sequence progression of Fukushima Daiichi Unit 3. The analysis is attached.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2399	
Facility:		
Source:	Email	Analysis has been shared with Japan Site Team. RST Accident Seq Analyst - Antonios Zoulis at 20:39:58 on 4/15/2011
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/15/2011 20:38:06 (ET)	Ed Fuller has completed his analysis on the accident sequence progression of Fukushima Daiichi Unit 3. The analysis is attached.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2400	
Facility:		
Source:	Email	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/15/2011 20:35:55 (ET)	GEH has sent their analysis on whether or not Fukushima Daiichi Unit 2 reactor vessel is breached. This was in response to a request from Rep. Markees office. Document is attached. Tim Riley has been notified of the results.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2401	
Facility:		
Source:	GEH Response	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/15/2011 16:05:58 (ET)	Updated Reoccurring Daily Actions and Calls Rev 31.docx document. RST Accident Seq Analyst - Antonios Zoulis at 16:23:04 on 4/15/2011
Position:	RST Accident Seq Analyst	

(b)(6)

Name:	Antonios Zoulis	
Record:	2396	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/15/2011 16:05:58 (ET)	Updated Reoccurring Daily Actions and Calls Rev 31.docx document.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2397	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/15/2011 15:48:53 (ET)	Report from NRC Japan Team that TEPCO has cross connected the off site power supplies between units 1, 2, 3 and 4 for added reliability.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	So far during the accident (b)(6)
Record:	2394	
Facility:		TEPCO reports that the ground water radiation levels at the site have increased. Also reported that the ground water is draining to the ocean.
The information in this log entry was recieved by the day shift RST and turned over to afternoon shift. RST BWR Systems and Ops Analyst - Charles Norton at 15:56:18 on 4/15/2011		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/15/2011 15:48:53 (ET)	Report from NRC Japan Team that TEPCO has cross connected the off site power supplies between units 1, 2, 3 and 4 for added reliability.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	So far during the accident (b)(6)
Record:	2395	
Facility:		TEPCO reports that the ground water radiation levels at the site have increased. Also reported that the ground water is draining to the ocean.

Source:		
Address/Location:		
Attachment:		
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Date/Time:	04/15/2011 15:44:07 (ET)	Assumed the BWR Analyst Position
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2393	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/15/2011 15:15:35 (ET)	Update One pager at 3:00 PM (EDT).
Position:	RST Accident Seq Analyst	
Name:	Raj Iyengar	Tim Collins (NRR) will lead the RST Assessment document. He and Bill Rudland will be available to talk to the Site Team at 6:30 PM today as well as with the Consortium 11 AM tomorrow.
Record:	2392	
Facility:		The DOE/NR/Industry/NRC team 11 AM meeting is expected to occur daily (normally Tues. and Thurs.). It is possible that they (DOE/NR/INPO/GE) may call in tomorrow. The bridgeline information: 1-800-772-3842 PIN: (b)(6) An update on the present status of RST documents needs to be provided.
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/15/2011 15:25:37 (ET)	Relieved by Chuck Norton
Position:	RST BWR Systems and Ops Analyst	
Name:	Gregory Cranston	
Record:	2391	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/15/2011 11:55:58 (ET)	Sent the stability document to Pentagon
Position:	RST Accident Seq Analyst	
Name:	Raj Iyengar	
Record:	2390	



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Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/15/2011 10:48:38 (ET)	Updated USNRC Emergency Operations Center Status Update regarding the Unit 4 Spent Fuel Pool. Added statement that: Analyzed levels of the sample taken are below those found in normal spent fuel pool water. Since the spent fuel pool is being refilled with water sprayed into the pool, the sample may be more indicative of the isotopes in the added water. A second sample was suggested by the site team but denied for the time being due to complexity in obtaining samples. So extent of fuel damage is yet to be determined.
Position: RST BWR Systems and Ops Analyst	
Name: Gregory Cranston	
Record: 2389	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/15/2011 09:35:40 (ET)	Sent "stability Document to OST01
Position: RST Accident Seq Analyst	
Name: Raj Iyengar	
Record: 2388	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/15/2011 07:56:47 (ET)	Tookover from Larry.
Position: RST Accident Seq Analyst	
Name: Raj Iyengar	
Record: 2387	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/15/2011 07:42:46 (ET)	Turnover to Raj Iyengar.
Position: RST Accident Seq Analyst	
Name: Larry Criscione	
Record: 2386	
Facility:	
Source:	
Address/Location:	
Attachment:	
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Date/Time: 04/15/2011 07:30:11 (ET)	Secured Accident Analyst watch station without relief. See three log entries from night shift for turnover.


(b)(6)

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Position:	RST Accident Seq Analyst
Name:	Larry Criscione
Record:	2385
Facility:	
Source:	
Address/Location:	
Attachment:	
<i>This information is Official Use Only - Sensitive Internal Information.</i>	
Date/Time:	04/15/2011 04:50:58 (ET)
Position:	RST Accident Seq Analyst
Name:	Larry Criscione
Record:	2379
Facility:	<p>Sent two EPRI documents (see below) regarding TMI Lessons Learned to INPO. The Japan Team requested these documents be forwarded to the Japanese via INPO. Email was sent from RST01 and copied to Mitman, Blamey and Garchow in Japan.</p> <p>NP-6931: The Cleanup of Three Mile Island Unit 2, A Technical History: 1979 to 1990: A Technical History: 1979 to 1990</p> <p>NP-7156: TMI-2 Postaccident Data Acquisition and Analysis Experience</p> <p>RST Accident Seq Analyst - Larry Criscione at 05:16:38 on 4/15/2011</p> <p>Original email bounced back from INPO because size was too large. Re-sent without attachment. See attachment to this log entry.</p> <p>RST Accident Seq Analyst - Larry Criscione at 07:28:44 on 4/15/2011</p>
Source:	
Address/Location:	
Attachment:	
<i>This information is Official Use Only - Sensitive Internal Information.</i>	
Date/Time:	04/15/2011 06:59:14 (ET)
Position:	RST Accident Seq Analyst
Name:	Larry Criscione
Record:	2382
Facility:	<p>Naval Reactors called at 0655. They would like us to send them the Spent Fuel Pool #4 sample results. They are sending us an email to RST01. Reply to that email once the results are located.</p> <p>Email sent. See attachment.</p> <p>RST Accident Seq Analyst - Larry Criscione at 07:27:01 on 4/15/2011</p>
Source:	
Address/Location:	
Attachment:	
<i>This information is Official Use Only - Sensitive Internal Information.</i>	
Date/Time:	04/15/2011 06:59:14 (ET)
Position:	RST Accident Seq Analyst
Name:	Larry Criscione
Record:	2383
Facility:	<p>Naval Reactors called at 0655. They would like us to send them the Spent Fuel Pool #4 sample results. They are sending us an email to RST01. Reply to that email once the results are located.</p>
Source:	
Address/Location:	

Attachment:

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Date/Time:	04/15/2011 03:42:11 (ET)	Notes from 0300 EST/1600 Japan phone call: Japan team, RST, Liaison Team, INPO, GEH and NR on the call.
Position:	RST Accident Seq Analyst	Japan team disconnected prior to the end of the call.
Name:	Larry Criscione	
Record:	2378	Injection is unchanged: 6 cu. m/hr on unit 1, 7 cu. m/hr on unit 2, 7 cu. m/hr on unit 3.
Facility:		<p>SFP #3 injected 25 tons of water on 4/14.</p> <p>SFP #4 plan to inject 140 tons of water on 4/15 (should be in progress). Prior to injection the level was approx. 2 m. above top of fuel. Injection should raise level less than 1 meter.</p> <p>#3 Drywell temperature continues to rise but more slowly. At midnight JST was at 265°C. Somewhat tied to vessel flange temperature: rising more quickly when vessel flange temp was rising and rose less quickly when vessel flange temp was lowering.</p> <p>2½ hour interruption in Nitrogen injection on Unit 1. Back on.</p> <p>Temperatures lowering on units 1 and 2.</p> <p>Unit 1 drywell level believed to be 14 m above reference. This is consistent with the calculations performed for water level early in the nitrogen injection.</p> <p>NEI 05-07 on B.5.b approaches sent to INPO to coordinate with NEI and distribute to TEPCo/NISA.</p> <p>TEPCo does not intend to do any more sampling on the unit 4 SFP.</p> <p>Japan Team (Steve Garchow/Jeff Mitman) requested EPRI document on TMI Clean up Lessons Learned. This document has not yet been located and forwarded to them.</p> <p>GEH has completed their analysis for the potential of a vessel breach in unit 2. They are writing it up now and should have it to the RST by 1700 April 15.</p> <p>Japan team wanted us to check on our access to the N-drive. Currently we do not have access. Once access is gained, Japan team cautions that for it to be useful they must control the documents sent to the N-drive (i.e. don't dump documents there).</p> <p>RST Accident Seq Analyst - Larry Criscione at 05:17:20 on 4/15/2011</p>
Source:	3 am phone call with Japan Team, NR, GEH and INPO	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/15/2011 04:50:58 (ET)	Sent two EPRI documents (see below) regarding TMI Lessons Learned to INPO. The Japan Team requested these

Position:	RST Accident Seq Analyst	documents be forwarded to the Japanese via INPO. Email was sent from RST01 and copied to Mitman, Blamey and Garchow in Japan.
Name:	Larry Criscione	
Record:	2384	
Facility:		NP-6931: The Cleanup of Three Mile Island Unit 2, A Technical History: 1979 to 1990: A Technical History: 1979 to 1990 NP-7156: TMI-2 Postaccident Data Acquisition and Analysis Experience RST Accident Seq Analyst - Larry Criscione at 05:16:38 on 4/15/2011
Source:		

Address/Location:

Attachment: *This information is Official Use Only - Sensitive Internal Information.*

Date/Time:	04/15/2011 04:50:58 (ET)	Sent two EPRI documents (see below) regarding TMI Lessons Learned to INPO. The Japan Team requested these documents be forwarded to the Japanese via INPO. Email was sent from RST01 and copied to Mitman, Blamey and Garchow in Japan.
Position:	RST Accident Seq Analyst	
Name:	Larry Criscione	
Record:	2380	
Facility:		NP-6931: The Cleanup of Three Mile Island Unit 2, A Technical History: 1979 to 1990: A Technical History: 1979 to 1990 NP-7156: TMI-2 Postaccident Data Acquisition and Analysis Experience
Source:		

Address/Location:

Attachment:

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Date/Time:	04/15/2011 03:42:11 (ET)	Notes from 0300 EST/1600 Japan phone call: Japan team, RST, Liaison Team, INPO, GEH and NR on the call. Japan team disconnected prior to the end of the call.
Position:	RST Accident Seq Analyst	
Name:	Larry Criscione	
Record:	2381	
Facility:		Injection is unchanged: 6 cu. m./hr on unit 1, 7 cu. m./hr on unit 2, 7 cu. m./hr on unit 3. SFP #3 injected 25 tons of water on 4/14. SFP #4 plan to inject 140 tons of water on 4/15 (should be in progress). Prior to injection the level was approx. 2 m. above top of fuel. Injection should raise level less than 1 meter. #3 Drywell temperature continues to rise but more slowly. At midnight JST was at 265°C. Somewhat tied to vessel flange temperature: rising more quickly when vessel flange temp was rising and rose less quickly when vessel flange temp was lowering. 2½ hour interruption in Nitrogen injection on Unit 1. Back on. Temperatures lowering on units 1 and 2.

Facility:	<p>Unit 1 drywell level believed to be 14 m above reference. This is consistent with the calculations performed for water level early in the nitrogen injection.</p> <p>NEI 05-07 on B.5.b approaches sent to INPO to coordinate with NEI and distribute to TEPCo/NISA.</p> <p>TEPCo does not intend to do any more sampling on the unit 4 SFP.</p> <p>Japan Team (Steve Garchow/Jeff Mitman) requested EPRI document on TMI Clean up Lessons Learned. This document has not yet been located and forwarded to them.</p> <p>GEH has completed their analysis for the potential of a vessel breach in unit 2. They are writing it up now and should have it to the RST by 1700 April 15.</p> <p>Japan team wanted us to check on our access to the N-drive. Currently we do not have access. Once access is gained, Japan team cautions that for it to be useful they must control the documents sent to the N-drive (i.e. dont dump documents there).</p>	
Source:	3 am phone call with Japan Team, NR, GEH and INPO	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/14/2011 22:57:22 (ET)	relieved by Steven Arndt
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2377	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/14/2011 22:56:21 (ET)	Relieved the Accident Analysis station.
Position:	RST Accident Seq Analyst	
Name:	Larry Criscione	
Record:	2376	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/14/2011 22:51:50 (ET)	Turnover to Larry Criscione.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	

10/23/13

~~OUO - Sensitive Internal Information~~


Record:	2375	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/14/2011 22:32:24 (ET)	Mike Hay requests that the RST Assessment REV 2 be completed within the next 4 for the issuance as an attachment to the Global Document.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2374	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/14/2011 22:14:15 (ET)	Reviewed Interim Safety Assessment. Provided feed back to the site team that we should reconsider the SFP 4 write up based on the recent information that the fuel is largely undamaged.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2373	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/14/2011 21:25:07 (ET)	1830 Conference call with NRC Japan Team. Unit 1 reported as stable (b)(5)
Position:	RST BWR Systems and Ops Analyst	(b)(5)
Name:	Charles Norton	U2 DW at atmospheric pressure. DW and Torus Rad levels are decreasing.
Record:	2372	
Facility:		U3 water flooded almost to the lower head.
Source:		U4 SFP Isotopic analysis of SFP water indicates that the fuel in the SFP is largely undamaged.
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/14/2011 19:40:47 (ET)	Team went over status of plants. Issues of interest involve increasing drywell temperatures in Unit 3. Current indication is Spent Fuel Pool #4 is not damaged.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2371	
Facility:		
Source:	Japan Site Team Call	




b)(6)

155/495

Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/14/2011 19:22:33 (ET)	relieved Peter Alter as BWR Analyst
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2370	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/14/2011 18:29:51 (ET)	Below email was sent in response to request from NISA on information quoted in a Japanese article:
Position: RST Accident Seq Analyst	
Name: Antonios Zoulis	Steve,
Record: 2369	
	Below is the link to the NRC press release that contains the supporting information for the 50 mile evacuation. This is public information:
	http://www.nrc.gov/reading-rm/doc-collections/news/2011/11-050.pdf
	If you need further assistance, please call us at anytime.
	Antonios Zoulis RST Team 301-816-5189
	From: RST01 Hoc Sent: Thursday, April 14, 2011 1:44 PM To: RST09 Hoc; RST07 Hoc; RST08 Hoc Subject: FW: NISA Request
	From: Bloom, Steven Sent: Thursday, April 14, 2011 1:44:07 PM To: RST01 Hoc Subject: FW: NISA Request Auto forwarded by a Rule
	Can you please call me.

Facility:	Steve Steven Bloom, International Relations Specialist International Cooperation and Assistance Branch (ICA) 301-415-2431 O-4F4 M/S O-4E21 From: Foggie, Kirk Sent: Thursday, April 14, 2011 12:36 PM To: Bloom, Steven Subject: NISA Request Steve, Below is a request from NISA do you want to research this? We are requested to obtain background information of an article (http://www.yomiuri.co.jp/dy/national/T110411004893.htm) by Kantei. It says " the United States drew up several "worst-case scenarios." "Among them was the assumption of the No. 2 reactor being disrupted completely with its core dispersing radiation continuously for 16 hours or so into the air; and the possibility of a plural number of nuclear fuel pools and reactor cores at the Fukushima facility being uncontrollable due to extremely high temperatures. "Based on these assumptions, the U.S. government decided to set an evacuation radius of 50 miles (about 80 kilometers) from the Fukushima complex for U.S. citizens in Japan." Does such a scenario and an assumption exist, and if so, could you provide me with relevant NRC documents?
Source:	Email
Address/Location:	
Attachment:	
This Information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/14/2011 17:29:02 (ET)
Position:	RST Accident Seq Analyst
Name:	Antonios Zoulis
Record:	2368
Responded to OCA request with following email: Ms. Couret, In response to Ms. Idar's questions: (1) NRC Reactor Safety team "Stability Defined" document	

Facility:	<p>This document is still under review and is not available for release.</p> <p>(2) IAEA report referenced during the 1630 April 12, 2011, Interagency SVTCs, wrt to the change in INES rating of Fukushima Dai-ichi from a 5 to a 7.</p> <p>Please forward this request to the Office of International Programs. They should be able to get access to the IAEA report and determine if it is available for release.</p> <p>If you have any questions please contact us at any time.</p> <p>Reactor Safety Team 301-816-5189</p>	
Source:	Email	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/14/2011 16:07:45 (ET)	Relieved by Peter Alter
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2367	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/14/2011 15:55:17 (ET)	Revised response to Congressman Markeys staff, submitted to ET for review
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2366	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/14/2011 15:52:50 (ET)	Received a copy of the Interim Safety Assessment document from the ET
Position:	RST BWR Systems and Ops Analyst	Asked to provide comments back as soon as possible
Name:	Michael Brown	
Record:	2365	
Facility:		
Source:	Japan Team	

Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/14/2011 15:51:29 (ET)	Received a copy of the Interim Safety Assessment document from the ET RST BWR Systems and Ops Analyst - Michael Brown at 15:52:38 on 4/14/2011
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2363	
Facility:		
Source:	Japan Team	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/14/2011 15:51:29 (ET)	Received a copy of the Interim Safety Assessment document from the ET
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2364	
Facility:		
Source:	Japan Team	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/14/2011 15:20:19 (ET)	(b)(5)
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2362	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/14/2011 15:19:05 (ET)	Laurel Steinerz (sic) with Naval Reactors would like us to capture the information from the 0300 call and share it during the 1100 call.
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2361	
Facility:		
Source:	Naval Reactors	
Address/Location:		

(b)(6)

Attachment

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Date/Time:	04/14/2011 14:20:28 (ET)	1100 Call Notes
Position:	RST BWR Systems and Ops Analyst	Decision made to change the format of the meeting from being run by INPO to being run by the RST. Call changing from discussing RST Assessment to discussing plant conditions and items of concern among consortium members.
Name:	Michael Brown	
Record:	2416	
Facility:		<p>On Tuesdays and Thursday s, call will also address changes to the RST Assessment document.</p> <p>INPO and EPRI indicated that they will still support the Tuesday and Thursday calls but will not listen in on the other calls.</p> <p>Questions/Comments from the 1100 Call</p> <ol style="list-style-type: none"> What size Tsunami was the plant designed to withstand? <ol style="list-style-type: none"> What size earthquake was the plant designed to withstand. JGCH indicated that design of earthquake was in ground motion and not on Richter scale Does anybody have a copy of the paper that was previously generated on potential interactions between boron and seawater? Any thoughts on how high radiation levels should be in SFP with water level 2.5 m above TAF? Currently reading 8 rem/hr Any thoughts on having TEPCO getting a better flow path that could handle higher pressures? <p>Recommendations</p> <ol style="list-style-type: none"> Any word on when they might stop inerting Unit 1? Any concerns that may have more instrument failures due to operating in a high radiation / high temperature environment? Received report today that TEPCO thinks they have 4' of water in DW, I thought we believed they had 10-12' any effort to reconcile differences? <p>Comments</p> <ol style="list-style-type: none"> Concern about Alternate Vent methods of venting Unit 1 RPV <ol style="list-style-type: none"> Method of venting all RPV's Concern about covering up the SRV's if they flood up DW <ol style="list-style-type: none"> Do we have that concern? SRV may close and lose all injection and vent capability Appears no damage to #4 SFP fuel – may not have had a fire <ol style="list-style-type: none"> Radiation levels appear to be high 8 rem/hr for level of 2.5 m over top of stored fuel RST Assessment is being farmed out to NRR, all comments and changes will still go through RST Unit 2 trench pumped down – refilled again DOE indicated that they would send out information copies of documents that they had been working on. <ol style="list-style-type: none"> Want feedback/comments by Close of business on Monday.

(b)(6)

6. GEH had a question about Chairman Jaczko's comments in the NY Times, regarding the source of Hydrogen for all 3 explosions might have been the SFPs.

a. I spoke with the ET director about this and we agreed that the Chairman mis-spoke on this point.

i. My belief is that the H2 generated on Units 1 and 3 came from fuel damage in the reactor core. While attempting to vent the H2 from primary containment to the plant vent, H2 escaped to the top of the reactor building where an ignition source provided the impetus for an explosion.

ii. On Unit 4 my initial belief was that the H2 was generated from a zirc fire in the Unit 4 SFP, however, more recent information has caused me to re-think that explanation. Currently, I'm not sure what caused the explosion in Unit 4, if the isentropic analysis of the SFP water indicates that there was no fuel damage.

1. May be combustible gases (acetylene) that were released during the earthquake.

2. May be H2 gas coming from Unit 3.

Source: 11am Call

Address/Location:

Attachment:

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Date/Time: 04/14/2011 14:08:12 (ET)

Sent information on 50 mile evacuation to Pat Hiland

Position: RST BWR Systems and Ops Analyst

Name: Michael Brown

Record: 2359

Facility:

Source:

Address/Location:

Attachment: 

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Date/Time: 04/14/2011 14:06:09 (ET)

Sent Fukushima Analysis on Unit 2 from Ed Fuller and Don Dube to Pat Hiland.

Position: RST BWR Systems and Ops Analyst

Name: Michael Brown

Record: 2358

Facility:

Source:

Address/Location:

Attachment: 

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Date/Time: 04/14/2011 07:26:44 (ET)

Relieved by Mike Brown.

Position: RST BWR Systems and Ops Analyst

Name: Timothy Kolb

Record: 2357

Facility:

Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/14/2011 06:56:15 (ET)	Hanh Phan logged out @ 7:00am
Position: RST Severe Accident Analyst	
Name: Hanh Phan	
Record: 2356	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/14/2011 06:07:47 (ET)	0300 phone call with Japan Team, INPO and NR. RPV injection rates steady with no change. 60 tons of water added to Unit 2 SFP on 4/13. Plan to add 70 tons to Unit 3 SFP today. Sharp rise in DW head temp to 250 degrees Centrigade. Believed to be because they are getting more accurate with water addition to the SFP. Unit 4 water sample resulted in an estimate of 5 curries in the pool.
Position: RST BWR Systems and Ops Analyst	
Name: Timothy Kolb	
Record: 2355	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/14/2011 06:04:14 (ET)	Added task 4706 to ensure results of GEH analysis on whether or not there was a RPV breach on Unit 2 go the Congressman Markeys staff.
Position: RST BWR Systems and Ops Analyst	
Name: Timothy Kolb	
Record: 2354	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/14/2011 05:49:40 (ET)	Added task item 4710 to track response for Congressman Markey staffer questions from 4/13.
Position: RST BWR Systems and Ops Analyst	
Name: Timothy Kolb	
Record: 2353	
Facility:	
Source:	
Address/Location:	
Attachment:	
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Date/Time: 04/14/2011 01:29:53 (ET)	Hanh Phan logged in at 10:50pm

(b)(6)

10/23/13

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Position:	RST Severe Accident Analyst	
Name:	Hanh Phan	
Record:	2352	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/13/2011 23:48:20 (ET)	Sent RST Assessment, Rev 2 which had comments from GEH, INPO and DOE incorporated (still needed some NR comments added) to Pat Hiland to incorporate all comments.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2351	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/13/2011 22:46:46 (ET)	Working on providing answers to Congressman Markeys staff questions from the dayshift call today. First draft to ET for review.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2350	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/13/2011 22:45:29 (ET)	Turnover to Hanh Phan
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2349	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/13/2011 21:34:26 (ET)	Relieved by Tim Kolb
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2348	
Facility:		
Source:		

(b)(6)

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10/23/13

~~OUO - Sensitive Internal Information~~

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/13/2011 21:26:00 (ET)	Emailed rev 21 of composite document to Pat Highland and Fred Brown. Sent the stable conditions doc dated April 10 to Pat Highland, Michelle Evans, Pat Highland and Bill Rouland. Sent basis document for the 50 mile evacuation to Fred Brown.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2347	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/13/2011 20:55:44 (ET)	1830 held conference call with Japanese NRC team. Discussed status of fuel pool number 4. The site teams needs to see the images of the pool to determine the geometry of the fuel.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2346	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/13/2011 14:59:25 (ET)	turnover to Antonios Zoulis.
Position:	RST Accident Seq Analyst	
Name:	Mark Caruso	
Record:	2345	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/13/2011 14:29:43 (ET)	Assumed BWR Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2344	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/13/2011 14:19:43 (ET)	Relieved by Chuck Norton
Position:	RST BWR Systems and Ops Analyst	

(b)(6)

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Name:	Michael Brown	
Record:	2343	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/13/2011 12:49:01 (ET)	Sat in with Jim Dyer on a phone call with a staffer from Congressman Markeys staff (Michal Freedhold)
Position:	RST BWR Systems and Ops Analyst	Came away with a commitment to answer 5 questions
Name:	Michael Brown	
Record:	2342	
Facility:		<ol style="list-style-type: none"> 1. Need a list of all BWRs in the US with Isolation Condensers 2. Need to find out the melting temperature of the CRDM seals and also what the melting temperature of the vessel would be 3. Need to determine why radiation levels on Unit 1 are increasing and why pressure on Unit 1 is increasing 4. Find out what cools the Recirc pump seals 5. Asked to provide the results of the GEH analysis on whether or not there was a RPV breach on Unit 2 once the results become known.
Source:	Congressman Markey	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/13/2011 13:32:12 (ET)	Message from Don Dube -
Position:	RST Coordinator	
Name:	Rick Hasselberg	From: Dube, Donald
Record:	2341	Sent: Wednesday, April 13, 2011 1:20 PM
Facility:	Fukushima	To: Hasselberg, Rick
		Subject: clarifications
		<p>Rick, I'm not sure where the original Word file lies anymore but I thought it was important enough to add these clarifying comments on the sequence of events. Some may misconstrue the statement of reactor pressure vessel breach at Unit 2 as a full breach, whereas what is really meant is the possibility of localized breach in one or more CRD penetrations. Likewise, we need to be cautious regarding the conclusion that molten core/concrete interaction (MCCI) has or has not taken place. There are several possible explanations for the pressure surges in the drywell, none of which are really encouraging, however.</p> <p>Don</p>
Source:	Don Dube	
Address/Location:		

Attachment: ~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/13/2011 12:56:47 (ET)	estimated time to boil U4 SFP level down from 10 ft above TAF to TAF. USED ORNL decay heat load at 3/15 of 2.315 MW and assumed pool was 2400 sq. ft. time estimate is 7.7 day
Position:	RST Accident Seq Analyst	
Name:	Mark Caruso	
Record:	2340	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/13/2011 11:54:49 (ET)	updated daily status
Position:	RST Accident Seq Analyst	
Name:	Mark Caruso	
Record:	2339	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/13/2011 06:57:12 (ET)	Relieved by Mike Brown.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2338	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/13/2011 06:56:33 (ET)	Turnover with Mark Caruso.
Position:	RST Accident Seq Analyst	
Name:	Larry Criscione	
Record:	2337	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/13/2011 05:34:05 (ET)	Revised Plant Stability Determination document based on comments from M. Virgilio. Attempted to make it clearer regarding what constitutes functional and reliable. Sent to site team for comments and will then provide input to the global assessment document and the RST assessment document.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2336	

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Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	04/13/2011 04:27:30 (ET)	0300 call with Japan Team. Meetings initiated between NRC, Tepco and GE to discuss flooding U-1 Containment. Visual inspection of U-4 SFP determined current level approx. 10 ft above top of fuel and rad levels at 8 Rem/hr.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2335	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/13/2011 02:55:09 (ET)	Updated information document for Congressman Markeys office.
Position:	RST Accident Seq Analyst	
Name:	Larry Criscione	
Record:	2334	
Facility:		
Source:	M:\RST\Japanese Earthquake & Tsunami Response\RST Assessment of Fukushima Daiichi\Request for Information\Rep Markeys Office	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/13/2011 00:37:24 (ET)	Priorities for shift are to revise the stability document to account for more permanent equipment to support Phase I. Prepare response to Congressman Markey staffer question. Continue review of RST Assessment Rev.2.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2333	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/13/2011 00:37:00 (ET)	Relieved the watch as BWR Analyst.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2332	
Facility:		

(b)(6)

Source:		
Address/Location:		
Attachment:		
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Date/Time:	04/12/2011 23:36:57 (ET)	Relieved by Tim Kolb
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2331	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/12/2011 23:01:03 (ET)	Turnover with Larry Criscione.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2330	
Facility:		
Source:	Turnover	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/12/2011 21:47:41 (ET)	Alan, Per our phone conversation, below is the information we obtained from Stan Robinson, President and Account Executive Manager of Innovative Industrial Solutions. Mr. Robinson can be reached on his cell phone at any time
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2329	
Facility:		<div style="border: 1px solid black; padding: 2px;">(b)(6)</div> <ul style="list-style-type: none"> • Vest can be made from Tungsten or Iron • New product, full torso coverage with flexible form fit • Product cost is \$6500/Tungsten Vest and \$5200/Iron Vest • Lead time depends on number ordered • 40% reduction in exposure <p>The vendor is currently working with Toshiba to provide these vests to TEPCO.</p> <p>If you have any questions please call or email.</p> <p>Antonios Zoulis Reactor Safety Team Severe Accident Analyst</p>

10/23/13

~~OUO - Sensitive Internal Information~~

Source: Email Sent to Japan Team	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/12/2011 20:46:58 (ET)	Phone call received from Stan Robinson of Innovative Industrial Solutions about the Silflex Vests. Information on price and availability was emailed to Alan Blamey.
Position: RST Accident Seq Analyst	
Name: Antonios Zoulis	
Record: 2328	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/12/2011 19:17:01 (ET)	Email was sent to Innovative Industrial Solutions from RST01.HOC to obtain information on the availability of the Silflex Vests for shipment to Japan.
Position: RST Accident Seq Analyst	
Name: Antonios Zoulis	
Record: 2327	
Facility:	
Source: Email	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/12/2011 18:57:04 (ET)	Call with NRC Japan Team. They need information about radiation vests by 6am April 13, 2011
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2326	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/12/2011 15:48:10 (ET)	Assumed the BWR Analyst position
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2325	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/12/2011 15:46:24 (ET)	*****Late Entry*****
Position: RST Accident Seq Analyst	Conducted turnover with Ben Beasley:

(b)(6)

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Name:	Antonios Zoulis	Open issues involve information to Eliot Brenner in reference to Wall Street Journal statement. Information request from Rep. Markeys office.
Record:	2324	
Facility:		
Source:	Turnover	

Address/Location:	
Attachment:	

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Date/Time:	04/12/2011 15:47:03 (ET)	Relieved by Chuck Norton
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2323	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	04/12/2011 15:21:49 (ET)	Sent email to DOE and ORNL to see above resolving differences in spent fuel decay heat load.
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2322	
Facility:		
Source:		

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/12/2011 15:05:49 (ET)	Revised RST Assessment to incorporate GEH comments. Evaluation of NR comments in progress
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2321	
Facility:		
Source:		


Address/Location:	
Attachment:	

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Date/Time:	04/12/2011 15:06:24 (ET)	Turnover items: - Response for Eliot Brenner on WSJ article regarding Chernobyl - Possible additional contact on info for Congressman Markeys office
Position:	RST Severe Accident Analyst	
Name:	Benjamin Beasley	
Record:	2320	
Facility:		
Source:		

Address/Location:	
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Attachment:		This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/12/2011 15:04:28 (ET)	Provided feedback on revising RST Assessment document	
Position:	RST BWR Systems and Ops Analyst	Suggested a different format	
Name:	Michael Brown		
Record:	2319	<ul style="list-style-type: none"> - Summary of Core Damage states - Stability Document - SFP status 	
Facility:		Took comments under advisement	
Source:	Alan Blamey		
Address/Location:			
Attachment:			
This information is Official Use Only - Sensitive Internal Information.			
Date/Time:	04/12/2011 13:46:38 (ET)	Provided pressure and radiation readings to OCA in response to a request from Congressman Markeys office.	
Position:	RST Severe Accident Analyst	RST Severe Accident Analyst - Benjamin Beasley at 13:47:43 on 4/12/2011	
Name:	Benjamin Beasley		
Record:	2317		
Facility:			
Source:			
Address/Location:			
Attachment:			
This information is Official Use Only - Sensitive Internal Information.			
Date/Time:	04/12/2011 13:46:38 (ET)	Provided pressure and radiation readings to OCA in response to a request from Congressman Markeys office.	
Position:	RST Severe Accident Analyst		
Name:	Benjamin Beasley		
Record:	2318		
Facility:			
Source:			
Address/Location:			
Attachment:			
This information is Official Use Only - Sensitive Internal Information.			
Date/Time:	04/12/2011 07:01:49 (ET)	Relieved by Ben Beasley.	
Position:	RST Accident Seq Analyst		
Name:	Larry Criscione		
Record:	2316		
Facility:			
Source:			
Address/Location:			
Attachment:			
This information is Official Use Only - Sensitive Internal Information.			
Date/Time:	04/12/2011 06:46:58 (ET)	Relieved by Mike Brown.	



10/23/13

OUO - Sensitive Internal Information

Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2315	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/12/2011 05:41:29 (ET)	Japan Team called to task us with finding out from DOE and NR whether radiation vests (silflex vests) are available for use in Japan to shield workers while operating pumper trucks. Also, are they accessible. INPO will check the industry. Need answer by next phone call in 12 hours.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2314	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/12/2011 03:24:43 (ET)	Held 3:00 am call with Japan team, INPO, GEH and NR. Sprayed 70 tons of water on U-3 SFP on 4/11. Attempting to use boom truck to look at U-4 SFP and planning to place level sensors in pool today.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2313	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/11/2011 23:49:10 (ET)	Relieved the watch as RST BWR Analyst.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2312	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/11/2011 23:30:45 (ET)	Relieved by Tim Kolb
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2311	
Facility:		

(b)(6)

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Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/11/2011 23:23:23 (ET)	Submitted consortium activities section of global assessment draft to Mike Hay
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2310	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/11/2011 23:18:02 (ET)	Answered questions from Thomas Zerr.
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2309	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/11/2011 23:16:48 (ET)	GEH gave permission to share Analysis of TEPCO analysis of SFP integrity.
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2308	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/11/2011 22:58:59 (ET)	<p>Call with Japan team. The team wants to present GE analysis of the TEPCO analysis of structural to NISA. Need to get GEH permission to share GEH confidential information.</p> <p>Japan team wants to share ORNL assessment of decay heat in the fuel pools with NISA need permission to share the document. Also want the RST to contact ORNL on days to discuss what assumptions are in the document.</p>
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2307	
Facility:	
Source:	
Address/Location:	
Attachment:	
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Date/Time: 04/11/2011 23:05:47 (ET)	Relieved the Accident Analyst station.
Position: RST Accident Seq Analyst	
Name: Larry Criscione	
Record: 2306	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/11/2011 22:45:55 (ET)	Incorporated DOE and INPO comments into RST ASSESSMENT DOCUMENT
Position: RST Accident Seq Analyst	
Name: Mark Caruso	
Record: 2305	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/11/2011 20:28:06 (ET)	updated Fukushima Daiichi Status summary to reflect data as of 1800 hr 4/11 from Japan site team. Reviewed emails received at RST01.
Position: RST Accident Seq Analyst	
Name: Mark Caruso	
Record: 2304	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/11/2011 17:09:34 (ET)	Updated Fukushima Daiichi Status Summary to reflect data provided as of 0600 4/11,
Position: RST Accident Seq Analyst	
Name: Mark Caruso	
Record: 2303	
Facility:	
Source: JAIF/NISA	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/11/2011 16:04:59 (ET)	Call with GEH with comments on the Rev 2 assessment. GEH that we change the status and data to address the functions needed to complete SAMG actions rather than a general plant status. In rev 1 we made recommendations without assessing the ability to carryout the recommendation.
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2301	
	Call with GEH with comments on the Rev 2 assessment. GEH suggests that we change the status and data to

(b)(6)

Facility:	address the functions needed to complete SAMG actions rather tha a general plant status. In rev 1 we made recommendations without assessing the ability to carryout the recommendation.	
Source:	RST BWR Systems and Ops Analyst - Charles Norton at 16:08:17 on 4/11/2011	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/11/2011 16:04:59 (ET)	Call with GEH with comments on the Rev 2 assessment. GEH that we change the ststus and data to address the functions needed to complete SAMG actions rather tha a general plant status. In rev 1 we made recommendations without assessing the ability to carryout the recommendation.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2302	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/11/2011 16:03:59 (ET)	Assumed BWR Analyst position
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2300	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/11/2011 15:56:28 (ET)	Relieved by Chuck Norton
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2299	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/11/2011 14:37:36 (ET)	The interruption in injection for 50 min on April 10th results in about 10,800 lbs of liquid boiled off for unit 1. This translates to about 1.3 ft/hr of loss of liquid level. for units 2 & 3 is about 2.2 ft/hr. The unit 1 level loss calc is based on Millstone 1 core geometry, scaled up to units 2 and 3. If injection was previously at the a rate to match boil-off, the levels, the core would have uncovered about 1.3 ft for unit 1 and 2.2 ft for units 2 and 3. If this is the
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	2298	

(b)(6)

Facility:	maximum uncover, steam cooling should keep the fuel (intact/damaged) from reaching the melting point. Some additional oxidation (and H2 production) is expected without core spray and top down cooling of exposed fuel.	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/11/2011 13:35:50 (ET)	RPV pressure and Drywell pressure increased on March 20th. FW nozzle at 580f and lower head at 500 F. Drop in FW and LHead wall temps coincident with RPV and DWell pressure decreases.. suggesting a breach of L head. FW and and L Head wall temps cooled down to 212-220 F suggests molten fuel in lower head exited vesel. DW pressure increase could have been caused by relocation of fuel into lower head with steam production relieved thru SRV (if the W Well is saturated could cause increase in dry well pressure.. Lower head breach appears most likely possibility since lower head and FW noz cooled down from 580 to 220F after pressure increases in RPV and D Well. D Well radiatio levels also increased during this time period. Vessel levels later decreased then recovered possibly after DW and RPV ppressures equilibrated at near atmospheric further suggesting RPV breach. These are preliminaray conclusions; more data needed for core on the floor conclusion. (see DOE plots pgs 11 and 12 and F3 trend data 110318-E.xls sprea sheet)
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	2297	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/11/2011 12:57:14 (ET)	Question out to GEH and others in the Consortium as to whether or not the loss of coolant flow to cores for 50 min after the earthquake was long enough to cause additional core damage? Also, if 50 min was not long enough, how long could the flow be lost prior to additional fuel damage occurring?
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2296	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/11/2011 12:52:10 (ET)	GEH phoned in shortly after the 11am call to discuss a paper sent out on Saturday by the RST. (Don Dube and Ed Fuller) that potentially concludes that the Unit 2 RPV was breached.
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2295	
Facility:		<p>GEH is doing (b)(4)</p> <p>(b)(4)</p> <p>Also, there seems to be a difference of opinion on the status of the SRVs on Unit 2. TEPCO believes that all SRVs are closed on Unit 2, while the site team believes there may be a stuck open SRV. We need to verify this information tonight with the site team?</p> <p>If the SRV is not open, we need to modify the RST Assessment Rev. 2 document</p>
Source:	GEH	

(b)(6)

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/11/2011 12:49:25 (ET)	During conversation with the other Regulators (Canada and England), they asked that we give them a phone call prior to changing our EPZ recommendations so they can alert their governments of our impending decision. Their numbers are: Canada - Ali El-Jaby - 613-769-4291 England - Ali Tehrani - 00-44-151-951-3607
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2294	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/11/2011 07:21:06 (ET)	Relieved by Mike Brown.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2293	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/11/2011 05:52:20 (ET)	Held 0300 phone call with Japan Team, INPO and NR. Nitrogen injection to containment continuing on Unit 1. Planned to start injection on Unit 2 by April 20th and Unit 3 unknown. Radwaste Bldg cleared of water to make room for higher contaminated water from other areas. Plan on visual inspection of Unit 4 SFP in near future.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2292	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/11/2011 05:00:39 (ET)	Japan Team called to inform us that another 7.1 magnitude earthquake happened around Fukushima and that power had been lost to Units 1 thru 3 affecting injection to the cores. Team is following up on verifying if the fire trucks had re-established flow yet.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2291	
Facility:		
Source:		
Address/Location:		
Attachment:		

(b)(6)

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Date/Time:	04/11/2011 04:33:16 (ET)	Sent out Draft RST Assessment which incorporated the SFP assessment document and the Plant Condition Stability Determination document for review. Asked for a one day turnaround on the review.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2290	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/11/2011 01:13:38 (ET)	Incorporated Japan Team comments for the RST Assessment of Spent Fuel Pools. This completes all reviews and will be incorporated into the RST Assessment Rev. 2.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2289	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/10/2011 23:21:29 (ET)	Relieved the watch as BWR RST Analyst.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	2288	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/10/2011 23:16:41 (ET)	Relieved by Tim Kolb
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2287	
Facility:		
Source:		




Address/Location:

Attachment:

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Date/Time:	04/10/2011 23:01:43 (ET)	Relieved Accident Sequence Analyst
Position:	RST Accident Seq Analyst	
Name:	Larry Criscione	
Record:	2286	

(b)(6)

Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/10/2011 22:49:08 (ET)	Incorporated information on RST documents to the boardfile.doc.
Position: RST Accident Seq Analyst	
Name: Raj Iyengar	RST Accident Seq Analyst - Raj Iyengar at 22:54:35 on 4/10/2011
Record: 2284	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/10/2011 22:49:08 (ET)	Incorporated information on RST documents to the boardfile.doc.
Position: RST Accident Seq Analyst	
Name: Raj Iyengar	
Record: 2285	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/10/2011 22:07:57 (ET)	Conference call with Elmo Collins and Mike Hay of the NRC Japan team. Discussed the Comprehensive (Global) Assessment Document. The NRC Japan team wants the RST to define the consortium and provide a brief status of the consortium recommendation for each Unit. They want us to provide an executive summary including the purpose of the active RST documents that have been provided to the NRC Japan team. They also want the a discussion of the RST documents in preparation including a summary of the purpose of the documents.
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2283	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/10/2011 22:04:54 (ET)	incorporated INPO, GEH, NR comments into the Spent Fuel Pool assessment document.
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2282	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	

Date/Time:	04/10/2011 22:02:58 (ET)	Incorporated minor NR comments into the Stability Document.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2281	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/10/2011 22:00:35 (ET)	(b)(4)
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2280	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/10/2011 21:53:51 (ET)	1830 conference call with the NRC Japan Team. Alan Blamey discussed plant status. There have been no major changes in the TEPCO strategy for Units 1,2, and 3. Still injecting at MDRIR. TEPCO has discharged some contaminated water and is checking the integrity of Rad waste facility and is developing an overall water management plan.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2279	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/10/2011 15:21:31 (ET)	Chuck Norton assumed BWR Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2278	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/10/2011 15:17:10 (ET)	L. Vick off duty.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	

10/23/13

~~OUO - Sensitive Internal Information~~

Record:	2277	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/10/2011 06:56:46 (ET)	L. Vick on duty.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2276	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/10/2011 06:50:45 (ET)	Relieved by Larry Vick
Position:	RST BWR Systems and Ops Analyst	
Name:	Gregory Cranston	
Record:	2275	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/09/2011 23:44:30 (ET)	Assumed BWR Analyst duty.
Position:	RST BWR Systems and Ops Analyst	
Name:	Gregory Cranston	
Record:	2274	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/09/2011 23:41:56 (ET)	relieved by Greg Cranston
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2273	
Facility:		
Source:		
Address/Location:		
Attachment:		

(b)(6)

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Date/Time:	04/09/2011 22:47:10 (ET)	Sent NR assessment of Fukushima to NRC Japan Team
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2272	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/09/2011 22:42:39 (ET)	1600 conference call with DOE and NR. Revised stability document to everyone's satisfaction.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2271	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/09/2011 22:39:28 (ET)	Updated option B document with changes requested by NRC Japan Team.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2270	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/09/2011 22:34:06 (ET)	Issued answer to White House questions on Plant parameters.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2269	
Facility:		
Source:		



Address/Location:

Attachment:




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Date/Time:	04/09/2011 22:31:29 (ET)	Sent GEH comments to TEPCO analysis of SPF 4 to NRC Japan team.
	RST BWR Systems and Ops	

(b)(6)

Position:	Analyst	
Name:	Charles Norton	
Record:	2268	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/09/2011 22:16:31 (ET)	Sent U2 vessel breach assessment to Japan Team
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2267	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/09/2011 22:15:48 (ET)	Late entry 1500 Assumed RST BWR Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2266	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/09/2011 15:38:11 (ET)	Relieved by Chuck Norton
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2265	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/09/2011 14:47:57 (ET)	1100 am call notes
Position:	RST BWR Systems and Ops Analyst	Rev. 2 of RST Assessment is a work in progress
Name:	Michael Brown	
Record:	2264	GEH hopes to have Unit 4 SFP structural analysis in tonight.

(b)(6)

Facility:	Received feedback from NR that they would like changes to the stability document.		
Source:			
Address/Location:			
Attachment:			
This information is Official Use Only - Sensitive Internal Information.			
Date/Time:	04/09/2011 14:47:00 (ET)	Draft answer to the White House questions from (b)(6)	of April 8th at 11:27 pm. 6
Position:	RST Accident Seq Analyst		
Name:	Jeffrey Mitman		
Record:	2263		
Facility:			
Source:			
Address/Location:			
Attachment:			
This information is Official Use Only - Sensitive Internal Information.			
Date/Time:	04/09/2011 13:38:48 (ET)	Issued Rev. 2 draft to the consortium for comments. Comments due back by 1000 on Monday.	
Position:	RST BWR Systems and Ops Analyst		
Name:	Michael Brown		
Record:	2262		
Facility:			
Source:	RST		
Address/Location:			
Attachment:			
This information is Official Use Only - Sensitive Internal Information.			
Date/Time:	04/09/2011 12:06:29 (ET)	Final Spent Fuel Pool assessment document issued.	
Position:	RST BWR Systems and Ops Analyst	M:\RST\Japanese Earthquake & Tsunami Response\Spent Fuel- 4041\FINAL - 04-09-11 1200 RST Assessment Spent Fuel Pool.pdf	
Name:	Michael Brown		
Record:	2261		
Facility:			
Source:	RST		
Address/Location:			
Attachment:			
This information is Official Use Only - Sensitive Internal Information.			
Date/Time:	04/09/2011 07:05:37 (ET)	Turnover to Mike Brown	
Position:	RST BWR Systems and Ops Analyst		
Name:	Eva Brown		
Record:	2260		
Facility:			
Source:			
Address/Location:			

(b)(6)

Attachment:

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Date/Time:	04/09/2011 06:30:55 (ET)	E-mail Consortium write-up to Site Team in support of Japan Briefing Document. Additional comments on report areas included. Task Tracker 4285. See attached
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2259	
Facility:		
Source:		

Address/Location:

Attachment: ~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/09/2011 04:31:26 (ET)	Made editorial edits to Option B document. Final Rev, 1 [2200EDT 4-8] Forwarded to RST01 for Site Team. FINAL REV. 1 Version attached
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2258	
Facility:		
Source:		

Address/Location:

Attachment: ~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/09/2011 04:27:54 (ET)	0300 Summary - N2 inerting continues-99.6% pure - TEPCO confirmation of DW rad monitor failure - Increasing injection on Unit 1 but do not intend to flood due to processing of waste water concerns - Two new cement pumps equipped with cameras and rad monitors should be arriving ~4/12
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2257	
Facility:		
Source:	Alan Blamey	

Address/Location:

Attachment:

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Date/Time:	04/09/2011 01:26:39 (ET)	Hays document Task Tracker changed to 4373 to be provided to the LT
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2256	
Facility:		
Source:	Fred Brown	

Address/Location:




Attachment:


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Date/Time:	04/08/2011 23:47:39 (ET)	Late Entry: Assumed the watch
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(b)(6)

Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2255	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/08/2011 23:09:49 (ET)	Relieved by Eva Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2254	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/08/2011 23:03:45 (ET)	assumed position as accident sequence analyst
Position:	RST Accident Seq Analyst	
Name:	Shawn Marshall	
Record:	2253	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/08/2011 22:18:43 (ET)	Per Pat Hiland, RST Director, staffing reduction commenced: Kerri Kavanagh released for 4/9 1500-2300 shift. Kerri was contacted at approx 2200 on 4/8/2011.
Position:	RST Coordinator	
Name:	Joelle Starefos	
Record:	2252	
Facility:		
Source:	RST Director	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/08/2011 22:06:50 (ET)	Updated Stability document.
Position:	RST BWR Systems and Ops Analyst	RST BWR Systems and Ops Analyst - Charles Norton at 22:14:37 on 4/8/2011
Name:	Charles Norton	
Record:	2249	
Facility:		
Source:		

Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/08/2011 22:11:16 (ET)	Comments sent to PMT on composite document replacing the "Criterion for Assessing Plant Stability" section.
Position:	RST Coordinator	
Name:	Joelle Starefos	
Record:	2250	
Facility:		
Source:	RST Coordinator	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/08/2011 22:06:50 (ET)	Updated Stability document.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2251	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/08/2011 22:04:09 (ET)	Updated composite document Criterion for assessing plant stability.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2248	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/08/2011 16:14:44 (ET)	Assumed BWR Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2247	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/08/2011 16:04:10 (ET)	Relieved by Chuck Norton

Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2246	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/08/2011 13:55:05 (ET)	Had discussion with Naval Reactors on Stability Document (b)(5)
Position:	RST BWR Systems and Ops Analyst	(b)(5)
Name:	Michael Brown	Incorporated some of Naval Reactors comments.
Record:	2240	
Facility:		Changed format of stability document to include Purpose, Stakeholders and level of approval
		Believe document is ready to be issued. Document to RST director for final review
		RST BWR Systems and Ops Analyst - Michael Brown at 15:38:37 on 4/8/2011
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/08/2011 14:46:44 (ET)	Unit 3 - water level believed to be 13.4 meters above the bottom of the DW. Close to bottom of the vessel - based on Delta P between DW and Torus
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	KAPL believes water level in Unit 3 is about 1/2 way up the light bulb (few feet above DW floor)
Record:	2244	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/08/2011 14:43:26 (ET)	Unit 3 - water level believed to be 13.4 meters above the bottom of the DW. Close to bottom of the vessel - based on Delta P between DW and Torus
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	Kappel believes water level in Unit 3 is about 1/2 way up the light bulb (few feet above
Record:	2242	RST BWR Systems and Ops Analyst - Michael Brown at 14:46:30 on 4/8/2011
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/08/2011 14:43:26 (ET)	Unit 3 - water level believed to be 13.4 meters above the bottom of the DW. Close to bottom of the vessel - based on Delta P between DW and Torus
Position:	RST BWR Systems and Ops Analyst	

(b)(6)


Analyst		Kappel believes water level in Unit 3 is about 1/2 way up the light bulb (few feet above
Name:	Michael Brown	
Record:	2243	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	04/08/2011 13:58:19 (ET)	1100 am Call Notes
Position:	RST BWR Systems and Ops Analyst	GEH believes leak on Unit 1 Containment not as bad as originally believed.
Name:	Michael Brown	
Record:	2241	Received email from Abdul Shiek with observations regarding structural analysis
Facility:		Agreed that all comments for Rev 2 Assessment would be in by 1000 on Monday with goal of issuing the document on Tuesday.
		Suggestion made to combine, stability document, SFP assessment document and RST Assessment document into one document.
		INPO no longer seems willing to share information with Consortium after Monday due to agreement with TEPCO to ensure TEPCO agrees to any release prior to release occurring.
		OK to release Official Use Only information from RST to GEH and INPO - per ET
		Had in-depth discussion on potential water level in Unit 1 -
		GEH believes level is 10-12 above the DW floor, with minimal leakage 1.3%/day, based on the rate of pressurization following N2 injection.
		TEPCO noted that a level switch in the DW had changed state, this would indicate water level > 7700 mm above grade or ~5 above the DW floor.
		Other info
		OP(Grade level) + 6.18m = floor of DW OP + 7.7 m = DW water level switch OP + 15.2m = bottom of RPV
		Pressure noted to rise 2.13 psi in 10.5 hours in Unit 1 DW. Assume nitrogen injection rate of 28 m3/hr and volume of DW assumed to be 203,000 ft3
Source:		
Address/Location:		
Attachment:		

(b)(6)

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Date/Time:	04/08/2011 13:55:05 (ET)	Had discussion with Naval Reactors on Stability Document (b)(5)
Position:	RST BWR Systems and Ops Analyst	(b)(5)
Name:	Michael Brown	Incorporated some of Naval Reactors comments.
Record:	2245	
Facility:		Changed format of stability document to include Purpose, Stakeholders and level of approval Believe document is ready to be issued. Document to RST director for final review
Source:		

5

Address/Location:	
Attachment:	

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Date/Time:	04/08/2011 06:48:01 (ET)	Completed Turnover to Mike Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2239	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	04/08/2011 04:36:31 (ET)	Late Entry 0300 Call
Position:	RST BWR Systems and Ops Analyst	- Injection rates + 6m3/hr
Name:	Eva Brown	+ 7m3/hr down from 8m3/hr
Record:	2237	+ 7m3/hr
Facility:		- April 7th earthquake magnitude was 7.4 (~0.6g) + U1 FW temp increased (225 dC to 265 dC) + U1 CAM seeing wide oscillations (considered failed) - N2 purge continues + pressure trending up faster than expected - SFP injection + U2 36 tons injected + U4 38 tons injected; I-132 in Turbine Building - Site Team Documents for Review + SFP + Option B + Feed and bleed document + Stability document + Organic fixing agents - CLOSED + Leak seal methods - NR

(b)(6)

- + Timeline
- TEPCOs position on ex core is that there is no core ex-vessel
- Structural integrity info due 0800

Correction: April 7th earthquake ground motion was 0.06g rather than 0.6g.

Note that structural integrity info is due 0800 on Saturday (4/9)
RST Severe Accident Analyst - Benjamin Beasley at 05:25:16 on 4/8/2011

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 04/08/2011 04:36:31 (ET)

Late Entry 0300 Call

Position: RST BWR Systems and Ops Analyst

- Injection rates
- + 6m3/hr

Name: Eva Brown

- + 7m3/hr down from 8m3/hr

Record: 2238

- + 7m3/hr

Facility:

- April 7th earthquake magnitude was 7.4 (~0.6g)
- + U1 FW temp increased (225 dC to 265 dC)
- + U1 CAM seeing wide oscillations (considered failed)
- N2 purge continues
- + pressure trending up faster than expected
- SFP injection
- + U2 36 tons injected
- + U4 38 tons injected; I-132 in Turbine Building
- Site Team Documents for Review
- + SFP
- + Option B
- + Feed and bleed document
- + Stability document
- + Organic fixing agents - CLOSED
- + Leak seal methods - NR
- + Timeline
- TEPCOs position on excore is that there is no core ex-vessel
- Structural integrity info due 0800

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 04/08/2011 01:52:36 (ET)




Stability Document

Position: RST BWR Systems and Ops


(b)(6)

Analyst	Added Official Use Only
Name: Eva Brown	Added Watermark
Record: 2235	RST BWR Systems and Ops Analyst - Eva Brown at 02:08:04 on 4/8/2011
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/08/2011 01:52:36 (ET)	Stability Document
Position: RST BWR Systems and Ops Analyst	Added Official Use Only
Name: Eva Brown	Added Watermark
Record: 2236	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/07/2011 23:47:53 (ET)	Late Entry: Assumed the watch
Position: RST BWR Systems and Ops Analyst	
Name: Eva Brown	
Record: 2234	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/07/2011 23:17:52 (ET)	Relieved by Eva Brown
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2233	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/07/2011 23:03:53 (ET)	RST reviewed the Stability document
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2232	
Facility:	



(b)(6)

Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/07/2011 23:03:08 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Charles Norton
Record:	2231
Facility:	
Source:	
Assumed BWR analyst	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/07/2011 23:02:27 (ET)
Position:	RST Accident Seq Analyst
Name:	Hossein Esmaili
Record:	2230
Facility:	
Source:	
turn over to Ben Beasley	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/07/2011 22:22:43 (ET)
Position:	RST Coordinator
Name:	Greg Schoenebeck
Record:	2228
Facility:	
Source:	
Sent a revised Stability paper, based off of NR comments to the Industry consortium	
Additionally, we sent this document to the PMT and to the Japan Team RST Coordinator - Greg Schoenebeck at 22:34:35 on 4/7/2011	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/07/2011 22:22:43 (ET)
Position:	RST Coordinator
Name:	Greg Schoenebeck
Record:	2229
Facility:	
Source:	
Sent a revised Stability paper, based off of NR comments to the Industry consortium	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/07/2011 20:27:27 (ET)
Sent the spent fuel pool slurry paper to the NRC site team. The recommendation is to use water and sand should	

(b)(6)

Position:	RST Accident Seq Analyst	only be used as a last resort.
Name:	Hossein Esmaili	
Record:	2227	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/07/2011 15:54:49 (ET)	Relieved by Chuck Norton
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2226	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/07/2011 15:43:13 (ET)	assumed position as accident sequence analyst
Position:	RST Accident Seq Analyst	
Name:	Hossein Esmaili	
Record:	2225	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/07/2011 15:23:23 (ET)	Informed that TEPCO is injecting nitrogen at 28 m3/hr for 4 days to Unit 1
Position:	RST BWR Systems and Ops Analyst	They currently plan to maintain current FW injection rate of 6 m3/hr until n2 injection is complete
Name:	Michael Brown	
Record:	2224	
Facility:		
Source:	INPO	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/07/2011 15:11:05 (ET)	Had a phone call with GEHs VP of Engineering who suggested that we revise our RST assessment document since TEPCO has started Nitrogen Injection
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	We agreed and sent an email out for feedback to the consortium
Record:	2223	
Facility:		
Source:	GEH	

(b)(6)

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/07/2011 15:09:10 (ET)	More information from GEH on assumptions for H2/O2 conc
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2222	
Facility:		
Source:		GEH
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/07/2011 15:03:51 (ET)	Received GEHs assessment of TEPCOs H2/O2 status in Unit 1
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2221	
Facility:		
Source:		GEH
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/07/2011 15:03:24 (ET)	FUKUSHIMA DAIICHI Status as of 6pm (JST) April 7, 2011- TC Briefing. (All times JST) The priorities are as follows: <ul style="list-style-type: none"> • Ensuring fresh water injection and cooling capabilities to the reactors and spent fuel pools. Goal is to reduce and maintain temperature in the reactors and spent fuel pools below 100 degrees centigrade. • Draining water from the turbine buildings to reduce the radiation levels so that work can continue • Containing the spread of radioactive materials. Highlights for today include the following: <ul style="list-style-type: none"> • Trails of white vapor are intermittently being seen coming out of the units 1, 2, 3, and 4 reactor buildings. • Disposal of radioactive water and radiation levels of water in the turbine building basements as well as debris around the plant continue to delay work to restore cooling functions.
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2220	
Facility:		

Facility:

• N2 purging started at 22:30 in Unit 1 last night, but had to be stopped because of a cracked instrument pipe. The N2 purge was resumed in at 0131 this morning. We will attach graphs that show unit 1 temperature and pressures. Update from the INPO/NRC-RST call it was stated that after the purge began, pressure in the drywell increased higher than expected so TEPCO reduced N2 generation to 2 not 3 N2 generator units and will purge for 4 and not 6 days.

• The water level in the Unit 2 turbine buildings trench has increased by 5 cm or (2 inches) since the sealant was injected into the ground around the Unit 2 trench to stop water flowing from the crack in the intake structure to the sea.

• The discharge of radioactive water from the radwaste facility to the sea continues and will be completed this evening.

• You will see on the daily update that TEPCO has outlined its long-term water treatment and desalinization plans. I have sent the Japanese version of this plan to INPO for translation and we hope to be able to share it shortly.

Unit Status

• In Unit 1, non-borated fresh water injection into the main feedwater line continues at 6 cubic meters/hr (goal is to reduce flow to 4 cubic meters/hr, which is equivalent to the decay heat rate 14 days after shutdown.) Reactor pressure indicators A and B continue to show increasing pressure. A has increased to .375 MPa g, (54.39 psig) and B has increased to .758 MPa g (109.94 psig). Feedwater nozzle temperature increased since the start of nitrogen injection, however in the last couple of hours it is trending down. The latest reading was indicating 223.8 degrees centigrade or (433 degrees Fahrenheit.) Reactor vessel lower temperature has also increased slightly and is reading 116.2 degrees Centigrade or (241 degrees Fahrenheit.) Drywell pressure has increased to .165 MPa abs or (23.93 psia). However, torus pressure is constant at .150 MPa abs or (21.76 psia.) Dose rates in the U1 Drywell and Torus increased to 31.7 Sv/Hr or (3,170 Rem/hr and 12.9 Sv/Hr or (1,290 Rem/hr) respectively.

• Transfer of water from the Unit 1 condenser hotwell to the CST continues.

• In Unit 2, injection of non-borated fresh water using the low pressure coolant injection line continues at 8 cubic meters/hr, (goal is to reduce flow to 7 cubic meters/hr, which is equivalent to the decay heat rate 14 days after shutdown.) Unit 2 reactor and drywell pressure remain stable. Feedwater nozzle temperature has increased to 143.6 degrees centigrade or (290 degrees Fahrenheit.) Dose rates in the U2 Drywell and Torus continue to decrease. The drywell dose rates are at 30.5 Sv/hr or (3,050 Rem/hr) and the dose rate in the Torus has decreased to .794 Sv/hr or (79.4 Rem/hr.)

• Injection of water into the Unit 2 spent fuel pool was conducted this afternoon. The temperature in the Unit 2 spent fuel pool is 51 degrees centigrade or (124 degrees Fahrenheit.)

• Transfer of water from the Unit 2 condenser hotwell to the CST continues.

• In Unit 3, injection of non-borated fresh water using the low pressure coolant injection line continues at 7 cubic meters/hr (= to the goal and equivalent to the decay heat rate 14 days after shutdown. Unit 3 pressures are stable. Feedwater nozzle temperature has increased to 88.3 degrees centigrade or (191 degrees Fahrenheit) and reactor vessel lower temperature has decreased and is at 112.3 degrees Centigrade or (234 degrees Fahrenheit.) Dose rates in the U3 Drywell and Torus continue to drop. The drywell is at 19.3 Sv/hr (1,930 Rem/hr) and the dose rate in the Torus is .768 Sv/hr or (76.8 Rem/hr.)

• Preparations are continuing to transfer water from the Unit 3 condenser hotwell to the CST.

• Spraying of the Unit 3 spent fuel pool was conducted this morning.

• Spraying of the Unit 4 spent fuel pools started at 1800 this evening and will continue until approximately 23:00 hours.

Dose Rates

? Overall site dose rates are continuing to decrease and we have not seen an increase in dose rate since the

nitrogen purge was started.

? Plutonium 238, 239 and 240 were reconfirmed in soil sample taken on March 25 and March 28. Maximum values are similar to sample results seen on March 21 and March 22.

Source: INPO

Address/Location:

Attachment:

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Date/Time: 04/07/2011 14:58:22 (ET)

Received current plant status from TEPCO

Position: RST BWR Systems and Ops Analyst

Name: Michael Brown

Record: 2219

Facility:

Source: INPO

Address/Location:

Attachment: 

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Date/Time: 04/07/2011 07:03:11 (ET)

Turnover to Mike Brown

Position: RST BWR Systems and Ops Analyst

Name: Eva Brown

Record: 2218

Facility:

Source:

Items for next shift

- Casto Briefing Sheet on SFP Slurry
- Stability Document (NR and DOE comments outstanding)
- SFP Assessment comments by 1000

Address/Location:

Attachment:

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Date/Time: 04/07/2011 06:59:04 (ET)

Requested the compilation of a one-pager regarding options for a sand slurry. REquested to address structural, sand thermal properties, criticality, and chemical interactions.

Position: RST BWR Systems and Ops Analyst

Name: Eva Brown

Record: 2217

Facility:

Source: Alan Blamey

Began document Task Tracker 4249

Address/Location:

Attachment: 

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Date/Time: 04/07/2011 06:39:04 (ET)

Attached is DOEs situation report. OUO.


Position: RST Chronologist



Name: Rollie Berry

Record: 2216



Facility:

(b)(6)



Source: DOE	
Address/Location:	
Attachment: 	
This information is Official Use Only - Sensitive Internal Information	
Date/Time: 04/07/2011 04:47:41 (ET)	04/07/11 03:00 EDT-PMT call with Japan Site Team
Position: RST PMT Assessment Liaison	
Name: Kimiyata MorganButler	The Japan site team requested further information on the various RASCAL runs in support of the 50 mile evacuation recommendation. PMT confirmed that there were in fact three RASCAL runs sent to the ET. The parameters taken into consideration for the RASCAL runs were the duration of the radioactive releases and whether the core was ex-vessel. The third run indicated that TEDE PAG Limits were between 30-40 miles and CDE PAG limits were at 40 miles. The Japan site team asked the PMT to verify whether the results of the third run needs to be attached to the summary document produced by OIP which will outline RST and PMT work products and summarize the purpose that each document fulfilled (related to Task # 4214). If provided to the Japan site team, the summary document will eventually be made publicly available.
Record: 2215	
Facility:	The PMT also followed-up on a number of open items including the Department of State "Trigger Levels" document (Task # 4023), questions from PACCOM (Task # 4225), EPA response on RADNET (Task # 4209), and the attainment of historical meteorological data from Fukushima Daiichi NPP (Task # 4142). The statuses of these requests have not changed and the Japan site team will continue to follow-up on the items. The PMT requested that the Japan site team coordinate interactions (via a phone call) between Sandia National Laboratory and the PMT in order to effectively support the request by the Japan site team. The call occurred at 04:00EDT on April 7, 2011.
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information	
Date/Time: 04/07/2011 04:24:28 (ET)	Late Entry:
Position: RST BWR Systems and Ops Analyst	GEH provided H2 paper at 0238. Forwarded H2 paper to the Site Team
Name: Eva Brown	
Record: 2214	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information	
Date/Time: 04/07/2011 04:14:12 (ET)	Vetted Document control document with PMT and ET Directors.
Position: RST BWR Systems and Ops Analyst	- Added guidance to address why document is being generated
Name: Eva Brown	- Per ET Director, PMT to create own version
Record: 2213	
Facility:	
Source:	

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	04/07/2011 03:20:47 (ET)	Developed document protocol and template
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2211	
Facility:		RST BWR Systems and Ops Analyst - Eva Brown at 03:22:47 on 4/7/2011
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	04/07/2011 03:20:47 (ET)	Developed document protocol and template
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2212	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	04/07/2011 03:14:07 (ET)	- Started N2 purge @ 0120 4/7 JST
Position:	RST BWR Systems and Ops Analyst	+ 28 m3/hr
Name:	Eva Brown	- Pressure increased higher than expected
Record:	2210	- FW temp went up at time of injection
Facility:		- Japanese indicated that they will not release any of the documents provided to them
Source:	Site Team	- Injection 6m3/hr
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	04/06/2011 23:08:07 (ET)	Relieved by Eva Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2209	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		

(b)(6)

Date/Time:	04/06/2011 23:09:11 (ET)	Assumed the watch
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2208	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/06/2011 23:02:19 (ET)	I created a document entitled "Current List of RST Documents with Ongoing Activity (As of 4/6/2011)" Currently, this is found on the DESKTOP. I have attached it to this entry.
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	2207	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/06/2011 22:26:03 (ET)	Distributed final version of one page document on RPV injection rate and containment flooding to INPO for distribution to INPO on site team.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2206	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/06/2011 22:24:14 (ET)	Answered plant Fukushima plant status and event sequence questions for Center for Disease Control.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2205	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/06/2011 21:05:28 (ET)	Sent out the 2 "1-pagers" to INPO after the final comments have been incorporated into these one page documents.
Position:	RST Coordinator	
Name:	Greg Schoenebeck	This document is released to INPO for distribution to the TEPCO embedded INPO representative.
Record:	2204	

(b)(6)

Facility:	See attached.	
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/06/2011 19:35:30 (ET)	Distributed "Goop" assessment to the NRC Japanese site team.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2203	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/06/2011 17:36:46 (ET)	The RST sent out recommendations to industry to gather comment. We are gathering comment to provide input to the Site Team prior to the Daily phone call. Requested comment by 1000 EDT on 4/7.
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	2202	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/06/2011 16:06:41 (ET)	Login as RST Coordinator under supervision Greg Schoenebeck is coordinator RST Coordinator - Aixa Belen-Ojeda at 16:07:35 on 4/6/2011
Position:	RST Coordinator	
Name:	Aixa Belen-Ojeda	
Record:	2200	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/06/2011 16:06:41 (ET)	Login as RST Coordinator under supervision
Position:	RST Coordinator	
Name:	Aixa Belen-Ojeda	
Record:	2201	
Facility:		
Source:		
Address/Location:		
Attachment:		

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Date/Time:	04/06/2011 15:40:29 (ET)	Status Update Unit 1 - SRV verified to be failed open Unit 2 - SRVs verified to be closed Stability document issued - however NR may have some comments. 1 Page document - waiting on GEH input prior to sending out - all comments due back by 2000. Need to have document issued by 0200 SFP document sent out for final comment - only looking for technical errors GOOP paper - waiting for DOE input H2 analysis from GEH due in by 2000 tonight Structural analysis on Unit 4 SFP out to GEH and Syed Ali and Abdul Shiek - want to have analysis done by COB on Thursday
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2199	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	04/06/2011 15:28:44 (ET)	Assumed duties at 3:15 p.m. on April 6th
Position:	RST Accident Seq Analyst	
Name:	Thomas Koshy	
Record:	2198	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	04/06/2011 15:28:10 (ET)	Assumed the BWR Analyst from Michael Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2197	
Facility:		
Source:		


Address/Location:	
Attachment:	


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10/23/13

~~OUO - Sensitive Internal Information~~

Date/Time:	04/06/2011 15:15:53 (ET)	Updated SFP assessment, sent out for final review
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2196	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		

Date/Time:	04/06/2011 14:10:15 (ET)	Issued Stable Plant Conditions document
Position:	RST BWR Systems and Ops Analyst	Location is: M:\RST\Japanese Earthquake & Tsunami Response\RST Assessment of Fukushima Daiichi\Determination of Stable Conditions for Fukushima\FINAL - Criterion to Establish Stable Plant Conditions - 1400 04-06.docx and as a pdf
Name:	Michael Brown	
Record:	2195	
Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	04/06/2011 13:25:41 (ET)	Completed Stability Document - all comments incorporated - document issued
Position:	RST BWR Systems and Ops Analyst	RST BWR Systems and Ops Analyst - Michael Brown at 14:10:09 on 4/6/2011
Name:	Michael Brown	
Record:	2193	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		

Date/Time:	04/06/2011 13:25:41 (ET)	Completed Stability Document - all comments incorporated - document issued
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2194	
Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	04/06/2011 07:11:27 (ET)	Turnover to Mike Brown
Position:	RST BWR Systems and Ops Analyst	

(b)(6)


203495

Name:	Eva Brown	
Record:	2192	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/06/2011 04:53:27 (ET)	Completed Stability document revision, incorporating INPO 4/5 2:31 pm comments. 0200 version not sent. See attached
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2190	
Facility:		
Source:		Generic SAMG guidance added. RST BWR Systems and Ops Analyst - Eva Brown at 05:58:06 on 4/6/2011
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/06/2011 04:53:27 (ET)	Completed Stability document revision, incorporating INPO 4/5 2:31 pm comments. 0200 version not sent. See attached
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2191	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/06/2011 04:04:24 (ET)	Completed 0300 Call - Inerting should start 1800-2030 April 7th - Site team questioned TEPCO Unit 4 structural assessment - line organization to review forward analysis - Confusion still evident on use of Stability recommendations - DOE to provide comments on GOOP next shift - Naval Reactors to provide info on another option for leak seal material (b)(5) (b)(5) Usefulness with salt water should be consideration - Timeline still requested- Site team still not sure of level of detail - Mentioned NY Times article that has initial version that was shared with Japanese - Japanese looking for discussion of MDRIR and MDSL
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2189	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/06/2011 02:35:55 (ET)	Developed higher level stability goals
	RST BWR Systems and Ops	

(b)(6)



10/23/13

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Position:	Analyst	Goals:
Name:	Eva Brown	<ul style="list-style-type: none"> - Reliable establishment of decay heat removal - Reliable preclusion of explosive primary containment atmosphere - Maintenance of spent fuel pools (SFPs) subcritical - Management of radioactive effluent - Establishment/maintenance of structural integrity for all units (e.g. containment and spent fuel pools)
Record:	2188	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/05/2011 23:26:29 (ET)	Assumed watch
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2187	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/05/2011 23:20:21 (ET)	Relieved by E Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2186	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/05/2011 23:05:04 (ET)	Incorporated comments and reissued One pagers.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2185	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/05/2011 19:43:08 (ET)	INPO provided their comments for the draft 1-pagers that was issued to the technical consortium for review. See



(b)(6)

205/495

Position:	RST Coordinator	attached.
Name:	Greg Schoenebeck	
Record:	2184	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/05/2011 17:18:04 (ET)	RST forwarded revised draft 1-pagers to technical consortium for their review. Comments are due back to RST by 0400 4/6 so that we can forward the document back to INPO by 0500.
Position:	RST Director	
Name:	William Ruland	
Record:	2183	
Facility:		
Source:	RST BWR analyst	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/05/2011 17:12:04 (ET)	Distributed "one page" documents for Considerations on Reactor Pressure Vessel Injection Rate and Considerations on Primary Containment Fill Possibilities. See attached.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2182	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/05/2011 17:11:13 (ET)	1500 Assumed BWR Analyst from Peter Alter.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2181	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/05/2011 15:54:16 (ET)	Late Entry (1500); Assumed the watch.
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	2180	
Facility:		
Source:		

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/05/2011 15:17:36 (ET)	came on at 15:00, relieving Jim Gilmer
Position:	RST Severe Accident Analyst	
Name:	Edward Fuller	
Record:	2179	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/05/2011 15:08:25 (ET)	Shift turnover briefing to Ed Fuller
Position:	RST Severe Accident Analyst	
Name:	James Gilmer	
Record:	2178	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/05/2011 13:13:09 (ET)	I contacted the GEH Response Team to discuss the evaluation of the seismic response of the primary containment to water fill-up to the elevation corresponding to the top of active fuel. GEH responded that they are working on this issue, and expect to provide the results to the RST by midnight today. They stated that the question number is 388, but a subsequent check found this question to be unrelated. I am still checking to determine the correct number.
Position:	RST Severe Accident Analyst	
Name:	James Gilmer	
Record:	2177	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/05/2011 12:45:27 (ET)	Notes from 1100 Technical Industry Consortium Call: Question: What is the purpose of the "Satbility Document"? For use by US Ambassador and to allow access for US Civilians within 50 mile zone and to allow for PACOM to send Battle Groups to JAPAN water to aid in evacuation, etc. Commitments and Action Items to be snet by INPO maderator this afternoon.
Position:	RST BWR Systems and Ops Analyst	
Name:	Peter Alter	
Record:	2176	
Facility:		
Source:	Peter Alter Notes	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/05/2011 10:06:57 (ET)	Marked Up SFP Assessment Document and had Coordinator send it to Tech Industry Consortium Team for 1100 meeting
Position:	RST BWR Systems and Ops Analyst	
Name:	Peter Alter	

(b)(6)

Record:	2175
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/05/2011 07:19:17 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Eva Brown
Record:	2174
Facility:	
Source:	
Turnover to Peter Alter	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/05/2011 07:06:55 (ET)
Position:	RST Accident Seq Analyst
Name:	Antonios Zoulis
Record:	2173
Facility:	
Source:	
Turnover to James Gilmer.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/05/2011 06:48:06 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Eva Brown
Record:	2172
Facility:	
Source:	
Revised Additional Measures (Elmo-Option B) to reflect Site Team editorial comments. Some more substantive changes need to be reviewed. See attached.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/05/2011 06:23:34 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Eva Brown
Record:	2171
Facility:	
Source:	
Completed version of SFP Assessment document. See attached.	
Address/Location:	

Attachment:

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Date/Time:	03/23/2011 15:01:38 (ET)	3/23/11 Day Shift Revised RST Priorities to focus on: 1) assessment of plant conditions. Current indications are that Unit 1 has insufficient cooling as indicated by superheated temperature on RCS piping/vessel. Containment appears to be holding, though decay heat removal path not clear. Unit 2 has sufficient cooling based on RPV/RCS temperature, higher injection flow rate. Likely steaming to environment via failed containment based on steam plume. Pool conditions unknown. Unit 3 appears superheated based on RCS/RPV temps and very low flow. 2) Ensuring continued work by GEH, INPO (NR, DOE) on technical questions. 3) Ensuring tasks not near-term are ticketed/directed outside RST/Ops center. RST Director - Laura Dudes at 06:17:45 on 4/5/2011
Position:	RST Director	
Name:	Frederick Brown	
Record:	1772	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/05/2011 04:21:03 (ET)	Teleconference with Site Team and Consortium occurred at 03:00 EDT. Team covered plant status and TEPCO current actions. TEPCO is planning to place 70 tons of water in the unit 2 and 3 spent fuel pools and 150 tons of water in the unit 4 spent fuel pools. TEPCO has also connected Nitrogen supply system and is preparing to purge the Unit 1 drywell. They are waiting to develop the appropriate procedures before they begin the injection. Lastly, NISA reported that TEPCO has discovered a stuck-open Safety Relief Valve on Unit 1. RST, Japan Site Team, and the industry consortium discussed open action items and additional items needing information.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2169	
Facility:		
Source:	Teleconference with Site Team and Consortium	

Address/Location:

Attachment:

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Date/Time:	04/05/2011 01:14:35 (ET)	Randall indicated: - Inerting will not start until April 7th - INPO will be facilitating a call between GEH and TEPCO to resolve some technical issues
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2168	
Facility:		
Source:	Randall Crane, INPO	

Address/Location:

Attachment:



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Date/Time:	04/05/2011 01:13:22 (ET)	Completed changes on Option B Recommendations. See attached
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(b)(6)

10/23/13

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Position:	RST BWR Systems and Ops Analyst
Name:	Eva Brown
Record:	2167
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/05/2011 01:01:45 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Eva Brown
Record:	2166
Facility:	
Source:	
Talked to Tom with Naval Reactors and INPO regarding Option B recommendation document.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/04/2011 23:10:18 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Charles Norton
Record:	2165
Facility:	
Source:	
Relieved by Eva Brown	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/04/2011 23:10:23 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Eva Brown
Record:	2164
Facility:	
Source:	
Assumed watch from Chuck Norton	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/04/2011 23:03:06 (ET)
Position:	RST Accident Seq Analyst
Name:	Hossein Esmaili
Record:	2163
Facility:	
turn over to Antonio Zoulis	

(b)(6)

210495

Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/04/2011 22:47:38 (ET)	Discussion with Randall Crane, INPO ERC. INPO resent comments on Option B paper to correct RST address.
Position:	RST Coordinator	Regarding SFP assessment, INPO has no comments. INPO awaiting GEH comments on stability document which RST had already received - sent GEH comments to INPO for review per protocol.
Name:	Brett Rini	
Record:	2162	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/04/2011 21:31:53 (ET)	Responded to e-mail from Lois James regarding concerns from (b)(6) Recommended that e-mail be sent to NRR for review, and was not Ops Center related.
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	2161	
Facility:		
Source:	E-mail from Lois James via LIA06 @ 1710	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/04/2011 21:16:25 (ET)	Russell Morales, State Dept, requested addition to industry distribution list. Confirmed with Mike Scott that he was supporting our Japan team at the Tokyo Embassy. Added R. Morales to list
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	2160	
Facility:		
Source:	E-mail from Russell Morales, 2008 on 4/4/11	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/04/2011 18:03:06 (ET)	Paul Nichols, GEH, requested permission to invited their Japanese contingent - Hitachi General Electric Nuclear Energy (HGENE) - to the 0300 and 1100 daily calls. RST Director (Stu Richards) concurred and obtained permission from ET Director (Cyndi Carpenter) to allow participation in call. RST also provided permission for GEH to share documents with HGENE with understanding that they should be handled as proprietary.
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	2156	
Facility:		2100 - Received e-mail from Andy Lingenfelter, GNF, requesting non-toll free number for the Japanese colleagues to use. Provided HOO number to Andy. RST Coordinator - Brett Rini at 21:11:32 on 4/4/2011
Source:	Call from Paul Nichols, GEH	
Address/Location:		
Attachment:		

(b)(6)

10/23/13


~~OUO - Sensitive Internal Information~~~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/04/2011 20:54:39 (ET)	Site team sends daily 2-page update to NRC Chairman and senior management. Document isn't coordinated with RST, but site team will keep RST on distribution for document. 4/4/11 document is attached.
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	2158	
Facility:		
Source:	e-mail from Mike Weber @ 0700 on 4/4/11	

Address/Location:	
Attachment:	

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Date/Time:	04/04/2011 19:46:08 (ET)	From: RST01 Hoc
Position:	RST Accident Seq Analyst	Sent: Monday, April 04, 2011 7:41 PM
Name:	Hossein Esmaili	To: Lee, Richard
Record:	2157	Subject: Anti Dispersant Question
		Importance: High
		Richard,
		Here are some additional information on the Kuricoat that was faxed from Mike Scott and the industry's assessment of the agent which are both dated today 4/4/2011.
Facility:		The attached email is Dana's take on the original document sent by Dana and Don Helton's take on it from Friday 4/1/2011. We need to close the loop on this issue and provide our assessment to NRC site team. Please ask Dana to provide his final comments on the issue of this resin (effect on heat transfer, clogging, etc.)
		Thanks, Hossein Esmaili Accident Analyst
Source:		

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/04/2011 18:03:06 (ET)	Paul Nichols, GEH, requested permission to invited their Japanese contingent - Hitachi General Electric Nuclear Energy (HGENE) - to the 0300 and 1100 daily calls. RST Director (Stu Richards) concurred and obtained permission from ET Director (Cyndi Carpenter) to allow participation in call. RST also provided permission for GEH to share documents with HGENE with understanding that they should be handled as proprietary.
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	2159	
Facility:		
Source:	Call from Paul Nichols, GEH	

Address/Location:	
Attachment:	

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(b)(6)

212/495



10/23/13

~~OOO - Sensitive Internal Information~~

Date/Time:	04/04/2011 15:57:06 (ET)	Assumed BWR analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2155	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/04/2011 15:56:36 (ET)	Received shift turnover from Tom Boyce
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	2154	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/04/2011 15:54:25 (ET)	Relieved by Chuck Norton
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2153	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/04/2011 15:48:03 (ET)	assumed position as accident sequence analyst
Position:	RST Accident Seq Analyst	
Name:	Hossein Esmaili	
Record:	2152	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/04/2011 15:19:12 (ET)	Turnover to H. Esmaili.
Position:	RST Accident Seq Analyst	
Name:	Mirela Gavrilas	
Record:	2151	
Facility:		
Source:		

(b)(6)

213495

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/04/2011 15:15:58 (ET)	Sent out updated recommendations of what stable reactor status is.
Position:	RST BWR Systems and Ops Analyst	Criterion to Establish Stable conditions 1300 4_04.docx
Name:	Michael Brown	
Record:	2150	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/04/2011 13:53:08 (ET)	Sent out Updated - Option B recommendations to Technical Consortium for comments - Option B - Recommendations - Combo 1300 4_04 version.docx
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2149	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/04/2011 07:22:11 (ET)	Turnover to Mike Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2148	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/04/2011 06:56:42 (ET)	Provided turnover to Mirela Gavrilas.
Position:	RST Accident Seq Analyst	
Name:	Antonios Zoulis	
Record:	2147	
Facility:		
Source:	Turnover	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/04/2011 06:02:47 (ET)	Developed straw man to answer the question regarding what conditions (in containment, in reactors and spent

Position:	RST BWR Systems and Ops Analyst	fuel pools) are required for the Fukushima Daiichi units to be considered "stable" (i.e. an energetic event or a major release of radioactive materials is unlikely)?
Name:	Eva Brown	
Record:	2146	
Facility:		<p>Recognizing that the ultimate goal is to bring the Fukushima Daiichi Units 1 -3 to cold shutdown (i.e. subcritical k-effective < 1, establishment of long-term containment, and spent fuel pool cooling, temperature < 100 degrees Celsius (°C), the following conditions are recommended to limit the potential for a major release or event.</p> <p>Factors</p> <p>Establishment of:</p> <ul style="list-style-type: none"> - Functional and redundant power source for each reactor - Functional and redundant pumping equipment to ensure cooling - Functional and clean water source - Reliable instrumentation for key parameters - Identification and containment of all external effluent leakage - Ability to maintain level above the Minimum Debris Submergence Level (MDSL) - the lowest primary containment water level at which it is expected that ex-vessel core debris on the drywell floor will be adequately submerged. - Establish a means to determine RPV/DW water level - Ability to spray drywell - Routine (schedule and amount) nitrogen make-up - Ability to routinely fill and measure level in spent fuel pool
Source:		

Address/Location:

Attachment:

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Date/Time:	04/04/2011 05:22:26 (ET)	Late Entry 0300 Call
Position:	RST BWR Systems and Ops Analyst	- TEPCO lowered flow to 100 lpm to try to prevent reduction in pressure
Name:	Eva Brown	- Temp static
Record:	2145	- Pressure slowly lowering
Facility:		- Unit 4 SFP no water since April 1
		- Questioned rad reported level for Units 1 and 2
		- Still intend to start inerting Unit 1 April 5th
		- INPO lead for developing backgrounder for Q385; due by 1000
Source:		


Address/Location:

Attachment:

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Date/Time:	04/03/2011 23:29:23 (ET)	Talked with Jack Glessner (NRC Japan Team) and verified that TEPCO is injecting to the RPVs on U1, 2, 3 to maintain RPV metal temperatures between 150 and 350 degrees Fahrenheit and ensuring that injection flow rate is at least MDRIR. this is being done to maintain steam inerting in the containments.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2141	Temperature is believed to be vessel metal temperature and should be in Celsius not Fahrenheit

(b)(6)

Facility:	RST BWR Systems and Ops Analyst - Eva Brown at 02:37:47 on 4/4/2011	
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/04/2011 02:25:54 (ET)	Completed initial draft on Combo Option B
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2143	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/03/2011 23:39:23 (ET)	Relieved by Eva Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2142	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/03/2011 23:29:23 (ET)	Talked with Jack Glessner (NRC Japan Team) and verified that TEPCO is injecting to the RPVs on U1, 2, 3 to maintain RPV metal temperatures between 150 and 350 degrees Fahrenheit and ensuring that injection flow rate is at least MDRIR. this is being done to maintain steam inerting in the containments.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2144	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/03/2011 23:24:05 (ET)	Held discussions with GEH on TEPCO injection rates and determined that TEPCO is injecting at MDRIR on Units 1,2,3.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2140	
Facility:		
Source:		
Address/Location:		
Attachment:		

10/23/13

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Date/Time:	04/03/2011 23:25:16 (ET)	Assumed the watch from Chuck Norton
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2139	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/03/2011 16:01:12 (ET)	Chuck Norton assumed BWR Analyst from L. Vick
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2138	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/03/2011 15:27:48 (ET)	L. Vick off duty.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2137	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/03/2011 15:00:09 (ET)	Jerry Dozier assumes shift from tom Koshy as accident analysis
Position:	RST Accident Seq Analyst	
Name:	Jerry Dozier	
Record:	2136	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/03/2011 13:28:31 (ET)	RST team participated in the 11:00 a.m. conference call with Consortium regarding follow up of the ongoing items: 1.Option B Additional Consideration in light of TEPCOs Reliance on Feed and Bleed Approach 2. RST Assessment of the Spent Fuel Pool (No action taken) 3.Unit#1 Primary Containment Status
Position:	RST Accident Seq Analyst	
Name:	Thomas Koshy	
Record:	2135	

(b)(6)

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Facility:	(Data review in progress by participants) Consortium to provide comments to Item#1 by 1800 on 4/3/2011 Next Phone conference call 11:00 on 4/4/2011.	
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/03/2011 07:00:13 (ET)	Turnover to Larry Vick
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2134	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/03/2011 06:42:00 (ET)	Assumed the RST Coordinators watch ast 0640 EDT.
Position:	RST Coordinator	
Name:	Rick Hasselberg	
Record:	2133	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/03/2011 06:20:35 (ET)	Contacted GEH regarding obtaining more specificity regarding Option B recommendation 4 - "Determine location of containment bypass or failure." Confirmed that this is in reference to liquid effluent identified in turbine building (Recommended sources provided in 3/28 10:45pm e-mail to Site Team)
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2132	
Facility:		
Source:	GEH	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/03/2011 05:58:09 (ET)	Completed integrating editorial comments from Site Team into Elmo-Option B document. See attached.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2131	
Facility:		
Source:		
Address/Location:		

10/23/13

OUO - Sensitive Internal Information

Attachment:

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Date/Time:	04/03/2011 02:25:28 (ET)	Completed integrating comments for Elmo- Option B document in preparation of 0300 Consortium call. Working on simplified document due to identified redundancy. See attached
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2130	
Facility:		
Source:		

Address/Location:

Attachment:

*This information is Official Use Only - Sensitive Internal Information.*

Date/Time:	04/02/2011 23:50:16 (ET)	From: Wood, Kent
Position:	RST BWR Systems and Ops Analyst	Sent: Friday, April 01, 2011 9:48 PM
Name:	Eva Brown	To: RST06 Hoc; Thorp, John; RST01 Hoc
Record:	2129	Cc: Ruland, William
		Subject: RE: Support for Japan - SFP Criticality Potential
		<p>RST06,</p> <p>Here is my input regarding Fukushima SFP criticality issues.</p> <p>Pictures of Fukushima Daiichi can be found at http://trickfist.com/unique-scoop/fukushima-daiichi-nuclear-plant-hires-photos.html.</p> <ul style="list-style-type: none">• The third picture is of Unit 3 taken on March 24, 2011. The greenish rectangle outlined in debris on the left side of the reactor building appears to be the SFP filled with seawater.• The sixth picture appears to show a similar greenish rectangle on Unit 4. That picture is dated March 20, 2011. In this picture there appears to be steam coming from the greenish rectangle on Unit 4. There is no greenish rectangle visible on Unit 3. This may be due to the angle of the picture or debris blocking the view.• The seventh picture is an overhead picture of both Unit 4 and Unit 3. That picture is also dated March 20, 2011. The greenish rectangle on Unit 4 visible in the sixth picture is not visible. The area where the greenish rectangle is visible on Unit 3 is not as green. However, the shadow in that area looks different than the shadow in other areas. Leading me to believe that there is some water in that area. <p>The pictures on the 20th are after they started spraying the SFPs from fire trucks, but before they started using the concrete pump truck with its larger capacity. From these pictures I'd judge that both SFPs are probably currently filled today.</p> <p>That does not discount the possibility that the fuel in the SFPs may have been uncovered, at least partially at some point prior to the injection of the seawater. It is heat from the potentially uncovered fuel that I would suspect as</p>

(b)(6)

219495

being the biggest threat to the integrity of the neutron absorber and the structural integrity of the SFP racks.

We are now reasonably convinced that the Unit 4 SFP racks do not have an installed neutron absorber. It appears those racks rely on the neutron absorption in the stainless steel and geometric spacing between individual storage cells and separate storage rack models to maintain criticality.

Since the explosion that damaged the Unit 4 reactor building is presumed to have been due to hydrogen generated from the oxidation of zirconium, it is reasonable to assume that some portion of the fuel was uncovered. The heat necessary to generate enough hydrogen for the explosion also likely adversely affected the integrity of the stainless steel storage racks. In portions of the SFP the racks may no longer support the fuel assemblies, thereby allowing them to fall together and achieve a critical configuration. However, (b)(5)

(b)(5) In the U.S. storage rack models are typically large enough that fuel assemblies in the center would react neutronically essentially as if they were in an infinite array. Failure of the SFP racks in this manner would likely result in dozens of fuel assemblies falling together. The Fukushima Unit 4 SFP storage rack models are not that large and the spacing between storage rack models appears to be larger than those in the U.S. Basically the fuel assemblies would have to move further, resulting in fewer fuel assemblies being in any one critical configuration. There may be more than one critical configuration, but they would be smaller and the combined effect would be smaller. Therefore reactivity estimates based on a typical U.S. SFP configuration would likely over estimate the effect in the Unit 4 SFP.

The Unit 3 SFP is considered to be damaged, either due to the initial earthquake and tsunami or the hydrogen explosion. The damaged SFP could have leaked water resulting in the fuel being uncovered. The Unit 3 SFP storage racks are different than the Unit 4 SFP racks. Information from TEPCO via EPRI and NEI indicate the "Units 1, 2, 3 have both aluminum racks as well as borated aluminum racks." While there is some incredulity about the racks being aluminum, there was also initially some incredulity about the Unit 4 high density racks being unpoisoned. If the Unit 3 SFP storage racks are aluminum then the heat from uncovered fuel would likely affect the rack integrity as well as the integrity of the borated aluminum. Even if the racks are stainless steel they could be compromised. This would allow the fuel assemblies to fall together without the benefit of the poison originally assumed to be present. Similar to the Unit 4 SFP storage modules, the Unit 3 storage modules also have more spacing than a U.S. SFP. The idea of assemblies falling together would be similar.

This is not to say a critical configuration isn't possible if the integrity of the storage racks in either Unit 3 or Unit 4 SFP is compromised. It is just that estimating the probability and effects based on a typical U.S. BWR SFP would probably be bounding.

Since it is reasonable that the Unit 3 and Unit 4 SFPs are currently filled with unborated water any inadvertent criticality event that is going to occur is likely occurring now and will continue as long as the SFPs are filled with unborated water. It is quite possible that one or more local area in either Unit 3 or Unit 4 SFP is critical. But since the dose rates around the SFPs, within the range personnel can currently get to the SFP, is evidently acceptable, any criticality that may be occurring is being shielded by the water in the SFP and surrounding debris field. While not an immediate threat any criticality is generating additional heat that must be dissipated and source terms that may be subject to release. For this reason the SFPs should not be allowed to become uncovered.

The presence of a criticality could be confirmed by testing the water showing up in the Unit 4 turbine building

basement for short lived fission products. An earlier test that raised this possibility has been determined to have been erroneous.

The basic recommendation to inject borated water should stand.

Better information on the actual construction materials and dimensions of the Fukushima SFPs would allow for a more detailed analysis.

Definitive information on whether fuel in either SFP was ever uncovered would reduce the uncertainties in these estimations.

Better information on the current condition would help, but is probably unavailable.

Kent Wood

From: RST06 Hoc
Sent: Friday, April 01, 2011 8:55 PM
To: Thorp, John; Wood, Kent
Cc: Ruland, William
Subject: RE: Support for Japan - SFP Criticality Potential
Kent,

Always use 301-816-5100 to call the ops center and ask for the Reactor Safety Team.

Did you get all the information that you needed? We staff the ops center 24/7 so feel free to call any time for direction or with questions, even if I'm not here.

Bill Ruland

From: Thorp, John
Sent: Friday, April 01, 2011 3:29 PM
To: Wood, Kent; RST06 Hoc
Cc: Ruland, William
Subject: RE: Support for Japan - SFP Criticality Potential

My apologies Kent, I think I tried to e-mail the information to you, but I had a lot of computer problems at my workstation in the RST last night and this must have been one of the e-mails that didn't make it.

I think I'd tried to send you the REV1 RST Assessment document. Please see the attached.

John

10/23/13

~~OOO - Sensitive Internal Information~~

Facility:

From: Wood, Kent
Sent: Friday, April 01, 2011 6:41 AM
To: RST06 Hoc
Cc: Thorp, John
Subject: RE: Support for Japan - SFP Criticality Potential

I have not yet received any of the information Bill Ruland requested be sent to me. Additionally, the attached email makes it unclear whether I should continue the task assigned by Bill Ruland last night or wait for the EPRI analysis.

Also I don't have a phone number for the RST.

Please update me on the status of the task Bill Ruland assigned me last night. If the task is still current please provide the information.

I can be reached at home on (b)(6) or by my cell on (b)(6) b

Kent Wood

From: RST06 Hoc
Sent: Thursday, March 31, 2011 10:44 PM
To: Wagner, John C.
Cc: Wood, Kent; Thorp, John
Subject: RE: Support for Japan - SFP Criticality Potential

Sorry. John is John Thorp, here in the IRC.

Bill

From: Wagner, John C. [mailto:wagnerjc@ornl.gov]
Sent: Thursday, March 31, 2011 10:09 PM
To: RST06 Hoc
Cc: Wood, Kent
Subject: RE: Support for Japan - SFP Criticality Potential

Bill,
Is the John referred to below me or someone else?

John C. Wagner, PhD
Oak Ridge National Laboratory
Phone: (865) 241-3570
Mobile: (b)(6)

From: RST06 Hoc [mailto:RST06.Hoc@nrc.gov]
Sent: Thursday, March 31, 2011 9:58 PM

(b)(6)

222/495

To: RST01 Hoc

Cc: Ruland, William; Skeen, David; Hiland, Patrick; Hackett, Edwin; Holian, Brian; Case, Michael; Dudes, Laura; Taylor, Robert; Hoc, RST16; Wagner, John C.

Subject: RE: Support for Japan - SFP Criticality Potential

I have just completed a conversation with Kent Wood. I have assigned him as the lead to get back with Rob Taylor on the site team with the answers on SFP criticality. Because of the frequent hand offs, it's not clear that we have given the site team a clear answer.

John: supply latest status report to Kent Wood, as well as the current RST assessment document.

Kent: make clear assumptions, give the likelihood of criticality in the respective pools, and what NRC believes is the likely consequences of any criticality, and any recommendations that we should make to Japan. Consult with anyone you deem appropriate. Feel free to use any previous analysis performed and documented in the RST.

Goal: answer by COB 4/1 EDT or modify schedule as you determine appropriate.

BWR analyst (RST07): provide Kent the analysis you recently performed about our uncovering rate of U4 SFP.

RST Coordinator: please track.

Thank you.

Bill Ruland

RST Team Director

From: Uhle, Jennifer

Sent: Thursday, March 31, 2011 10:11 AM

To: Brown, Frederick; RST01 Hoc; RST06 Hoc

Cc: Ruland, William; Skeen, David; Hiland, Patrick; Hackett, Edwin; Holian, Brian; Case, Michael; Dudes, Laura

Subject: RE: Support for Japan - SFP Criticality Potential

There is also an ANS write up on criticality of the SFPs in the chronology.

From: Brown, Frederick

Sent: Thursday, March 31, 2011 8:48 AM

To: RST01 Hoc; RST06 Hoc

Cc: Ruland, William; Skeen, David; Hiland, Patrick; Hackett, Edwin; Holian, Brian; Case, Michael; Uhle, Jennifer; Dudes, Laura

Subject: FW: Support for Japan - SFP Criticality Potential

FYI - regarding the boration question.

From: Carlson, Donald
Sent: Tuesday, March 29, 2011 7:25 AM
To: Wood, Kent; Brown, Frederick
Cc: Taylor, Robert; Scott, Michael; Ulses, Anthony; Yarsky, Peter; VanWert, Christopher; Barto, Andrew; Rahimi, Meraj; Tripp, Christopher; Nakanishi, Tony
Subject: RE: Support for Japan - SFP Criticality Potential

Kent,

I agree. Thank you for the clarification.


Don

From: Wood, Kent
Sent: Tuesday, March 29, 2011 7:09 AM
To: Carlson, Donald; Brown, Frederick
Cc: Taylor, Robert; Scott, Michael; Ulses, Anthony; Yarsky, Peter; VanWert, Christopher; Barto, Andrew; Rahimi, Meraj; Tripp, Christopher; Nakanishi, Tony
Subject: RE: Support for Japan - SFP Criticality Potential

All,

It would be incorrect to assume that the NRC Interoffice Technical Advisory Group (TAG) for Nuclear Criticality Safety took a position one way or another with regard to the likelihood of an inadvertent criticality event in the Fukushima Daiichi spent fuel pools. The discussion was essentially a report by Don Carlson that he and others had responded to a question concerning the potential for an inadvertent criticality event in the SFPs. There was insufficient information in the discussion for the NCS TAG to evaluate.

Kent A. L. Wood
Team Leader
Spent Fuel Team (SFT)
Reactor Systems Branch (SRXB)
Division of Safety Systems (DSS)
Office of Nuclear Reactor Regulation (NRR)
301-415-4120

Source: Kent Wood 9:48 pm	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/02/2011 23:49:46 (ET)	Late Entry: Assumed the watch
Position: RST BWR Systems and Ops Analyst	
Name: Eva Brown	
Record: 2128	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/02/2011 23:06:56 (ET)	turnover to Oleg Bukharin
Position: RST Coordinator	
Name: Brett Rini	
Record: 2127	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/02/2011 22:49:11 (ET)	Site team provided with draft of answer to the plan B document for comment.
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2126	
Facility:	
Source:	
Address/Location:	
Attachment: 	
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Date/Time: 04/02/2011 22:43:47 (ET)	Distributed Spent fuel pool assessment with a sharpended focus of the desired end state.
Position: RST BWR Systems and Ops Analyst	Earlier work is captured at the the end of the document.
Name: Charles Norton	
Record: 2125	
Facility:	
Source:	
Address/Location:	

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Attachment: ~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/02/2011 22:40:15 (ET)	Distributed Supplemental venting paper revision 6 and distributed to site team and consortium with concurrences.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2124	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/02/2011 22:06:48 (ET)	Sent final Rev 6 of the Supplemental Venting Information document to the NRC Japan Team, with CC to industry team. Document attached
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	2123	
Facility:		
Source:		

Address/Location:

Attachment: ~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/02/2011 21:14:31 (ET)	Split up Distribution lists into Industry List and Site Team list to allow easier sending of e-mails.
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	2122	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/02/2011 16:55:23 (ET)	Sent DRAFT Rev 6 to Supplemental Venting Information to all principal parties involved for concurrence.
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	2119	
Facility:		Obtained concurrence from all parties: DOE: Sal Golub INPO: Dave Garchow EPRI: Dave Modeen GEH Engineering and Legal Departments NR: A. Kepple NRC: Mike Weber RST Coordinator - Brett Rini at 20:47:42 on 4/2/2011
Source:	E-mail sent at 1651	

Address/Location:

Attachment:

(b)(6)

10/23/13

~~OUO - Sensitive Internal Information~~~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/02/2011 18:28:27 (ET)	Conference call with NRC in Japan:
Position:	RST Severe Accident Analyst	
Name:	Donald Chung	- Japanese found a concret vault leaking high rad water from Unit 2 turbin bldg. Plan to pour concret to stop leak.
Record:	2120	- TEPCO expect to start Unit 1 nitrogen purge on 4/5/2011.
Facility:		- Japanese does not believe the hydrogen mixture in Unit 1 has reached a flamible composition.
		- Japanese believe there is a 10-30% air leak rate in Unit 1 containment
		- Japanese plan to flood-up in Unit 1 DW after nitrogen purge.
		- There is no plan to flood-up in Unit 2 or 3 at this time.
		- there is air leak from Unit 3 drywell o-ring, but not certain that is the only leakage path.
		- No answer on using "fixit" to limit spread contamination. PNL in Japan does not see this as a cercern.
		- Bill Ruland (b)(5)
		(b)(5)
		RST deliverables:
		Q385 - 4/02 EOS
		No ETA on Almo Q at this time.
		No date on Stability Q - industry will start to work on this on Monday, 4/3.
		SFP final version - no delivery date yet.
Source:		

Address/Location:	
Attachment:	

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Date/Time:	04/02/2011 16:55:23 (ET)	Sent DRAFT Rev 6 to Supplemental Venting Information to all principal parties involved for concurrence.
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	2121	
Facility:		
Source:	E-mail sent at 1651	

Address/Location:	
Attachment:	

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Date/Time:	04/02/2011 16:47:32 (ET)	Reviewed RPV breach determination flow chart draft provided by GEH.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2118	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	04/02/2011 15:56:29 (ET)	Chuck Norton Assumed BWR Analyst from Larry Vick
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10/23/13

~~000 - Sensitive Internal Information~~

Position:	RST BWR Systems and Ops Analyst
Name:	Charles Norton
Record:	2117
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information	
Date/Time:	04/02/2011 15:25:15 (ET)
Position:	RST Coordinator
Name:	Brett Rini
Record:	2116
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information	
Date/Time:	04/02/2011 15:17:00 (ET)
Position:	RST Accident Seq Analyst
Name:	Hossein Esmaili
Record:	2115
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information	
Date/Time:	04/02/2011 14:10:01 (ET)
Position:	RST Accident Seq Analyst
Name:	Hossein Esmaili
Record:	2114
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information	
Date/Time:	04/02/2011 13:42:46 (ET)
Position:	RST Accident Seq Analyst
Name:	Hossein Esmaili
Record:	2113
Facility:	
Source:	

(b)(6)

228/495

Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/02/2011 07:32:30 (ET)	assumed position as accident sequence analyst
Position:	RST Accident Seq Analyst	
Name:	Hossein Esmaili	
Record:	2112	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/02/2011 07:06:39 (ET)	L. Vick on duty.
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	2111	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/02/2011 07:02:24 (ET)	Turnover to Larry Vick
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2110	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/02/2011 06:14:29 (ET)	Stability question: Under what conditions (reactor, containment, spent fuel pool, etc...) can the Fukushima Daiichi units be considered "stable (i.e. possibility of dynamic event unlikely)?"
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2109	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/02/2011 06:09:19 (ET)	E-mailed the "Elmo" Question a.k.a as Option B Recommendations to GEH, EPRI, INPO, NR. See attached.
	RST BWR Systems and Ops	

(b)(6)

Position:	Analyst
Name:	Eva Brown
Record:	2108
Facility:	
Source:	

Address/Location:	
Attachment:	

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Date/Time:	04/02/2011 05:23:57 (ET)	<p>Drafted the Elmo Question:</p> <p>Should Tokyo Electric Power Company (TEPCO) elect to not accept the recommendations, made by the NRC in consultation with the Industry Consortium regarding the Fukushima Daiichi units, what additional measures should be taken by TEPCO in order to maximize the success of their current strategy?</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2107	
Facility:		
Source:		

Address/Location:	
Attachment:	

~~This Information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/02/2011 04:57:24 (ET)	<p>Completed revising Q385 Venting document, incorporating INPO and PMT comments.</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2106	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	04/02/2011 04:52:58 (ET)	<p>0300 Call</p> <ul style="list-style-type: none"> - Provided information on TEPCO H2/O2 analysis to consortium - TEPCO reduced flow from 133 l/m to 117 l/m - TEPCO postulating drywell leakage as much as 10-30% - The one train of Bechtel pumps is sufficient no additional pumps trains requested/required - RST owes Site Team info on Goop - Proposed "Elmo" question - Requested that GE revise 3/26 H2/O2 rough Calculation
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2105	
Facility:		
Source:		

Address/Location:	
Attachment:	

~~This Information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/02/2011 01:26:25 (ET)	<p>TEPCO is focused on protecting containment for Unit 1 by reducing water flow to raise pressure and prevent steam condensation. The intent is to maintain pressure such that the dP does not rise such that they introduce more O2 into the containment.</p>
Position:	RST BWR Systems and Ops Analyst	

(b)(6)

Name:	Eva Brown	<p>TEPCO is assuming 1-12% hydrogen and 1-3% oxygen. They believed this keeps them below the flammability limit.</p> <p>The are also assuming containment leakage of 10-30 %/day.</p> <p>Therefore given the containment leakrate, they are trying to balance the pressure hoping they can last until April 5th when they intend to inert.</p> <p>Discussion topic for 0300 Site Team/Consortium Call.</p> <p>TEPCO estimates do not seem supported based on an analysis done by GEH back on 3/26. At that time estimate was that O2 was 4.2 by volume in the drywell and 3.2 by volume in the wetwell.</p> <p>RST BWR Systems and Ops Analyst - Eva Brown at 01:36:56 on 4/2/2011</p>
Record:	2103	
Facility:		
Source:	Alan Blamey; Jack Giessner	

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	04/02/2011 01:26:25 (ET)	<p>TEPCO is focused on protecting containment for Unit 1 by reducing water flow to raise pressure and prevent steam condensation. The intent is to maintain pressure such that the dP does not rise such that they introduce more O2 into the containment.</p> <p>TEPCO is assuming 1-12% hydrogen and 1-3% oxygen. They believed this keeps them below the flammability limit.</p> <p>The are also assuming containment leakage of 10-30 %/day.</p> <p>Therefore given the containment leakrate, they are trying to balance the pressure hoping they can last until April 5th when they intend to inert.</p> <p>Discussion topic for 0300 Site Team/Consortium Call.</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2104	
Facility:		
Source:	Alan Blamey; Jack Giessner	

Address/Location:

Attachment:

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Date/Time:	04/02/2011 00:27:28 (ET)	<p>Shift Focus:</p> <ul style="list-style-type: none"> - SFP Assessment - Venting Assessment (Q385) - Elmo Question
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	2102	
Facility:		
Source:	Mike Case	

Address/Location:

Attachment:

(b)(6)

10/23/13

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Date/Time:	04/01/2011 23:49:28 (ET)	Relieved by Eva Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2101	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/01/2011 23:21:34 (ET)	[Don Helton] Provided input to responses on PaCOM questions about RST assessment.
Position:	RST Accident Seq Analyst	
Name:	Jeffrey Mitman	
Record:	2100	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/01/2011 23:20:58 (ET)	[Don Helton] Provided in put to Margie K. on response to military questions about CCI and high temperature effects on concrete.
Position:	RST Accident Seq Analyst	
Name:	Jeffrey Mitman	
Record:	2099	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/01/2011 22:21:35 (ET)	2nd follow up call on Justification for recommended actions considering TEPCO desire to limit containment venting based on EPRI and BWROG SAMG basis. On the call are RST, NR, and INPO, Absent are DOE/NE and EPRI. General consensus was reached among parties on the call. GEH to issue final draft. INPO to get EPRI concurrence. NRC to present the document to DOE/NE.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2098	
Facility:		
Source:		

Address/Location:

Attachment:


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Date/Time:	04/01/2011 22:35:49 (ET)	[Don Helton] Provided KAPL Unit 1 containment flooding writeup to rst01 for providing to GEH, EPRI, etc... no clear explanation of where the excess water in Unit 1 has gone..
Position:	RST Accident Seq Analyst	
Name:	Jeffrey Mitman	
Record:	2097	
Facility:		

(b)(6)

232/495

Source:	
Address/Location:	
Attachment:	
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Date/Time: 04/01/2011 20:40:11 (ET)	[Don Helton] - Liaised with MPT regarding source terms. They indicated that the 3/30 RES source term had been provided to NARAC, but that NARAC has not received authorization (b)(5)
Position: RST Accident Seq Analyst	For the time being, no RASCAL calcs are being performed.
Name: Jeffrey Mitman	
Record: 2096	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/01/2011 19:58:58 (ET)	[Don Helton] Correction of previous entry...on further inspection, input from Dana seems inconclusive...seems to suggest that he doesn't agree with the INPO concerns, without saying that...have sent email to Richard for clarification...
Position: RST Accident Seq Analyst	
Name: Jeffrey Mitman	
Record: 2095	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/01/2011 19:34:29 (ET)	[Don Helton] - Received feedback from RES on resin issue...seems to jive with INPO assessment...
Position: RST Accident Seq Analyst	
Name: Jeffrey Mitman	From Dana Powers:
Record: 2094	Richard, I am not immediately finding information on Kuricoat. I think it a polyamide, but that is more guess than knowledge. I do know that there was extensive use of sprayed polymers at the Chernobyl site for exactly the same reason. I think the overall experience with the polymer - I don't know what was used - was positive. Dose rates in the region of proposed spray will not adversely affect most polymers greatly - there will be some hydrogen production, but it will not be of great importance. I am unaware of difficulties encountered in the Chernobyl operation with mechanical equipment in the vicinity of the sprayed material - robotic or otherwise. There were great difficulties with robotics at Chernobyl but this had more to do with lack of radiation hardening of the electronics than any sprayed material. Dana
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/01/2011 19:22:06 (ET)	1830 Follow up call on Justification for recommended actions considering TEPCO desire to limit containment venting based on EPRI and BWROG SAMG Basis.
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	GEH needs more time to compile the radiological consequences of scenarios.
Record: 2093	
Facility:	
Source:	

Address/Location:	
Attachment:	
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Date/Time: 04/01/2011 19:26:12 (ET)	[Don Helton] - received unsolicited input from NRO on SFP criticality issues. Reviewed and forwarded to Kent Wood in NRR who is coordinating.
Position: RST Accident Seq Analyst	
Name: Jeffrey Mitman	
Record: 2092	
Facility:	
Source:	
Address/Location:	
Attachment:	
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Date/Time: 04/01/2011 19:25:18 (ET)	[Don Helton] - Participated in calls @ 4, 5, 6, and 6:30 with various stakeholders. See others notes.
Position: RST Accident Seq Analyst	
Name: Jeffrey Mitman	
Record: 2091	
Facility:	
Source:	
Address/Location:	
Attachment:	
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Date/Time: 04/01/2011 16:45:40 (ET)	1600 Consortium call. RST, INPO, GEH, EPRI, DOE/NE and NR in attendance. Discussed justification for recommended actions considering TEPCO desire to limit containment venting based on EPRI and BWROG Severe Accident Management Guidelines Basis. (see attached)
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2090	
Facility:	
Source:	Follow up call to be at 1830 tonight.
Address/Location:	
Attachment: 	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/01/2011 16:44:30 (ET)	Assumed BWR Analyst Position
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 2089	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 04/01/2011 15:37:36 (ET)	Relieved by Chuck Norton
Position: RST BWR Systems and Ops Analyst	

Name:	Michael Brown	
Record:	2088	
Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	04/01/2011 15:22:13 (ET)	Jeff Mitman turning over to Don Helton.
Position:	RST Accident Seq Analyst	
Name:	Jeffrey Mitman	
Record:	2087	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/01/2011 15:20:12 (ET)	Relieved by Mark Orr, RST Coordinator
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	2086	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/01/2011 15:02:01 (ET)	More information from EPRI show dangers of combustion in containment
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2085	
Facility:		
Source:	EPRI	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/01/2011 14:58:57 (ET)	Received information from EPRI on SFP and TEPCO analysis - look on M:IRST\Japanese Earthquake & Tsunami Response\Spent Fuel
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2084	
		From: Modeen, David [mailto:dmodeen@epri.com] Sent: Friday, April 01, 2011 12:11 PM To: INPOERCTech; RST01 Hoc; GE.HitachiNuclearResponseTeam@ge.com

Subject: TEPCO 1F4 SFP Structural Analysis translation and Severe Accident Management Guidance Technical Basis Reports (SAMG TBR)

Team,

Please share with your team members as appropriate.

The 'TEPCO Structural Analysis' translation is attached for your consideration. The introductory remarks were:

A study on the aftershocks of the reactor building

1. Objective: Conducting the study on the aftershocks of the damaged 1F4 reactor building.

2. Study condition:

(1) For Unit 4, conducting the structural analysis on the aftershocks of the reactor building in "the normal condition" and "full of the water" (if the cooling water is filled and full (the spent fuel pool) <Sekiuna added>). It is assumed that the water is not into the PCV because the Unit 4 was under the refueling and maintenance outage when the earthquake occurred.

(2) This analysis was based on that all external wall panels were lost above the 4th floor, because some of the external wall panels were lost above the 4th floor of the reactor building.

(3) The seismic of the aftershock is assumed 200 GAL at the upper foundation slab.

Jeff Gabor referred to the appendix attached on this morning's call. It is provided for your convenience. As further background, you may want to pull down the entire Technical Basis Document Volume 2 from www.epri.com. Please be aware that the reactor vendor Owners Groups turned EPRI's technical basis information into contingency guidance for plant use. That guidance is intended to provide suggested responses by plant operators based on measured plant parameters (referred to as Plant Damage States) regardless of accident sequence.

An abstract describing the EPRI TBR is below. It is a 28 MB document, so if you want it, download it from www.epri.com. Of course, the GEH Severe Accident Management Guidance would be helpful as well.

Severe Accident Management Guidance Technical Basis Report: Volume 2

Product ID: TR-101869-V2 Sector Name: Nuclear

Date Published: 4/1/1993 Document Type: Technical Report

File size: 28.87 MB File Type: Adobe PDF (.pdf)

[Download] This Product is publicly available.

Facility:

Abstract

Severe accident management guidance encompasses actions that would be taken to recover from a damaged core condition and to prevent or mitigate the release of fission products. This report provides the technical basis for developing such guidance by the nuclear steam supply system owners groups.

Related Volume

- TR-101869-V1 - Severe Accident Management Guidance Technical Basis Report: Volumes 1 and 2

Background

For severe accident management guidance, it is important that the relationships between actions taken during an accident and the possible state of the reactor core, the reactor coolant system, and containment are carefully considered and documented. This report describes the technical basis for assessing the relationship between actions that could be taken (candidate high-level actions) and the effects that could result as a function of the accident state.

Objective

To provide a technical basis for the development of severe accident management guidelines by the individual owners groups.

Approach

The project team evaluated the effects associated with the implementations of individual candidate high-level actions under an accident condition with respect to the severity of the accident condition. Judgments are not provided on whether these effects are positive or negative, only that they could occur.

Results

The report includes a comprehensive assessment of the possible effects that could result if specific actions are taken following core damage. "Volume 1, Candidate High-Level Actions and Their Effects," contains a tabularized list of effects for each individual action as well as for two special conditions (external cooling of reactor pressure vessel and containment steam inerting). "Volume 2, The Physics of Accident Progression," is a compilation of appendixes that summarize the relevant information and evaluation methods needed for assessing the importance of severe accident phenomena.

EPRI Perspective

Severe accident management guidance is to be developed by the individual owners groups. As a result of the numerous phenomena associated with severe accident conditions, the development of this guidance requires an underlying technical basis that defines the range of effects that could result when actions are taken. This report provides this technical basis. It has been reviewed and approved by an engineering design review committee that includes representatives from the four owners groups and EPRI staff members as well as industry and university experts. The first volume deals with candidate high-level actions and the possible effects that could be anticipated if a given action is taken. The second volume characterizes the individual phenomena. The information is presented in a concise and easy-to-reference manner.

Program

2004 Nuclear Power

Keywords
Severe Accidents
Reactor Safety
Note:
EPRI Customer Assistance Center
(800) 313-3774
email: askepri@epri.com
Direct URL
http://my.epri.com/portal/server.pt?Abstract_id=TR-101869-V2

Director, External Affairs
EPRI Nuclear Power Sector
704-595-2670 (work)
(b)(6) (cell)
dmodeen@epri.com

Source: EPRI

Address/Location:

Attachment: 

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Date/Time: 04/01/2011 14:54:38 (ET)

Received some information from IAEA on planned long term solution at Fukushima

Position: RST BWR Systems and Ops
Analyst

Name: Michael Brown

Record: 2083

Facility:

Source: IAEA

Address/Location:

Attachment: 

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Date/Time: 04/01/2011 14:52:43 (ET)

Received some color graphs on Fukushima plant status

Position: RST BWR Systems and Ops
Analyst

Name: Michael Brown

Record: 2082

Facility:

Source:

Address/Location:

Attachment: 

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Date/Time:	04/01/2011 14:43:59 (ET)	<p>If TEPCO chooses not to follow NRCs flooding recommendations, think of other alternatives that can be suggested to TEPCO.</p> <p>This question was posed to the consortium. GEH and INPO indicated that the SAMGs were based on intense consideration and balancing of issues under accident conditions. A lot of effort was put in by a group of industry experts to develop these guidelines in a non-time pressure situation. These guidelines have been revised over the years as more experience has been gained.</p> <p>The fundamental goal in this situation is to protect the RPV and the containment. Flooding the vessel provides a means to remove core heat and preserve RPV integrity. If the gas concentration in containment is becoming flammable/explosive the pressure in containment needs to be vented as soon as possible. Venting will reduce both the inventory of combustible gasses and the starting pressure of the transient if a deflagration does occur. This will minimize the subsequent primary containment pressure spike thus reducing the probability of a primary containment break.</p> <p>The consortium hasn't heard anything that would indicate that the original recommendations are not the best approach to take.</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2081	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	04/01/2011 14:38:14 (ET)	<p>If TEPCO chooses not to follow NRCs flooding recommendations, think of other alternatives that can be suggested to TEPCO.</p> <p>This question was posed to the consortium. GEH and INPO indicated that they felt this was the wrong approach to take. The SAMGs were based on intense consideration and balancing of issues under accident conditions. A lot of effort was put in by a group of industry experts to develop these guidelines in a non-time pressure situation. These guidelines have been revised over the years as more experience has been gained.</p> <p>The fundamental goal in this situation is to protect the RPV and the containment. If the gas concentration in containment is becoming flammable/explosive the pressure in containment needs to be vented as soon as possible. Venting will reduce both the inventory of combustible gasses and the starting pressure of the transient if a deflagration does occur. This will minimize the subsequent primary containment pressure spike thus reducing the probability of a primary containment break.</p> <p>The consortium hasn't heard anything that would indicate that the original recommendations are not the best approach to take.</p> <p>RST BWR Systems and Ops Analyst - Michael Brown at 14:43:43 on 4/1/2011</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2079	
Facility:		
Source:		

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/01/2011 14:38:14 (ET)	<p>If TEPCO chooses not to follow NRCs flooding recommendations, think of other alternatives that can be suggested to TEPCO.</p> <p>This question was posed to the consortium. GEH and INPO indicated that they felt this was the wrong approach to take. The SAMGs were based on intense consideration and balancing of issues under accident conditions. A lot of effort was put in by a group of industry experts to develop these guidelines in a non-time pressure situation. These guidelines have been revised over the years as more experience has been gained.</p> <p>The fundamental goal in this situation is to protect the RPV and the containment. If the gas concentration in containment is becoming flammable/explosive the pressure in containment needs to be vented as soon as possible. Venting will reduce both the inventory of combustible gasses and the starting pressure of the transient if a deflagration does occur. This will minimize the subsequent primary containment pressure spike thus reducing the probability of a primary containment break.</p> <p>The consortium hasn't heard anything that would indicate that the original recommendations are not the best approach to take.</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2080	
Facility:		
Source:		

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/01/2011 14:34:52 (ET)	<p>Response to RST question:</p> <p>Can't answer CAMS item as we are generally reluctant to asked TEPCO/NISA unless it directly is needed. I would note we asked them about CAMS for H2. They said CAMS for H2 is based on not having power and not being able to dehumidify (we since gave them a doc to correct without this) it may be that it has a different unit power.</p> <p>On the Bechtel pumps; they are on a barge at the site, setup in progress.</p> <p>From: RST01 Hoc Sent: Thursday, March 31, 2011 11:40 AM To: Giessner, John; Taylor, Robert; Scott, Michael Cc: RST08 Hoc; RST09 Hoc Subject: RST Information Requests</p> <p>The Drywell and Torus Rad Levels are being reported as coming from the CAMs. We are not sure how a CAM which (in the US) reads in Microcuries per Cubic Centimeter [or Becquerels per (ml or cc)].</p> <p>How are those units translated into Sv/hr?</p>
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	2078	
Facility:		

If the CAMs are being used to monitor the containment atmosphere, why are not the Hydrogen (and Oxygen) monitors being used? (Since both monitors share the same sample lines in the US.)

We (RST) have been asked: what is the operating status of the Bechtel Pumping Systems or Pumps?

We don't know anything more than they were delivered to the staging area (soccer field). Anything other than that would be only conjecture on our (RST) part.

RST Coordinator

Source: E-mail from Jack Giessner (1906
on 3/31)

Address/Location:

Attachment:

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Date/Time:	04/01/2011 12:24:51 (ET)	Video of Fukushima 4 SFP from 3/24 http://www.nikkei.com/news/headline/archive/article/g=96958A9C93819695E1E3E2E68B8DE1E3E2E1E0E2E3E3E2E2E2E2
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	2077	
Facility:		
Source:	E-mail from Rob Versluis, DOE	

Address/Location:

Attachment:

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Date/Time:	04/01/2011 11:02:35 (ET)	Sent RST priorities to Tom Blount for use in 1000 CA Briefing
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	2076	
Facility:		<p>Response: E-mail sent to Tom Blount @ 0918</p> <ul style="list-style-type: none"> • Preparing for Assessment members discussion on recommendations @ 11:00 hrs • Assessment of spent fuel pool (SFP) status and recommendations for next steps • Prepare document for Japan team to support flooding drywell and increasing flow to the core
Source:		

Address/Location:

Attachment:

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Date/Time:	04/01/2011 10:59:07 (ET)	Forwarded faxed information from Japan team on plant parameters to Canadian contact
Position:	RST Coordinator	

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Name:	Brett Rini
Record:	2075
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/01/2011 08:46:19 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Michael Brown
Record:	2074
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/01/2011 07:45:45 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Michael Brown
Record:	2073
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/01/2011 07:42:48 (ET)
Position:	RST Severe Accident Analyst
Name:	Steven Arndt
Record:	2072
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	04/01/2011 07:01:10 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	James Shea
Record:	2071
3:00am Japan Team Telecom Notes:	
Unit 1 - 90 tons SFP added CAMS DW Rad Monitors slowing increasing 10% last two dayd 38Sv up to 44Sv	
Unit 2 No Changes did add undisclosed amount of water to SFP	
Unit 3 No Changes 150 Tons added to SFP	

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Facility:

Unit 4 210 Tons will be added tonight (Japan time)

Mike Scott Japan Team emphasised that the RST reactor Assessment Paper with recommendations to complete the SAMGs and flood up Unit 1 without waiting for inerting was verbally conveyed to the Japanese Officials. In addition a copy of the Assessment paper was sent to Tepco and the additional e-mail from naval reactors considered as part of the Assessment document will be sent to Tepco.

There has been push back on the RST recommendations, due to concerns for a Rad release from the Containment, therefore the RST team is providing additional information to justify our recommendations. This will be provided in a "Push" paper.

A Spent Fuel Pool discussion ensued regarding a need to develop an Assessment paper similar to the Reactor Assessment paper. RST has committed to develop the initial framework and shell to share with the consortium and the Japan Team.

This assessment will eventually include sub-issues of criticality and structural assessments that are ongoing and being tracked by the Task Tracker.

Discussed the "Goop" Spray that was reviewed by INPO who has recommended against the use due to long chain polymer which would break down in a Rad field.

Further peer review is being conducted by NRC staff and that input will be provided by next Tuesday if not sooner.

In addition the NRC staff will review the effect the material may have on the SFP.

Tepco is planning to use this material by mid-April.

GE / H discussed the Ex-Vessel Signature that would suggest according to GE/H that none of the FD Units experienced Ex-Vessel conditions.

This is contrary to some RST analysis that suggested that some extent of Ex-Vessel has occurred at Units 2 and 3.

It was also discussed that the DOE Science Advisor may have a differing view on the NRC RST advice on Containment Flooding. This will be followed up on day shift today.

Discussed status of the NRC/Bechtel Pumping Trains. Japan team noted that one train has arrived on site the other trains are thought to be still in Australia but exact information was not available. Japan Team will get back to RST on this issue.

Inerting efforts continue to be problematic and schedule continues to be delayed. latest report is that on the 5th of April the site will attempt to test the flow path for Unit 1.

A request to the Consortium to start evaluating Water Management by the Consortium will begin.

Source:

Attachment:

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Source:

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Source:

Attachment:

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Source:

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Record: 2067


2) More clarification. The review should confirm the INPO assessment, and provide additional information on specifically what

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Facility:	issues (heat transfer, clogging, degradation of the material, etc.) might be caused by using this material in such a way that it might get into the spent fuel pool.	
	Provide information to RST at RST01.hoc@nrc.gov	
	Steven Arndt	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	04/01/2011 02:23:53 (ET)	Suggestion to use "Hegavap" to flush the salt crust in the cores.
Position:	RST BWR Systems and Ops Analyst	These are some of the e-mail discussions:
Name:	James Shea	
Record:	2066	Subject: Hegavap Follow-up
Facility:	<p>Dr. Peterson,</p> <p>According to our Chemists here at Millstone, Hegavap was used on the subs in the fresh water evaporators to generate soft sludge in the evaporator bottoms, with soft being a relative term. Hegavap was a mix of sodium carbonate and sodium phosphate, with a healthy dose of starch. The idea was to make calcium carbonate and calcium phosphate in place of calcium sulfate since these compounds are slightly more soluble than calcium sulfate. The starch was colloidal and would form agglomerations with these precipitates, and the resultant Brownian motion of the agglomerations kept them from adhering to the tubes. However, our chemist does not believe this would work in the reactor because the starch would quickly undergo radiolytic decomposition (radiolysis).</p> <p>Our initial thoughts</p> <p>The most significant scale is going to be NaCl and at this point the focus should be on displacing the saltwater with deoxygenated purified water, which means a desalination system and establishing receiving/storage capacity for the displaced water. Removal of oxygen can be accomplished by hydrazine injection followed by carbon to catalyze the hydrazine/oxygen reaction. Deoxygenated, borated, demineralized water would be our choice as a feed & bleed medium. We still think barges offer a quick storage solution with some acceptable risk. Once the water quality was of acceptable purity, then we'd try to address the deposits. We would be reluctant to introduce additional electrolytes until the saltwater was thoroughly displaced and then look at application of corrosion inhibitors to arrest on ongoing corrosion.</p> <p>V/R, Jeff Semancik</p>	

Source:		
Address/Location:		
Attachment:		
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Date/Time:	04/01/2011 01:57:35 (ET)	received IAEA document
Position:	RST Coordinator	GSG-2 Criteria for use in preparedness and response for nuclear or radiological emergency
Name:	Frank Collins	
Record:	2065	
Facility:		
Source:	IAEA	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/01/2011 01:43:28 (ET)	received PACOM agenda for teleconf 4/1/11, 17:00
Position:	RST Coordinator	
Name:	Frank Collins	agenda NRC Conference Call 1 April
Record:	2064	- Introductions - What are NRC's most significant information gaps? - To what degree is TEPCO executing a reactor recovery strategy versus reacting/responding to day-to-day events? - What information/assessment does NRC have wrt concrete durability under sustained high heat pressure? - What isotopic monitoring and analysis information is available? - Most likely catastrophic events, and their indications. - Discussion of reactor stability and forecasts. - Items for follow up: When is the next revision to be published? - Way Ahead
Facility:		
Source:	PACOM	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	04/01/2011 00:33:32 (ET)	Sent INPO Assessment of GOOP issue to RES for Peer Review. See below e-mail.
Position:	RST Severe Accident Analyst	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
Name:	Steven Arndt	Richard,
Record:	2063	Please find attached two documents from the site team in Japan. Tepco is planning to use a chemical "fix-it" to various surfaces at the site(building walls, ground, etc.) to prevent dispersion of contamination. The site team and the RES are concerned the material might end up in the spent fuel pools and cause potentially significant issues (with heat transfer, clogging, degradation of the material, etc.). Additionally, find attached the assessment of this issue done by INPO.


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Facility:	ACTION: Please get the INPO recommendation peer reviewed (perhaps by Dana Powers or someone else that has been looking at the sump clogging issues), and provide peer review comments and recommendations, if any to RST by 1800, 1 April 2011 (EDT).	
	Steven Arndt RST	
Source:		
Address/Location:		
Attachment:		
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Date/Time:	03/31/2011 23:49:21 (ET)	Relieved by Jim Shea
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2062	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/31/2011 23:45:38 (ET)	Reviewed INPO analysis of spray contamination "fix it". INPO recommends against using the Japanese chosen solution and suggests an alternative.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2061	
Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	03/31/2011 23:18:02 (ET)	Spoke to Kent Wood. He will take responsibility for the criticality assessment and white paper. Sent Kent Wood email informing him of EPRI's assessment of TEPCOs assesment of SFP status
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2060	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/31/2011 23:04:59 (ET)	Anlysis performed on the boil off of spent fuel pool 4 with no water adition for 24 hours.
Position:	RST BWR Systems and Ops Analyst	

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Name:	Charles Norton	
Record:	2059	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/31/2011 23:01:45 (ET)	Update to last entry. Requested Fred Richter of INPO to provide an update of the EPRI assessment of the TEPCO assessment of the spent fuel pool status Also requested status of analysis of goop spray to hold down contamination.. INPO will get back.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2058	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/31/2011 23:02:44 (ET)	releived swing shift
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	2057	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/31/2011 22:59:43 (ET)	Called INPO for status of EPRI assessment of the TEPCO assessment of Spent Fuel Pools.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2056	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/31/2011 22:53:51 (ET)	Performed review of Station Blackout Considerations. Forwarded to K. Gibson and R Lee
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2055	
Facility:		
Source:		
Address/Location:		

(b)(6)

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Attachment:		
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Date/Time:	03/31/2011 22:52:55 (ET)	provided an assessment of the water level in the unit 4 spent fuel pool.
Position:	RST Accident Seq Analyst	
Name:	Hossein Esmaili	RST assessment is that for the 24 hours without injection and assuming leakage, the top of the racks would still be covered, so the source term provided to PMT is reasonable. This information was given to PMT and they agreed - no further action is required
Record:	2054	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/31/2011 22:11:14 (ET)	*** At 2130 we made a change to an erroneous status update regarding regarding the failed temporary electric pump and subsequent cracked fire hoses. It appears it actually was referring to the supply of injection water to the Unit Two Spent Fuel Pool in lieu of the reported reactor core. The information source was NISA News Release dated 3/30/2011 at 1530 (Japan time), or 0230 EDT on the 30th. I believe the information was incorrectly transcribed onto the Unit Two Core status portion of the table, and should have been placed in the Spent Fuel Pool portion of the Table for Unit Two.
Position:	RST Coordinator	failed pump which was originally reported as supplying the reactor core.
Name:	Greg Schoenebeck	
Record:	2053	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/31/2011 16:41:36 (ET)	Completed the NRC Daily Event Update for 1800
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	2052	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/31/2011 16:40:54 (ET)	***Late Entry (1500): Relieved the watch.***
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	2051	
Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	03/31/2011 15:58:10 (ET)	Assumed the BWR Analyst Position
	RST BWR Systems and Ops	



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Position:	Analyst	
Name:	Charles Norton	
Record:	2050	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/31/2011 15:40:32 (ET)	Relieved by Chuck Norton
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2049	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/31/2011 15:12:20 (ET)	assumed position as accident sequence analyst
Position:	RST Accident Seq Analyst	
Name:	Hossein Esmaili	
Record:	2048	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/31/2011 14:28:43 (ET)	logout to swing shift at 15:09
Position:	RST Severe Accident Analyst	
Name:	Donald Chung	
Record:	2047	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/31/2011 14:37:27 (ET)	Question from site team on effects on station blackout on current plant status. My assessment is attached. RES is reviewing and commenting on this document.
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2046	
Facility:		
Source:		
Address/Location:		

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Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 03/31/2011 14:35:25 (ET)	Received a Structural Analysis of Unit 1, 3 and 4 Reactor Buildings from Japan.	
Position: RST BWR Systems and Ops Analyst	Sent analysis to Consortium, GEH, INPO and EPRI to provide assessment of analysis	
Name: Michael Brown		
Record: 2045		
Facility:		
Source: NRC Japan Team		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 03/31/2011 14:31:24 (ET)	After reading the Naval Reactors memo, I noticed a couple of errors in it and revised the memo.	
Position: RST BWR Systems and Ops Analyst	Here is the revised memo that was sent to the team in Japan.	
Name: Michael Brown	Revision 1 to the RST assessment is attached. This revision accomplishes two principal objectives:	
Record: 2044		
Facility:	<p>1. For Unit 1, US government and their industry partners are concerned that the delay in establishing the ability to purge with nitrogen is significantly increasing the risk of a hydrogen combustion event within the primary containment. Such a combustion event could cause failure of the primary containment. US laboratories estimate that the concentration of combustible gases in primary containment may already be at combustible levels. Combustible gas concentrations continue to increase and the inerting effect of steam is diminishing due to condensation. Maintaining the primary containment intact is the top priority for unit 1. The US recommendation consists of three sets of actions which should be pursued in parallel since nitrogen purge capability is not available:</p> <p>a. Maximize injection rates to the reactor pressure vessel to provide margin to core cooling and core retention within the reactor vessel. The US is concerned that injection at only the minimum debris retention rate may be insufficient to retain the core because some fraction of this water may be exiting the reactor pressure vessel without removing the core decay heat.</p> <p>b. Venting will reduce both the inventory of combustible gasses and the starting pressure of the transient if a deflagration does occur. This will minimize the subsequent primary containment pressure spike thus reducing the probability of a primary containment break.</p> <p>The US recognizes that venting will lead to a release of radioactivity and will have some risk of a hydrogen combustion event external to the primary containment. However, the US considers that the consequence of the release is warranted at this time to protect the containment, and that the risk to containment of hydrogen combustion outside of primary containment is less than the risk of having an energetic hydrogen combustion event within the primary containment.</p> <p>c. Flood the primary containment using a higher injection flowrate. The US recognizes that a more aggressive injection flowrate may increase the potential for a hydrogen combustion event within primary containment if</p>	

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venting is unsuccessful. However, the US considers it more important to have the drywell flooded, to at least the minimum debris submergence level (MDSL), which is the lowest primary containment water level at which it is expected that ex-vessel core debris on the drywell floor will be adequately submerged. The method to be used to flood primary containment should be selected to minimize the risk of a hydrogen combustion event; for example drywell sprays will rapidly condense steam that is believed to be inerting the atmosphere and hence should not be preferentially used.

2. For Units 2 and 3, the assessment is revised to explicitly address the potential that primary containment may be currently breached and flood-up of containment to top of active fuel may be impractical.

Source: Mike Brown

Address/Location:

Attachment:

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Date/Time: 03/31/2011 14:28:09 (ET)

Naval Reactors informed us that they had no objections to the RST Assessment (Rev 1). They asked that we include a cover memo with the assessment.

Position: RST BWR Systems and Ops Analyst

Name: Michael Brown

RST Assessment Rev 1 that was sent to the NRC Team in Japan is attached

Record: 2043

Facility:

Source:

Address/Location:

Attachment: 

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Date/Time: 03/31/2011 07:11:09 (ET)

Relieved by Mike Brown

Position: RST Accident Seq Analyst

Name: James Shea

Record: 2042

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/31/2011 06:57:16 (ET)

Relieved by day shift

Position: RST Severe Accident Analyst

Name: Steven Arndt

Record: 2041

Facility:

Source:

Address/Location:

Attachment:

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Date/Time:	03/31/2011 05:46:17 (ET)	Japan Team and Consortium 3:00 am Phone Call
Position:	RST Accident Seq Analyst	
Name:	James Shea	INPO Bob Ryan
Record:	2040	EPRI Steve Modine
Facility:		Japan Team
		RST
		GE
		Changes to the Plant Status included:
		Unit 1 - Feed Flow same Nozzle Temp decreasing and RPV level slightly lower
		Unit 2 - Flow up to 150L/Hr
		Unit 3 - No Change
		Unit 1 SFP 90 tons water will be added
		Unit 2 SFP 20 tons added until strainer clogged will add additional water when system available.
		Unit 3 100 tons to be added after Unit 1
		Unit 4 140 tons were added in 4 hour period no change seen in Skimmer Surge Tank.
		Report that the Unit 2 and Unit 3 Torus Level Switch changed state indicating a water level of 790mm which would conclude that the level is approximately 9 ft from the bottom of the Reactor Head.
		SFP Unit 4 Structure Information Data was sent to the RST from the Japan Team and a brief assessment from the Japan Team Structural Engineer would suggest that the Unit 4 Pool could only safely be filled to about half full.
		A Structural report from Kepco will be provided during the day shift for additional information.
		RST Reactor Assessment Paper has been completed and concurred by the RST and the Consortium. Before recommendation can go forward to Japan team we are waiting for a concurrence from Naval Reactors and a review by the DOE team.
	Japan Team wants to get this final assessment to pass on to Japan as our recommendation and is the highest RST priority.	
	RST sent the SFP RST recommendation chain of e-mails to the Consortium for review and to start another assessment paper to provide recommendations on how to stabilize / refill the FD SFPs. The priority being SFP Unit 4.	
	This will be the focus for the RST during the 11:00 AM Consortium Telecon today.	

Discussed the Cracking Issue and the RST passed the NRC Staff assessment from this past Monday to the Consortium for further discussion at the 11:00 am phone call.

Japan plans to "Goop" the site with a material called "Fix It" it is purported to be used as a way to fix ground and building loose contamination. Kepco Japan is planning to perform this action in the future. RST has some preliminary product information and has passed this to the Consortium.

There is additional product information that is coming from the Japan team to be evaluated by the RST and Consortium.

The RST performed an H2 Evaluation as requested by Ralph Way of the NRC Staff. This has been provided, but if need additional or more refined calculation that may need to be tasked to NRC staff possibly in Research.

Source:

Address/Location:

Attachment:

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Date/Time: 03/31/2011
05:58:59 (ET)

Sent below e-mail to Ralph Way. Provides information on H2 generated from Zir reactor of the complete core.

Ralph,

Position: Accident Analyst

I did a simple analysis with the following assumptions.

Name: Steven
Arndt

Record: 2039

- Full Core (active core) has approximately 60,000 lb of Zirconium (ref. GE Degraded Core training material NEDE-30050A) (400 fuel assemblies/bundles)

- Complete reaction of 1 lb of Zirconium will yield 7.9 ft³ of Hydrogen

- 100% of Zirconium reacts (at TMI about 40% of active fuel reacted)

- 292 fuel assemblies/bundles in Spent Fuel Pool (43,800 lb)

- Assume no radiolysis, no Zinc-Aluminum corrosion reaction, no Iron-Water or other metal-water reactions and no concrete generating hydrogen.

Total amount of hydrogen that would be generated if the complete reactor core was consumed in Zirconium reaction ~ 1.34×10^7 liter of Hydrogen




Total amount of hydrogen that would be generated if the 292 bundles in the spent fuel pool are completely consumed in Zirconium reaction - 9.78×10^6 liter of Hydrogen

If you need a more detailed analysis we will need to send it to RES. Please let us know if this is needed.

Steven Arndt In the RST

(b)(6)

Source:		
Address/Location:		
Attachment:		
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Date/Time:	03/31/2011 05:04:09 (ET)	OPS Center Telecom with a State Department Official, Claire Smolic regarding a question on the future prospects of the damaged Fukushima Daiichi (FD) Units 1-4. The RST response to the Official was that the plants are still in the process of establishing a safe state where an ultimate decision could not be precisely established at this time. However it would be expected that the FD Units 1-4 would ultimately be placed in a monitored storage state until such time a site full decommissioning could take place.
Position:	RST Accident Seq Analyst	
Name:	James Shea	
Record:	2038	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/31/2011 02:12:45 (ET)	Call from Japan Team Mike Scott, with information that Japan is looking to spray Reactor Buildings in about two weeks with "FIX IT" to fix the loose contaminants on building surfaces and reduce the potential of spreading contamination. The plan will be passed to the industry consortium for evaluation.
Position:	RST Accident Seq Analyst	
Name:	James Shea	
Record:	2037	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/30/2011 23:08:50 (ET)	Turnover RST Coordinator to Frank Collins
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	2036	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/30/2011 23:06:31 (ET)	turn over to Steve Arndt
Position:	RST Accident Seq Analyst	
Name:	Hossein Esmaili	
Record:	2035	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/30/2011 22:46:15 (ET)	Relieved by Jim Shea
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	

Record:	2034	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/30/2011 22:11:52 (ET)	Reviewed a DOE prepared document that provided corrosion insights from the 1972 Millstone seawater intrusion event.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2033	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/30/2011 21:57:24 (ET)	9:30pm Issued Revision 1 of the RST Assessment. Changes from the document recieved from INPO are highlited in yellow. There are no changes to revision 0 in the recommendations for units 3,4, and 5
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2032	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/30/2011 21:52:48 (ET)	8:15 PM reviewed consortium changes for revision 1 of the RST assessmesnt document.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2031	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/30/2011 20:50:32 (ET)	Working on the revised RST assessment to provide to the Jap. site team by their 1100 JST meeting. This document can be found M:\RST\Japanese Earthquake & Tsunami Response\RST Assessment of Fukushima Daiichi\Industry input to rev 1 of Assessment Document
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	2030	
Facility:		
Source:		
Address/Location:		
(b)(6)		

Attachment:

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Date/Time:	03/30/2011 19:00:39 (ET)	I have created a folder on the M:/ drive entitled "Industry Consortium Information". This has info regarding the DRAFT Proposal for inclusion into Rev 1 of RST Assessment Document.
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	2029	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	03/30/2011 18:51:36 (ET)	An industry consortium meeting is to be held a 1900 EDT to discuss the INPO led DRAFT Proposal for inclusion into Rev 1 of RST Assessment Document.
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	2028	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	03/30/2011 17:45:10 (ET)	1800 re-reviewed DOE assessment of metal temperature for the U1 RPV.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2027	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	03/30/2011 17:41:00 (ET)	1615 reviewed DOE Bounding estimate of O2 concentration in Unit 1. Ensured that this document has been shared with GEH INPO and other members of consortium.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	2026	
Facility:		
Source:		

Address/Location:

Attachment:




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Date/Time:	03/30/2011 17:39:36 (ET)	1600 reviewed DOE corrosion mitigation concepts.
Position:	RST BWR Systems and Ops Analyst	

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Name:	Charles Norton
Record:	2025
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/30/2011 17:38:26 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Charles Norton
Record:	2024
Facility:	
Source:	
1545 reviewed the DOE recommendations for measuring Spent Fuel Pool Level.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/30/2011 17:36:01 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Charles Norton
Record:	2023
Facility:	
Source:	
1530 Reviewed the DOE comments to the proposed assessment document.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/30/2011 16:05:46 (ET)
Position:	RST Coordinator
Name:	Greg Schoenebeck
Record:	2022
Facility:	
Source:	
Assumed the watch.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/30/2011 15:48:58 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Charles Norton
Record:	2021
Facility:	
Source:	
Assumed the BWR Analyst position.	



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Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/30/2011 15:48:06 (ET)	Relieved by Chuck Norton
Position: RST BWR Systems and Ops Analyst	
Name: Michael Brown	
Record: 2020	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/30/2011 15:44:26 (ET)	Excel spreadsheet from INPO showing graphs of pressure/ temperature, etc
Position: RST BWR Systems and Ops Analyst	
Name: Michael Brown	
Record: 2019	
Facility:	
Source: INPO	
Address/Location:	
Attachment: 	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/30/2011 15:43:04 (ET)	Additional corrosion mitigation ideas from DOE
Position: RST BWR Systems and Ops Analyst	
Name: Michael Brown	
Record: 2018	
Facility:	
Source: DOE	
Address/Location:	
Attachment: 	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/30/2011 15:40:58 (ET)	Information from INPO on corrosion
Position: RST BWR Systems and Ops Analyst	
Name: Michael Brown	
Record: 2017	
Facility:	
Source: INPO	
Address/Location:	
Attachment: 	
This information is Official Use Only - Sensitive Internal Information.	

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Date/Time:	03/30/2011 15:40:22 (ET)	Another DOE document on Corrosion
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2016	
Facility:		
Source:	DOE	
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/30/2011 15:38:05 (ET)	Saltwater corrosion information from DOE
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2015	
Facility:		
Source:	DOE	
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/30/2011 15:17:33 (ET)	assumed position as accident analyst
Position:	RST Accident Seq Analyst	
Name:	Hossein Esmaili	
Record:	2014	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/30/2011 15:11:23 (ET)	15:11 Turnover to Swing Shift
Position:	RST Severe Accident Analyst	
Name:	James Gilmer	
Record:	2013	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/30/2011 15:09:39 (ET)	Updated information from GEH on MDRIR and calculating hydrogen concentration in a wet environment
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2012	
Facility:		

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Source:	GEH	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/30/2011 14:13:06 (ET)	Submitted comments back to INPO Team
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2011	
Facility:		
Source:	Mike Brown	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/30/2011 14:10:50 (ET)	Received INPO comments for a potential RST Assessment Revision to Rev. 1
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	2010	
Facility:		
Source:	INPO	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/30/2011 12:10:54 (ET)	10:48 EDT - Sent update of status of Unit 4 SFP RST assessment to Rob Taylor of Japan Team
Position:	RST Severe Accident Analyst	
Name:	James Gilmer	
Record:	2009	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/30/2011 07:38:18 (ET)	3:00 am, March 30 teleconference call with NRC-Team Japan
Position:	RST Chronologist	
Name:	Steven Bloom	
Record:	2008	
		NRC-Team Japan provided the following information.
		-Unit-1, Japan has increased the injection flow rate and the RPV temperature is lower
		-Unit 2, Japan has increased the injection flow rate to 117 liter/minute. The temperature is rising and Japan plans to increase the flow rate.
		-Unit 3, the team believes that there is water in the drywell. The injection flow rate and temperature seem in balance.
		Spent fuel pools:

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Facility:	<p>-Unit 1, Japan plans to add water tomorrow, -Unit 2, Japan added water yesterday -Unit 3, Japan added water yesterday -Unit 4, Japan plans to add water tomorrow using a new pump truck. Plan is to inject water until the pool overflows. The team believes that the water level is currently around one meter below the top of the pool. The team expressed the view that the water will then start filling the skimmer surge tank. The flow rate of 30-50 metric tons per hour is expected. The RST and the Team then had some extensive amount of discussions concerning filling the unit 4 spent fuel pool until it overflows. The main topic was whether there might be structural damage with this spent fuel pool. ACTION: The RST was asked to review this topic and discuss during the 11 am conference call with the industry (INPO, GEH).</p> <p>The control room lights are working in all 4 units.</p> <p>The Japanese updated the RST on the planned nitrogen purge work and expect that the equipment will be ready for use between April 1 and 3. Questions remain as to the time needed to insert the nitrogen, how to establish the leak rates of the vessels and whether to proceed without the hydrogen sampling being resolved.</p> <p>Water in the Turbine Building basements. The Japanese view is that most of the water in the turbine basements is a result of the tsunami. However, the water is now contaminated. The Japanese are working on a plan to remove the water. One possible action would be to move the water into some big tanks or possible large rubber bladders that would be located outside of the buildings. TEPCO believes that the source of the radiation in the water is the reactors. The Japanese have noted that turbine buildings 1 & 2 communicate as do buildings 3 & 4. The Team stated that they are currently not worried about the water in the building basements. In response to a RST question, the Team noted that it is difficult to determine whether the water level in the basements changes. INPO noted that they understand that NEI has assembled information as to the quantity of water in the basement of the four buildings. ACTION The Team asked RST to provide a copy of the information. The RST subsequently asked INPO to try and provide copies of the information.</p> <p>The first Navy barge is expected to arrive at the Fukushima site this evening and the second barge to arrive tomorrow.</p> <p>The Team noted that they have received, from the Japanese, an estimate of the quantity of water that has been added to the four spent fuel pools. ACTION: The Team will forward this information to the RST.</p>
Source:	Telecon with NRC-Team Japan
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/30/2011 07:32:21 (ET) Relieved by Mike Brown
Position:	RST BWR Systems and Ops Analyst
Name:	James Shea
Record:	2007

Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/30/2011 07:07:33 (ET)	Shift turnover briefing at 0700
Position:	RST Severe Accident Analyst	
Name:	James Gilmer	
Record:	2006	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/30/2011 06:42:58 (ET)	RST Team discussed possible Turbine Building source of fuel materials causing exposure to site personnel. It seems difficult to have fuel from the Containment migrate to the Turbine Building Basement. Therefore the RST team thought that the source of this material could be from fuel pool materials being washed out onto the yard and finding a down-hill path to the Turbine Building Basement. This thought was passed on to the Site Team during the 3:00am phone call.
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	2005	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/30/2011 06:09:26 (ET)	3:00AM Phone Call with Site Team and Industry Consortium.
Position:	RST BWR Systems and Ops Analyst	Items discussed included the NRC FD Assessment Paper that included our recommendations regarding Cooling Injection SAMG recommendations.
Name:	James Shea	
Record:	2004	
Facility:		<p>Concern from GE/H that waiting to inert before continuing to Flood Containment may be a misplaced priority. Initially the site reported that an inerting of containment could begin by wednesday this week. On this call it was reported that this evolution may take longer perhaps 3-5 days. This time lapse may be too long to risk a possible fuel breach if the containment is not flooded.</p> <p>Thought is that the Containment should be flooded up to the bottom of the Reactor vessel to prevent fuel breach thru vessel as a minimum.</p> <p>Will discuss further at the 11:00am phone Call</p> <p>Discussed developing a Consortium White Paper on the recommendations for Unit 3&4 Spent Fuel Pool Cooling / Filling. Concerns have been raised that the structure of the Fuel Pool(s) may be questionable and therefore adding water that could cause further structural damage and failure may be worse than leaving the pool empty or near empty.</p>

There continues to be conflicting information on the Unit 4 SFP in regards to the structural status as well as the state of the pool.

Japan has indicated that the pool is not damaged where the NRC feels that evidence suggests that the fuel pool is damaged and may not be filled.

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/30/2011 04:34:22 (ET)

Position: RST Counterpart Comm. / ERDS
Operator

Name: Brian Horn

Record: 2003

Facility:

Source: conference call with NRC-
Japan

The 3:00 am conference call was held with NRC-Japan team. The team noted the following: all six control rooms have operating lights; Japan plans to start pumping water into Unit-4 spent fuel pool until the water overflows; Japan is establishing a plan to remove water from turbine building basements - possibly placement in large outdoor rubber bladders.

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/30/2011 03:46:55 (ET)

Position: RST Counterpart Comm. / ERDS
Operator

Name: Brian Horn

Record: 2002

Facility:

Source: Status Update document

The RST updated and forwarded the March 30, Operations Center Status Report to the support team.

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/30/2011 02:21:30 (ET)

Position: RST Counterpart Comm. / ERDS
Operator

Name: Brian Horn

Record: 2001

Facility:

Source: update

The Fukushima summary statement was updated and posted at 0152 March 30, 2011.

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/30/2011 01:22:41 (ET)

Position: RST Counterpart Comm. / ERDS
Operator

Name: Brian Horn

Received the NRC-Japan Teams March 30, 1300 update by e-mail.


10/23/13



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Record:	2000	
Facility:		
Source:	NRC-Japan team	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/29/2011 23:46:15 (ET)	
Position:	RST BWR Systems and Ops Analyst	Assumed the Shift as BWR Systems Ops Analyst
Name:	James Shea	RST BWR Systems and Ops Analyst - James Shea at 23:54:40 on 3/29/2011
Record:	1998	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/29/2011 23:46:15 (ET)	
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	1999	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/29/2011 23:16:40 (ET)	Relieved by Jim Shea
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1997	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/29/2011 23:09:33 (ET)	Obtained from web.
Position:	RST Counterpart Comm. / ERDS Operator	
Name:	Brian Horn	
Record:	1996	
Facility:		
Source:	NISA news release #61	
Address/Location:		

(b)(6)

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Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/29/2011 22:15:07 (ET)	***There is a new industry group which has been revised in the Microsoft Outlook. It is under the Outlook Address Book- Contacts there is an Industry List (Revised 3/29)
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	1995	
Facility:		
Source:	Updated Industry Group	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/29/2011 22:43:17 (ET)	NRC team in Japan provided an analysis justifying the seismic stability of the Containments on the Daiichi Units when flooded.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1994	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/29/2011 22:35:02 (ET)	RPV Breach Evaluation Daiichi Unit 2
Position:	RST BWR Systems and Ops Analyst	Using the guidance provided by INPO and plant parameter trend data from Japan, the RST performed an independent assessment of Daiichi Unit 2 to determine potential RPV breach.
Name:	Charles Norton	
Record:	1993	
		Unit Two
		1. Are RPV and drywell pressure equal? If yes continue the evaluation, if not, then the RPV is not breached. Yes
		2. Is H2 present? If yes continue the evaluation, if not, the RPV is not breached. Yes
		3. Is there a prolonged existence of any of the following conditions? If yes then continue, If not the RPV is not breached.
		a. RPV level below the bottom of the active fuel. Yes
		b. RPV injection rate below MDRIR
		c. RPV lower head metal temperature above design temperature
		4. Do any of the following conditions exist? If yes the vessel is breached. If not, the RPV is not breached.
		a. Increasing DW pressure trend, Yes
		b. Decrease in difference between RPV pressure and DW pressure Yes
		c. Increasing drywell temperature trend.

Facility:	<p>Unit 2 Severe Accident Progression Scenario</p> <p>The water level in the reactor pressure vessel (RPV) began to drop at about 8:00 on March 14th. The RPV pressure also began to rise at that time. The top of active fuel (TAF) was uncovered at 16:20 and sea water injection was started at 16:34. At 18:06, a safety relief valve was opened and the RPV pressure dropped steadily until 20:03. By then, the water level had dropped to about 4 m below the TAF. Three steam spikes, caused by hot core occurred, starting at 20:37 and 22:50 on 3/14, and 0:08 on 3/15, respectively. The second of these was the most energetic, resulting in a pressure rise in the RPV to 3150 kPa at 23:30. After the third spike, the RPV and DW pressures become equal at about 730 kPa, implying a vessel breach shortly after the third pressure spike.</p> <p>Starting at about 21:20 on 3/14, the drywell pressure started to increase from 418 kPa, reaching 750 kPa by 23:54. The pressure remained close to this value until about 7:20 on 3/15, after which it rapidly dropped to 275 kPa by 15:50. The RPV and DW pressures tracked each other from about 23:45 on 3/14 to 7:20 on 3/15. The wetwell pressure was fairly constant at about 300-330 kPa during this period.</p> <p>It was reported that, at 6:10 on 3/15, an abnormal sound was heard in the reactor building near the suppression pool. This could have been due to drywell failure, or possibly a large hydrogen burn in the reactor building. Pressure readings in the wetwell ceased by 7:20.</p> <p>The pressure in the DW and RPV slowly dropped to about 220 kPa by 5:35 on 3/16. The pressure then suddenly increased to 450 kPa by 6:55, signaling a possible second breach of the RPV followed by rapid steaming from sea water falling on to the core debris. It is possible that core debris-concrete interactions could have occurred during the early portion of this quenching. The DW pressure then dropped to about 100-140 kPa, and remains fairly steady in this range.</p>	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/29/2011 20:57:48 (ET)	<p>This is in response to Question #328.</p> <p>Is NEDC-33045P, Appendix D available to share with our Japanese counterparts? We did not want to proceed without checking if this is proprietary information. Additionally, could you attach the applicable pages, I didn't see them attached from the original e-mail. Thanks.</p> <p>See Attached</p>
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	1992	
Facility:		
Source:	Requesting Response from GEH	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		



10/23/13

~~OUO - Sensitive Internal Information~~

Date/Time:	03/29/2011 20:55:37 (ET)	RST,
Position:	RST Coordinator	
Name:	Greg Schoenebeck	As discussed during the 0700 JST (1800 EDT) call, we greatly appreciate the information provided regarding the Unit 4 SFP assessment. We would provide the following feedback/considerations based on our discussion:
Record:	1991	
Facility:		<ol style="list-style-type: none">1. We recommend that this be used to develop a near-term white paper that can be provided to the Japanese and ultimately incorporated in to the RST assessment paper.2. Any developed products should be vetted with the "Consortium" to ensure NRC/industry alignment. We are aware of a potential alternative theory from GE that generally comports with the RST info provided but has additional insights that warrant consideration.3. We recommend that the recommendations in the RST assessment paper be revised to provide greater detail and clarity. For example, should TEPCO flood up the SFP to the point where water level overflows the weir and level indication can be taken off the surge tank? Or, alternatively should reliable level indication be established by whatever means available and level should be maintained at least X feet above TAF with water being added to maintain level and minimize steaming?4. The calculations have to assume some location for the leak in the Unit 4 SFP in order to calculate a drain down/boil off rate that resulted in the uncover of the fuel. Please ensure that the assumption used is included and that if it is at the bottom of the pool, provide a qualitative or quantitative assessment of what equivalent size holes/leak rates would have to be at various other levels in the SFP, e.g., MAF, TAF, middle of SFP. Additionally, if possible, please consider the potential that the spent fuel transfer canal gate failed after the explosion resulting in draining of the elevated levels reactor cavity drained into the SFP. This will help the Japanese assess the effectiveness of any water additions.5. What Hydrogen generation rates and times needed to fill an appropriate volume to a deflagration limit were assumed in the timeline of the analysis? This should be clarified.6. Finally, the Japanese have a theory that the SFP transfer canal gate failed during the earthquake. We would like to confirm our understanding that the gate is seismically qualified. The Japan Team believes that if the gate failed, it would be more likely the result of the explosion than the earthquake. <p>We recognize that we are asking a lot but believe we need to be able to provide a sound written assessment to NISA and TEPCO to convince them to reassess their strategy going forward.</p> <p>At your earliest convenience, please provide a timeline for when this can be accomplished.</p> <p>Best Regards, Rob Taylor NRC Japan Team</p>
Source:	RST Request from Japanese Team	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/29/2011 19:19:31 (ET)	6pm call with NRC team in Japan.
Position:	RST BWR Systems and Ops	

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Analyst	Discussed fuel pool 4. Determined that more data on the structural integrity is needed before an assessment and a recommendation can be made.	
Name: Charles Norton		
Record: 1990		
Facility:	Discussed the priorities that the NUC has given to the units. Fuel pool priorities may need to be considered separate from the priorities associated with the units.	
	No action items taken from this call.	
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time: 03/29/2011 18:42:09 (ET)		
Position: RST Coordinator		
Name: Greg Schoenebeck		
Record: 1989		
Facility:		
Source: 1800 EDT (March 29, 2011) USNRC Earthquake/Tsunami Status Update		
Address/Location:		
Attachment: 		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time: 03/29/2011 18:24:45 (ET)	Fred Brown, Chuck Norton, et. al. discussed the assessment of 1F1 Units 1-4 paper which summarizes the NRC and NISA positions on the status of 1F1-1F4. This was used during a call held @ 1100 on 3/28 w/ the site team and Japanese counterparts.	
Position: RST Coordinator		
Name: Greg Schoenebeck		
Record: 1987		
Facility:	See attached. Special emphasis pertained to the discussion of indicative failure of Unit 3 primary containment and SFP #4 cooling actions/recommendations for the Japanese. Jap team wants something in their hands from the RST to get them thinking and going in a different direction. RST Coordinator - Greg Schoenebeck at 18:28:29 on 3/29/2011	
Source: Conducted a Conference Call w/ the Japanese Team		
Address/Location:		
Attachment: 		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time: 03/29/2011 18:24:45 (ET)	Fred Brown, Chuck Norton, et. al. discussed the assessment of 1F1 Units 1-4 paper which summarizes the NRC and NISA positions on the status of 1F1-1F4. This was used during a call held @ 1100 on 3/28 w/ the site team and Japanese counterparts.	
Position: RST Coordinator		
Name: Greg Schoenebeck		
Record: 1988		
Facility:	See attached.	
Source: Conducted a Conference Call		

(b)(6)

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DUO - Sensitive Internal Information

Source:	w/ the Japanese Team
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/29/2011 16:34:52 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Charles Norton
Record:	1986
Facility:	
Source:	
Assumed the BWR Analyst Position.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/29/2011 15:40:02 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Michael Brown
Record:	1985
Facility:	
Source:	
Relieved by Chuck Norton	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/29/2011 15:39:39 (ET)
Position:	RST Coordinator
Name:	Greg Schoenebeck
Record:	1984
Facility:	
Source:	
Relieved Brett Rini. Assumed the watch.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/29/2011 15:27:25 (ET)
Position:	RST Severe Accident Analyst
Name:	Edward Fuller
Record:	1983
Facility:	
Source:	
came onto shift at 3:00 pm.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/29/2011 15:00:34 (ET)
turn over to Ed Fuller	

(b)(6)

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~~OUO - Sensitive Internal Information~~

Position:	RST Accident Seq Analyst	
Name:	Hossein Esmaili	
Record:	1982	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/29/2011 14:47:25 (ET)	Provided SAMG information to Canadian contact per e-mail request
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1981	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/29/2011 14:40:31 (ET)	Received information from GEH on Minimum flow rate.
Position:	RST BWR Systems and Ops Analyst	See attached. One concern is that current injection flow rate on Unit 2 is LESS THAN Minimum flow rate per this document.
Name:	Michael Brown	
Record:	1980	
Facility:		
Source:	GEH	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/29/2011 14:33:10 (ET)	Notes from 11am meeting
Position:	RST BWR Systems and Ops Analyst	Updates/Changes to RST Assessment letter
Name:	Michael Brown	
Record:	1979	
		<ol style="list-style-type: none"> 1. Add the top 4 priorities to the assessment <ol style="list-style-type: none"> a. Priorities <ol style="list-style-type: none"> i. Maintain injection rate to keep core cooled &gt; MDRIR ii. Ensure 4' of water on the floor of the drywell - Minimum debris submergence level (MDSL) iii. Flood Containment to TAF in a controlled manner iv. Long Term Core Cooling 2. Look at Options for a broken Torus, what can be done <ol style="list-style-type: none"> a. Inject more viscous fluid, concrete b. Other options 3. INPO provided new recommendations for injection/ flood up based on primary containment damage If primary containment is damaged suspected...

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- o Maintain flow > MDRIR (or do we want to provide specific value).
- o Establish level in primary containment to achieve minimum debris submergence level (~4ft level) in drywell. Use alternate/additional water sources and injection paths such as drywell sprays.
- o Control (slowly increase) flow to cover TAF in reactor vessel if possible. (might only get to 2/3 core height)
- o Continue filling drywell up to TAF in a controlled manner – giving consideration for the need to vent. (long-term cooling)
- o Monitor for indications of primary containment leakage. If primary containment leakage is observed, control RPV injection flow rate to maintain RPV level. (Note – this may be the limiting value for units 2 and 3)

Basis

- MDRIR maintains minimum core cooling capability in order to maintain RPV integrity.
- Covering the fuel with water provides thermal margin to unanticipated losses of injection flow.
- The minimum debris submergence level needs to be established in bottom of drywell to provide cooling to any fuel debris in the drywell and to provide additional protection to the primary containment.
- Longer term, water levels need to be established to TAF in either the RPV or drywell to maintain fuel cool.
- If primary containment leakage is evident, actions should be taken to minimize impact on recovery operations, however MDRIR rate should be maintained at all times.

It was also decided to provide some additional insight into ways to determine water level in the drywell and RPV

- Indirect indications such as Delta P between the Torus and Drywell
- Use metal temperatures, a rapidly lowering metal temperature may be an indication that the metal is being covered by water
- Look at DW temperature, etc.

4. Guidance was provided by INPO on determining if a RPV breach has occurred (see attached document)

a. Summary –

- i. Believe that an RCS leak is more likely than a RPV breach in all 3 units
- ii. Based on current data it is believed that unit 1 primary containment is sound. It is believed that unit 2 primary containment is compromised. The Unit 3 primary containment integrity is suspect in the drywell. Based upon the drywell and suppression chamber pressure there appears to be a column of water in the drywell. All three units had loss of injection sufficiently long to potentially breach the RPVs. Unit 1 had no cooling for 27 hours early in the transient. Unit 3 lost RPV injection for 7 hours after 1 ½ days into the event. Unit 2 lost RPV injection for 7 hours almost three days into the event. The communication between DW and RPV also indicates possibility of breach.
- iii. The one parameter which causes hesitation that the RPV is breached is the lower head metal temperature. The fact that the temperature indication is still present says that the core has not breached the RPV (and destroyed the instrument). If the instrument is physically located higher up the lower head, then it is possible the RPVs have been breached and still get a lower head temperature reading.

b. Questions to ask:

1. Are RPV and Drywell Pressure Equal? If yes continue the evaluation, if no, the RPV is not breached.
2. Is hydrogen present? If yes, continue the evaluation, if no, the RPV is not breached.
3. Is the breach signature present? If yes, the RPV is breached.

The RPV breach signature looks for the following conditions, if any of the following conditions can be observed

Facility:

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are observed, the RPV is breached.

1. Prolonged existence of:

- RPV water level below bottom of active fuel (Many plants use FZ Water level instrument downscale)
- RPV Injection rate below MDRIR
- RPV lower head metal temperature above design temperature.

2. Concurrent existence of:

- Increasing DW pressure trend
- Decrease in difference between RPV pressure and DW pressure
- Increasing DW temperature trend.

5. For tomorrow's meeting, INPO will look at potential carbon steel corrosion rates and stainless steel corrosion rates.

a. We are looking at OpE from the Millstone seawater intrusion event

6. Question was raised about value of de-oxygenating the water being injected in to the Cores.

a. GEH stated that the current fresh water contribution of Oxygen to the core is very small to the seawater that was injected for 12 days.

7. INPO noted that Nitrogen purge has been delayed until Thursday.

8. Discussed the Nitrogen injection pathways

a. GEH stated that the planned N2 injection pathway is the normal N2 purge line. Concerns were voiced that it will be difficult to get the isolation valves open due to loss of power/ air.

b. GEH has looked at alternate N2 injection pathways that do not require entry into the reactor building. They believe that N2 injection through Core Spray may be possible.

i. Concerns were also voiced that they should try to align fresh water injection to go back through Core Spray vs. Feedwater line.

c. GEH to look at this another day and report back to group on best option to vent, also look at

i. Potential of drawing a gas sample prior to venting

ii. How long to purge with N2

9. Concerns that Unit 1 is on the edge of flammable range maybe entering the detonation range due to Oxygen buildup in the Drywell.

10. Discussed possible vent pathways (No one was sure which pathways the Japanese were going to use)

a. Vent via normal path to Standby Gas

b. Vent directly to Stack

11. Industry agreed to forward their evaluation of existing plant conditions in all 3 reactors to RST01.hoc@nrc.gov by close of business today.

12. Looking for data that should be captured by a Unmanned Aerial Vehicle (UAV) should such a device become available (Currently only looking for Spent Fuel Pool water level)

13. Next actions and timing



a. RST to forward working draft of RST Assessment to INPO team for their use as a baseline (done)

b. Industry to provide a draft revision to the RST assessment that addresses everything in the call notes, in advance of a telecom tomorrow.

i. The goal is to issue a formal revision by the end of the day 3/30 so that Japan team can have the benefit of the assessment prior to establishing purge capability.

ii. Industry agreed to forward their evaluation of existing plant conditions in all three units by close of business today.

iii. Industry to provide UAV data set separate from RST paper - time undetermined.

Source: 11 am Call	
Address/Location:	
Attachment: 	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/29/2011 14:20:17 (ET)	0930 - RST participated in daily conference call with international counterparts (UK, France, and Canada).
Position: RST Coordinator	
Name: Brett Rini	Plant Status changes reported by UK:
Record: 1978	RPV temp increased from 230C to 330C, leading to TEPCO increasing cooling flow. Implication of corium impact against vessel.
Facility:	There was a discussion of reducing injection to minimize water flow into the trenches outside the plant.
	U1 SFP cooling swapped to freshwater from seawater.
	There was a discussion of inviting other international regulators joining call - UK to take the lead on inviting others.
	International contacts requested copies of SAMGs. They will send their e-mail addresses to RST01 for RST to respond. SAMGs (PDF files) stored on M drive.
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/29/2011 13:26:57 (ET)	Provided 2 page plant status summary to PMT for roll up into package for Roy Zimmerman meeting. RST portion of summary document is attached.
Position: RST Coordinator	
Name: Brett Rini	
Record: 1977	
Facility:	
Source:	
Address/Location:	
Attachment: 	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/29/2011 12:09:45 (ET)	LT Received call from Ahsha Tribble, Director, Critical Infrastructure Protection and Resilience Policy at National Security Staff. She had questions regarding the Spent Fuel White Paper, specifically regarding "authority to expand wet storage."
Position: RST Coordinator	
Name: Brett Rini	
Record: 1974	
	RST Coordinator returned her call and asked her to call the RST via the HOO. Specifics of her questions are unknown.
	RST Communicator (John Thorp) answered call from Ahsha Tribble at 1230 on 3/29. She had questions regarding

(b)(6)

Facility:	<p>fuel storage in response to the White Paper, specifically:</p> <p>Q - Do commercial plants have authority to expand wet storage? (i.e., can they build another pool?)</p> <p>A - Licensees would need to seek approval from the NRC for that sort of change, but we thought it seemed unlikely given the type of structure required and associated costs/logistics.</p> <p>Q - How long do licensees wait before moving spent fuel to dry storage</p> <p>A - minimum of 1 year, but typically 5 years or more; oldest fuel first.</p> <p>Q - Is there currently dry storage in use in the US</p> <p>A - Per the white paper, 63 ISFSIs in 57 facilities in US - 1400 loaded casks</p> <p>J. Thorp also explained the full core offload requirements of the spent fuel pool and the allowance for licensees to rereack their SFPs with approval from the NRC.</p> <p>RST Coordinator - Brett Rini at 12:42:23 on 3/29/2011</p> <p>Contact info for Ahsha Tribble (b)(6)</p> <p>RST Coordinator - Brett Rini at 13:23:55 on 3/29/2011</p>
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Source:

Address/Location:

Attachment:

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Date/Time: 03/29/2011 12:09:45 (ET)	<p>LT Received call from Ahsha Tribble, Director, Critical Infrastructure Protection and Resilience Policy at National Security Staff. She had questions regarding the Spent Fuel White Paper, specifically regarding "authority to expand wet storage."</p>
Position: RST Coordinator	
Name: Brett Rini	
Record: 1976	
Facility:	<p>RST Coordinator returned her call and asked her to call the RST via the HOO. Specifics of her questions are unknown.</p> <p>RST Communicator (John Thorp) answered call from Ahsha Tribble at 1230 on 3/29. She had questions regarding fuel storage in response to the White Paper, specifically:</p> <p>Q - Do commercial plants have authority to expand wet storage? (i.e., can they build another pool?)</p> <p>A - Licensees would need to seek approval from the NRC for that sort of change, but we thought it seemed unlikely given the type of structure required and associated costs/logistics.</p> <p>Q - How long do licensees wait before moving spent fuel to dry storage</p> <p>A - minimum of 1 year, but typically 5 years or more; oldest fuel first.</p> <p>Q - Is there currently dry storage in use in the US</p> <p>A - Per the white paper, 63 ISFSIs in 57 facilities in US - 1400 loaded casks</p> <p>J. Thorp also explained the full core offload requirements of the spent fuel pool and the allowance for licensees to</p>

(b)(6)

rerack their SFPs with approval from the NRC.

RST Coordinator - Brett Rini at 12:42:23 on 3/29/2011

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/29/2011 12:09:45 (ET)

Position: RST Coordinator

Name: Brett Rini

Record: 1975

Facility:

LT Received call from Ahsha Tribble, Director, Critical Infrastructure Protection and Resilience Policy at National Security Staff. She had questions regarding the Spent Fuel White Paper, specifically regarding "authority to expand wet storage."

RST Coordinator returned her call and asked her to call the RST via the HOO. Specifics of her questions are unknown.

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/29/2011 11:11:12 (ET)

Position: RST Coordinator

Name: Brett Rini

Record: 1973

Facility:

Source:

Sent SAMG Information to UK contact per e-mail request.

Please send SAMG PDFs in SAMG folder on M Drive to other international contacts when requested.

Address/Location:

Attachment:

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Date/Time: 03/29/2011 10:31:49 (ET)

Position: RST Coordinator

Name: Brett Rini

Record: 1972

Facility:

Added Dave Herman to distribution list per e-mail below:

Please add one more addressee to the standard NR program list for RST emails and taskings

Mr. Dave Herman

david.r.herman@navy.mil

Source: E-mail from Laurel Steinhurst

Address/Location:

Attachment:

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Date/Time: 03/29/2011 07:22:22 (ET)

Position: RST BWR Systems and Ops Analyst

Name: James Shea

Record: 1971

Relieved by Mike Brown

(b)(6)

Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/29/2011 07:20:48 (ET)	Received shift turnover from Mike Morlang, RST Coordinator
Position: RST Coordinator	
Name: Brett Rini	
Record: 1970	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/29/2011 07:10:00 (ET)	assumed position as accident sequence analyst
Position: RST Accident Seq Analyst	
Name: Hossein Esmaili	
Record: 1969	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/29/2011 04:50:18 (ET)	A 3:00 am conference call was held with NRC-Japan, INPO, GEH, NRC Operations office, RST and
Position: RST Counterpart Communicator	
Name: Brian Horn	
Record: 1961	
Facility:	<p>NRC-Japan noted that they had a productive 2 hour meeting with TEPCO/MESA earlier today. The team would be sending a summary e-mail to RST of the results of their meeting. Team noted that water -with high level of radiation- is leaking from turbin buildings 1,2 & 3 into trenches. Team noted that TEPCO wanted to remove the Strategy document, section A, # 6 paragraph. After discussion, NRC-Japan is to propose revised wording to keep paragraph..</p> <p>In response to NRC-Japan request, the RST asked GEH to prepare an answer to the expected MDRIR rates for the Fukushima reactors. RST goal is to provide answer to NRC-Japan prior to their 11 am Thursday meeting (10 pm ET on Tuesday)</p> <p>NRC-Japan asked for views on the impact of sale on the core internals. GEH noted that they had previously provided RST with an answer on the sale issue (see GEH to RST01 March 24 e-mail, 10:11 pm). GEH will repackage their reply and send it to the RST. RST goal is to provide answer to NRC-Japan prior to their 11 am Thursday meeting (10 pm ET on Tuesday)</p> <p>The telephone call will be at 11:00 ET. I understand that I was the only person who was confused about the time of</p>

(b)(6)

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~~OUO - Sensitive Internal Information~~

		the call. Brian Horn RST Counterpart Communicator - Brian Horn at 06:37:11 on 3/29/2011
Source:	teleconference call with NRC-Japn	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/29/2011 05:27:24 (ET)	Twenty page fax received with a 4:21 am time stamp.
Position:	RST Counterpart Communicator	RST Counterpart Communicator - Brian Horn at 06:33:02 on 3/29/2011
Name:	Brian Horn	
Record:	1963	
Facility:		
Source:	fax from Embassy Japan	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/29/2011 06:30:07 (ET)	The RST prepared a response to several questions for the EDO use. The input was provided prior to the 7:00 am deadline.
Position:	RST Counterpart Communicator	
Name:	Brian Horn	
Record:	1966	
Facility:		
Source:	RST input to EDO	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/29/2011 06:21:54 (ET)	Prepared a summary paper helping to document supporting the view that water is leading from the reactors. The documnet was e-mailed to NRC-Japan.
Position:	RST Counterpart Communicator	
Name:	Brian Horn	
Record:	1965	
Facility:		
Source:	RST product	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/29/2011 05:38:54 (ET)	Received e-mail with a one page attachment. The attachment provides a cross-walk of "NISA and "NRC-Japans" views of the RPV/Containment/Core/SFP for units 1, 2, 3 and SFP for unit 4.
Position:	RST Counterpart Communicator	Report also continas a comment field with several entries.
Name:	Brian Horn	
Record:	1964	
Facility:		
Source:	E-mail from NRC-Japn	

(b)(6)

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Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/29/2011 05:27:24 (ET)	Twenty page fax received with a 4:21 am time stamp.
Position:	RST Counterpart Communicator	
Name:	Brian Horn	
Record:	1967	
Facility:		
Source:	fax from Embassy Japan	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/29/2011 05:05:23 (ET)	<p>Following the March 29, 3:00 am conference call with NRC-Japan RST, INPO and GEH had further discussions. GEH confirmed they would 1) calculate the MDRIR rates for the Fukushima reactors, 2) provide their views on how Japan can make a hydrogen measurement without first de-humidifying the sample.</p> <p>INPO was asked if they could provide the RST, for a 7:00 am Tuesday meeting, some draft industry views on what the impact would be if spent fuel movement into dry storage was to occur. INPO noted that they would do their best.</p>
Position:	RST Counterpart Communicator	
Name:	Brian Horn	
Record:	1962	
Facility:		
Source:	RST conference call with GEH/INPO	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/29/2011 04:50:18 (ET)	<p>A 3:00 am conference call was held with NRC-Japan, INPO, GEH, NRC Operations office, RST and</p> <p>NRC-Japan noted that they had a productive 2 hour meeting with TEPCO/MESA earlier today. The team would be sending a summary e-mail to RST of the results of their meeting. Team noted that water -with high level of radiation- is leaking from turbin buildings 1,2 & 3 into trenches. Team noted that TEPCO wanted to remove the Strategy document, section A, # 6 paragraph. After discussion, NRC-Japan is to propose revised wording to keep paragraph..</p> <p>In response to NRC-Japan request, the RST asked GEH to prepare an answer to the expected MDRIR rates for the Fukushima reactors. RST goal is to provide answer to NRC-Japan prior to their 11 am Thursday meeting (10 pm ET on Tuesday)</p> <p>NRC-Japan asked for views on the impact of sale on the core internals. GEH noted that they had previously provided RST with an answer on the sale issue (see GEH to RST01 March 24 e-mail, 10:11 pm). GEH will repackage their reply and send it to the RST. RST goal is to provide answer to NRC-Japan prior to their 11 am Thursday meeting (10 pm ET on Tuesday)</p>
Position:	RST Counterpart Communicator	
Name:	Brian Horn	
Record:	1968	
Facility:		
Source:	teleconference call with NRC-Japan	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		




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OUO - Sensitive Internal Information

Date/Time:	03/29/2011 04:01:16 (ET)	NRC-Japan sent an e-mail with an attachment containing updated information on units 1 & 2. RST noted update.
Position:	RST Counterpart Communicator	
Name:	Brian Horn	
Record:	1960	
Facility:		
Source:	March 29, 2:28 E-mail	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/29/2011 01:28:38 (ET)	Re: Page 3 of Strategy doc. A, #6
Position:	RST Counterpart Communicator	Says to not start containment spray until PSI is reduced to 2, and then open vacuum break.
Name:	Brian Horn	NRC response: dont initiate containment spray without first introducing or confirming nitrogen atmo. has been est. Condensing the steam without nitrogen atm. would allow concentration of H2 and increase possibility of an explosion.
Record:	1959	
Facility:		
Source:	telephone call from Japan(Allan)	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/29/2011 00:05:08 (ET)	Assumed the Shift as BWR Systems Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	1958	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/28/2011 23:26:09 (ET)	Relieved by Jim Shea
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1957	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/28/2011 22:29:48 (ET)	for long term cooling, addign water to the core at the boil off rate or in excess of the of boil-off rate will not assure
Position:	RST Accident Seq Analyst	long term cooling. with the NaCl and other particulates building up in the vessel, the excess salts will eventually
Name:	Leonard Ward	elevate the fuel cladding temperatures in the potentialr range 800-900 F due to the degraded heat transfer
Record:	1956	coefficient at the cladding surface. even though the reactor is still ccooled, clad temperatures remainign in the

(b)(6)

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Facility:	elevated temperature range 800 -900 f represents a low-rate heat oxidation process. As such, the intact fuel rods with slowly oxidize until cladding integrity is eventually challenged. several weeks at these elevated temperatures will oxidize the fuel cladding. Boiling needs to be terminated and the salts flushed from the core to lower the core cladding temps.	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/28/2011 22:29:07 (ET)	Final Version of potential leakage paths to turbine building
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	1955	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/28/2011 20:00:54 (ET)	Revised Leakage Paths to the Turbine Building RST Accident Seq Analyst - Leonard Ward at 22:28:59 on 3/28/2011
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	1945	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/28/2011 22:26:44 (ET)	Final Version of Potential Leakage paths to turbine building. Ignore all previous versions RST Accident Seq Analyst - Leonard Ward at 22:27:55 on 3/28/2011
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	1952	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/28/2011 22:26:44 (ET)	Final Version of Potential Leakage paths to turbine building. Ignore all previous versions
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	1953	
Facility:		
Source:		
Address/Location:		

Attachment: *This information is Official Use Only - Sensitive Internal Information.*

Date/Time:	03/28/2011 21:34:19 (ET)	Forwarded questions from the 4 PM phone call on 3/28 regarding nitrogen inerting and radiation levels to the industry consortium.
Position:	RST Coordinator	
Name:	Rick Hasselberg	
Record:	1951	
Facility:		
Source:		

Address/Location:

Attachment: *This information is Official Use Only - Sensitive Internal Information.*

Date/Time:	03/28/2011 22:18:38 (ET)	Revised potential leakage paths to turbine building
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	1949	
Facility:		RST Accident Seq Analyst - Leonard Ward at 22:19:48 on 3/28/2011
Source:		

Address/Location:

Attachment: *This information is Official Use Only - Sensitive Internal Information.*

Date/Time:	03/28/2011 22:18:38 (ET)	Revised potential leakage paths to turbine building
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	1950	
Facility:		
Source:		

Address/Location:

Attachment: *This information is Official Use Only - Sensitive Internal Information.*

Date/Time:	03/28/2011 22:18:03 (ET)	updated
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	1948	
Facility:		
Source:		

Address/Location:

Attachment: *This information is Official Use Only - Sensitive Internal Information.*


Date/Time:	03/28/2011 20:50:34 (ET)	Provided the following to the industry consortium to address questions from the NRC site team and to address issues from the 4pm consortium call.
Position:	RST BWR Systems and Ops Analyst	

(b)(6)

Name:	Charles Norton	All,
Record:	1947	
Facility:		<p>This email is to document questions from the RST that were asked during the 4pm phone call on March 28, 2011. Please address these questions and make any other changes you may recommend by providing mark ups (one from GEH for question 3 and one from INPO on questions 1 and 2) to the RST Assessment of Fukushima Daiichi Units revision 0 time stamped 2100 hrs 3/26/2011.</p> <p>Please submit your mark ups and other comments to RST01.Hoc@NRC.gov in time for discussion on the 11am EDT conference call on March 29, 2011.</p> <p>1.The RST assessment states that, once the containment has been purged with nitrogen and vented, RPV injection can be maximized. RST would like industry to confirm that this recommendation remains valid if the primary containment, either torus or drywell, is believed to not be intact. For example, increasing RPV injection could lead to a rapid flow out the containment breach into the environment. Would the desire to minimize such releases affect the recommendation to maximize RPV injection? Why or why not? What changes, if any, are warranted to the RST assessment paper to either explain the rationale or change the recommendations?</p> <p>2.During a telephone conversation at 1600EDT on 3/28/11, there was discussion about radiation levels reported in the drywells and toruses and their implications for RPV integrity. RST would like industry to clarify what indications may be used to assess RPV integrity or location of the core. Also, given the currently available information, what conclusions would the industry reach regarding the status of Unit 1 through 3, and what, if any, changes to the recommendations documented in the RST assessment paper would be warranted based on this insight.</p> <p>3.Industry recommends purging with nitrogen on all three units. The site team provides information that the Japanese plan to use the installed Nitrogen inerting system, which provides nitrogen from a central tank, to purge units 1, 2, and 3. As discussed, there were concerns about whether this flowpath would be fully available given the likely location of some valves. Please provide alternative paths and their potential use. Unit 1 with an intact primary containment will show a pressure increase if purging is successful. How can successful nitrogen purging be determined on units 2 and 3 if h2 sampling is not available?</p> <p>Thank you, RST Team</p>
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/28/2011 20:29:54 (ET)	1800 call with NRC site team in Japan.
Position:	RST BWR Systems and Ops Analyst	Discussed containment flooding vs. leakage for Units 2 and 3 considering primary containment damage.
Name:	Charles Norton	
Record:	1946	Discussed the need to determine if N2 purging is successful on Units 2 and 3 with damage to to primary

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Facility:	containments.	
	The team in Japan discussed the need to determine the ex vessel vs. in vessel status of the fuel in all 3 units.	
	Discussed that the fuel in the fuel pool is likely submerged on units 1 and 2. The conditions of the fuel pool coverage is unknown on units 3 and 4.	
	Discussed the need to address salt water corrosion issues on units 1,2, and 3 pressure vessels.	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/28/2011 20:00:54 (ET)	Revised Leakage Paths to the Turbine Building
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	1954	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/28/2011 19:58:22 (ET)	1600 call with RST, NR, DOE/NE, GEH, EPRI, KAPL, Bettis.
Position:	RST BWR Systems and Ops Analyst	Discussed flooding of Units 2 and 3 with breaches of primary containment.
Name:	Charles Norton	
Record:	1944	Discussed Nitrogen inerting of U2 and U3 containments with breaches in the containments.
Facility:		Discussed potential of fuel going ex vessel.
		Discussed sources of reactor water in the turbine buildings.
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/28/2011 17:27:24 (ET)	3:36pm Assumed the BWR Analyst position
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1943	
Facility:		
Source:		
Address/Location:		
Attachment:		

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Date/Time:	03/28/2011 15:36:26 (ET)	Relieved by Chuck Norton
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	1942	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	03/28/2011 15:26:31 (ET)	Briefed by Jeff circle 1500 mar 28
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	1941	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	03/28/2011 15:21:33 (ET)	Information for Turnover and 1600 telecon
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	1940	

Questions

1. Would any of our recommendations change if we assume that they don't have access to the reactor building?
 - a. GEH's answer was that none of their current recommendations would change based on that assumption.
 - b. GEH assumed in their initial recommendation that reactor building access was not possible.
2. Would like to know planned N2 injection path? (Rumor that they might inject via coolant injection line)
 - a. Also asked for other potential N2 injection paths
3. Question on where water in the turbine building is coming from.
 - a. Core
 - i. MSIV's
 - ii. Main steam line drains
 - iii. Electrical Chases
 - iv. Pipe chases
 - b. SFP
 - i. May be fire water sprayed into SFP and spilled over into Turbine building
4. If we assume RCS is bypassing the containment and going straight to turbine building would we make the same recommendations.
 - a. Initial GEH response was yes, their recommendations would be the same.
5. Need to follow up with NRC site team and ask TEPCO what the MDDIR rate is.

Other Info

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Facility:

1. 2 Nitrogen trucks onsite, one with high pressure Nitrogen gas and one with liquid N2. Hope to inject N2 by Weds.
2. Appears that water is not continuing to come into the turbine building
3. GEH doesn't think the cores are covered, believe that level indication is unreliable.

Information from Chuck Casto

1. Chairman visit has gone well
2. NRC team in Japan doesn't need any more information from us today.
3. Turbine building water levels are not increasing - all 3 units
4. Japanese strategy is to continue to feed and bleed until they have constructed an external structure over the reactor building to control venting operation
5. Thinking about pumping water in Turbine building to tanker trucks - take offsite to treat
6. Acknowledge fission products - pnl - pacific northwest labs
7. Bechtel pumps are at J-village
8. Medium pressure pump used with barge (barge onsite weds.)
9. Line from dam is 1/2 working
10. Navy has 30 miles of flexible hosing to run from dam to plant (maybe 30,000 feet)

Source:

Address/Location:

Attachment:

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Date/Time: 03/28/2011 10:04:02 (ET)

Position: RST BWR Systems and Ops Analyst

Name: Michael Brown

Record: 1939

INPO and GEH recommended changing RST Assessment document to a Rev. 0 document and making the new Document Rev.1.

After consulting with the RST we decided to leave the Original Document AS-IS. The new document which is being revised is titled "RST Assessment of Fukushima Daiichi Units document - Rev 1 DRAFT.docx" and is located at:

M:\RST\Japanese Earthquake & Tsunami Response\RST Assessment of Fukushima Daiichi

Facility:

Three action items came out of this call:

1. Would GEH/INPO change their assessment recommendations if we assume that the RCS is bypassing containment and going to the turbine building.
2. GEH/INPO and the NRC are evaluating potential leak paths of contaminated water to the turbine building.
3. The NRC will ask TEPCO what their Minimum Debris Retention Injection Rate is.

Source: 0900 call

Address/Location:

Attachment:

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Date/Time: 03/28/2011 10:02:19 (ET)

9AM call with GEH and INPO. Discussed

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Position:	RST Accident Seq Analyst	With U2/U3 potentially bypassed containment - would the drywell flooding recommendation change?
Name:	Jeff Circle	
Record:	1938	
Facility:		Leakage pathways from primary containment to turbine building? GEH said that primary containment status does not change their recommendation. NRC will transmit the latest White Paper on turbine building contaminated water at 1200 for comment with industry. There will be a call at 1600 on industry comments. Industry feels that a source of water to the turbine building could have been from the spent fuel pool however, it still did not account for the higher amounts of I-131 relative to Cs-137.
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/28/2011 07:34:05 (ET)	Assumed shift
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1937	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/28/2011 07:11:21 (ET)	07:00 Briefed Jeff Circle on Night Shift Activities
Position:	RST Accident Seq Analyst	
Name:	James Gilmer	
Record:	1936	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/28/2011 07:00:46 (ET)	Turnover to Mike Brown - Increasing metal temp. - Review recommendations if RC bypassing containment during 0900 call - If assessment revised, ensure industry upper management by-in - Supporting high turbine building rad level paper
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1935	
Facility:		
Source:		
Address/Location:		
Attachment:		

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Date/Time:	03/28/2011 04:26:36 (ET)	0300 Call
Position:	RST BWR Systems and Ops Analyst	- Seeing a reduced injection rate on Unit 1 (120 l/hr to 113 l/hr)
Name:	Eva Brown	- Seeing increased metal temperatures
Record:	1934	- Questioned whether flow should be raised; Industry said new flow adequate in the short term but given uncertainty regarding core flow more would be better
Facility:		- Change over to electric pumps 1800 3/27 JPT
		- Intent is by 3/30 to use nitrogen with an equipment compressor through existing purge lines
		- Alternate is use of liquid nitrogen with heater
		- Site Team still concerned regarding TEPCOs reliance on SFP surge tank to validate level
		- Scheduled 0900 call with industry to discuss whether assessment recommendations would change if containment bypassed
Source:	Site Team	
Address/Location:		
Attachment:		
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Date/Time:	03/28/2011 04:25:42 (ET)	Sent e-mail to RST01 for tasking for DCI and RES regarding effects of salt and venting protocol
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1933	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/28/2011 02:32:12 (ET)	Sending to DCI for review along with other salt analyses of salt concerns.
Position:	RST BWR Systems and Ops Analyst	-----Original Message-----
Name:	Eva Brown	From: Sheron, Brian
Record:	1932	Sent: Sunday, March 27, 2011 7:18 PM
		To: RST07 Hoc
		Cc: Weber, Michael; Virgilio, Martin
		Subject: FW: reactor#3 and others
		-----Original Message-----
		From: Per F. Peterson [mailto:peterson@nuc.berkeley.edu]
		Sent: Sunday, March 27, 2011 5:25 PM
		To: DL-NITsolutions
		Subject: Fwd: reactor#3 and others

(b)(6)

I am forwarding this email from Professor Tom Devine, a colleague in Materials Science and Engineering at UC Berkeley who has extensive experience in corrosion processes in light water reactor systems. He expresses strong concern about the likelihood of very rapid stress corrosion cracking in the reactor primary system (0.8 cm/day), given the high concentration of chloride in the reactor coolant. He believes that it is urgent to begin flushing salt water out of these systems. I think that it is worthwhile to take this concern seriously.

-Per

>Date: Fri, 25 Mar 2011 09:57:48 -0700

>Subject: reactor#3 and others

>From: devine@berkeley.edu

>To: Peterson@nuc.Berkeley.edu

>

>-----

>Per,

>

>I'm troubled by the report I just heard on CNN, which indicated that Co

>was in the

>ocean adjacent to the plant and in the water that burned the three

>workers. Apparently the workers were exposed to Co-containing water while

>in the turbine room. The presence of Co at these two locations suggests

>that water from the core is releasing into the ocean and into the turbine

>room.

>

>The cause of the leak(s) might be pipes that were cracked during the

>hydrogen explosions. Alternatively, the leak(s) might be due to corrosion

>and/or stress corrosion cracking. The possibility of corrosion and scc

>must be urgently addressed.

>

>The email that I sent to you one week

>ago was prompted by our parking-lot discussion in which you mentioned the

>amount of salt water that was being used to cool the reactors. My concern

>then was that the chloride would cause stress corrosion cracking of the

>stainless steel cladding that coats the inside of the RPV and of stainless

>steel piping that is part of the cooling system. I indicted that an upper

>limit SCC velocity of about 0.8 cm/day in stainless steel exposed to hot

>aqueous chloride. Hot aqueous chloride would severely corrode, and

>possibly crack, low alloy steel and carbon steel, especially if oxygen

Facility:

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>(from air) is also present.

>

>The only sure way of stopping SCC is to remove the stress. In this case
>removing the stress might not be possible because the highest stresses are
>most likely residual. Furthermore, the carbon steel and low alloy steel
>are susceptible to very high corrosion rates in high temperature aqueous
>chloride, so if cracks have penetrated the RPV cladding then corrosion of
>the low alloy steel is as much of a potential problem as is SCC.

>

>The steam lines going from the RPV to the turbine are carbon steel, so hot
>aqueous chloride can be expected to severely corrode and possibly crack
>the steam lines.

>

>At this point the best remedial action to take is to get rid of the salt.

>Probably the only way to do it is by dilution: flooding the reactor with

>salt-free water. In my view it is extremely urgent that the chloride be

>removed asap. Can you communicate this message to someone in authority?

>

>Tom

Per F. Peterson
Professor and Chair
Department of Nuclear Engineering
University of California
4153 Etcheverry Hall
Berkeley, California 94720-1730
peterson@nuc.berkeley.edu
Office: (510) 643-7749 Fax: (510) 643-9685
http://www.nuc.berkeley.edu/People/Per_Peterson

Source: E-mail from B. Sheron 3/27
7:18pm

Address/Location:

Attachment: 

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Date/Time: 03/28/2011 02:29:21 (ET)

Provided comments on Potential Leak Path Document.


Position: RST BWR Systems and Ops
Analyst

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Name:	Eva Brown
Record:	1931
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/28/2011 01:55:30 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Eva Brown
Record:	1930
Facility:	
Source:	
Compiling info on salt concerns to forward to DCI.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/28/2011 01:55:42 (ET)
Position:	RST Coordinator
Name:	Frank Collins
Record:	1929
Facility:	
Source:	ET
ET requests that team members record lessons learned items and recommendations for the after action report as they occur and are fresh in the mind. Record items in WEB EOC under Menus\HOC Menu\Comments and Issues	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/27/2011 23:37:18 (ET)
Position:	RST Accident Seq Analyst
Name:	James Gilmer
Record:	1928
Facility:	
Source:	
23:00 EDT assumed Severe Accident Analyst Position, relieving Jeff Mittman	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/27/2011 23:32:30 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Charles Norton
Record:	1927
Facility:	
Source:	
Relieved by Eva Brown	
Address/Location:	
Attachment:	

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Date/Time:	03/27/2011 23:21:56 (ET)	Completed problem statement to address issues raised during the 6pm call with the NRC team in Japan.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1926	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	03/27/2011 21:52:45 (ET)	Completed response to US forces Japan concerning fresh water supply needs.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1925	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	03/27/2011 20:11:03 (ET)	6pm EDT conference call wit site team. U1: increase noted in RX pressure, small increase in FW nozzle temp, small decrease in bottom head temperature, small decreases in DW and Torus pressure. U2 no major changes in parameters. containment leak, Reactor water in turbine building basement. U3 No major changes in parameters. containment leak, water in turbine building basement. The team and RST discussed weather changes will eventually need to be made to the recommendations for consideration due to containment breaches on Units 2 and 3.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1924	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	03/27/2011 16:02:37 (ET)	Assumed the BWR Analyst Position
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1923	
Facility:		
Source:		

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/27/2011 15:04:27 (ET)	Relieved by Chuck Norton.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1922	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/27/2011 13:50:19 (ET)	Received Industry verbal concurrence to provide GEH recommendations to tie RST Assessment of Fukushima Daiichi Units via cover letter and leave original document sent to Japan as written. Industry to follow-up with e-mail confirmation.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1921	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/27/2011 13:18:36 (ET)	Received Industry revision to the RST Assessment of Fukushima regarding SAMG recommendations. A call for 1330 is being set up to discuss changes.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1920	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/27/2011 11:36:47 (ET)	Calculations made regarding water needed to fill Drywell and Torus based on Quad Cities and Dresden. Used Drywell Free Volume of 158,236 ft ³ and Torus Free Volume of 117,300 ft ³ . Information from FSARs Section 6.2. Results in approximately 1.6 million gallons. Assumes Torus is half full. Document located on M: drive called Containment Volumes.xls
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1919	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/27/2011 10:50:30 (ET)	GEH P&IDs of Daiichi Unit 1 & 2 Fuel Pool Cooling and Cleanup Systems
Position:	RST Coordinator	

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Name:	Peter Alter	
Record:	1917	
Facility:		RST Coordinator - Peter Alter at 10:55:47 on 3/27/2011
Source:	GEH	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/27/2011 10:50:30 (ET)	GEH P&IDs of Daiichi Unit 1 & 2 Fuel Pool Cooling and Cleanup Systems
Position:	RST Coordinator	
Name:	Peter Alter	
Record:	1918	
Facility:		
Source:	GEH	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/27/2011 09:34:17 (ET)	0900 call with INPO, EPRI, GE-H, NR, KAPL, Bettis Labs regarding the SAMG consensus document was held.
Position:	RST BWR Systems and Ops Analyst	Industry considering revising document to address concern of not providing all possible flow to containment until venting of H2 has been done. The latest document should be available at noon.
Name:	Timothy Kolb	
Record:	1916	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/27/2011 08:19:55 (ET)	The consensus document dated 3/26/2011 @ 2100 has been questioned by GE-H as to whether we are strictly following the SAM-G guidance. A 0900 phone call is being set up to discuss and get Senior Management approval from the industry.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1915	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/27/2011 08:19:09 (ET)	Assumed the watch at 0700.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1914	
Facility:		
Source:		
Address/Location:		

(b)(6)

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Attachment:		
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Date/Time:	03/27/2011 07:59:45 (ET)	logging in as RST Coordinator
Position:	RST Coordinator	
Name:	Peter Alter	
Record:	1913	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/27/2011 07:25:15 (ET)	turning over to Peter Alter
Position:	RST Coordinator	RST Coordinator - Brett Rini at 07:25:55 on 3/27/2011
Name:	Brett Rini	
Record:	1911	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/27/2011 07:25:15 (ET)	turning over to Peter Alter
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1912	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/27/2011 07:24:26 (ET)	turning over to Peter Alter
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1910	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/27/2011 07:13:37 (ET)	Turnover to T. Kolb
Position:	RST BWR Systems and Ops Analyst	<ul style="list-style-type: none"> • Finish confirmations on 2100 assessments • Complete adding edits to white paper • Take a look at SAMG recommendation and ask Industry during 11:00 • Respond to 3 Site Team questions.
Name:	Eva Brown	
Record:	1909	
Facility:		


(b)(6)

Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/27/2011 06:57:33 (ET)	Attached Spent Fuel Pool Cooling and Cleanup Drawing per Eva Brown
Position: RST Coordinator	
Name: Brett Rini	
Record: 1908	
Facility:	
Source: e-library for Quad Cities	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/27/2011 06:22:12 (ET)	Passed on Site Team recommendation to have GEH confirm that GEH Senior Management had seen the assessment document and had no concerns. (b)(5) (b)(5) Requested that GEH send e-mail to RST1HOC confirming information.
Position: RST BWR Systems and Ops Analyst	
Name: Eva Brown	
Record: 1907	
Facility:	
Source: Andy Lambford (910) 819-1125	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/27/2011 06:09:11 (ET)	Site Team requested that NRC have the CEOs of the industry companies "sign off" on the assessment documeht. Current assessment document current as of 2300 3/26 (see attached)
Position: RST BWR Systems and Ops Analyst	
Name: Eva Brown	
Record: 1906	
Facility:	
Source: Mike Scott (240) 461-6050	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/27/2011 05:45:37 (ET)	- Unit 1 RPV pressure trending upward (looking for recommendations) - More instrumentation now available - Available instrumentation for Unit 2 torus readings suggests damage - Planning to switch from fire trucks to electric pumps for RPV injection- March 29 SFP - Assuming level using surge tank for SFP level- requested SFP P&ID - INPO provided additional recommendation regarding CRD injection (cold wter breach of seals) - Naval Reactors requested volume of freshwater needed - Naval Reactors reported that the Daini was having issues controlling RPV and SFP levels - This was determined not to be a credible report
Position: RST BWR Systems and Ops Analyst	
Name: Eva Brown	
Record: 1905	
Facility:	
Source: 0300 Status Call	

(b)(6)

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/27/2011 05:19:19 (ET)	Provided draft copy of spent fuel storage safety white paper
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1904	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/27/2011 04:37:12 (ET)	Ensure NRC Reps to USAID are included on any e-mails from RST that are sent to Japan team or Consortium. Address is RMTPACTSU_ELNRC@ofda.gov
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1903	
Facility:		
Source:	Phone call from Leigh Trocine	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/27/2011 01:13:01 (ET)	FOLLOWUP NEEDED - BWR Analyst postulates that Turbine Building (TB) basement water, which is believed to be from RPV, may be coming from recirc seal through drywell equipment drain tank (DWEDT) and then somehow into tanks in TB. More review needed.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1902	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/27/2011 01:12:13 (ET)	Assigned to review SFP White Paper and related Inside NRC article (3/28/11)
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1901	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/27/2011 00:41:35 (ET)	Alignment Plan from Team in Japan Japan Team Reactor Issues Alignment Plan
Position:	RST Coordinator	



(b)(6)

Name:	Brett Rini	1. Identify Team Leads for Major Issues:
Record:	1900	Spent Fuel Pools: Rob Taylor
Facility:		Reactors:
		Unit 1 - Alan Blamey
		Unit 2 - Tony Nakanishi
		Unit 3 - Jack Giessner
		Note: The delineation of lead responsibilities should not inhibit effective communication among team members to assess information on any of the site issues and develop effective recommendations with the support of the RST. Nor should the RST limit distribution of information to specific members of Japan team.
		2. Product: Ensure the highest quality "RST Assessment Fukushima Daiichi Units" paper is provided to our Japanese counterparts.
		3. How to accomplish product:
		a. Japan team will focus on collecting best available information to feed to the RST.
		b. Japan team will ensure close coordination with RST (GE/INPO, etc.)
		i. Japan team proposes two daily phone calls going forward
		1. 0700 JST - 30 minute alignment meeting
		a. Goal: Feedback to Japan team on work done by RST and industry since previous day's 1600 JST meeting.
		b. Gain insights for 1100 JST NRC/NISA/TEPCO daily meeting
		2. 1600 JST - ~60 minute feedback meeting
		a. Goal: Japan team input to RST and industry on information gathered during the day.
		b. Alignment on priorities for RST and industry assessments going forward.
		c. Japan team will provide feedback on RST assessment paper to ensure highest quality and clarity before providing it to our Japanese counterparts.
		d. Japan team will provide feedback on where RST assessment paper needs to focus going forward based on new and evolving information.
		e. Japan team will consolidate messages and information prior to 1100 JST NRC/NISA/TEPCO meeting.
Source:	Rob Taylor e-mail (2141 on 3/26)	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/27/2011 00:36:22 (ET)	E-mail from 2002 on 3/26: "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."
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1899	See attached
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/26/2011 22:53:17 (ET)	Relieved by Eva Brown, BWR Analyst.

(b)(6)

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Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1898	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 22:52:35 (ET)	Relieving Mark Orr as RST Coordinator
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1897	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 22:50:02 (ET)	Issued consensus assessment and recommendations. 3-26-11 21hrs.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1896	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 20:01:15 (ET)	A conference call was held with INPO, GEH, NR, EPRI and Mike Scott in Japan to ensure that the Japanese concerns about H2 build up in the containment are adequately addressed in consensus recommendation document provided to the team in Japan.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1895	See attached question document.
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 18:28:54 (ET)	Mike Scott of the Japan team called with concern the the Hydrogen questions were not addressed in the Consensus document.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	Scheduled 1845 conference call to address these concerns.
Record:	1894	
Facility:		

(b)(6)

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Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 17:22:19 (ET)	1630 Issued Consensus document from the 1pm Industry/NRC conference call.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1893	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 18:13:51 (ET)	We will have talk with Industry/govt group regarding the consensus paper at 6:45.
Position:	RST Accident Seq Analyst	
Name:	Jerry Dozier	S
Record:	1892	
Facility:		
Source:	Jerry Dozier	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 17:21:18 (ET)	Assumed BWR Analyst position
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1891	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 16:12:21 (ET)	Relieved by Chuck Norton
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	1890	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 15:51:10 (ET)	GEHs other considerations input from 1pm meeting

(b)(6)

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(b)(6)

Position:	RST Coordinator	input to Rx Safety Team Assessment Document.
Name:	Eric Thomas	
Record:	1886	Following the 0900 call this morning, (b)(4)
Facility:		(b)(4)
Source:	RST Coordinator	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		

Date/Time:	03/26/2011 12:55:02 (ET)	Closed out TASK 2539 on getting back to Pete Lyons on his question. See below e-mail string.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	No worries Steven I understand your reasoning.
Record:	1885	Thanks for all you doing there!
Facility:		<p>Pete</p> <p>Sent via BlackBerry by AT&T</p> <hr/> <p>From: RST09 Hoc &lt;RST09.Hoc@nrc.gov>; Date: Sat, 26 Mar 2011 12:46:32 -0400 To: peterlyons@hq.doe.gov&lt;peterlyons@hq.doe.gov>; Subject: Your question on Salt and RHR</p> <p>Pete,</p> <p>We got a action to get back to you (a day or two ago) on a question you had associated with how NRC came to our conclusion on salt and the restart of the RHR pumps. If this is still something you need, please let me know and we will get this information to you.</p> <p>Steven Arndt in the NRC Operation Center</p>
Source:		

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		


Date/Time:	03/26/2011 12:50:50 (ET)	Closed out TAST 2539 on getting back to Pete Lyons on his question.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	No worries Steven I understand your reasoning.
Record:	1884	Thanks for all you doing there!
Facility:		<p>Pete</p> <p>Sent via BlackBerry by AT&T</p> <hr/> <p>From: RST09 Hoc &lt;RST09.Hoc@nrc.gov>; Date: Sat, 26 Mar 2011 12:46:32 -0400 To: peterlyons@hq.doe.gov&lt;peterlyons@hq.doe.gov>;</p>

(b)(6)

Facility:	Subject: Your question on Salt and RHR	
	Pete,	
	We got a action to get back to you (a day or two ago) on a question you had associated with how NRC came to our conclusion on salt and the restart of the RHR pumps. If this is still something you need, please let me know and we will get this information to you.	
	Steven Arndt in the NRC Operation Center	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 12:34:47 (ET)	Sent GEH Hydrogen/Oxygen Rough Calculation to site team
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	1883	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 07:29:12 (ET)	Don Helton - Relieved
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1882	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 07:29:42 (ET)	Turnover to Mike Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1881	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 06:09:28 (ET)	0600 fax requests opinion on whether 1983 Sandia Labs is applicable and adequate as guidance
	RST BWR Systems and Ops	
(b)(6)		



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Position:	Analyst	
Name:	Eva Brown	
Record:	1880	
Facility:		
Source:	Site Team	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 06:11:48 (ET)	Don Helton - Provided response via email to Brian Sheron on possible sources of turbine building water on Unit 3, consistent with response to the same question from the Japan site team. Closed tracker #2882.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1879	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 06:05:58 (ET)	From 0300 call - Hydrogen generation rate reported for Unit s 1 -3 : 1.2 kg/h hydrogen; 1.7 kg/h oxygen based on radiolysis
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1878	
Facility:		
Source:	Site Team	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 06:00:36 (ET)	Completed 0600 Assessment update. RST Director indicates Japan Recommendation to be done by Dayshift.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1876	
Facility:		RST BWR Systems and Ops Analyst - Eva Brown at 06:02:13 on 3/26/2011
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 06:00:36 (ET)	Completed 0600 Assessment update. RST Director indicates Japan Recommendation to be done by Dayshift.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1877	
Facility:		
Source:		

(b)(6)

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Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 04:42:59 (ET)	don Helton - my notes from the 3 AM call are attached.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1875	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 04:09:55 (ET)	Don Helton - forwarded containment flooding assessment to rst01 for forwarding to participants in the 3 AM call (site team, INPO, GEH)
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1874	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/26/2011 03:01:36 (ET)	NRC Japan Team GEH INPO RST
Position:	RST Coordinator	
Name:	Frank Collins	
Record:	1873	
Facility:		Naval Reactors Liegh Trocine (USAID) -Site Team and Japan want more information regarding buildup of H2 Site Team: -NISA reviewed 1400 RST Assessment and stated concerns as to emphasis on U1 and neutron sources at U4 -NISA requests updates on assessment when available -freshwater to U2 at 10:10 AM, borated at dam before injection -NISA and TEPCO state SFPs at adequate level - no comment on integrity -U1 SFP may have lost water during H2 explosion U3 -SFP covered based on radiation levels U4- SFP water level visible based on video on crane and aerial photo -NISA / TEPCO concerned over movement of racks in SFPs -power recovery to instrumentation continuing -very interested in H2, -containment flood up discussion, TEPCO wants to wait until better understanding of H2 concerns-concerned about steam suppressing H2 concentration, making efforts to inert U1 containment with N2,

(b)(6)

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OUO - Sensitive Internal Information

- RST reviewed draft assessment of containment flooding for U1-3,

Source:

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

Date/Time: 03/26/2011 02:54:49 (ET)

Position: RST BWR Systems and Ops Analyst

Name: Eva Brown

Record: 1872

Facility:

Source:

Late Entry: 0215 Completed generation of internal assessment and Japan Table assessment documents for 0300 call. 0200 3/26 version not issued for call. Used 1400 03/25. 0200 versions attached.

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

Date/Time: 03/26/2011 02:51:16 (ET)

Position: RST Coordinator

Name: Frank Collins

Record: 1871

Facility:

Source:

RST provided input for status update as of 0230, 3-26-11 to LIA07

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

Date/Time: 03/26/2011 02:41:28 (ET)

Position: RST Coordinator

Name: Frank Collins

Record: 1870

Facility:

Source:

re-sent 1400, 3-25-11 RST assessment to GE, INPO, Site Team for discussion in 0300 Daily Update teleconf

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

Date/Time: 03/26/2011 01:32:53 (ET)

Position: RST Accident Seq Analyst

Name: Steven Laur

Record: 1869

Facility:

Source:

[Don Helton] Consulted with PMT. Updated them on plant status. RASCAL analysts are in documentation and archival mode; not currently looking for a new source term from RST. May be forming working group with RES et al. for developing next source term.

Address/Location:

Attachment:



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Date/Time: 03/26/2011 01:30:01 (ET)

[Don Helton] Created a simple table to describe containment flooding assessment, based on discussion with RES

(b)(6)

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Position:	RST Accident Seq Analyst	experts during 3/25/11 day.
Name:	Steven Laur	
Record:	1868	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 23:26:49 (ET)	Sent e-mail to Consortium members offering CDs of high resolution images from TEPCO for use on a need to know basis. CDs are available at the NRC incident response center
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1867	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 23:17:43 (ET)	[Don Helton] "Corrected" response to questions from site team to clarify that we still think that cooling down is important even if they cant vent and purge at this time.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1866	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 22:53:00 (ET)	Relieved by Don Helton.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1865	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 22:46:11 (ET)	Closed tracking item #2743; see tracking for attached document.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1864	
Facility:		
Source:		
Address/Location:		
Attachment:		

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Date/Time:	03/25/2011 21:52:42 (ET)	2145 - Issued correct RST assessment via e-mail to provide proper context by removing references to specific US sources. (see attached)
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1863	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	03/25/2011 21:31:07 (ET)	Phone call from Leigh Trocine, NRC Rep to USAID on night shift. Leigh requested information regarding impact on plants from aftershocks. Referred Leigh to on-shift seismic analyst.
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1862	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	03/25/2011 21:30:15 (ET)	Forwarded following e-mail to PMT for reply: A question has come up that we (USFJ) are really struggling with to answer. The power plant provides (b)(5)
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1861	
Facility:		
Source:	E-mail from Brian Gallagher USFJ - 2110 3/25	




Address/Location:

Attachment:

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Date/Time:	03/25/2011 21:10:54 (ET)	E-mail from LIA07 (Sara Mroz) @ 1927 on 3/25: Please provide input for the Status Update in the attached format. This will ensure consistency between documents. Input is due to the Executive Briefing Team NO LATER THAN 0230 EDT and 1600 EDT to ensure that Status Updates are released on time.
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1860	
Facility:		

(b)(6)

Source:	Sara Mroz	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 20:18:44 (ET)	Modified Assessment document to remove any specific attributions to GEH, INPO, Bettis, or KAPL and replace them with "Industry".
Position:	RST Accident Seq Analyst	
Name:	Brett Rini	
Record:	1855	
Facility:	<p>In addition, added purpose statement to top of document:</p> <p>"The purpose of this document is to provide the NRC Reactor Safety Team's assessment and recommendations for the Fukushima-Daiichi reactors to the USNRC team in Japan. Our assessments and recommendations are based on the best available technical information from the organizations listed above. We acknowledge that the information may be preliminary and is subject to change."</p> <p>Sent revised document and statement to Stephen Burns, OGC</p> <p>Response from Stephen Burns (2034 EDT e-mail): "I've taken a quick look through the revised document and it seems like a good approach to avoiding the specific attributions to which some organizations balked, based on my phone call with Bill. I have no problem sending the revised report out as a replacement for the earlier version."</p> <p>RST Accident Seq Analyst - Brett Rini at 21:08:55 on 3/25/2011</p>	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 17:11:00 (ET)	Uploaded presentation from Japan Nuclear Technology Institute regarding core damage estimates, radiation data, evacuation, and other topics. Provided presentation to PMT. Presentation of very high level and not of much value to RST.
Position:	RST Accident Seq Analyst	
Name:	Brett Rini	
Record:	1858	
Facility:		
Source:	Fred Brown e-mail request	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 17:11:00 (ET)	Uploading Japan Nuclear Technology Institute Presentation entitled: What happened in the TEPCO Fukushima Daiichi Nuclear Power Station
Position:	RST Accident Seq Analyst	
Name:	Brett Rini	
Record:	1857	
Facility:		
Source:	Fred Brown e-mail request	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		

(b)(6)

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Date/Time:	03/25/2011 20:54:09 (ET)	Further update of draft response to Joint Response Team 5 questions; may remove additional content from question 4 depending upon final version of RST assessment document. However, the attached appears complete enough to close the task tracker, if BWR expert concurrence can be obtained.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1856	
Facility:		
Source:	Task Tracker #2743	
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 20:18:44 (ET)	Modified Assessment document to remove any specific attributions to GEH, INPO, Bettis, or KAPL and replace them with "industry". In addition, added purpose statement to top of document: "The purpose of this document is to provide the NRC Reactor Safety Team's assessment and recommendations for the Fukushima-Daiichi reactors to the USNRC team in Japan. Our assessments and recommendations are based on the best available technical information from the organizations listed above. We acknowledge that the information may be preliminary and is subject to change." Sent revised document and statement to Stephen Burns, OGC
Position:	RST Accident Seq Analyst	
Name:	Brett Rini	
Record:	1859	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 18:16:48 (ET)	Documentation of Teleconference with David Garchow, INPO VP of Technical Support concerning "RST Assessment of Fukushima Daiichi Units". The RST Director assured Mr. Garchow that the periodically updated document titled, "RST Assessment of Fukushima Daiichi Units", provided to the NRC Japan team is an NRC document. Although the NRC considers the input of Industry experts in developing the assessment, the NRC takes full responsibility for all recommendations for consideration provided to the NRC team in Japan.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1854	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 18:59:29 (ET)	1730: Received call from Mark Kerber, Marine Corps Forces Pacific (808) 477-8461 regarding change in priorities for reactors. Provided input from RST Chronology inputted by John Thorp on 3/24 swing shift (see below) Updated the Fukushima Daiichi Status Summary, based on the RST Assessment Report identified in the prior entry. The main source of information for the table has not been updated, but the Assessment report and the analysis by the RST during its development led to a decision to assign a revised priority to Units 1 through 4. Unit 1 is priority 1 based on the fact that primary containment integrity can still be preserved, if the responders take the correct actions to inject to the RPV and Primary containment. Unit 2 is priority 2 because of the apparent damage to primary containment and the other barriers to release, requiring continued attention to cool the core and
Position:	RST Accident Seq Analyst	
Name:	Brett Rini	
Record:	1853	
Facility:		

(b)(6)

provide water to the primary containment to minimize potential for release. Unit 3 is priority 3, because primary containment may be OK but continued attention is required to pursue core cooling and injection. Unit 4 is priority 4 because of progress in addressing the spent fuel pool heat removal requirements, and indicated SFP area temperatures of less than 100degrees C.

Source:

Address/Location:

Attachment:

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Date/Time: 03/25/2011 18:58:08 (ET)

Received call from DOE regarding 24/7 support.

Position: RST Accident Seq Analyst

Name: Brett Rini

First contact EOC number - (202)287-2368

Record: 1852

Facility:

Then Communications Director - Alex Larzelere - (202)355-3900

Source:

Address/Location:

Attachment:

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Date/Time: 03/25/2011 16:40:50 (ET)

Updated draft response to 5 questions from the NRC team in Japan; still needs input from GEH (hydrogen calculations) and discussion among RST staff, notably the BWR expert. See attached for DRAFT version pre-consensus.

Position: RST Accident Seq Analyst

Name: Steven Laur

Record: 1851

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/25/2011 15:33:06 (ET)

Recieved turnover from Bob Summers. Reviewed Fukushima Assesment and reccomendation document. Priorities are units 1,2,3. Recommend SAMGs 1 column 4. Control H2 environment SAMG 2

Position: RST BWR Systems and Ops Analyst

Name: Charles Norton

Record: 1850

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/25/2011 15:26:46 (ET)

Relieved Steven Arndt.

Position: RST Accident Seq Analyst

Name: Steven Laur


Record: 1849

Facility:


Source: Turnover

Address/Location:



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Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 15:23:59 (ET)	Turnover to Chuck Norton 1500 to 1545.
Position:	RST BWR Systems and Ops Analyst	
Name:	Robert Summers	
Record:	1848	
Facility:		
Source:	RST	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 15:15:43 (ET)	Updated status report as of 1400 3/25, included comments from INPO.
Position:	RST BWR Systems and Ops Analyst	RST BWR Systems and Ops Analyst - Robert Summers at 15:23:13 on 3/25/2011
Name:	Robert Summers	
Record:	1846	
Facility:		
Source:	RST	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 15:15:43 (ET)	Updated status report as of 1400 3/25, included comments from INPO.
Position:	RST BWR Systems and Ops Analyst	
Name:	Robert Summers	
Record:	1847	
Facility:		
Source:	RST	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 15:00:59 (ET)	Take over from Eric Thomas
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1845	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 14:49:48 (ET)	Draft information on to respond Japan team on Hydrogen, cooling and unit 3 turbine water. Still waiting for GEH hydrogen analysis.
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	

(b)(6)

Record:	1844	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/25/2011 12:27:23 (ET)	Participated in the 1100 hrs, 03/25/2011 Consortium call.
Position:	RST BWR Systems and Ops Analyst	Issues discussed were the questions asked by the NRC site team relative to Tech Assistance requested by Japan: (a) H2 concerns/issues; (b) feedback on the proposed cooling water plan; (c) potential/likely sources of water in the turbine bldg basement. (see writeup)
Name:	Robert Summers	
Record:	1843	
Facility:		
Source:	RST - Consortium Call	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/25/2011 12:26:00 (ET)	At ~1030 hrs developed an agenda to be used during the 1100 Consortium call. Forwarded agenda to the Liaison team.
Position:	RST BWR Systems and Ops Analyst	
Name:	Robert Summers	
Record:	1842	
Facility:		
Source:	RST	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/25/2011 12:13:14 (ET)	At 0900 hrs, 03/25, the RST held a daily call with INPO. Topics were current core and containment parameters. New info related to increasing water in the Unit 3 turbine bldg basement that appears to contain RCS fluids (b)(6)
Position:	RST BWR Systems and Ops Analyst	(b)(6)
Name:	Robert Summers	
Record:	1841	
Facility:		
Source:	INPO Call	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/25/2011 07:21:17 (ET)	Turnover briefing by E. Brown. Status of SFPs - still cool (based on latest thermals) - we are awaiting a video of the Unit 4 SFP area.
Position:	RST BWR Systems and Ops Analyst	Unit 1 and 2 core/containment are greatest interest. Japan has requested info on H2 generation/response. We need to update the briefing sheet - current draft is from 0430 today.
Name:	Robert Summers	
Record:	1840	
Facility:		
Source:	Eva Brown	

(b)(6)

Address/Location:		
Attachment:		
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Date/Time:	03/25/2011 07:02:14 (ET)	Take over from Don Helton
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	1839	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 07:01:41 (ET)	Relieved by Robert Summers
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1838	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 06:33:47 (ET)	Reviewed ORNL input regarding RPV integrity - ASME Code Case 499 permits temps up to 427 C for up to 3000 hours at normal pressure (~7.6 MPa) - Up to 538 C for up to 1000 hours at normal pressure - Exposure at temperatures above 600 C will result in rapid loss of strength over "10s of hours" - Significant degradation due to salt not expected over a couple of days
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1837	
Facility:		
Source:	ORNL E-Mail (J. Miller) 14:49 3/24	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 06:18:02 (ET)	File referenced in previous entry is attached [Don Helton]
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1836	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		

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Date/Time:	03/25/2011 06:02:42 (ET)	Created a file in a folder entitled, "Hydrogen" in the RSTs M drive folder to quickly synopsiz the open issues related to hydrogen.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1835	
Facility:		
Source:		

Address/Location:	
Attachment:	


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Date/Time:	03/25/2011 03:47:07 (ET)	0300 Call
Position:	RST BWR Systems and Ops Analyst	Followup: - Japanese concerns on hydrogen generation - Reason for high dose rates for Unit 3 turbine - Review of NISA revised plan RST Coordinator - Tom Boyce at 05:29:57 on 3/25/2011 RST Coordinator - Tom Boyce at 05:35:41 on 3/25/2011
Name:	Eva Brown	
Record:	1829	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	03/25/2011 03:47:07 (ET)	0300 Call
Position:	RST BWR Systems and Ops Analyst	Followup: - Japanese concerns on hydrogen generation - Reason for high dose rates for Unit 3 turbine - Review of NISA revised plan RST Coordinator - Tom Boyce at 05:29:57 on 3/25/2011
Name:	Eva Brown	
Record:	1834	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	03/25/2011 05:27:58 (ET)	Reviewed salt concentration calcs performed by Len Ward. From cursory review, I didnt see any issues. The emails emphasize the fact that the slat is getting deposited in the core and diffusing from there. Even so, they suggest that calcs by others (external) that suggest lower head is filling with salt, are probably correct. [Don Helton]
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1832	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	03/25/2011 05:25:48 (ET)	Discussed source term issues with PMT. The source term generated during the 3/24 swing shift appears to have
Position:		
Name:		
Record:		
Facility:		
Source:		

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Position:	RST Accident Seq Analyst	significant conservatisms and non-conservatism. No scrubbing appears to have been included, and containment release rates seem very high. Meanwhile, no SFP source term was considered. PMT is planning to engage line organizations to get support.
Name:	Steven Laur	
Record:	1831	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 04:41:05 (ET)	Completed updated assessment document. Attached
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1830	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 03:47:07 (ET)	0300 Call Followup: - Japanese concerns on hydrogen generation - Reason for high dose rates for Unit 3 turbine - Review of NISA revised plan
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1833	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 03:13:39 (ET)	SAMG-2 DW -3 1. Vent the DW 2. If the primary containment can be vented then purge the drywell with nitrogen or air at max flow 3. DW SPRAY REQUIRED RST BWR Systems and Ops Analyst - Eva Brown at 03:19:30 on 3/25/2011
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1827	
Facility:		
Source:	QC SAMGs Hydrogen	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 03:13:39 (ET)	SAMG-2 DW -3 1. Vent the DW 2. If the primary containment can be vented then purge the drywell with nitrogen or air at maz flow 3. DW SPRAY REQUIRED
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	

(b)(6)

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Record:	1828	
Facility:		
Source:	QC SAMGs Hydrogen	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 03:02:57 (ET)	0143 Conference call
Position:	RST BWR Systems and Ops Analyst	Concerns from the Japanese:
Name:	Eva Brown	- Possibility of H2 explosions as level increases
Record:	1826	- Possibility of H2 explosions as a result of cooldown
Facility:		Status:
		- Intend to start injecting freshwater hopefully today (Japan), not sure if adequate supply for all units need
		- No confirmation that injection ceased
		- Decay heat decreasing throttling back on injection
		- Unit 2 wetwell venting unsuccessful
Source:	Mike Scott/ Tony Nakanishi	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 01:13:17 (ET)	Support for PMT development of new source term de-emphasized, based on (relayed) ET decision to stop
Position:	RST Accident Seq Analyst	developing numerous source terms. Talk of more formally engaging line organization (RES). [Don Helton]
Name:	Steven Laur	
Record:	1825	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 00:49:07 (ET)	Relieved as RST Coordinator ~ 12:00
Position:	RST Coordinator	
Name:	Tom Boyce	
Record:	1824	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/25/2011 00:14:49 (ET)	Late Entry 23:38 Relieved Chuck Norton
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1823	

(b)(6)

Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 23:28:24 (ET)	Assumed watch. Stayed logged in as Steve Laur since I am usually on the PMT, and can only log in on there side. [Don Helton]
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1822	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 23:26:05 (ET)	Relieved by Don Helton.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1821	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 23:23:54 (ET)	Evaluated Congressional Research Service paper, "The Japanese Nuclear Accident: Technical Aspects" from a reactor perspective, comments attached.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1820	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 22:32:00 (ET)	John Thorp (RST Communicator) - Sent RST Assessment document (03-24-2011 @ 2000) to NRC Staff in Japan, INPO, DOE, and others. See attached.
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1819	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 22:01:13 (ET)	Reviewed Areva slides "The Fukushima Daiichi Incident" by Dr. Matthias Braun, dated March 24, 2011, as directed by Bill Ruland. The Task Tracker assignment was to determine whether the slides contained any additional or new
Position:		

(b)(6)

RST Accident Seq Analyst		insights for the NRC incident response center. I determined that the slides were of no value to the RST or other incident response center teams and documented this in the task tracker. This assignment is complete.
Name:	Steven Laur	
Record:	1818	
Facility:		
Source:	Task Tracker	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 21:42:38 (ET)	Analyzed Daiichi plant conditions. Made recommendations for Units 1,2 and 3 consistant with SAMG 1 column 4.
Position:	RST BWR Systems and Ops Analyst	See attached.
Name:	Charles Norton	
Record:	1817	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 21:35:50 (ET)	Sent list of RST Task Trackers to Mike Scott, NRC Team in Japan. E-mail showed:
Position:	RST Coordinator	
Name:	Brett Rini	Due 3/25 0700
Record:	1816	Desc: E-mail request from Josh Batkin (3/24 @ 1818)
Facility:		(b)(5)
		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.
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 20:38:58 (ET)	Received call from Lt Sam Young from USFJ. He called to confirm fresh water injection at Unit 1. We couldnt confirm, but we had the same information from NRC team in Japan. Two barges are available with 350,000 gallons of fresh water. If we have additional information, contact Robert.Mercer@usfj.mil or 011-81-311-753-7345
Position:	RST Coordinator	
Name:	Brett Rini	
		(b)(6)

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Record:	1815	
Facility:		
Source:	phone call	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 20:13:59 (ET)	Update SITREP with new information provided in Fukushima Daiichi status summary from 1500 on 3/24.
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1814	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 20:09:17 (ET)	Received call from Tony Nakanishi. He sent a Japanese document on "Integrated Response Team Procedure for Core cooling." Subsequently sent to LT for translation. He also discussed trending date that he sent at 6:30 EDT on 3/24. Sent the excel files to LT for translation
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1813	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 16:53:44 (ET)	1505 - Assumed the RST Coordinator position from Rick Hasselberg
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1812	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 15:44:07 (ET)	Assumed the Accident Sequence Analyst position.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1811	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 15:30:27 (ET)	Shift turnover to Steve Laur
Position:		

(b)(6)

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RST Accident Seq Analyst	
Name:	Jeff Circle
Record:	1810
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/24/2011 15:13:33 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Charles Norton
Record:	1809
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/24/2011 11:03:21 (ET)
Position:	RST Accident Seq Analyst
Name:	Jeff Circle
Record:	1808
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/24/2011 07:29:51 (ET)
Position:	RST Accident Seq Analyst
Name:	michael salay
Record:	1807
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/24/2011 07:21:52 (ET)
Position:	RST Accident Seq Analyst
Name:	Eva Brown
Record:	1806
Facility:	
Source:	
Address/Location:	

(b)(6)

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Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 06:48:05 (ET)	NUREG/CR-5634, Identification and Assessment of Containment and Release Management Strategies for a BWR Mark I Containment
Position:	RST Accident Seq Analyst	
Name:	Eva Brown	
Record:	1805	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 06:47:00 (ET)	Completed summary for Japanese Salt questions, Attached.
Position:	RST Accident Seq Analyst	
Name:	Eva Brown	
Record:	1804	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 05:57:16 (ET)	Ex-vessel info added to M:\Shared\MCCI Includes RIL on MCCI-1 (data soon to be publicly available) and info on MCCI-2 which is restricted to participants of the OECD MCCI-2 project. Japan is a participant in this project. Note: this was a request for RES by TEPCO through EOC. RST Accident Seq Analyst - michael salay at 06:29:00 on 3/24/2011
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1801	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 06:36:01 (ET)	Completed updating status and assessment sheet. Assessment sheet attached
Position:	RST Accident Seq Analyst	
Name:	Eva Brown	
Record:	1802	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 05:57:16 (ET)	Ex-vessel info added to M:\Shared\MCCI Includes RIL on MCCI-1 (data soon to be publicly available) and info on MCCI-2 which is restricted to participants of the OECD MCCI-2 project. Japan is a participant in this project.
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1803	

Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/24/2011 04:29:36 (ET)	continuation of 0300 phone call with
Position:	RST Coordinator	Site Team (Tony Nakanishi), RST,
Name:	Frank Collins	GE/H (Glen Watford), INPO (George Manaski) joined discussion
Record:	1800	- purpose - to discuss making recommendations for future path, including loading containment.
Facility:		- Unit 1 SFP - no sea water injection needs to be verified,
		GE/H - core spray not being used, injecting through FW, with temperatures decreasing in lower head and feedwater injection level,
		GE/H - Recirc pump seals failure probable, limiting level to 2/3 core height
		GE/H RPV, DW, SP temperatures and pressures are increasing
		Site Team - gave NUREG/CR 6042 to Japanese
		GE/H - Flooding DW cannot cover lower head because of vessel skirt trapping air that cannot be vented
		RPV 78 PSI
		Containment 58 PSI
		TEPCO considering venting containment
		discussed stating RHR - concerns over making reactor building inaccessible
		preferred method is RWCU (200 GPM with RTD available for monitor temp distribution in lower head region)
		- thermal shock considerations - possibility of water already at lower head region - (GE/H)
		GE/H - consider containment spray to bring down pressure and scrub - should spray SP first if not full - caution to avoid opening DW vacuum breakers due to rapid pressure decrease (O2 introduction)
		RST - reviewed DW - Torus differences in rad readings, GE-suggested venting flow path could have put iodine in U1 while U2 and U3 did not vent through SP
	INPO working on whether SFP Cooling should be re-established	
	INPO - no objections to draft recommendations	
	SITE Team - recommendation to flood DW might be prudent, even if core might be ex-vessel	
	UNIT 2 - similar recommendations as Unit 1	
	GE/H - no units have bottom head temperature to indicate ex-vessel (based on NISA data)	

10/23/13

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Unit 3 - consider spraying water in cavity around DW head seals

Source: site team (Tony Nakanishi)

Address/Location:

Attachment:

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Date/Time: 03/24/2011 03:55:29 (ET)

Position: RST Accident Seq Analyst

Name: Eva Brown

Record: 1799

Facility:

Source: Shawn Simon, INPO

Followup to 0430 Call:

- Asked for comments on form for 11:00 am Industry Consortium Call

- Looking for revised assessment document

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/24/2011 03:01:29 (ET)

Position: RST Coordinator

Name: Frank Collins

Record: 1798

Facility:

teleconference

Site Team - 2 new members arrived,

(b)(5)

-possibility (unofficial) that core is outside of vessel - Unit 2, Unit 3 -based on high doses in containment and trending parameters, Site Team will send trending sheets (will need translation -

Site Team- salt buildup in lower head region is now a lesser concern

RST - status sheets questionable

Site Team- bottom head may be covered in water with DW flooded to height half fuel covered, fuel may not be in place

RST - sent current draft assessment of the units (Status/Assessment/Recommendations) by e-mail

Site Team - assessment needed for how to vent DW safely (H2), current vent path unknown

radiation levels- Site Team look into differences between DW and SP rad levels

RST - focus on accident progression

Source: site team (Tony Nakanishi)

Address/Location:

Attachment: ~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/24/2011 01:30:34 (ET)

Position: RST Accident Seq Analyst

Name: michael salay

Record: 1797

Facility:

Source:

Preliminary discussion with PMT about (about 1/2 to 1 hour ago) concerning releases. Will meet later.

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/24/2011 01:42:09 (ET)

Concerns:

(b)(6)

324/495

10/23/13

~~OUO - Sensitive Internal Information~~

Position:	RST Accident Seq Analyst	
Name:	Eva Brown	Unit 1 - affects of salt on injection nozzles (CS & FW)
Record:	1796	Unit 3 - determine whether primary actually damaged
Facility:		
Source:		

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/24/2011 01:41:10 (ET)	Laqte Entry: 23:15 Received turnover from C. Norton
Position:	RST Accident Seq Analyst	
Name:	Eva Brown	
Record:	1795	
Facility:		
Source:		

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/24/2011 00:29:41 (ET)	Looking through discard pile for sensor traces for U1,U2, and U3 for the period of a few days following start of event. Was available last thursday. Best info to reconstruct.
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1794	
Facility:		
Source:		

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/24/2011 00:13:11 (ET)	Requested Cs / I ratio in northwest high dose plume from PMT. They dont have this info but will look for.
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1793	
Facility:		
Source:		

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/23/2011 23:31:20 (ET)	Reading through (b) memo for comment
Position:	RST Accident Seq Analyst	(5)
Name:	michael salay	
Record:	1792	
Facility:		
Source:		

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

(b)(6)

325/495

10/23/13

~~OOO - Sensitive Internal Information~~

Date/Time:	03/23/2011 23:30:49 (ET)	Reviewing status, informed about RES questions.
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1791	
Facility:		
Source:		

Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	


Date/Time:	03/23/2011 23:30:12 (ET)	Relieved by Eva Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1790	
Facility:		
Source:		

Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	

Date/Time:	03/23/2011 22:42:56 (ET)	Assumed the accident analyst position
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1789	
Facility:		
Source:		

Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	

Date/Time:	03/23/2011 22:38:14 (ET)	Provided photos to LIA to complete Tasking 2318
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	1788	
Facility:		
Source:		

Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	

Date/Time:	03/23/2011 22:28:47 (ET)	10pm NHK TV news reports that fresh water from the Condensate StorAge Tanks are being injected to the units
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1787	
Facility:		
Source:	NHK world news	

(b)(6)

326/495

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 22:00:11 (ET)	9:pm Completed assessment of Fukushima Daiichi Units 1 through 6. See attached
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1786	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 21:44:56 (ET)	working on (b)(5) making corrections
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	1785	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 21:40:33 (ET)	We passed the GEH and INPO assessments on to Bettis and Kapl for comment. We will then pass this information on to our Japanese team once the path is clear.
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	1784	
Facility:		
Source:	Bettis and Kapl	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 20:07:39 (ET)	We asked INPO to review the assessment made by GEH with regards to the 4 questions that came out of the TEPCO-Japanese Team call on 3/23
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	1779	INPO provided their feedback @2052
Facility:		RST Coordinator - Greg Schoenebeck at 21:22:04 on 3/23/2011
Source:	INPO E-mail	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 19:33:01 (ET)	There was a series of 4 Questions that were sent out to GEH and INPO to assess.
Position:	RST Coordinator	
Name:	Greg Schoenebeck	See Original Message:

(b)(6)

Record: 1777

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

From: Lingenfelter, Andy (GNF) [mailto:andy.lingenfelter@gnf.com]

Sent: Wednesday, March 23, 2011 10:42 AM

To: ge.hitachinuclearreponse@ge.com; RST01 Hoc; Heck, Charles (GE Power & Water); Ellison, Phillip G (GE Power & Water); Klapproth, James F (GE Power & Water); Watford, Glen A. (GE Power & Water)

Subject: Notes and action items from NRC/GE H engineering call

Hello NRC Reactor Safety Team and Fred,

We reviewed each of the following four questions from the NRC discussion with TEPCO on the evening of 3/22:

- 1) There seemed to be a different seawater injection flow rate used between the TEPCO engineers and the NRC. TEPCO feels confident that they have been injecting on the average 119 liters/minute into unit 1 and 190 liters/min into Units 2 and 3. They have asked us to go back to you and ensure that you used these flow rates and if you could redo your calculation using these flow rates.
2. There were questions asked about the consequences of mixing boron with seawater and injecting it into the reactor. Do you feel injecting boron is a good idea and are you aware of any downside to doing this.
3. DOE in their assessment stated that they felt due to seawater injection that the containment was ~ 1/2 full of water. Do you agree with this assessment and what do you feel are the best options for reducing the water level in containment.
4. Recently, we have been made aware that Unit 1 bottom head temperature is was/ 400C. Why do you think the temperature is/was so high? Do you believe this is a valid number? What actions do you think would be most effective in reducing this temperature? It is my understanding that since this was first reported, TEPCO has started a 2nd injection via a feedwater line (something on the order of 80 cu meters/min) and these temperatures have reduced to ~ 360C. Is this correct information.

Action items:

- 1) NRC will send GE H the DOE containment filling calculation to the ge.hitachinuclearreponse@ge.com email address.
- 2) GE H will be revising our salt deposition calculation to incorporate solubility.
- 3) No call needed with INPO this afternoon.
- 4) GE H will complete answers and transmit back to NRC prior to GE H shift changes at 1900

Best Regards,

Andy

Andy Lingenfelter
General Manager, Fuel Engineering
Global Nuclear Fuel

T 910 675 5954

F 910 362 5954

D (b)(6)

Facility:

(b)(6)

E.Andy.Lingenfelter@ge.com

http://gepower.com/prod_serv/products/nuclear_energy/en/index.htm

3901 Castle Hayne Road

Mail Code J70

Wilmington NC 28402-0780

GE Energy - Nuclear Energy

This was in addition to the 5 questions that were asked prior to the meeting.

Attached is INPO input to the following questions from the NRC on 3/23/11. Also attached is the spreadsheet for the calculation.

1. There seemed to be a different seawater injection flow rate used between the TEPCO engineers and the NRC. TEPCO feels confident that they have been injecting on average 119 liters/min into Unit 1 and 190 liters/min into Units 2 and 3. They asked us to go back to you and ensure that you used these flowrates and if not could you redo your calculations using these flow rates.
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3. DOE in their assessment stated that they felt due to the seawater injection that the Containment was ~ 1/2 full of water. Do you agree with this assessment and what do you feel are the best options for reducing the water level in containment?
4. Recently, we have been made aware that Unit 1 bottom head temperature is/was ~400°C. Why do you think the temperature is/was so high? Do you believe that this is a valid number? What actions do you think would be most effective in reducing this temperature? It is my understanding that since this value was first reported, TEPCO has started a 2nd injection via a feedwater line (something on the order of 80 cu meters/min) and these temperatures have reduced to ~360°C. Is this correct information?
5. OPS - Regarding Long Term Core Cooling, what suggestions do you have?
 - My thought had been that they restore RHR to service as soon as possible, however, a question was raised regarding the advisability of placing RHR in service due to possible core damage and the circulation of highly radioactive particles out of the drywell and into the RHR system potentially rendering large portions of the plant inaccessible.

Coordinating Post TEPCO-
Source: Japanese Team Meeting
Questions

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information~~

Date/Time: 03/23/2011 20:35:35 (ET)

Position: RST Coordinator


Name: Greg Schoenebeck

Record: 1781

Facility:

Received and placed the new Reoccurring Daily Calls List at RST Coordinator Station.

(b)(6)

Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 03/23/2011 20:17:46 (ET)	We asked "What is the maximum water level that can be filled in the drywell before containment damage is experienced?"	
Position: RST Coordinator		
Name: Greg Schoenebeck		
Record: 1780		
Facility:		
Source: GE Technical Question		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 03/23/2011 20:07:39 (ET)	We asked INPO to review the assessment made by GEH with regards to the 4 questions that came out of the TEPCO-Japanese Team call on 3/23	
Position: RST Coordinator		
Name: Greg Schoenebeck		
Record: 1783		
Facility:		
Source: INPO E-mail		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 03/23/2011 19:56:19 (ET)	See attached for the response to the 4 questions from the TEPCO-Jap. Team phone call.	
Position: RST Coordinator		
Name: Greg Schoenebeck		
Record: 1778		
Facility:		
Source: GEH Responded to the 4 Questions from the TEPCO-Japanese Team phone call		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time: 03/23/2011 19:33:01 (ET)	There was a series of 4 Questions that were sent out to GEH and INPO to assess.	
Position: RST Coordinator		
Name: Greg Schoenebeck		
Record: 1782		
		See Original Message: —Original Message— From: Lingenfelter, Andy (GNF) [mailto:andy.lingenfelter@gnf.com] Sent: Wednesday, March 23, 2011 10:42 AM To: ge.hitachinuclearreponse@ge.com; RST01 Hoc; Heck, Charles (GE Power & Water); Ellison, Phillip G (GE Power & Water); Klapproth, James F (GE Power & Water); Watford, Glen A. (GE Power & Water) Subject: Notes and action items from NRC/GE H engineering call

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We reviewed each of the following four question, from the NRC discussion with TEPCO on the evening of 3/22 :

- 1) There seemed to be a different seawater injection flow rate used between the TEPCO engineers and the NRC. TEPCO feels confident that they have been injecting on the average 119 liters/minute into unit 1 and 190 liters/min into Units 2 and 3. They have asked us to go back to you and ensure that you used these flow rates and if you could redo your calculation using these flow rates.
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Best Regards,

Andy

Andy Lingenfelter
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(b)(6)

E Andy.Lingenfelter@ge.com

http://gepower.com/prod_serv/products/nuclear_energy/en/index.htm

3901 Castle Hayne Road

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Wilmington NC 28402-0780

GE Energy - Nuclear Energy

Facility:

(b)(6)

This was in addition to the 5 questions that were asked prior to the meeting.

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Coordinating Post TEPCO-
Source: Japanese Team Meeting
Questions

Address/Location:

Attachment:

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Date/Time:	03/23/2011 17:01:37 (ET)	EOC Support staff is coordinating with RST Director to supply pictures with labels. This is to support Task Tracker Nos.:
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	1776	
Facility:		#2315 Select a sample of the pictures from Tempco (approximately 12) to give to the LT to send to the National Security Staff.
Source:		Record #2318 Provide Ron Cherry email to the ET and to the site team. Work with the LT as needed.


Address/Location:

Attachment:

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Date/Time:	03/23/2011 16:01:52 (ET)	Greg Schoenebeck assumed the watch. Working on the following turnover items from Eric Thomas;
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(b)(6)

Position:	RST Coordinator	-Accept OST tasks in Task Tracker -Dump watchbill emails into the folder created in Outlook. Update and distribute the latest and greatest -Answer action items for USFJ (LCDR Young): 1) What are water needs short and long term? 2) 25 gpm each for Units 1-3; 70 gpm for Unit 4 SFP; ??? for remaining SFPs (~ 25 gpm) RST03 Naval Rx e-mail to director -Watch for Res/FSME e-mails related to ticketing of Task 2152... This involves decommissioning type discussion through NMSS..
Name:	Greg Schoenebeck	
Record:	1775	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 16:05:16 (ET)	1500 Assumed the BWR Analyst position
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1774	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 15:21:59 (ET)	Completed first draft of high level priorities
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1773	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 15:01:38 (ET)	3/23/11 Day Shift
Position:	RST Director	
Name:	Frederick Brown	
Record:	2170	
Facility:		Revised RST Priorities to focus on: 1) assessment of plant conditions. Current indications are that Unit 1 has insufficient cooling as indicated by superheated temperature on RCS piping/vessel. Containment appears to be holding, though decay heat removal path not clear. Unit 2 has sufficient cooling based on RPV/RCS temperature, higher injection flow rate. Likely steaming to environment via failed containment based on steam plume. Pool conditions unknown. Unit 3 appears superheated based on RCS/RPV temps and very low flow. 2) Ensuring continued work by GEH, INPO (NR, DOE) on technical questions. 3) Ensuring tasks not near-term are ticketed/directed outside RST/Ops center.
Source:		

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 15:21:20 (ET)	Turnover to Steve Arndt
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1771	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 13:04:32 (ET)	RST (Brown, Williams, et al.) teleconference with GEH (Lingenfelter, et al.)
Position:	RST Chronologist	
Name:	Joseph Williams	GEH called the reactor safety team to discuss responses to four questions from TEPCO (see RST Log item 1754, 0536 3/23/11, and Task Tracker item 2098). After the call, GEH provided a written response via email to RST01, which is attached to Task Tracker item 2098.
Record:	1770	
Facility:		Call participants also discussed other questions which had apparently relayed informally to GEH. One question dealt with suggested approaches for long term cooling. GEH indicated input had been provided to the RST via email to RST01 at or before 2100 hours, 3/22/11. The second question sought input on potential issues with reactor vessel bottom head welds as result of environmental conditions (temperatures, chemistry, etc.). The RST Director (Brown) stated that no clear tasking or customer for this inquiry has been identified, so no GEH action is needed at this time.
Source:	1000 3/23/11 telecon GEH/RST	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 10:56:40 (ET)	9:30 am, International conference phone call into RST
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	C. Abrams, NRC/OIP asked for a BWR expert to listen in and answer relevant questions that callers may have. Larry Vick, NRC/RST-HOC-1, participated.
Record:	1769	
Facility:		<p>1) Canadian representative asked if all agree that no significant changes have occurred in the last 24 hours regarding the status of the reactors, containment, and spent fuel pools for Unit 1, 2, 3, and 4?</p> <p>All agree with general summary.</p> <p>2) Canadian representative asked what is the source of the black smoke coming from Unit 3?</p> <p>All agreed source is unknown.</p> <p>3) French representative asked how did Cesium and Iodine get into the intake area?</p>

Consensus is that water sprayed on spent fuel pools most likely contributed to runoff via storm drain system.

4) UK representative stated that UK Chief Secretariat will make a presentation to TEPCO later today.

The group plans to reconvene and call into RST again same time tomorrow. -

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information~~

Date/Time: 03/23/2011 10:25:53 (ET)

Looked at photos on U4 and noticed steam escaping from spent fuel pool location.

Position: RST Accident Seq Analyst

Name: Jeff Circle

Record: 1768

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information~~

Date/Time: 03/23/2011 10:19:07 (ET)

9AM call with INPO on status

Position: RST Accident Seq Analyst

U2/U3 stable with seawater injection

Name: Jeff Circle

U1 RPV temp at 400-degC - switched injection from core spray line to feedwater line - reduction to 370-degC.

Record: 1767

Facility:

U5/U6 - RPV and SFP stable.

U4 still spraying SFP

Rad - 23mR/hr at main gate, 1-3mR/hr at boundary

11R/hr between U1/U2 Rx bldgs.

Offsite power to all units restored.

U3 makeup water pump in service.

Many other pumps megged as grounded.

Considering bringing in fresh water from dam nearby site. Considering desalinization

Train 1 of pumping equipment arrived from Perth Aus. to air base TEPCO engineers did look over the equipment.

Questions on completeness of Train 1 of equipment.

INPO working with GEH on flow rates, long term cooling.

Discussions about robotics.

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/23/2011 10:22:06 (ET)

Shift Turnover with Oleg at 0715

Position: RST Coordinator

Name: Eric Thomas

Record: 1766

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/23/2011 07:39:45 (ET)

Starting shift

Position: RST Accident Seq Analyst

Name: Jeff Circle

Record: 1765

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/23/2011 07:33:50 (ET)

turn over to Jeff Circle

Position: RST Accident Seq Analyst

Name: Hossein Esmaili

Record: 1764

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/23/2011 07:29:16 (ET)

Assumed watch as Chronologist.

Position: RST Chronologist

Name: Joseph Williams

Record: 1763

Facility:

Source:





Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

(b)(6)


Date/Time:	03/23/2011 07:30:45 (ET)	L. Vick assumed the day shift from Mike Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	1762	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/23/2011 07:28:39 (ET)	Relieved by Larry Vick
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	1761	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/23/2011 06:49:11 (ET)	Forwarded the request for source term from PMT to Charlie. Awaiting response and advice.
Position:	RST Accident Seq Analyst	
Name:	Hossein Esmaili	
Record:	1760	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/23/2011 06:27:54 (ET)	Talked to PMT regarding a more realistic source term for units 2 & 3 with damaged containment. Will talk to Charlie Tinkler
Position:	RST Accident Seq Analyst	
Name:	Hossein Esmaili	
Record:	1759	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/23/2011 05:56:55 (ET)	See attachment for another set of desalination equipment
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	1758	
Facility:		
Source:	GEH	

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 05:55:40 (ET)	I spoke with Ken Mayer of GEH, he sent me information on 2 sets of desalinazation equipment that is available, see attached
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	1757	
Facility:		
Source:	GEH	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 05:40:32 (ET)	I spoke with Ken Mayer of GE Hitachi about desalination equipment that may be available. They sent us information on 2 sets of equipment - I spoke with Ken Mayer of GE Hitachi about desalination equipment that may be available. They sent us information on 2 sets of desalinasation equipment - see attached RST BWR Systems and Ops Analyst - Michael Brown at 05:53:57 on 3/23/2011
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	1755	
Facility:		
Source:	GEH	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 05:40:32 (ET)	I spoke with Ken Mayer of GE Hitachi about desalination equipment that may be available. They sent us information on 2 sets of equipment -
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	1756	
Facility:		
Source:	GEH	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 05:36:20 (ET)	Had another meeting with TEPCO engineers in Japan today.
	RST BWR Systems and Ops	

(b)(6)

Position:	Analyst	There were some concerns voiced that the flow rate used by TEPCO was lower than the assumed flow rate used by the NRC.
Name:	Michael Brown	
Record:	1754	
Facility:		<p>The following questions were sent to GEH and INPO:</p> <p>There were a few new questions raised that I would like to get your input on:</p> <ol style="list-style-type: none"> 1. There seemed to be a different seawater injection flow rate used between the TEPCO engineers and the NRC. TEPCO feels confident that they have been injecting on average 119 liters/min into Unit 1 and 190 liters/min into Units 2 and 3. They asked us to go back to you and ensure that you used these flowrates and if not could you redo your calculations using these flow rates. 2. There were questions asked about the consequences of mixing boron with seawater and injecting it into the reactor. Do you feel that injecting boron is a good idea and are you aware of any downside to doing this? 3. DOE in their assessment stated that they felt due to the seawater injection that the Containment was ~ 1/2 full of water. Do you agree with this assessment and what do you feel are the best options for reducing the water level in containment? 4. Recently, we have been made aware that Unit 1 bottom head temperature is/was ~400°C. Why do you think the temperature is/was so high? Do you believe that this is a valid number? What actions do you think would be most effective in reducing this temperature? It is my understanding that since this value was first reported, TEPCO has started a 2nd injection via a feedwater line (something on the order of 80 cu meters/min) and these temperatures have reduced to ~360°C. Is this correct information?
Source:	TEPCO	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/23/2011 02:00:02 (ET)	sign off at 0200mar 23
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	1753	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/22/2011 23:17:52 (ET)	assumed position as accident sequence analyst
Position:	RST Accident Seq Analyst	
Name:	Hossein Esmaili	
Record:	1752	
Facility:		

(b)(6)

Source:		
Address/Location:		
Attachment:		
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Date/Time:	03/22/2011 23:08:06 (ET)	RST BWR Analyst relieved by Mike Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1751	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/22/2011 20:45:43 (ET)	Meeting with TEPCO to discuss SW cooling, criticality concerns and H2 issues will be around 11pm tonight
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1750	
Facility:		
Source:	Tony Nakanishi	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/22/2011 20:32:21 (ET)	Don sent in his and Peter Yarskis note about the salt water cooling issue in the Daiichi U 1, 2, 3 units
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1749	
Facility:		
Source:	Don Carlson	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/22/2011 19:21:03 (ET)	<p>for unit 1 at 1380 mwt at 10 days decay heat is 0.00287 = 3755.72 Btu/sec</p> <p>at 20 psia and 50 F 21.1 lb/sec will terminate boiling or ~ 150 gpm.</p> <p>boil off is 3.9 lb/sec</p> <p>after 10 days adding seawater at 80 gpm results in 150 - 180 tons of NaCl based on 100% evap/boiling precipitating 50 g/L precipitate - suggest entire LP is full of salt after 10 days</p>
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	1748	
Facility:		
Source:		

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/22/2011 18:53:37 (ET)	4pm March 22, 2011 : Teleconference with INPO and GEH on issues that TEPCO requested analysis on 9pm call on March 21, 2011.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	GEH and INPO calculations agree with KAPL an Bettis that all three cores ar in danger of having the lower heads filled with salt in the imediate future and not toward the end of the month as predicted by TEPCO.
Record:	1747	
Facility:		Both GEH and INPO indepdntly recommend swithching to fresh water borated to 300 ppm as soon as possible. Dont wait for boron to switch to fresh water. If a criticality event were to occur, it is predicted to be very low power. They both recommend venting the primary containment using hardened vent with short burps to aviod H2 explosion. They recommend ventilating the secondary containment to avoid H2 explosion.
Source:	teleconference	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/22/2011 18:02:32 (ET)	1500 Teleconference with KAPL, Bettis and NR to discuss issues requested by TEPCO during the 9pm call on March 21.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	Salt Issue: KAPL and Bettis have indepdntly concluded that the calculations providec by TEPCO are non-conservatiive. KAPL and Bettis predict the lower vessel heads are in danger of becoming filled wit salt within within a day and not toward the end of the month as predicted by TEPCO
Record:	1746	
Facility:		Additional concerns on core cooing , criticality and hydrogen explosion. The recommendation is to switch to fresh water with 4000 ppm boron as soon as possible. Recommend venting to preclude H2 explosion.
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/22/2011 17:56:51 (ET)	1500 March 22, 2011 Assumed RST BWR Analyst position.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1745	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		

Date/Time:	03/22/2011 15:56:56 (ET)	Information on Japanese request
Position:	RST Severe Accident Analyst	
Name:	Steven Arndt	
Record:	1744	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/22/2011 15:30:35 (ET)	relieved Ed fuller at 1500 mar 22
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	1743	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/22/2011 14:28:24 (ET)	Scenario for Hydrogen Burn and Pool Recovering Event
Position:	RST Severe Accident Analyst	in Fukushima-Dai Ichi 4
Name:	Edward Fuller	
Record:	1742	
Facility:		<p>Before the earthquake and tsunami happened Reactor 4 had no fuel in it, due to a whole-core offload to the spent fuel pool last November, necessary to carry out some modifications. The drywell head, vessel head, steam dryers and steam separators were stored away from the fuel pool. The vessel was flooded all the way into the reactor cavity region. The fuel pool water level was well above the rods, allowing for safe operations. The gates to the spent fuel pool were closed.</p> <p>The loss of offsite power following the earthquake led to evaporation and then boiling of the water in the spent fuel pool. As the boiloff continued the spent fuel became uncovered and heated up, and hydrogen was produced.</p> <p>The hydrogen rose above the pool and mixed with the air above the refueling floor. At some point, something ignited the hydrogen-air mixture, causing a global hydrogen burn that blew the roof off the reactor building. It also damaged the gates, such that water could now flow from the refueling area in the reactor cavity into the spent fuel pool. The evaporation in the spent fuel then resumed, from the new equilibrium level downward.</p> <p>Sea water spray commenced during this second evaporation stage. It is not known whether or not boiloff resumed or if the fuel was uncovered again, but thermal imaging and ambient dose rates should help determine this.</p>
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		

(b)(6)

Date/Time:	03/22/2011 13:39:21 (ET)	11:00 Conducted phone call with DoD Naval Reactors Knolls Atomic Power Laboratory (KAPL) and Bettis Laboratories. Discussion was on the 4 questions needed to support the NRC team in Japan. The labs will provide an email with information needed by the labs, then a followup call between NRC and the labs will occur at 3:00 PM.
Position:	RST BWR Systems and Ops Analyst	
Name:	Tom Boyce	
Record:	1741	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/22/2011 13:36:52 (ET)	10:00 Conducted phone call with INPO and GE-Hitachi to discuss plans for responding to 4 questions asked by the NRC team in Japan (info sent earlier via email). Same group will conduct another call at 4:00 to discuss draft results.
Position:	RST BWR Systems and Ops Analyst	
Name:	Tom Boyce	
Record:	1740	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/22/2011 13:20:05 (ET)	0930 - Conducted daily phone call with British and Canadian regulatory authorities to share information on status of units and SFPs.
Position:	RST BWR Systems and Ops Analyst	
Name:	Tom Boyce	
Record:	1739	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/22/2011 11:28:33 (ET)	Call with INPO (Kevin Ryan) on March 22 at 0900 am. Unit 1/2/3 reactors are "reported" as stable Unit 1 has a calculated decay heat value of 1.2 MW based on core history. Unit 2 Dose Rates did go up, during steaming yesterday. Unit 3 Dose Rates did not go up during smoking (oil fire?) yesterday. Power is restored to a 480 VAC MCC in Units 1 - 4. Trying to get power to Unit 1 and 2 control rooms CRHVAC to get ventilation and instrumentation restored. Unit 2 was steam and Unit 3 was white smoke. Unit 1 drywell - 4780 rem/hr and Torus - 3490 rem/hr Unit 2 drywell - 5490 rem/hr and Torus - 193 rem/hr Unit 3 drywell - 6000 rem/hr and Torus - 158 rem/hr Unit 1 feedwater temperature (thermocouple?) 720oF and lower head temperature is 741oF. TEPCO is looking into freshwater injection from local dam or getting desalinization units from possibly GE-Hitachi. Have battery packs in control room for to all 4 units for some instruments.
Position:	RST Chronologist	
Name:	Steven Bloom	
Record:	1738	
Facility:		

(b)(6)

At the Main Gate dose was fluctuating between 49 to 290 mrem/hr due to changes in weather. Site boundary was 1 - 3 mrem/hr.

Attempting to get a new 6.9kV MCC so that they can restore servicewater and RHR, if pumps are available.

Looking in the inventory of robotics and then there is the question about payment. (Prefer direct TEPCO supply chain)

Temperatures of 720oF and 741oF and the pressure in the unit, the system would be superheated if data is correct.

Unit 2 spent fuel pool temperature is reported as about 53oF

The first train is at the Air Base and the second train should have landed. Making arrangements with the Japanese to inspect and determine what to do with the equipment.

Unit 4 had a total core offload, area may have been flooded and the gate was closed.

Source: Telecon with INPO (Kevin Ryan)

Address/Location:

Attachment:

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Date/Time: 03/22/2011 08:48:49 (ET)

Ed Fuller logged on at 7:00 am

Position: RST Severe Accident Analyst

Name: Edward Fuller

Record: 1737

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/22/2011 07:39:09 (ET)

Relieved by Tom Boyce

Position: RST BWR Systems and Ops Analyst

Name: Michael Brown

Record: 1736

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/22/2011 07:36:41 (ET)

07:36 ---- Jim Gilmer log off

Position: RST Accident Seq Analyst

Name: James Gilmer

Record: 1735

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/22/2011 07:36:09 (ET)

07:00 EDT - turnover to Ed Fuller

(b)(6)

Position:	RST Accident Seq Analyst
Name:	James Gilmer
Record:	1734
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/22/2011 06:58:42 (ET)
Position:	RST Chronologist
Name:	William Roggenbrodt
Record:	1733
<p>The following is a draft of the current write-up that attempts to respond to the questions posed during the 2100 hour meeting between the TEPCO Engineers, the Site Team and the RST Technical Experts:</p> <p>What questions were posed to the RST based upon the meeting held @ 2100, 03/21/2011 between</p> <p>A. TEPCO Engineers B. NRC Site Team C. HOC RST</p> <p>TEPCO did ask 4 questions of us:</p> <p>1. Are there other potential methods of core cooling (i.e. other potential ways to inject water into the core) – Frank</p> <p>Based upon reviewing BWR-3 Mark I Containment Emergency Operating Procedures (EOPs) generated by Dresden:</p> <p>NOTE: The following systems are NOT listed in order of preference. They are listed in order from the lowest total injection flow to the highest total injection flow.</p> <p>A. Use Standby Coolant Supply to Supply Main Condenser for Injection into the RPV B. SBLC Boron Tank C. SBLC Test Tank D. ECCS Keep Fill E. CRD Crosstie F. Reactor Head Cooling G. Service Unit Back Flush H. Condensate Transfer I. Fire System J. LPCI Crosstie K. Core Spray or LPCI Pump with CST Suction</p> <p>2. What are options/ methods to flush the salt solution out of the core?</p> <p>Increase core cooling flow rate sufficiently to prevent two-phase cooling which we understand is occurring at this time. – However it is the RST's understanding that due to limitations of equipment currently located at site (i.e. fire</p>	

(b)(6)

Facility:

engine) there is not equipment capable of providing this necessary and sufficient flow rate.

Change seawater injection flow path from its current path to those covered in Question 1 based upon availability.

3. Do we have any potential criticality concerns for the Rx core?

Based upon the rod insertion into the core prior to the tsunami and the boron addition since the event and as we have not seen any evidence of core criticality to date, and based upon the limited information available to us, the RST does not perceive any additional criticality concerns within the Rx core at this time.

4. Any ideas on ways to prevent a hydrogen explosion in their containment/ reactor building.

Vent as required and as able

The prevailing wisdom is to ensure that you attempt to limit the components of the fire triangle from interacting.
Fuel + Heat + O₂ or H₂

The following are Meeting Minutes from the 2100 hour meeting on 03/21/2011, between the NRC RST, the Site Team, and the TEPCO Engineers

From RST Log:

Summary of 9pm meeting between NRC and TEPCO Engineers

A meeting was held at 9pm on 3/21/11 between TEPCO engineers and the NRC to discuss a number of issues

#1 - A concern was raised by TEPCO about salt accumulation in the Reactor Vessels - There is an attached PowerPoint presentation created by a TEPCO engineer tied to this issue in the RST Log.

TEPCO informed us that currently the cooling flow paths for the cores are as follows:

Unit 1:

Ocean -> Core Spray Line -> Reactor -> SRV -> Suppression Pool

Units 2 and 3

Ocean -> Recirc Line -> Jet Pumps -> Reactor -> SRV -> Suppression Pool

Based on their calculations and current salt accumulation they expect that they may have issues with core cooling as early as March 31st.

They are attempting to obtain a fresh water source to use for core cooling. They have 2 potential sources:

* Pure water from a Dam

* Desalination Equipment and use Ocean water.

They stated their preferred method at this time was pure water from the Dam and they specifically mentioned that they are not requesting desalination equipment from us at this time.

Source: RST

Address/Location:

Attachment:

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Date/Time: 03/22/2011 06:57:55 (ET)

06:20 EDT.....Sent request to Joe Staudenmeier (RES) for assistance in calculating core NaCl blockage using TRACE model

Position: RST Accident Seq Analyst

Name: James Gilmer

Record: 1732

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/22/2011 06:55:50 (ET)

04:54 EDT ---Forwarded info on available robotic equipment to Tony Nakanishi and John Monninger

Position: RST Accident Seq Analyst

Name: James Gilmer

Record: 1731

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/22/2011 06:28:28 (ET)

Today at 0600 we had a pumping bridge call.

Position: RST BWR Systems and Ops Analyst

Name: Michael Brown

Record: 1730

NRC Japan was unable to support call because they are in route to Yokota AFB to perform a receipt inspection on the Pumping equipment that has arrived.

Bechtel stated that the 2nd Pumping train was being assembled in Perth and should be ready to be shipped at noon on Thursday (Perth time).

Bechtel has located 3000 m of pipe in Melbourne and it should be ready to ship by noon on Thursday (Melbourne time).

*** Bechtel has requested direction on freight by close of business today. Specifically, do we want the equipment shipped to Pierce AFB in Perth, or shipped directly to Yokota? The 3000 m of piping is ~3 truck loads worth of piping. Bechtel can ship it via Air Freight to Perth if Military transport is not available.

Facility:

They also discussed an equipment buy back clause if the equipment is shipped to Yokota, AFB but is not deployed to the site.

Bechtel also pointed out that daily rental for the 2nd train of equipment will start once the equipment is assembled in Perth which they believe will be Noon on Thursday.

Source: Pumping Bridge Call

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/22/2011 05:44:32 (ET)

Received information from INPO indicating the power had been restored to a 480 volt MCC in Unit 4 and a 480 volt MCC in Unit 2.

Position: RST BWR Systems and Ops Analyst

Name: Michael Brown

All Unit 1 MCCs appear to be damaged.

Record: 1729

Facility:

Source: INPO

Address/Location:

Attachment:

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Date/Time: 03/22/2011 04:50:25 (ET)

Spoke with Randy Crane with INPO about answering TEPCO questions

Position: RST BWR Systems and Ops Analyst

Name: Michael Brown

He stated that INPO has formed a team to address the Japanese questions and suggested that we have a conference call at 10am to discuss our preliminary response with a followup call at 4pm.

Record: 1728

Facility:

Conference call has been arranged - phone 800-772-3842, PIN (b)(6)

Source: INPO

Address/Location:

Attachment:

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Date/Time: 03/22/2011 04:35:57 (ET)

04:30 EDT----I contacted John Monninger at the Japan Team Conference Room regarding the status of the request to INPO for protective gear and robotic surveillance equipment. I also forwarded an e-mailed list of items to be shipped. INPO will need a contact name and shipping address to ship the listed items. Although some utilities will donate items, they will need to work out payment arrangements for other items. I informed John that INPO was unaware of a request to investigate availability of robotic surveillance equipment, but will now initiate a search.

Position: RST Accident Seq Analyst

Name: James Gilmer

Record: 1727

Facility:


Source:

Address/Location:



Attachment:

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(b)(6)

Date/Time:	03/22/2011 02:31:07 (ET)	Reached out to INPO and GE-Hitachi with the questions raised from the 9pm call with TEPCO.
Position:	RST BWR Systems and Ops Analyst	Copy of email attached.
Name:	Michael Brown	
Record:	1726	
Facility:		
Source:	Mike Brown	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/22/2011 00:52:02 (ET)	00:30 call with Tony Nakanishi on 3 topics: 1) potential for startup waterhammer in intake cooling water, service water, component cooling water, and various ECCS piping - advised using vent and slow fill startup procedures; 2) Need to add boron to spent fuel pools (especially Unit 4) due to possible reconfiguration of rods and/or storage rack damage (want to minimize potential for re-criticality); 3) possible vent paths for hydrogen in RPVs - I asked if TEPCO had installed high point vents (required for US plants as a TMI modification)
Position:	RST Accident Seq Analyst	
Name:	James Gilmer	
Record:	1725	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/22/2011 00:57:05 (ET)	received update as of 10:55 (Japan)
Position:	RST Coordinator	The latest as of 1055 on Fukushima*
Name:	Frank Collins	
Record:	1724	- No smoke is seen around #1-#4 Reactors
Facility:		- Radiation level has not changed before and after the smoking that seen earlier
Source:	USFJ	- TEPCO evaluates the smoke as safe
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/22/2011 00:41:47 (ET)	TEPCO engineers would like us to validate their calculation regarding salt accumulation in the vessel
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	1723	
Facility:		
Source:	TEPCO	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		

(b)(6)

Date/Time:	03/22/2011 00:12:31 (ET)	Dose Rate information from TEPCO
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	1722	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/22/2011 00:11:55 (ET)	Agenda for 9pm meeting with TEPCO
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	1721	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/22/2011 00:09:54 (ET)	Summary of 9pm meeting between NRC and TEPCO Engineers
Position:	RST BWR Systems and Ops Analyst	A meeting was held at 9pm on 3/21/11 between TEPCO engineers and the NRC to discuss a number of issues
Name:	Michael Brown	
Record:	1720	#1 - Was a concern raised by TEPCO about salt accumulation in the Reactor Vessels - see attached for PPT for risks of sea water
Facility:		TEPCO informed us that currently the cooling flow paths for the cores are as follows:
		Unit 1: Ocean -> Core Spray Line - Reactor -> SRV -> Suppression Pool
		Units 2 and 3 Ocean -> Recirc Line -> Jet Pumps -> Reactor -> SRV -> Suppression Pool
		Based on their calculations and current salt accumulation they expect that they may have issues with core cooling as early as March 31st.
		They are attempting to obtain a fresh water source to use for core cooling. They have 2 potential sources:
		* Pure water from a Dam
		* Desalination Equipment and use Ocean water.

(b)(6)

They stated their preferred method at this time was pure water from the Dam and they specifically mentioned that they are not requesting desalination equipment from us at this time.

They did ask 4 questions of us:

1. Are there other potential methods of core cooling (i.e. other potential ways to inject water into the core)
2. What are options/ methods to flush the salt solution out of the core
3. Do we have any potential criticality concerns.
4. Any ideas on ways to prevent a hydrogen explosion in their containment/ reactor building.

Source: TEPCO

Address/Location:

Attachment:



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Date/Time: 03/21/2011 23:53:33 (ET)

Position: RST BWR Systems and Ops Analyst

Name: Michael Brown

Record: 1718

Summary of 9pm meeting between NRC and TEPCO Engineers

A meeting was held at 9pm on 3/21/11 between TEPCO engineers and the NRC to discuss 4 issues

#1 - Was a concern raised by TEPCO about salt accumulation in the Reactor Vessels - see attached for PPT for risks of sea water

TEPCO informed us that currently the cooling flow paths for the cores is as follows:

Unit 1:

Ocean -> Core Spray Line -> Reactor -> SRV -> Suppression Pool

Units 2 and 3

Ocean -> Recirc Line -> Jet Pumps -> Reactor -> SRV -> Suppression Pool

Based on their calculations and current salt accumulation they expect that they may have issues with core cooling as early as March 31st.

They are attempting to obtain a fresh water source to use for core cooling. They have 2 potential sources:

- * Pure water from a Dam
- * Desalination Equipment and use Ocean water.

They stated their preferred method at this time was pure water from the Dam and they specifically mentioned that they are not requesting desalination equipment from us at this time.

Facility:

(b)(6)

They did ask 4 questions of us:

1. Are there other potential methods of core cooling (i.e. other potential ways to inject water into the core)
 2. What are options/ methods to flush the salt solution out of the core
 3. Do we have any potential criticality concerns.
 4. Any ideas on ways to prevent a hydrogen explosion in their containment/ reactor building.
- RST BWR Systems and Ops Analyst - Michael Brown at 00:09:25 on 3/22/2011

Source: TEPCO

Address/Location:

Attachment:



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Date/Time: 03/21/2011 23:53:33 (ET)

Summary of 9pm meeting between NRC and TEPCO Engineers

Position: RST BWR Systems and Ops Analyst

A meeting was held at 9pm on 3/21/11 between TEPCO engineers and the NRC to discuss 4 issues

Name: Michael Brown

Record: 1719

#1 - Was a concern raised by TEPCO about salt accumulation in the Reactor Vessels - see attached for PPT for risks of sea water

TEPCO informed us that currently the cooling flow paths for the cores is as follows:

Unit 1:

Ocean -> Core Spray Line - Reactor -> SRV -> Suppression Pool

Units 2 and 3

Ocean -> Recirc Line -> Jet Pumps -> Reactor -> SRV -> Suppression Pool

Based on their calculations and current salt accumulation they expect that they may have issues with core cooling as early as March 31st.

They are attempting to obtain a fresh water source to use for core cooling. They have 2 potential sources:

* Pure water from a Dam

* Desalination Equipment and use Ocean water.

They stated their preferred method at this time was pure water from the Dam and they specifically mentioned that they are not requesting desalination equipment from us at this time.

They did ask 4 questions of us:

1. Are there other potential methods of core cooling (i.e. other potential ways to inject water into the core)

(b)(6)

2. What are options/ methods to flush the salt solution out of the core
3. Do we have any potential criticality concerns.
4. Any ideas on ways to prevent a hydrogen explosion in their containment/ reactor building.

Source: TEPCO

Address/Location:

Attachment: *This information is Official Use Only - Sensitive Internal Information.*

Date/Time: 03/21/2011 23:32:51 (ET)

Relieved by Mike Brown

Position: RST BWR Systems and Ops Analyst

Name: Charles Norton

Record: 1717

Facility:

Source:

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

Date/Time: 03/21/2011 23:11:20 (ET)

Assumed RST Analyst position

Position: RST Accident Seq Analyst

Name: James Gilmer

Record: 1716

Facility:

Source:

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

Date/Time: 03/21/2011 23:09:36 (ET)

turnover to Jim Gilmer

Position: RST Accident Seq Analyst

Name: Hossein Esmaili

Record: 1715

Facility:

Source:

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

Date/Time: 03/21/2011 21:14:41 (ET)



Held RST Bridge with Japanese Team/NISA/Interpreters to discuss path forward, recovery strategies
 RST Coordinator - Greg Schoenebeck at 22:29:12 on 3/21/2011

Position: RST Coordinator

Name: Greg Schoenebeck

Record: 1710

See Attached White Paper for discussion basis

Facility:		
		RST Coordinator - Greg Schoenebeck at 22:29:39 on 3/21/2011
Source:	RST Bridge TEPCO meeting at the US Embassy Monday.	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/21/2011 21:14:41 (ET)	Held RST Bridge with Japanese Team/NISA/Interpreters to discuss path forward, recovery strategies
Position:	RST Coordinator	RST Coordinator - Greg Schoenebeck at 22:29:12 on 3/21/2011
Name:	Greg Schoenebeck	
Record:	1714	
Facility:		
Source:	RST Bridge TEPCO meeting at the US Embassy Monday.	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/21/2011 21:44:32 (ET)	Thanks for talking with me today about the DOE/NE response to the Fukushima event. The forwarded e-mail below briefly identifies the information I'm looking for. I will call shortly to arrange a meeting at your convenience.
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	1712	My contact information is: Rick.Kendall@nuclear.energy.gov (Rick.Kendall@hq.doe.gov will also work) and (301) 903-9247.
	 Rick
		From: Kendall, Rick Sent: Monday, March 21, 2011 2:45 PM To: Peko, Damian Cc: Bisconti, Giulia; Hulmaker, Matthew; Grandy, Christopher; Timothy.Leahy@inl.gov; mark@lanl.gov Subject: Fukushima Status (Electrical & Instrumentation Questions)
		Damian,
(b)(6)		

I am one of the cell leads on the DOE Office of Nuclear Energy (NE) Response Team (NERT) established to provide DOE management current status information on Fukushima. The area I am responsible for is electrical power and instrumentation. I have listed related questions of interest to DOE management below. John Kelly who runs the NERT uses the information we collect to brief Secretary Chu. Any answers or leads you can provide would be greatly appreciated.

Thanks.

..... Rick

Electrical & Instrumentation Questions:

Facility:

1. We understand that temporary electric power cables are being used to energize an "on-site backup transformer" (that was used during plant construction) from off-site, and that cable is being run from this transformer to supply power to priority loads in Units 1, 2, 3, and 4.

a. Is this understanding correct and what is the current status of power restoration efforts to the four units?

b. What are the priority loads for each unit and their status (i.e., are the priority loads available and operable or were the loads or associated switchgear damaged by explosions and/or flooding)?

c. From where will this equipment be operated and controlled (e.g., control room, locally at the equipment, other location)?

d. What are the plans, if any, to bring in power from additional sources (e.g., off-site or on-site portable generators)?

e. To what extent would power from the "on-site backup transformer" be able to withstand a significant aftershock, and is this being considered in the plans for providing additional backup power capability.

2. We would like to get information on what instrumentation has been lost and what instrumentation remains available:

f. What control room instrumentation is available now, and what additional instrumentation will be available to provide information on reactor, containment, and spent fuel pool conditions following restoration of power to the control rooms of Units 1, 2, 3, and 4?



g. Are there remote locations such as an emergency operations center, remote shut-down panels, etc. that contain instrumentation providing this information, and if so, what is their status and availability upon power restoration?

h. What critical information is currently unavailable, and what are the plans for its restoration or replacement?

Source:	Rick Kendall DOE contacted NRC, came to HQ to gather information and open comm. pathways between our age	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/21/2011 21:25:56 (ET)	Greg Casto and company. Attached is a compilation of all the (b)(5)
Position:	RST Coordinator	(b)(5) We have several sets of isotopic data
Name:	Greg Schoenebeck	as well which I will send separately. We are essentially continuously monitoring the current release as long as it is
Record:	1711	detectable by filtered air samples.
Facility:	<p>The radiological data contained in the files were taken at the following locations:</p> <p>North Advance Team (55NM north of Yokosuka; 93NM south of Fukushima): LAT 36.18N, LONG 140.27E</p> <p>Nanaban Tower (Yokosuka): LAT 35.29 LONG 139.67</p> <p>Atsugi: LAT: 35.43N LONG: 139.36E</p> <p>USS GEORGE WASHINGTON (CVN 73) in port: LAT 35.29 LONG: 139.66</p> <p>Any questions, please call the NR ECC at 202-781-6397/8/9</p> <p>CWB</p>	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/21/2011 21:14:41 (ET)	Held RST Bridge with Japanese Team/NISA/Interpreters to discuss path forward, recovery strategies
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	1713	
Facility:		
Source:	RST Bridge TEPCO meeting at the US Embassy Monday.	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/21/2011 21:03:10 (ET)	http://www.youtube.com/watch?v=Cml2IXiTo-g
Position:	RST Coordinator	
Name:	Greg Schoenebeck	

(b)(6)

Record:	1709	
Facility:		
Source:	Reviewed Helicopter video of damage per ET request	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/21/2011 20:24:22 (ET)	4 pm Talked to Tony Nakanishi in preparation for 9pm call with TEPCO for concerns with Salt issues fro cooling wit sea water, Questions on core cooling on criticality and hydrogen explosion, Questions on wter cannon and radiation detectors, Questions on schedule for water cannon.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1708	Len Ward to be on call to address salt water issues . Don Carlson and peter Yarsky to be on call to address criticality issues.
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/21/2011 17:35:01 (ET)	NISA has reported:
Position:	RST Coordinator	• White smoke generated from Unit 2 (18:22 March 21st).
Name:	Greg Schoenebeck	• Grayish smoke generated from Unit 3 (At around 15:55 March 21st).
Record:	1707	• Thereafter the smoke was confirmed to be died down (17:55 March 21st).
Facility:		TEPCO has reported:
		• Smoke from unit 2 reactor building (as of 2100pm, March 21)
		• Brown Smoke from unit3 reactor building (as of 2100 pm)
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/21/2011 15:48:38 (ET)	Assumed BWR Analyst Position
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1706	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/21/2011 15:42:25 (ET)	At 15:00 to 15:45 turnover to relief.
Position:	RST BWR Systems and Ops Analyst	
Name:	Robert Summers	
Record:	1705	

Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/21/2011 15:37:34 (ET)	At 15:00 draft RST response to Task 1928 and placed response in RST folder.
Position: RST BWR Systems and Ops Analyst	
Name: Robert Summers	
Record: 1704	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/21/2011 15:30:11 (ET)	At 14:30 briefed F. Brown of answer to TASK 1928, and placed response in final form for RST.
Position: RST BWR Systems and Ops Analyst	
Name: Robert Summers	
Record: 1703	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/21/2011 15:30:48 (ET)	Received a call from Joe Staudemeir (RES) about the possibility of water hammer in the piping systems. Logged into discussion points with GE scheduled for 3/22/11 at 10:30
Position: RST Accident Seq Analyst	
Name: Hossein Esmaili	
Record: 1702	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/21/2011 15:28:34 (ET)	At ~12:00 initiated review of plant conditions to determine a response to TASK 1928.
Position: RST BWR Systems and Ops Analyst	
Name: Robert Summers	
Record: 1701	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	

(b)(6)

Date/Time:	03/21/2011 15:26:05 (ET)	At 0925 assisted (b)(6)	DoD
Position:	RST BWR Systems and Ops Analyst	NavRx)	
Name:	Robert Summers	Contacted Burn Stapleton and Matt Hahn to arrange (b)(6)	
Record:	1700		
Facility:			
Source:			
Address/Location:			
Attachment:			
This information is Official Use Only - Sensitive Internal Information.			
Date/Time:	03/21/2011 15:23:51 (ET)	At 0845 responded to ET request to provide containment design information for the Commissioner TAs	
Position:	RST BWR Systems and Ops Analyst		
Name:	Robert Summers		
Record:	1699		
Facility:			
Source:			
Address/Location:			
Attachment:	1		
This information is Official Use Only - Sensitive Internal Information.			
Date/Time:	03/21/2011 15:18:39 (ET)	At 0630 - 0700 turnover - BWR analyst position.	
Position:	RST BWR Systems and Ops Analyst		
Name:	Robert Summers		
Record:	1698		
Facility:			
Source:			
Address/Location:			
Attachment:			
This information is Official Use Only - Sensitive Internal Information.			
Date/Time:	03/21/2011 15:09:16 (ET)	Assumed position as accident seq. analyst	
Position:	RST Accident Seq Analyst		
Name:	Hossein Esmaili		
Record:	1697		
Facility:			
Source:			
Address/Location:			
Attachment:			
This information is Official Use Only - Sensitive Internal Information.			
Date/Time:	03/21/2011 15:06:15 (ET)	Turnover to Hosein Esmili	
Position:	RST Accident Seq Analyst		
Name:	Jeff Circle		
Record:	1696		
Facility:			

(b)(6)

Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/21/2011 11:08:04 (ET)	10:30AM call with GEH on status of restoration of suppression pool cooling at U1 through U3.
Position: RST Accident Seq Analyst	
Name: Jeff Circle	Information from GEH is that power is being restored to U1/U2 to MCCs and 6.9kV switchgear - meggering of motors is underway and so far the first RHR pump showed grounds.
Record: 1695	
Facility:	<p>GEH is working on alternatives to feed RHRSW and establish SPC using other pumps. Also, we discussed the logistics of opening valves that are now in (what we believe) are high rad areas. GEH is working on alternatives there.</p> <p>GEH will be sending some one-line diagrams recently received from Hitachi. Restoration was delayed at U3 due to evacuation on smoke.</p> <p>Make up to the spent fuel pools was discuss as well as using the condensate drain line at U1 (at the Iso. Condenser).</p> <p>Another call is scheduled between us and GEH for tomorrow (Tuesday, 3/22/11) at 10:30AM EDT.</p>
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/21/2011 09:17:47 (ET)	INPO call at 9AM on plant status
Position: RST Accident Seq Analyst	
Name: Jeff Circle	
Record: 1694	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/21/2011 07:56:32 (ET)	J. Williams assumed communicator duties as of 0700.
Position: RST Chronologist	
Name: Joseph Williams	
Record: 1693	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/21/2011 07:18:39 (ET)	Shift turnover by Don Dube to Jeff Circle


(b)(6)

Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1692	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/21/2011 06:20:17 (ET)	Status update Call at 0600 EDT
Position:	RST BWR Systems and Ops Analyst	First C-17 is expected to leave in 30-60 minutes, just received word plane is warming up its engines
Name:	Michael Brown	
Record:	1691	Second C-17 is expected to leave in ~ 10 hours
Facility:		Bill reported that progress has been made on setting up routine meetings with TEPCO
		Bill is attempting to setup a meeting between TEPCO engineers and Pump Vendor representatives.
		Bill is preparing a briefing for US Forces Japan on the Pumping Plan.
		Next Call scheduled for 0800 JST.
Source:	Bill Cook	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/21/2011 05:36:25 (ET)	grey smoke emanating from southeast corner of #3 reactor building; most crews evacuated;
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1690	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/21/2011 04:49:26 (ET)	spoke to Lt. Commander from US armed forces who was concerned about Unit 2 containment damage; I said that the fact that containment pressure is above atmospheric indicates that while there may be a leak, it is not major
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1689	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
(b)(6)		

Date/Time:	03/21/2011 04:43:45 (ET)	reviewed EPRI assessment regarding issue of re-criticality of rubble in spent fuel pool, and agreed that it is not a concern (should remain sub-critical)
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1688	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/21/2011 03:24:52 (ET)	Sent email update on Pumping equipment status
Position:	RST BWR Systems and Ops Analyst	Currently, 1st C-17 flight is scheduled to land in Tokyo on Tuesday morning at 0500 (Tokyo Time)
Name:	Michael Brown	Also sent email from PACOM indicating Bechtel has been authorized payment for 2 pumping trains.
Record:	1687	
Facility:		<div style="border: 1px solid black; padding: 5px;">(b)(5)</div> <p>Bill will be driving down to perform a receipt inspection on the equipment when it arrives at Yokota, he is also arranging a meeting between TEPCO and the Pump Vendor Representatives.</p> <p>Bill is also working with Ned Merchant (Bechtel) to get answers to the list of questions submitted by TEPCO.</p>
Source:	Bill Cook	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/21/2011 02:46:10 (ET)	MELCOR analysis indicates that decay heat levels in the Unit 4 SFP are sufficiently low ~ 100+ days after reactor shutdown that, if liner meltthrough occurred, molten core-concrete interaction would not result, i.e., upward and downward heat transfer from the molten debris are sufficient to remove decay heat.
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1686	
Facility:		
Source:	Jason S. (RES)	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/21/2011 01:13:24 (ET)	Spoke with Terry Maund of INPO (770-644-8118) about status update on Rick Devercelli request.
Position:	RST BWR Systems and Ops Analyst	Currently, they are compiling a list of Radiation Monitoring equipment that is available.
Name:	Michael Brown	He noted that he had spoken to Fluke and they had recently sold a lot of radiation monitoring equipment to asian markets.
Record:	1685	
Facility:		He also mentioned that they have a vendor (Qwest Tech Inc) that has Robots designed to work in a high radiation
<div style="border: 1px solid black; padding: 5px;">(b)(6)</div>		


10/23/13

~~OUO - Sensitive Internal Information~~

Facility:	environment, however, they have not received any request for these robots from TEPCO.	
	They also have a list of various ROV (Remote Operation Vehicle) suppliers, however, no requests have been received for ROVs from TEPCO.	
Source:	INPO	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/21/2011 00:33:41 (ET)	continue to monitor Unit 4 spent fuel pool status, including review of background material such as NUREG-1353 on Beyond DBA spent fuel pool accidents
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1684	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/20/2011 23:28:55 (ET)	Relieved by Mike Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1683	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/20/2011 22:37:40 (ET)	Based upon satellite information and release data, the fuel pool has been dry for several days. Naval Reactors has calculated that the fuel in the U4 pool will breach the floor of the fuel pool floor approximately 100hours after the fuel dried out.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1682	
Facility:		
Source:	Naval Reactors Rep	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/20/2011 22:52:54 (ET)	relieved James Gilmer
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1681	
Facility:		
Source:		

(b)(6)

363495

Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/20/2011 22:34:40 (ET)	The RST and PMT have concluded that a majority of the source term from U4 has been released see attached document.
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 1680	
Facility:	
Source:	
Address/Location:	
Attachment: 	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/20/2011 16:49:01 (ET)	Assumed the watch (b)(5) of the Daiichi reactors. They have concluded that the U4 fuel pool is dry and should be the number one priority. This conclusion is based on the fact that there is no steam coming from the U4 pool. The U4 pool has 10 time the decay heat of U3 and would be producing steam if water were in the pool. NR has made rough calculations that indicate that if all the fuel has remained in the pool following the initial H2 explosion that damaged the building and if the fuel remains uncooled that the fuel will breach the Pool in approximately 4 to 8 days from when the pool initially went drywent dry
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 1679	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/20/2011 15:48:27 (ET)	Relieved Peter Alter as RST Coordinator
Position: RST Accident Seq Analyst	
Name: Eric Thomas	
Record: 1678	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/20/2011 15:37:47 (ET)	Logging off.
Position: RST Accident Seq Analyst	
Name: John Lane	
Record: 1677	
Facility:	
Source:	

(b)(6)

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/20/2011 14:39:18 (ET)	In response to a question from PMT Director, a ballpark estimate of Unit 4 fuel damage in spent fuel is 25% fuel bundle based on qualitative factors like the 2 primary mechanisms for fuel damage; 1. impact of overhead reactor building equipment and building girders falling into the pool, and 2. loss of heat removal in the SFP. Not all the rods in each bundle may be damaged.
Position:	RST Accident Seq Analyst	
Name:	John Lane	
Record:	1676	
Facility:		
Source:	Qualitative Estimate of fuel damage i SFP	

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/20/2011 14:47:07 (ET)	RST has question for NRC Japan team; RST Question
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	Given that TEPCO reports that Unit 1, 2, and 3 has core and fuel integrity issues, the RST has concerns regarding the state of the control rod drive system for each of the unit.
Record:	1675	
Facility:		<p>1) What is likely hood that the CRD mechanisms (including the collects) will continue to hold the rod in place given the seriously degraded coolant (sea water)?</p> <p>2) Has the accident affected and or change the assumptions regarding the design basis control rod drop accident? [single failure criteria and one rod drop with everything else working]</p> <p>3) Are the affected unit's scram discharge volume in hydraulic lock?</p>
Source:		

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/20/2011 14:43:53 (ET)	Question from PMT Director/ John Lubinski
Position:	RST BWR Systems and Ops Analyst	What are the current and expected conditions of the fuel in Unit 3 and 4 spent fuel pools for making a preliminary Protective Action Recommendation [PAM]?
Name:	Lawrence Vick	
Record:	1674	RST answer:
Facility:		<p>Unit 3 - Pool is assumed intact. If current strategy continues, no additional increase in radiation release is expected. Very minimal fuel bundle damage (5% ? unknown due to extent of damage due to explosion plus building debris (falling on fuel bundles) plus continuation of loss of fuel pool cooling.</p> <p>Unit 4 - Pool liner is assumed intact (based on TEPCO). Similar to unit 3 except more fuel damage is apparent. RST estimates approximately 25-30% possible fuel bundle damage with extensive radiation release continuing until</p>

(b)(6)

addition shielding (including water) is utilized.

Summary: Continued successful efforts should not result in higher radiation releases.

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/20/2011 07:31:03 (ET)

signing off

Position: RST Accident Seq Analyst

Name: michael salay

Record: 1673

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/20/2011 07:03:37 (ET)

L Vick on Duty as BWR Rx analyst

Position: RST BWR Systems and Ops Analyst

Name: Lawrence Vick

Record: 1672

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/19/2011 23:37:00 (ET)

Assumed BWR analyst position

Position: RST BWR Systems and Ops Analyst

Name: John Kauffman

Record: 1671

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/19/2011 23:35:10 (ET)

looking for decay power and Reynolds number for water injection

Position: RST Accident Seq Analyst

Name: michael salay

Record: 1670

Facility:

Source:

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/19/2011 23:25:10 (ET)	relieved by John Kauffman
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1669	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/19/2011 22:58:58 (ET)	Assumed SA analyst position
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1668	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/19/2011 20:05:05 (ET)	TEPCO provided the following update to plant status:
Position:	RST BWR Systems and Ops Analyst	TEPCO Earthquake Information Update on March 19: Fukushima-Daiichi Status
Name:	Charles Norton	
Record:	1667	Dear Friends,
		Please take a look for updates at Fukushima-Daiichi NPS.
		(1) Status of spent fuel cooling (unit 5 and 6): Restart of cooling at unit 5 and 6 fuel pool.
		(2) Holes to prevent hydrogen concentration in reactor building of unit 5 and 6.
		(3) Water injection going on at units 1,2 and 3.
		Contacts:
		TEPCO Washington Office 202-457-0790
		Kenji Matsuo, Director and General Manager
		Yuichi Nagano, Deputy General Manager,
		Masayuki Yamamoto, Manager, Nuclear Power Programs
		=====
		(1) Status of spent fuel cooling (unit 5 and 6)
		At 5:00 am, March 19, supplying power from EDG at unit 6, RHR (Residual Heat Removal) pump (C) started fuel pool cooling at unit 5.
		It seems that it would take time to restore remaining RHR (A) and (B), but we have sufficient cooling by RHR (C). Now

Facility:	<p>we are focusing on restoring cooling capacity at other units. The DG (A) at unit 6 started operation at 4:22 am, March 19. Cooling function of unit 6 spent fuel pool was recovered around 10:00 pm, March 19. &lt; Spent fuel pool temperature on March 19&gt; - Unit 5: 63.8 C at 2:00 pm then decreased to 43.1 C at 11:00 pm - Unit 6: 67.0 C at 2:00 pm, then slightly increased to 67.5 C at 11:00 pm. We do not know why temperature increased after the restart of cooling, but we believe current temperature is lower than this.</p> <p>(2) Holes to prevent hydrogen concentration in reactor building of unit 5 and 6. In order to prevent hydrogen gas accumulation in the reactor buildings, we have bored three holes on the ceiling, about 250mm thick. Each hole is 3 to 7.5 cm in diameter. The holes are bored by 8 workers. It took 11 hours to finish. Maximum dose of this work was 2.0-2.5 mSv. The temperature of spent fuel pools in Unit 5 and 6 are approximately 60 degrees Celsius, and are not in a situation where there is immediate trouble. However, we opened a hole as precaution against hydrogen explosion. As for unit 2, since blowout panel has already been open, we have no plan to bore holes on the roof.</p> <p>(3) Water Injection Efforts Unit 1, 2 and 3 continues water injection. At unit 1, water flow rate is not able to measure by flow meter installed originally at the plant, but we could estimate this about 330 L/min from the pump performance.</p>	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/19/2011 19:07:18 (ET)	Basis for conclusion that there is damage to the primary containment in Daiichi Unit 2
Position:	RST BWR Systems and Ops Analyst	TEPCO reported that an explosion occurred in the suppression pool area outside the suppression pool 6:00 am Japan time on March 15, 2011. This explosion coincided with a drop in containment pressure and an increase in radiation levels. TEPCO reported that containment damage had likely occurred.
Name:	Charles Norton	
Record:	1666	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/19/2011 16:29:39 (ET)	Read the white paper on issues related to sea water in BWR plants, and note that solids deposited in RPV could be as much as 100 tons. Injecting water at a sufficiently-high flow rate would prevent this concentration of salts. Also, fresh water flow through the vessel can flush these out. Scaling is also an issue. Also, a number of plant integrity issues are identified. Techniques to mitigate stress
Position:	RST Accident Seq Analyst	
Name:	Edward Fuller	
Record:	1665	
Facility:		

corrosion cracking are also discussed.

Source: Bettis and KAPL white paper

Address/Location:

Attachment:

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Date/Time: 03/19/2011 15:22:28 (ET)

Assumed BWR Analyst Watch Position

Position: RST BWR Systems and Ops Analyst

Name: Charles Norton

Record: 1664

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/19/2011 15:22:01 (ET)

Relieved Len Ward at 3:00 pm

Position: RST Accident Seq Analyst

Name: Edward Fuller

Record: 1663

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/19/2011 10:32:48 (ET)

To minimize corrosion of Zr with when in the presence of oxidizing solutions (for ex containing CU+2 with up to 25% NACL) need to maintain pH in the range 5 to 7.5 so corrosion rate and pitting is maintained negligible. TSP can be used to neutralize acidity.

Position: RST Accident Seq Analyst

Name: Leonard Ward

Record: 1662

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/19/2011 10:22:57 (ET)

Emailed NASA regarding the robotic device and requested they contact the RST team about using this device at the Fukushima site.. email from R Berry to NASA at 9 AM Mar 19

Position: RST Accident Seq Analyst

Name: Leonard Ward

Record: 1661

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/19/2011 09:43:54 (ET)

Zirconium is one of the few metals that can withstand corrosion attack from chloride salts, even at high temperatures.. the corrosion rate of Zr following boiling exposure time of 275 days is nil. Pitting or crevice corrosion

Position:

(b)(6)

	RST Accident Seq Analyst	is also nil.
Name:	Leonard Ward	
Record:	1660	
Facility:		<p>zirconium has outstanding corrosion resistance in a variety of chloride salt solutions even for high conc and elevated temps of 100 C and above. The exception in most oxidizing media are ferric chloride and cupric chloride. Zr is susceptible to pitting in low pH solutions Maintaining ph in the neutral region can have a significant impact on corrosion resistance solutions containing oxidizing ions. For ex., NACL solutioins containing 500 ppm CU+2 if pH is kept 5.0 - 7.5, the corrosion rate is nil up to 25% NACL.</p> <p>Source = ATlwah chang Allegheny Technologies PO Box 460 1600 Old Salem Rd NE, Albany Oregon 97321 (888) 926-4211 ex 6977 Fax 541 967 6994 custserv@wahchang.com ; www.alleghenytechnologies.com/wahchang</p>
Source:	Allegheny Tec hnologies	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/19/2011 09:14:21 (ET)	Discussion of challenges to shipment of improvised pumping system in telecon between RST Director (Dudes), RST members, and Mike Dudek at USAID.
Position:	RST Counterpart Communicator	
Name:	Joseph Williams	
Record:	1659	
Facility:		<p>Dudek stated that, by law, USAID officials on hand cannot authorize expenditures at the level of the current estimated cost of the pumping system loaded on a Australian AF C-17 in Perth. Dudek recommended that the NRC Chairman contact the USAID administrator. Dudes suggested that the US Embassy in Japan might be a more appropriate authority to engage with USAID.</p> <p>After the call, the RST discussed options. Dudes to brief ET.</p>
Source:	USAID Liaison (Dudek)	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/19/2011 08:04:13 (ET)	relieved Don Helton
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	1658	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/19/2011 04:19:13 (ET)	Two items from TEPCo. 1. Based on visual inspection there is no damage or concern for the spent fuel casks at the Fukushima Daiichi site. Also, TEPCo has power to the Unit 2 Aux Transformer and is working to get a cable from there to a temporary power panel.
Position:	RST Counterpart Communicator	
Name:	Andrew Kugler	
Record:	1657	

(b)(6)

Facility:	
Source:	TEPCO News Releases
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/19/2011 03:08:54 (ET)
Position:	RST Counterpart Communicator
Name:	Andrew Kugler
Record:	1656
Facility:	
Source:	GE-Hitachi Nuclear Energy Americas
<p>GEH analyzed a photo of Unit 3 taken from around NNW direction. GEH indicated that the corner wall is missing/damaged down to approximately the 4th floor. This is below the top of the SFP. But the SFP is located in the opposite corner of the building, so it is not possible to see if the SFP wall is damaged. The location of the white plume in the photo is consistent with the location of the SFP.</p>	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/19/2011 01:57:24 (ET)
Position:	RST Counterpart Communicator
Name:	Andrew Kugler
Record:	1655
Facility:	
Source:	Scott Sloan, Liaison Team
<p>Pump rig will be shipped from Perth to an air base in Japan by Australian AF C-17. Japans Ministry of Defense (MoD) will take over logistics from that point. The MoD must approve the plan before GE-Hitachi can implement.</p>	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/19/2011 02:02:19 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Michael Brown
Record:	1654
Facility:	
<p>Submitted Questions to NISA</p> <ol style="list-style-type: none"> 1. For SFP Unit 1 through 4 <ol style="list-style-type: none"> a. What are the water level and injection rate b. What is the liner integrity c. What is the structural integrity 2. What is/are the water levels in reactor cores 1-3 <ol style="list-style-type: none"> a. Are you able to raise water level at current injection rates? b. What are the temperature / pressures in the reactors? 3. What systems do you believe are available to inject in Units 1-4 4. Offsite power status <ol style="list-style-type: none"> a. When do you expect to have offsite power restored b. What is the plan to restore offsite power to plant equipment (Units 1-4) 5. Do you have an estimate of the boric acid and salt concentration in the vessels? <ol style="list-style-type: none"> a. Are measures being taken to ensure that boric acid does not solidify. b. Are measures being taken to ensure that the salt does not block coolant channels. 	
Source:	

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/19/2011 01:58:56 (ET)	Submitted Questions to NISA
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	1650	
Facility:		1. For SFP Unit 1 through 4 a. What are the water level and injection rate b. What is the liner integrity c. What is the structural integrity 2. What is/are the water levels in reactor cores 1-3 a. Are you able to raise water level at current injection rates? b. What are the temperature / pressures in the reactors? 3. What systems do you believe are available to inject in Units 1-4 4. Offsite power status a. When do you expect to have offsite power restored b. What is the plan to restore offsite power to plant equipment (Units 1-4) 5. Do you have an estimate of the boric acid and salt concentration in the vessels? a. Are measures being taken to ensure that boric acid does not solidify. b. Are measures being taken to ensure that the salt does not block coolant channels.
		Submitted Questions to NISA
		1. For SFP Unit 1 through 4 a. What are the water level and injection rate b. What is the liner integrity c. What is the structural integrity 2. What is/are the water levels in reactor cores 1-3 a. Are you able to raise water level at current injection rates? b. What are the temperature / pressures in the reactors? 3. What systems do you believe are available to inject in Units 1-4 4. Offsite power status a. When do you expect to have offsite power restored b. What is the plan to restore offsite power to plant equipment (Units 1-4) 5. Do you have an estimate of the boric acid and salt concentration in the vessels? a. Are measures being taken to ensure that boric acid does not solidify. b. Are measures being taken to ensure that the salt does not block coolant channels.
		RST BWR Systems and Ops Analyst - Michael Brown at 01:59:36 on 3/19/2011 Submitted Questions to NISA 1. For SFP Unit 1 through 4 a. What are the water level and injection rate

(b)(6)

- b. What is the liner integrity
- c. What is the structural integrity
- 2. What is/are the water levels in reactor cores 1-3
 - a. Are you able to raise water level at current injection rates?
 - b. What are the temperature / pressures in the reactors?
- 3. What systems do you believe are available to inject in Units 1-4
- 4. Offsite power status
 - a. When do you expect to have offsite power restored
 - b. What is the plan to restore offsite power to plant equipment (Units 1-4)
- 5. Do you have an estimate of the boric acid and salt concentration in the vessels?
 - a. Are measures being taken to ensure that boric acid does not solidify.
 - b. Are measures being taken to ensure that the salt does not block coolant channels.

RST BWR Systems and Ops Analyst - Michael Brown at 02:01:20 on 3/19/2011

RST BWR Systems and Ops Analyst - Michael Brown at 02:02:06 on 3/19/2011

Source:

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

Date/Time: 03/19/2011 01:58:56 (ET)

Submitted Questions to NISA

Position: RST BWR Systems and Ops Analyst

Name: Michael Brown

Record: 1653

- 1. For SFP Unit 1 through 4
 - a. What are the water level and injection rate
 - b. What is the liner integrity
 - c. What is the structural integrity
- 2. What is/are the water levels in reactor cores 1-3
 - a. Are you able to raise water level at current injection rates?
 - b. What are the temperature / pressures in the reactors?
- 3. What systems do you believe are available to inject in Units 1-4
- 4. Offsite power status
 - a. When do you expect to have offsite power restored
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- 5. Do you have an estimate of the boric acid and salt concentration in the vessels?
 - a. Are measures being taken to ensure that boric acid does not solidify.
 - b. Are measures being taken to ensure that the salt does not block coolant channels.

Submitted Questions to NISA

- 1. For SFP Unit 1 through 4
 - a. What are the water level and injection rate

(b)(6)

Facility:

- b. What is the liner integrity
- c. What is the structural integrity
- 2. What is/are the water levels in reactor cores 1-3
 - a. Are you able to raise water level at current injection rates?
 - b. What are the temperature / pressures in the reactors?
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RST BWR Systems and Ops Analyst - Michael Brown at 01:59:36 on 3/19/2011

Submitted Questions to NISA

- 1. For SFP Unit 1 through 4
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RST BWR Systems and Ops Analyst - Michael Brown at 02:01:20 on 3/19/2011

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information~~

Data/Time: 03/19/2011 01:58:56 (ET)

Submitted Questions to NISA

Position: RST BWR Systems and Ops Analyst

Name: Michael Brown

Record: 1652

- 1. For SFP Unit 1 through 4
 - a. What are the water level and injection rate
 - b. What is the liner integrity
 - c. What is the structural integrity

(b)(6)

Facility:

2. What is/are the water levels in reactor cores 1-3
 - a. Are you able to raise water level at current injection rates?
 - b. What are the temperature / pressures in the reactors?
3. What systems do you believe are available to inject in Units 1-4
4. Offsite power status
 - a. When do you expect to have offsite power restored
 - b. What is the plan to restore offsite power to plant equipment (Units 1-4)
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Submitted Questions to NISA

1. For SFP Unit 1 through 4
 - a. What are the water level and injection rate
 - b. What is the liner integrity
 - c. What is the structural integrity
2. What is/are the water levels in reactor cores 1-3
 - a. Are you able to raise water level at current injection rates?
 - b. What are the temperature / pressures in the reactors?
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 - a. When do you expect to have offsite power restored
 - b. What is the plan to restore offsite power to plant equipment (Units 1-4)
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 - a. Are measures being taken to ensure that boric acid does not solidify.
 - b. Are measures being taken to ensure that the salt does not block coolant channels.

RST BWR Systems and Ops Analyst - Michael Brown at 01:59:36 on 3/19/2011

Source:

Address/Location:

Attachment:

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Date/Time: 03/19/2011 01:58:56 (ET)

Submitted Questions to NISA

Position:

RST BWR Systems and Ops
Analyst

Name:


Michael Brown

Record:

1651

1. For SFP Unit 1 through 4
 - a. What are the water level and injection rate
 - b. What is the liner integrity
 - c. What is the structural integrity
2. What is/are the water levels in reactor cores 1-3
 - a. Are you able to raise water level at current injection rates?
 - b. What are the temperature / pressures in the reactors?



(b)(6)

Facility:	3. What systems do you believe are available to inject in Units 1-4 4. Offsite power status a. When do you expect to have offsite power restored b. What is the plan to restore offsite power to plant equipment (Units 1-4) 5. Do you have an estimate of the boric acid and salt concentration in the vessels? a. Are measures being taken to ensure that boric acid does not solidify. b. Are measures being taken to ensure that the salt does not block coolant channels.	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 23:39:09 (ET)	Relieved by Mike Brown
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1649	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 22:59:59 (ET)	TEPCO Chairman is concerned about the heat transfer effects of continuing to spray sea water into the reactors. Contacted Len Ward. Placed call for Kent Wood to call in.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1648	
Facility:		
Source:	Chuck Casto	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 22:50:00 (ET)	GEH analyzed photos of Daiichi U3 and determined that the fuel pool is likely intact and has some water in it. Drywell is likely intact. See attached.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1647	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 22:47:21 (ET)	We pulsed the Japanese Team to look into the possibility for use of land reclamation dredging equipment to give us a sand-water slurry mix.
Position:	RST Coordinator	

(b)(6)

Name:	Greg Schoenebeck	
Record:	1646	
Facility:		
Source:	Land Reclamation Dredge Equipment Option	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/18/2011 22:25:44 (ET)	Called in Peter Bamford to help with logistics on pump project.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1645	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/18/2011 22:25:19 (ET)	E-mail to Ned Merchant, Bechtel
Position:	RST Coordinator	
Name:	Greg Schoenebeck	Ned,
Record:	1644	
Facility:		We need support for looking at the potential contingency for modifying the current proposed pumping system to enable pumping a sand/water slurry type mixture.
		Greg Schoenebeck RST Coordinator
Source:	Contingency for Sand/Slurry Pumping System	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/18/2011 22:10:36 (ET)	3/18/2011 (1423 EDST)
Position:	RST Coordinator	NRC Reactor Safety Team Spent Fuel Pool Fukushima Daiichi Cooling Recommendations for mitigation of dose rates
Name:	Greg Schoenebeck	
Record:	1643	All options assume addition of boron or other poison, if available and continuous water flow should be maintained until fuel is covered. Intermittent water addition should be minimized.
		If Pool is Not Dry Quench/ Deluge - whatever means possible If Pool is Dry 1. If the temperature can be verified below <650 degrees Celsius (1200 degrees Fahrenheit) then Quench/ Deluge Fuel using whatever water source possible

Facility:	<p>2. If the temperature can be verified to be greater > than 650C (1200F) or if the temperature is unknown, perform either option as soon as possible based on available equipment and resources (the following is not listed in order of preference)</p> <ul style="list-style-type: none"> • slurry of sand (preferred if fuel pool cannot hold water) <ul style="list-style-type: none"> o Benefit of sand is shielding; may assist with existing leaks. o Additional loading on the spent fuel pool structures should be considered (see attached analysis). o Stop sand when desired coverage is reached for dose concerns, but continue to add borated water to maintain cooling and shielding o Start filling the spent fuel pool by directing slurry to the bottom of the spent fuel pool (away from the stored fuel assemblies), if possible, or flood the refueling floor to get the same effect (i.e., to mitigate thermal shock to the stored spent fuel assemblies) • water <ul style="list-style-type: none"> o Fill by directing the flow of water to the bottom of the spent fuel pool is preferred or flood the refueling floor to achieve the same effect (i.e., fill the spent fuel pool to mitigate thermal shock to the stored spent fuel assemblies) o If Possible, misting can reduce airborne fission products and should be done in parallel with pool filling. 		
Source:	Jim Sheas Shift Analysis of Water vs. Sand		
Address/Location:			
Attachment:			
This information is Official Use Only - Sensitive Internal Information.			
Date/Time:	03/18/2011 22:07:57 (ET)	Dick Devercelly is the POC for logistical support for the team in Japan. This is (b)(6)	
Position:	RST Coordinator	(b)(6)	
Name:	Greg Schoenebeck		
Record:	1642		
Facility:			
Source:	Dick Devercelly		
Address/Location:			
Attachment:			
This information is Official Use Only - Sensitive Internal Information.			
Date/Time:	03/18/2011 20:35:07 (ET)	Looked at YouTube video, and reported back to ET	
Position:	RST Coordinator		
Name:	Greg Schoenebeck	http://www.youtube.com/watch?v=SeSTql-wqQY	
Record:	1641		
Facility:			
Source:	YouTube Video Link Request by ET		
Address/Location:			
Attachment:			
This information is Official Use Only - Sensitive Internal Information.			
Date/Time:	03/18/2011 20:12:42 (ET)	Attached is the summary of the equipment necessary for Japanese Aid.	
Position:	RST Coordinator		
Name:	Greg Schoenebeck		
(b)(6)			

Record:	1640	
Facility:		
Source:	Japanese Aid	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 20:11:19 (ET)	This is the pumping schematic that is being coordinated with Bechtel and transported from Australia to the site.
Position:	RST Coordinator	
Name:	Greg Schoenebeck	
Record:	1639	
Facility:		
Source:	Pumping Rig Schematic	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 18:49:37 (ET)	E-mail sent to Japanese Team (NRC)
Position:	RST Coordinator	Gentlemen, Any help with this matter would be great. We need detailed schematics, geometry, general with regards to Unit 1-3 SPFs. The structural analysis team needs this for modeling and risk assessment purposes. We were pointed in the direction of a Mr. Keisuke, but no luck. keisuke.kitsukawa@toshiba.co.jp Thanks. Greg Schoenebeck RST Coordinator
Name:	Greg Schoenebeck	
Record:	1638	
Facility:		
Source:	Follow-up on SPF geometry question	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 18:31:41 (ET)	I briefed W. Ruland on the status of:
Position:	RST Accident Seq Analyst	1) my search for onsite dose rates: Michelle Harts are 2 days old and I found some information on the internet
Name:	Jason Schaperow	2) the source terms for the RST for the NARAC calc of dose in the U.S. (MELCOR SBO and MELCOR SFP)
Record:	1637	3) the fire boat suggestion for putting water into the SFP.
Facility:		
Source:	Jason Schaperow	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		

(b)(6)

Date/Time: 03/18/2011 18:07:28 (ET)

Position: RST Counterpart
Communicator

Name: Ken Hart

Record: 1636

Boiling Water Reactors

In a typical commercial boiling-water reactor, (1) the core inside the reactor vessel creates heat, (2) a steam-water mixture is produced when very pure water (reactor coolant) moves upward through the core, absorbing heat, (3) the steam-water mixture leaves the top of the core and enters the two stages of moisture separation where water droplets are removed before the steam is allowed to enter the steam line, and (4) the steam line directs the steam to the main turbine, causing it to turn the turbine generator, which produces electricity. The unused steam is exhausted in to the condenser where it condensed into water. The resulting water is pumped out of the condenser with a series of pumps, reheated and pumped back to the reactor vessel. The reactors core contains fuel assemblies that are cooled by water circulated using electrically powered pumps. These pumps and other operating systems in the plant receive their power from the electrical grid. If offsite power is lost emergency cooling water is supplied by other pumps, which can be powered by onsite diesel generators. Other safety systems, such as the containment cooling system, also need electric power. Boiling-water reactor's contain between 370-800 fuel assemblies. .

Emergency Planning Zones

For planning purposes, the NRC defines two emergency planning zones (EPZs) around each nuclear power plant. The exact size and configuration of the zones vary from plant to plant due to local emergency response needs and capabilities, population, land characteristics, access routes, and jurisdictional boundaries. The two types of EPZs are:

The plume exposure pathway EPZ extends about 10 miles in radius around a plant. Its primary concern is the exposure of the public to, and the inhalation of, airborne radioactive contamination.

The ingestion pathway EPZ extends about 50 miles in radius around a plant. Its primary concern is the ingestion of food and liquid that is contaminated by radioactivity.

Emergency Classification

Emergency Classification is a set of plant conditions which indicate a level of risk to the public. Nuclear power plants use the four emergency classifications listed below in order of increasing severity.

Notification of Unusual Event - Under this category, events are in process or have occurred which indicate potential degradation in the level of safety of the plant. No release of radioactive material requiring offsite response or monitoring is expected unless further degradation occurs.

Alert - If an alert is declared, events are in process or have occurred that involve an actual or potential substantial degradation in the level of safety of the plant. Any releases of radioactive material from the plant are expected to be limited to a small fraction of the Environmental Protection Agency (EPA) protective action guides (PAGs).

Site Area Emergency - A site area emergency involves events in process or which have occurred that result in actual or likely major failures of plant functions needed for protection of the public. Any releases of radioactive material are not expected to exceed the EPA PAGs except near the site boundary.

General Emergency - A general emergency involves actual or imminent substantial core damage or melting of reactor fuel with the potential for loss of containment integrity. Radioactive releases during a general emergency

(b)(6)

can reasonably be expected to exceed the EPA PAGs for more than the immediate site area.

Protective Actions

The NRC's regulations are designed to mitigate accident consequences and minimize radiation exposure to the public through protective actions. When a radiological emergency occurs, nuclear power plant personnel evaluate plant conditions and make protective action recommendations to the state and local government agencies on how to protect the population. Based on the recommendation and independent assessment of other local factors, the state or local government agencies are responsible for making decisions on the actions necessary to protect the public and for relaying these decisions to the public.

Factors that affect protective action decisions include plant conditions, competing events, weather, evacuation times, shelter factors, how quickly an incident develops, how short-lived a release of radiation may be, and other conditions.

Evacuation, Sheltering, and the Use of Potassium Iodide

Protective actions considered for a radiological emergency include evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Under most conditions, evacuation may be preferred to remove the public from further exposure to radioactive material. However, under some conditions, people may be instructed to take shelter in their homes, schools, or office buildings. Depending on the type of structure, sheltering can significantly reduce a person's dose compared to remaining outside. In certain situations, KI is used as a supplement to sheltering.

Evacuation does not always call for completely emptying the 10-mile zone around a nuclear power plant. In most cases, the release of radioactive material from a plant during a major incident would move with the wind, not in all directions surrounding the plant. The release would also expand and become less concentrated as it travels away from a plant. Therefore, evacuations should be mapped to anticipate the path of the release. Generally as a minimum, in the event of a General Emergency, a two-mile ring around the plant is evacuated, along with people living in the 5-mile zone directly downwind and slightly to either side of the projected path of the release. This "keyhole" pattern (Figure 1) helps account for potential wind shifts and fluctuations in the release path (Figure 2). Evacuation beyond 5 miles is assessed as the accident progresses. Also in response to a General Emergency, people living in the remainder of the 10-mile zone will most likely be advised to go indoors to monitor Emergency Alert System broadcasts.

Sheltering is a protective action that keeps people indoors, such as at home, the office, school, or a shopping mall to reduce exposure to radioactive material. It may be appropriate to shelter when the release of radioactive material is known to be short-term or controlled by the nuclear power plant operator. Another protective action in the 10-mile EPZ involves KI, a compound that helps prevent the thyroid from absorbing radioactive iodine, one of several radioactive materials that could be present in a release from a nuclear power plant accident. If taken within the appropriate time and at the appropriate dosage, KI blocks the radioactive iodine from being absorbed by the thyroid gland and reduces the risk of thyroid cancers and other diseases. KI does not protect against any other inhaled radioactive materials, nor will it offer protection from external exposure to radiation. The Food and Drug Administration (FDA) has determined that KI is a safe and effective drug when used for this purpose. However, there may be risks and potential side effects in using KI, including gastrointestinal disturbances, allergic reactions, and iodide goiter and hypothyroidism. Please consult your physician if you have questions on the potential side

Facility:

effects.

In January 2001, the NRC modified its regulations to include considering the use of KI, and, later that year, the FDA issued guidance on using the drug. The Federal Emergency Management Agency published its revised Federal Policy on the Use of Potassium Iodide in January 2002. As of October 8, 2009, 22 states have received KI tablets from the NRC for their populations within 10 miles of a nuclear power plant. These states are: Alabama, Arizona, California, Connecticut, Delaware, Florida, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Vermont, Virginia, and West Virginia. Illinois has its own KI program in place; therefore, 21 of the 34 states with populations within the 10-mile EPZ have KI. Terrorism and Emergency Preparedness

After September 2001, the NRC examined how terrorist-based events might challenge existing emergency preparedness. The NRC's formal evaluation determined that, in view of the threat environment, the emergency preparedness planning basis remain valid. While a terrorist event might alter the initial response to an event, the consequences of the event will be the same whether it was caused by terrorism or a safety accident.

The nuclear power reactor's emergency plans are periodically updated and are designed to be flexible to identify, evaluate and react to the wide spectrum of emergency conditions. The NRC recognized how the terrorism threat affects emergency planning when it issued orders and guidance to nuclear power plants after September 2001. These orders and guidance include interim measures dealing with how increased security affects implementation of emergency plans. Nuclear industry groups and federal, state, and local government agencies assisted in the prompt implementation of these measures and participated in drills and exercises to test these new planning elements. The NRC has reviewed licensees' commitments to address these requirements and verified the implementation through inspections to ensure public health and safety.

Additional Information

Detailed information about emergency preparedness is contained in NRC regulations, specifically Appendix E to Part 50 of Title 10 in the Code of Federal Regulations and in NUREG-0654 (FEMA-REP-1), a joint publication of the NRC and FEMA published in November 1980, entitled "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."

Figure 1 - "Keyhole" covering 2-mile radius and downwind sectors

Figure 2 - Original keyhole (L) and revised keyhole following wind shift (R)

Source: e-mail

Address/Location:

Attachment:

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Date/Time: 03/18/2011 18:06:17 (ET)

Around 18:00, I asked Gary Purdie to let me know when he receives the source terms from Randy Gauntt, so I can do some spot checks.

Position: RST Accident Seq Analyst

Name: Jason Schaperow

Record: 1635

(b)(6)

Facility:	
Source:	Jason Schaperow
Address/Location:	
Attachment:	
<i>This information is Official Use Only - Sensitive Internal Information.</i>	
Date/Time:	03/18/2011 17:33:49 (ET)
Position:	RST Accident Seq Analyst
Name:	Jason Schaperow
Record:	1634
Facility:	
Source:	Jason Schaperow
Address/Location:	
Attachment:	
<i>This information is Official Use Only - Sensitive Internal Information.</i>	
Date/Time:	03/18/2011 17:32:20 (ET)
Position:	RST Accident Seq Analyst
Name:	Jason Schaperow
Record:	1633
Facility:	
Source:	Jason Schaperow
Address/Location:	
Attachment:	
<i>This information is Official Use Only - Sensitive Internal Information.</i>	
Date/Time:	03/18/2011 17:29:49 (ET)
Position:	RST Accident Seq Analyst
Name:	Jason Schaperow
Record:	1632
Facility:	
Source:	Jason Schaperow
Address/Location:	
Attachment:	
<i>This information is Official Use Only - Sensitive Internal Information.</i>	
Date/Time:	03/18/2011 17:26:45 (ET)
Position:	RST Accident Seq Analyst
Name:	Jason Schaperow
Record:	1631
Facility:	
Source:	Jason Schaperow
Address/Location:	
Attachment:	
<i>This information is Official Use Only - Sensitive Internal Information.</i>	
Date/Time:	03/18/2011 17:23:53 (ET)
Position:	RST Accident Seq Analyst
Name:	Jason Schaperow

(b)(6)

Record:	1630	3, and 4.
Facility:		
Source:	Jason Schaperow	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 16:22:34 (ET)	Update on SFP strategy
Position:	RST Counterpart Communicator	Weight increase on floor = $(5925488 - 3133478) / 1683 = 1659$ #/sq ft this is significant load change on the floor. I am not sure what is the condition of SF pool floor at Japan's Units?
Name:	Ken Hart	Note: We cannot determine impact loading of sand if it dumped from air. If SFP pool is intact (not Damaged) then we believe that the SFP can handle additional loads without impact loading (i.e. sand is pumped). Secondly, we don't have actual configuration of the SFP of each unit of Fukushima Nuclear Power Plant. The additional load expected for the sand option is 1659 lbs/ft ² .
Record:	1629	
Facility:		Potential Criticality Information: Criticality in the spent fuel pools is very unlikely, particularly if boron is being added. If other information is correct, such as the water level in the pool at unit 4 is very low (or empty), the consequences of criticality in one of the spent fuel pools will not be significant in comparison to the consequences of the pool remaining empty/exposed.
Source:	RST Analysis	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 15:45:22 (ET)	R. Ruland asked for dose rate map for site. I went to see PMT Director, but Director was not there. PMT Communicator said he would contact me when PMT Director became available.
Position:	RST Accident Seq Analyst	
Name:	Jason Schaperow	
Record:	1628	
Facility:		
Source:	Jason Schaperow	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 15:43:00 (ET)	Chuck Norton assuming the shift from Jim Shea
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1627	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 07:00:00 (ET)	Assumed Watch BWR Analyst
Position:	RST Accident Seq Analyst	RST Accident Seq Analyst - James Shea at 15:39:24 on 3/18/2011
Name:	James Shea	

(b)(6)

Record:	1617	RST Accident Seq Analyst - James Shea at 15:40:57 on 3/18/2011
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 07:00:00 (ET)	Assumed Watch BWR Analyst
Position:	RST Accident Seq Analyst	RST Accident Seq Analyst - James Shea at 15:39:24 on 3/18/2011
Name:	James Shea	
Record:	1626	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 08:30:00 (ET)	Conference Call with Industry/ Labs / NRC experts regarding Spent Fuel Pool Cooling Recommendations for Fukushima Daiichi Units 3 and 4.
Position:	RST Accident Seq Analyst	
Name:	James Shea	
Record:	1619	Conference Members represented
Facility:		EPRI BETIS INPO NRC Research Naval Reactors RST Accident Seq Analyst - James Shea at 15:36:17 on 3/18/2011 RST Accident Seq Analyst - James Shea at 15:38:32 on 3/18/2011
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 11:30:00 (ET)	Second Conference Call to discuss the draft SFP NRC Cooling Recommendations
Position:	RST Accident Seq Analyst	RST Accident Seq Analyst - James Shea at 15:35:49 on 3/18/2011
Name:	James Shea	RST Accident Seq Analyst - James Shea at 15:37:35 on 3/18/2011
Record:	1620	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 07:30:14 (ET)	Conference Call with Industry/ Labs / NRC experts regarding Spent Fuel Pool Cooling Recommendations for Fukushima Daiichi Units 3 and 4.
Position:	RST Accident Seq Analyst	
Name:	James Shea	
Record:	1624	Conference Members represented

Facility:	EPRI BETIS INPO NRC Research Naval Reactors RST Accident Seq Analyst - James Shea at 15:36:17 on 3/18/2011
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/18/2011 08:30:00 (ET)	Second Conference Call to discuss the draft SFP NRC Cooling Recommendations
Position: RST Accident Seq Analyst	RST Accident Seq Analyst - James Shea at 15:35:49 on 3/18/2011
Name: James Shea	
Record: 1623	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/18/2011 11:30:00 (ET)	Second Conference Call to discuss the draft SFP NRC Cooling Recommendations
Position: RST Accident Seq Analyst	
Name: James Shea	
Record: 1621	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/18/2011 15:30:14 (ET)	Conference Call with Industry/ Labs / NRC experts regarding Spent Fuel Pool Cooling Recommendations for Fukushima Daiichi Units 3 and 4.
Position: RST Accident Seq Analyst	
Name: James Shea	
Record: 1622	Conference Members represented
Facility:	EPRI BETIS INPO NRC Research Naval Reactors
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/18/2011 15:28:15 (ET)	NRC Reactor Safety Team Spent Fuel Pool Fukushima Daiichi Cooling Recommendations for mitigation of dose rates
RST Counterpart	

Position:	Communicator	<p>All options assume addition of boron or other poison, if available and continuous. Water flow should be maintained until fuel is covered. Intermittent water addition should be minimized.</p> <p>If Pool is Not Dry</p> <p>Quench/ Deluge - whatever means possible</p> <p>If Pool Is Dry</p> <ol style="list-style-type: none"> 1. If the temperature can be verified below <650 degrees Celsius (1200 degrees Fahrenheit) then Quench/ Deluge Fuel using whatever water source possible 2. If the temperature can be verified to be greater > than 650C (1200F) or if the temperature is unknown, perform either option as soon as possible based on available equipment and resources (the following is not listed in order of preference) <ul style="list-style-type: none"> • slurry of sand (preferred if fuel pool cannot hold water) o Benefit of sand is shielding; may assist with existing leaks. o Additional loading on the spent fuel pool structures should be considered o Stop sand when desired coverage is reached for dose concerns, but continue to add borated water to maintain cooling and shielding o Start filling the spent fuel pool by directing slurry to the bottom of the spent fuel pool (away from the stored fuel assemblies), if possible, or flood the refueling floor to get the same effect (i.e., to mitigate thermal shock to the stored spent fuel assemblies) • water o Fill by directing the flow of water to the bottom of the spent fuel pool is preferred or flood the refueling floor to achieve the same effect (i.e., fill the spent fuel pool to mitigate thermal shock to the stored spent fuel assemblies) o If Possible, misting can reduce airborne fission products and should be done in parallel with pool filling. <p>Additional Sand Loading Consideration:</p> <p>I have calculated spent fuel pool weight difference using san/gravel mix(wet) filled in the pool instead of water.</p> <p>Assumption:</p> <ol style="list-style-type: none"> 1) Quad City pool is same as Japan Unit 4 2) Unit 4 pool has 600 assemblies <p>Current volume at Quad city pool = 44,471 ft³</p> <p>Assume sand filled to the top of the pool (minus assembly volume) = 50216 ft³</p> <p>Weight of water = 50216 cu ft x 62.4 #/cu ft = 3,133,478 lbs</p> <p>Weight of wet sand/gravel mix = 118 x 50216 = 5,925,488 lbs</p> <p>Spent fuel floor area 1683 sq ft</p> <p>Therefore,</p> <p>Weight increase on floor = (5925488-3133478)/ 1683 = 1659 #/sq ft this is significant load change on the floor. I am not sure what is the condition of SF pool floor at Japan's Units?</p> <p>Note: We cannot determine impact loading of sand if it dumped from air. If SFP pool is intact (not Damaged) then we believe that the SFP can handle additional loads without impact loading(i.e. sand is pumped). Secondly, we don't have actual configuration of the SFP of each unit of Fukushima Nuclear Power Plant. The additional load expected for the sand option is 1659 lbs/ft².</p>
Name:	Ken Hart	
Record:	1618	
Facility:		
Source:	RST Synthesis	
Address/Location:		
Attachment:		

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Date/Time:	03/18/2011 15:29:32 (ET)	Assumed Watch BWR Analyst
Position:	RST Accident Seq Analyst	
Name:	James Shea	
Record:	1625	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	03/18/2011 15:22:50 (ET)	Began watch (3:00 p.m.)
Position:	RST Accident Seq Analyst	
Name:	Jason Schaperow	
Record:	1616	
Facility:		
Source:	Jason Schaperow	

Address/Location:

Attachment:

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Date/Time:	03/18/2011 15:20:26 (ET)	turnover to Jason Schaperow
Position:	RST Severe Accident Analyst	
Name:	Hossein Esmaili	
Record:	1615	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	03/18/2011 13:25:41 (ET)	Conducted two conference calls with Members of NRR staff, INPO, Navsea08 Naval Reactors Representatives, Representatives from KAPL, BETTIS, and EPRI to develop NRC recommendations on strategies to refill spent fuel pool on reactor #4 at Fukushima nuclear station. Spent fuel pool on reactor #4 is considered to be dry at this time.
Position:	RST Accident Seq Analyst	
Name:	James Isom	
Record:	1614	
Facility:		
Source:	Jim Isom	

Address/Location:

Attachment:

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Date/Time:	03/18/2011 07:34:15 (ET)	signing off
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1613	
Facility:		
Source:		

(b)(6)

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 07:22:40 (ET)	Assumed position as severe accident analyst
Position:	RST Severe Accident Analyst	
Name:	Hossein Esmaili	
Record:	1612	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 07:14:08 (ET)	Turnover to Jim Shea. - Focus Areas: * Return call to NASA * Talk to Russians about Unit 3 SFP temperature estimate * Support pump option procurement
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1611	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 05:16:42 (ET)	Boron to be a Yokuda at 21:17 JPT (8:17 am EDT)
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1610	
Facility:		
Source:	Pentagon Japan Action Team	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 04:48:44 (ET)	Called Adam Parsons, NASA [(231) 483-3755] regarding use of Robonaut for remote applications at the Fukushima Daiichi units. No response, request him to return call.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1609	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 03:54:14 (ET)	~20 minutes of brainstorming between members of RST and U.S. team in Japan involved consideration of other ideas that staff in U.S. could pursue independently and in parallel with the main path of special pumping rig. Ideas
Position:	RST Chronologist	

(b)(6)

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Name:	John Thorp	included thinking about robotic and remotely operated technologies, potential for installation of portable shielding on front or on body of Fire Trucks to allow closer approach of this equipment for more direct application of make-up water/firewater, approaches used by other industries in dealing with suppression and attack of hazardous fires/conflagrations, such as wireless remotely operated water nozzle monitors, for maximizing distance from the radiation hazard for plant workers and firefighters. One example found in a Google search for remotely operated fire fighting equipment was www.protektfire.com, which had equipment like this, one model of which is noted to be capable of 750 gpm flow rate and can be operated from as far away as 200 meters.
Record:	1608	
Facility:		
Source:	Site Team & RST Brainstorm	

Address/Location:

Attachment:

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Date/Time:	03/18/2011 02:29:01 (ET)	Issues identified have been resolved:
Position:	RST BWR Systems and Ops Analyst	* Cavitation concern - hose size revised from 2.5" to 6" @ 300 psi which weighs about 70 lbs.
Name:	Eva Brown	* Waterhammer - Introduced vent to eliminate air
Record:	1603	* Ops starting guidance developed
Facility:		* Diesel fuel oil supply modified to 3 120 gallon tanks
		General Electric Hitachi will be:
		obtaining, transporting and installed
		Pump option supply lines Perth, Australia and United States.
		RST ACTIONS:
		* Have Site Team verify TEPCO is okay with Pump Option
		* Develop updated dose maps
		* Means for verification of water spray
		Participants:
		Pat Hiland Steve Bell-NR
		Bob Ryan - INPO Ned Merchant, Bechtel
		Gene Thomas - Bechtel Lee Trocine, USAID
		Scott Sloan
		RST BWR Systems and Ops Analyst - Eva Brown at 02:49:49 on 3/18/2011
		Next call is at 0700EDT
		RST BWR Systems and Ops Analyst - Eva Brown at 03:50:43 on 3/18/2011
Source:	0100 EDT Pump Call	

Address/Location:

Attachment:

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Date/Time:	03/18/2011 02:52:20 (ET)	Discussed Site Team verifying TEPCO agreement with Pump Option. Monninger indicated (b)(5), (b)(6)
Position:	RST BWR Systems and Ops Analyst	(b)(5), (b)(6)
Name:	Eva Brown	Site team indicated that Dose map from Japanese officials not likely.
Record:	1606	
Facility:		

(b)(6)

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PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by Section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the U.S. Nuclear Regulatory Commission (NRC) on NRC Form 15. This information is maintained in a system of records designated as NRC-36 and described at 74 Federal Register 600 (January 6, 2009), or the most recent Federal Register publication of the NRC's Systems of Records Notices that is located in NRC's Agencywide Documents Access and Management System (ADAMS).

1. **AUTHORITY:** 44 U.S.C. 3101, 3301; Executive Order (E.O.) 9397, as amended by E.O. 13478.
2. **PRINCIPAL PURPOSE(S):** To maintain current location and contact information on personnel for official business and emergency situations.
3. **ROUTINE USES:** This information may be used to contact the individual's designated emergency contact in the case of an emergency; to contact an individual regarding matters of official business; to maintain the agency telephone directory, and for internal agency mail services. This information may also be disclosed to NRC-paid experts, consultants, and others under contract with NRC, on a "need-to-know" basis for a purpose within the scope of the pertinent NRC contract and to appropriate persons and entities for purposes of response and remedial efforts in the event of a suspected or confirmed breach of data from this system of records.
4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION:** Disclosure is voluntary; however, if the requested information is not provided telephone calls and mail for the employee may not be processed.
5. **SYSTEM MANAGER AND ADDRESS:** For Headquarters personnel: Associate Director for Human Resources Operations and Policy, Office of Human Resources, U. S. Nuclear Regulatory Commission (NRC), Washington, DC 20555-0001; for Regional personnel: Human Resources Team Leaders at the Regional Offices listed in Addendum I, Part 2 (74 Federal Register 608); Telephone Directory: Telecommunications Team Leader, Computer Operations and Telecommunications Branch, Infrastructure and Computer Operations Division, Office of Information Services, NRC, Washington, DC 20555-0001; Mail Services: Chief, Reproduction and Mail Services Branch, Division of Administrative Services, Office of Administration, NRC, Washington, DC 20555-0001.

Source: John Monninger, Site Team	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/18/2011 03:46:19 (ET)	Combining like info from past few days.
Position: RST Accident Seq Analyst	
Name: michael salay	
Record: 1605	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/18/2011 02:29:01 (ET)	<p>Issues identified have been resolved:</p> <ul style="list-style-type: none"> * Cavitation concern - hose size revised from 2.5" to 6" @ 300 psi which weighs about 70 lbs. * Waterhammer - Introduced vent to eliminate air * Ops starting guidance developed * Diesel fuel oil supply modified to 3 120 gallon tanks <p>General Electric Hitachi will be: obtaining, transporting and installed Pump option supply lines Perth, Australia and United States.</p> <p>RST ACTIONS:</p> <ul style="list-style-type: none"> * Have Site Team verify TEPCO is okay with Pump Option * Develop updated dose maps * Means for verification of water spray <p>Participants: Pat Hiland Steve Bell-NR Bob Ryan - INPO Ned Merchant, Bechtel Gene Thomas - Bechtel Lee Trocine, USAID Scott Sloan RST BWR Systems and Ops Analyst - Eva Brown at 02:49:49 on 3/18/2011</p>
Position: RST BWR Systems and Ops Analyst	
Name: Eva Brown	
Record: 1607	
Facility:	
Source: 0100 EDT Pump Call	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/18/2011 02:29:01 (ET)	<p>Issues identified have been resolved:</p> <ul style="list-style-type: none"> * Cavitation concern - hose size revised from 2.5" to 6" @ 300 psi which weighs about 70 lbs. * Waterhammer - Introduced vent to eliminate air * Ops starting guidance developed * Diesel fuel oil supply modified to 3 120 gallon tanks <p>General Electric Hitachi will be: obtaining, transporting and installed</p>
Position: RST BWR Systems and Ops Analyst	
Name: Eva Brown	
Record: 1604	
Facility:	

(b)(6)

Facility:	Pump option supply lines Perth, Australia and United States.	
	RST ACTIONS:	
	* Have Site Team verify TEPCO is okay with Pump Option	
	* Develop updated dose maps	
	* Means for verification of water spray	
Source:	0100 EDT Pump Call	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/18/2011 00:26:25 (ET)	Estimates---
Position:	RST BWR Systems and Ops Analyst	Unit 1 - Time margin to uncover 128 days
Name:	Eva Brown	Unit 2 Time margin to uncover 40 days
Record:	1602	Unit 4 Time margin to uncover 6 days
Facility:		
Source:	John Monniger circa METI, NISA, MoD-1200 noon JPT	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 23:57:48 (ET)	Confirmed that there is fuel in the RPV for Units 5 and 6
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1601	
Facility:		
Source:	Bob Ryan (770) 644-8020	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 23:37:51 (ET)	Assuming the watch from Chuck Norton 2320
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1600	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 23:20:13 (ET)	Relieved by Michael Salay
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1599	

(b)(6)


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~~OUO - Sensitive Internal Information~~

Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/17/2011 22:54:35 (ET)	Assumed severe accident analyst position
Position: RST Accident Seq Analyst	
Name: michael salay	
Record: 1598	
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/17/2011 21:33:49 (ET)	Victor Abelairas will supply fuel pool structural information for Units 1 and 2. phone 305 790 2349
Position: RST BWR Systems and Ops Analyst	victor.abelaras@ge.com
Name: Charles Norton	Contact for U3 keisuke.kitsukawa@toshiba.co.jp
Record: 1597	
Facility:	Victor Abelairas has committed to provide contact informatin for U 4
Source: GEH, Abelairas	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/17/2011 21:38:13 (ET)	Plan is to have a conference call among NRC (RST and Charlie Tinkler), Naval Reactors, INPO and EPRI tomorrow
Position: RST Accident Seq Analyst	morning (Friday, March 18, 2011) to discuss the relative merits of putting water on the spent fuel pool for unit 4 and
Name: Steven Laur	options for accomplishing same.
Record: 1596	
Facility:	
Source: Fred Brown	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/17/2011 21:31:04 (ET)	WANO does not vouch for core coverage at any of the Fucushima. They only verify that seawater is injecting.
Position: RST BWR Systems and Ops Analyst	
Name: Charles Norton	
Record: 1595	
Facility:	
Source: WANO, Ryan	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/17/2011 21:25:56 (ET)	Oconee fog nozzels are at INPO. Security at Dobbins AFT turned truck away. Liasion makeing arrangements to

(b)(6)

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Position:	RST BWR Systems and Ops Analyst	have nozzles accepted.
Name:	Charles Norton	
Record:	1594	
Facility:		
Source:	INPO, Bob Addy	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 21:24:02 (ET)	FYI - the Response Technical Manual has (limited) spent fuel pool information in Attachment D.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1593	
Facility:		
Source:	RTM-96	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 21:21:58 (ET)	Fred Brown asked me to write up an NRC position on putting water on the spent fuel pool, based on my previous conversation with Charles Tinkler. The resulting file was sent to RST01 and a copy is attached here.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1592	
Facility:		
Source:	Charles Tinkler	
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 21:21:22 (ET)	This e-mail is to document contacts, telephone numbers, and e-mail addresses for INPO and EPRI.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1591	
Facility:		INPO Main Number: 1-770-644-8000 INPO Emergency Response Center: pick menu option 2 e-mail: inpoerc@inpo.org INPO technical team (not sure of official title): Lee Gard Bob Addy Rick Nielson e-mail: inpoercassistance@inpo.org Bob Ryan (INPO ERC watchstander) e-mail: ryanrd@wano.org or inpoerc@inpo.org

(b)(6)

		EPR contact for spent fuel: (first name unknown) e-mail: dmodeen@epri.com
Source: INPO and EPR contact info		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 18:38:14 (ET)	I asked Charlie Tinkler the relative merits of putting water, sand, or concrete on a spent fuel pool in an unknown status but that might be dry and have sustained a zirconium fire (assumed situation at the Fukushima Daiichi Unit 4 SFP). Charlie prefaced the following as "his opinion:" He said we should always consider adding water, even if the pool has been reduced to a debris bed. Water will cool the debris and filter fission products. The pool is already a mess at that point. If a fire had occurred, most of the volatile fission products would have been released already. The debris could possibly eat through the floor; water would help prevent that. Criticality should be the least of our concerns; if desired, we could add some boron to the water. The only reason to consider sand is if there is a large hole in the pool, such that water won't stay in. Sand is a bad idea because it will insulate the debris. If some rods are partially intact, dumping sand may create a debris bed by crushing them. Charlie reiterated that he is expressing his opinion, and that he strongly recommends using water. Note: Charlie also mentioned that fire boats can put out a tremendous number of gpm, and can shoot a stream of water 40 feet into the air.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1590	
Facility:		
Source:		Charlie Tinkler
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 18:38:38 (ET)	Assumed the watch. Completed phone call with Bechtel, INPO, NRC Japan Team. Discussed pumping plan for the spent fuel pools. The flow path will be from fire boats to booster pumps, to boron eductor to spray pump. If possible we will use Oconee B5b nozzle if it can be placed close enough. Train Japanese Military on how to set up and use the equipment in a remote area.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1589	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 17:59:22 (ET)	Developed Excel spreadsheet using core source term information from NUREG/CR-6042 to allow estimation of source term released to containment and outside. File is on M:\RST\Japanese Earthquake & Tsunami Response. Discussed with Duane Schmidt, of the dose team, who informed me that RASCAL has all the necessary source term information built in.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1588	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 16:22:27 (ET)	Requested "worst case scenario" source term for the Daiichi site (i.e., source terms for all 6 reactors and spent fuel pools) to provide to dose team in ~ 1 hour.
Position:	RST Accident Seq Analyst	

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Name:	Steven Laur	
Record:	1587	
Facility:		
Source:	Fred Brown	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 15:28:28 (ET)	Assumed the watch.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1586	
Facility:		
Source:	Turnover	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 15:20:52 (ET)	Turned over to Chuck Norton Priority to determine options to cool SFP
Position:	RST BWR Systems and Ops Analyst	
Name:	Michael Brown	
Record:	1585	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 15:20:17 (ET)	Turnover briefing to Steve Laur
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1584	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 15:16:47 (ET)	Discussion of sand vs. concrete. Concrete might be preferable to using sand or water. Need to ascertain condition of the pool and liner to hold concrete. Need to check on condition and location of fuel after the fire
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1583	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		

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~~OUO - Sensitive Internal Information~~

Date/Time:	03/17/2011 14:40:56 (ET)	Considering sand in lieu of water in U4 spent fuel pool. Sand might pose structural problems.
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1582	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 10:51:17 (ET)	Received e-mail (Andrew Sabisch, Senior Resident Inspector) that Oconee has located and packaged nozzles for possible use for SFP sprays. This is in response to a request by Steve Bloom. Replied by e-mail that a consolidated effort is being undertaken with GE/Bechtel team.
Position:	RST Coordinator	
Name:	Frank Collins	
Record:	1581	
Facility:		
Source:	F. Collins	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 09:00:00 (ET)	Phone Call with Bechtel in Tim Colb in Japan regarding the 4 trains of pumping equipment.
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	Discussed the plans to gather the equipment and send to Perth Australia for transport to Yokota Air Base in Japan.
Record:	1579	
Facility:		Discussed the need for personnel to demonstrate equipment and train local operators in use after delivery to Japan.
		Discussed and Brainstormed other contingencies and needs that could be used on site get water to spent fuel pools
		RST BWR Systems and Ops Analyst - James Shea at 10:47:12 on 3/17/2011
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 10:41:10 (ET)	Phone Call with Bechtel in Tim Colb in Japan regarding the 4 trains of pumping equipment.
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	Discussed the plans to gather the equipment and send to Perth Australia for transport to Yokota Air Base in Japan.
Record:	1580	
Facility:		Discussed the need for personnel to demonstrate equipment and train local operators in use after delivery to Japan.
		Discussed and Brainstormed other contingencies and needs that could be used on site get water to spent fuel pools
Source:		

(b)(6)

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Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 07:00:00 (ET)	Assumed Watch BWR Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	1578	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 10:34:28 (ET)	<p>11AM call with INPO discussed:</p> <p>U1/U2/U3 injection to RPVs - not fully covered.</p> <p>U5/U6 level and temp. instruments avail.</p> <p>some ac restoration on U6, expect it at U6</p> <p>Shared common pool shows 0 MW heat load due to large size and old fuel.</p> <p>Liner intact @ U4</p> <p>Some success with helicopter drop</p> <p>Some water pumped into U3 pool</p> <p>Dose rate from Tokyo center at 100m showing 370mR/hr</p> <p>Temporary 6.9kV switchgear has not arrived to site</p> <p>No condition of pumps at plants- plans to try to use CRD for U2 after powre is restored - indications of torus breach.</p> <p>Boron from Diablo Canyon to be transported.</p> <p>Areva will ship 100T of boron to Tokyo</p> <p>Accoring to WANO, Russia will ship PCs and breathing apparatus to Tokyo.</p>
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1577	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 08:08:03 (ET)	<p>Mr. Ned Merchant of Bechtel requests Mr. Jim Shea to contact him ASAP at (713) 235-2924.</p> <p>RST Coordinator - Frank Collins at 08:09:25 on 3/17/2011</p> <p>info provided to J. Shea</p> <p>RST Coordinator - Frank Collins at 08:09:38 on 3/17/2011</p>
Position:	RST Coordinator	
Name:	Frank Collins	
Record:	1574	
Facility:		
Source:	RST Coordinator	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		

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Date/Time:	03/17/2011 08:08:03 (ET)	Mr. Ned Merchant of Bechtel requests Mr. Jim Shea to contact him ASAP at (713) 235-2924. RST Coordinator - Frank Collins at 08:09:25 on 3/17/2011
Position:	RST Coordinator	
Name:	Frank Collins	
Record:	1576	
Facility:		
Source:	RST Coordinator	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 08:08:03 (ET)	Mr. Ned Merchant of Bechtel requests Mr. Jim Shea to contact him ASAP at (713) 235-2924.
Position:	RST Coordinator	
Name:	Frank Collins	
Record:	1575	
Facility:		
Source:	RST Coordinator	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 07:55:49 (ET)	Turnover from Mike Salay
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1573	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 07:52:51 (ET)	Signing off
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1572	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 07:23:28 (ET)	RST Participated in phone conference with GE team re: equipment requirements for transporting pumps to site - follow up call scheduled for 10:00 EDT
Position:	RST Coordinator	
Name:	Frank Collins	
Record:	1571	
Facility:		
Source:		
Address/Location:		
Attachment:		

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Date/Time:	03/17/2011 07:05:51 (ET)	Turnover to Mike Brown.
Position:	RST BWR Systems and Ops Analyst	- Unit 3 SFP main focus
Name:	Eva Brown	- Determine source of white flower
Record:	1570	
Facility:		
Source:		

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/17/2011 06:23:58 (ET)	JAIF link for periodic plant status tables:
Position:	RST Accident Seq Analyst	
Name:	michael salay	http://www.jaif.or.jp/english/
Record:	1569	
Facility:		
Source:		

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/17/2011 05:53:08 (ET)	Have generated pool specific calculations.
Position:	RST Accident Seq Analyst	
Name:	michael salay	Master in m:/Shared:/Fuel Pools/Decay power calc 20110317.xlsx
Record:	1568	
Facility:		
Source:		

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~


Date/Time:	03/17/2011 04:21:22 (ET)	Condition is static
Position:	RST BWR Systems and Ops Analyst	Photo imagery ongoing
Name:	Eva Brown	Helicopters suspended
Record:	1567	Spraying with riot cannon
Facility:		
Source:	Chuck Casto	

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/17/2011 03:05:38 (ET)	Talked to Naval Reactors contact to provide feedback on sand-flooding proposal. Concerned with how to deliver sand, timing, creation of a zirc fire as a result of affecting air cooling of spent fuel.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1566	

(b)(6)

Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 02:45:28 (ET)	Reviewed Naval Reactors recommendation on the use of sand with immediate SFP flooding. Based on feedback from Jason Shapiro assuming a dry core need to consider the sand impeding air cooling and possibly starting a zirconium fire.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1565	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 02:42:41 (ET)	One additional option: Three fire boats with a y - connector that may be able to supply two pumps per boat.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1564	
Facility:		
Source:	Tim Kolb 02:43	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 02:02:06 (ET)	Attached is a fax about the sand options for the spent fuel pool in unit 4 (also it will be similar for unit 3)
Position:	RST Coordinator	
Name:	Rollie Berry	
Record:	1563	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 01:57:47 (ET)	Forwarded an email for Capt Eric Corbett, "the (5) five pumps from Sasebo via Yokota, as aforementioned, arrived at Fukushima at 1130 this morning." Assumption 1130 is local time on 3/17/11
Position:	RST Coordinator	
Name:	Rollie Berry	
Record:	1562	
Facility:		
Source:	Richard Devercelly	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 00:51:03 (ET)	

(b)(6)

Position:	RST BWR Systems and Ops Analyst	Gregory Lynch at Pax River has access to remote operated helicopter (b)(6)
Name:	Eva Brown	
Record:	1561	
Facility:		
Source:	Tony Ulises 23:59	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 00:46:49 (ET)	Provided info regarding logistics for pump specs (011 046 816 2390)
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1560	
Facility:		
Source:	Tony Ulises 23:43	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 00:46:20 (ET)	Assumed the watch ~ 2315
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1559	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 00:43:55 (ET)	Switching to review proposed action of covering with sand
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1558	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/17/2011 00:25:22 (ET)	Working on pool questions. Documenting in m:/Shared:/Fuel Pools/pool questions 20110317-0025.docx
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1557	
Facility:		
Source:		
<div>(b)(6)</div>		

Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/16/2011 23:54:30 (ET)	Assumed Severe Accident Analyst position at 2300
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1556	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/16/2011 22:21:35 (ET)	US Boiling Water Reactor (BWR) Beyond Design Basis Event Design Features
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	Boiling Water Reactors in the United States have been back fitted with hardened vent systems which permit controlled primary containment depressurization and safe release of explosive gas mixtures during a severe accident.
Record:	1522	
Facility:		<p>Emergency AC Diesel oil tanks required by NRC regulations are sheltered in safety-related structures or underground in order to withstand an earthquake and flooding events. These tanks provide a reliable fuel supply to Safety Related AC and DC Power Systems for several days.</p> <p>The ability to withstand and recover from a station blackout is required for all United States nuclear power plants. In addition the stations are required to have redundant off-site AC power sources.</p> <p>An emergency portable diesel water pump for emergency fuel pool cooling is required to be available at all United States nuclear power plants.</p> <p>Emergency Operating Procedures (EOPs) as well as Severe Accident Guidelines (SAMGs) are designed to ensure that containment preservation takes priority over reactor vessel preservation.</p> <p>The Nuclear Regulatory Commission inspects all nuclear power plants to ensure compliance with these requirements.</p>
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/16/2011 21:04:11 (ET)	Jim,
Position:	RST Coordinator	
Name:	Rick Hasselberg	Attached is a copy of the rough sketch that was provided to Naval Reactors. Bechtel is working the interface issues for us, and I will give you a call around 1130 (JST) to discuss our parallel paths.
Record:	1518	
Facility:		

(b)(6)

Thanks for looking into the fuel issue for us. Call me if you have any questions.

Scott Sloan
Federal Liaison
NRC Operations Center
(301) 816-5186

From: RST01 Hoc
Sent: Wednesday, March 16, 2011 8:15 PM
To: LIA11 Hoc
Subject: FW: Sketch of Temp SF Pumping System

From: Monninger, John
Sent: Wednesday, March 16, 2011 6:37 PM
To: RST01 Hoc; Ruland, William
Subject: Fw: Sketch of Temp SF Pumping System

See below.

John Monninger
202-365-2207

Facility:

From: RST01 Hoc
To: Kolb, Timothy; Casto, Chuck; Cook, William; Nakanishi, Tony; Foster, Jack; Trapp, James; Monninger, John; Smith, Brooke; Foggie, Kirk; Ulises, Anthony
Cc: RST01 Hoc
Sent: Wed Mar 16 12:19:59 2011
Subject: Sketch of Temp SF Pumping System
FYI:

Japan Gov Request for Pumping Assets to cool fuel pool.

Requested 4 trains of mobile pumps including the following

- 4 each Diesel Sea Water Suction pump with Strainer.
- 4 each Diesel Booster Pumps.
- 4 each Diesel Spray Pumps. 100m Length 50m High
- Provide approximately 500 gpm water flow to Fukushima Daiichi Spent Fuel Pools.
- Diesel Fuel tanks and Fuel to support pump trains.

- 500 meters of Piping for 2 trains.
- 700 meters of Piping for 2 trains.
- People to assist in assembly of trains
- 20,000 # or more Boron

Back-up Systems including

- 4 Pumper Trucks

Would also like Robots for High Rad work with camera capability.

Source: Sketch of Temp SF Pumping System

Address/Location:

Attachment:



~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/16/2011 21:02:41 (ET)

Position: RST Coordinator

Name: Rick Hasselberg

Record: 1517

Forwarded from our friends in DoD ...

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

From: (b)(6)

Sent: Wednesday, March 16, 2011 7:16 PM

To: Morris, Scott

Subject: FW: HOT requirement to move JET STREAM pumps

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

From: Chansipaeng, Sonthaya LCDR USN NAVFACFE

Sent: Thursday, March 17, 2011 8:14 AM

To: NACCC.CDBRG.FCT

Subject: FW: HOT requirement to move JET STREAM pumps

v/r,

Sonny Chansipaeng, P.E.

LCDR, CEC, USN

Facilities Management Officer

Public Works Department Yokosuka

Comm 046-816-7543

DSN 315-243-7543

Cell (b)(6)

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

(b)(6)

From: Neu, Charles R LCDR USN FISC
Sent: Tuesday, March 15, 2011 5:24 PM
To: M-YO-FISCY-LOC; Chansipaeng, Sonthaya LCDR USN NAVFACFE; Owen, David A. CAPT USN CFAY
Cc: Sexton, Neil CDR SRF S100; (b)(6) Mchugh, Henry DLA CIV DISTRIBUTION YOKOSUKA, JAPAN; Stancy, Steven L CAPT SRF CO; Manders, Bill CDR SRF XO; De Leon, Chito J CIV SRF S500; Finrock, Robert DLA SAS
Subject: HOT requirement to move JET STREAM pumps

LOC,

Facility:

RADM Wren ordered the movement of 6 pumps to be used in the cooling of the reactor at Fukushima. These pumps are currently in Sasebo at SRF-JRMC.

Their characteristics can be found here:

The equipment to be moved (attached) can also be found here (PU0230):

http://www.supsalv.org/essm/Sal_Inv.asp

P/W/C 9 x 3.5 x 6.5 - 4,163lbs

Plus ancillary equipment (approx 1150lbs)(approx 2 cubic/feet)

Plus two of these (PU0290):

http://www.supsalv.org/essm/Sal_Inv.asp

Plus two of these (PU0295):

http://www.supsalv.org/essm/Sal_Inv.asp

The POC is LCDR Chansipaeng (CSG-7 watch floor) and CDR Sexton at SRF-JRMC Det Sasebo (252-2801).

The destination is Atsugi - RDD ASAP.

SRF-JRMC is preparing the pumps for turnover to DDYJ for shipment tomorrow a.m.

Semper Supply!

Very respectfully,

LCDR Chuck Neu, SC, USN

Director, Industrial Support Department (C500) FISC Yokosuka Supply Officer, Ship Repair Facility - Japan

Regional Maintenance Center

(SRF-JRMC)

DSN: (b)(6)

Commercial: 011-81-46-816-5303

(b)(6)

10/23/13

~~000 - Sensitive Internal Information~~cell
email
SIPR:

(b)(6)

Source: FW: HOT requirement to move
JET STREAM pumps

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/16/2011 21:01:01 (ET)

Position: RST Coordinator

Name: Rick Hasselberg

Record: 1516

From: Sabisch, Andrew

Sent: Wednesday, March 16, 2011 8:26 PM

To: Bloom, Steven

Subject: Follow-up information on Oconee SFP Spray Nozzles

Steve,

The licensee has confirmed that they have three (3) of the nozzle units available and are in the process of preparing them for transport if required. They are using wooden boxes to facilitate the transport.

I am attaching a copy of the station's AP which covers the loss of level in the SF Pool and the use of the Boggs Box as they call it. The Enclosure 5.6 covers the use of the device under "Makeup for Breached SFP". You can so a search on "BOGGS" to find other references in the document.

I can have the licensee draft a one-page operating instruction for it but in essence, you simply connect the required length of 5" hose to the Boggs Box, place it on the edge of the spent fuel pool (or on a mount if needed), the other end to the pump or hydrant and turn on the water. The pattern is set to avoid direct spray on the fuel and scrubs radionuclides from steam that rises once the water comes into contact with the fuel assemblies.

Facility:

Let me know if there is any additional information I can provide or if you hear anything on the transport needs. We will continue to work through preparing them so they are ready when and if called for.

Andy

=====

Andrew T. Sabisch
U.S. Nuclear Regulatory Commission
Senior Resident Inspector
Oconee Nuclear Station
Seneca, SC 29678
(O) 864-882-6927/6928
(F) 864-882-0189

(C)(b)(6)

Source: Oconee SFP Spray Nozzles

Address/Location:

(b)(6)

407495

Attachment:

~~This Information is Official Use Only - Sensitive Internal Information~~

Date/Time: 03/16/2011 20:58:10 (ET)

Position: RST Coordinator

Name: Rick Hasselberg

Record: 1515

All,

We are increasing seismic support to the Reactor Safety Team (RST) and Office of Public Affairs (OPA) in the Ops Center such that there will be a responsible person in the Ops center that the RST and OPA teams can turn to at all times. (RST and OPA staff see a note to you at the bottom of the page)

Staffing in the next few days is generally as follows:

7am to 3pm: Cliff Munson (on site) and Jon Ake remotely. (The exception is Thursday when Cliff and Jon are both working remotely and Niles is in the center)

3pm to 11pm: Annie Kammerer (on site) with some support by Jon Ake remotely

11pm to 7 am: GIS staffers (all of whom are seismologist) will support RST and OPA by acting as a point of contact. This will be Stephanie Devlin or Dogan Seber, depending on the day.

General Responsibilities:

- All members of the seismic team noted above have the responsibility to support the RST and OPA in assuring that a timely response to questions, both in house and from the media (through OPA), is provided.
- All members of the seismic team also have the responsibility to assure that the Seismic Q&A document is updated with all the questions received and answered, such that the NRC message is consistent and we don't reinvent the wheel.

Specific Responsibilities:

- Annie Kammerer is the keeper of the seismic Q&A document and is responsible for issuing the document as needed.
- Cliff is the point of contact during the 7am to 3pm shift. He will be supported by Jon Ake and, to the extent possible, Annie Kammerer.
- Annie and Cliff are responsible for the coordination of assistance coming from the various groups who are providing responses in their areas of expertise.
- The GIS staff should first act in their official role as technical specialists. However, when questions come into the Op Center or OPA, they are to act as a point of contact and area responsible for assuring the timely response to seismic- or tsunami-related questions, using the below protocols.

Protocols for Seismic Team:

- To keep everyone on the same page, please send all Q&As received to Annie, Cliff and Jon.
- When possible, please add the Q&As received during the shift (even if they are just the questions without answers) into the working version of the word document, using track changes. If not possible to add during shift, please make a list of new items and provide to Cliff or Annie so that they can be dug out of email and added.
- The primary responsibility of the GIS team is the GIS work. In their secondary role as seismic contacts for RST and OPA, they should undertake the following actions:
 - o First determine if the question being asked is already in the seismic Q&As, if so, please provide to RST or OPA
 - o If the question is not immediately available, please call Annie (try me first, and use (b)(6) or Cliff to inform us that a new question has come in, and what it is. Please don't be shy about calling.

Facility:

(b)(6)

RST and OPA staff: Note that all correspondence should be sent to Annie Kammerer, Clifford Munson and Jon Ake. We are a tight team who have worked together for years; and we immediately forward everything we see to each other anyway. This will save us a step and a lot of extra email. Also email Niles when he is on duty in the Ops Center.

Source: Seismic Team Members
supporting the RST,
Responsibilities, and Protocols

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/16/2011 20:56:29 (ET)

Water has been sprayed on unit 3 from helicopters

Position: RST Severe Accident Analyst

Name: Hossein Esmaili

Record: 1514

Facility:

Source: NHK TV

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/16/2011 20:46:43 (ET)

Steve,

Position: RST Chronologist

Name: Steven Bloom

Record: 1513

In addition to my contact information listed below in my signature file, the licensee has designated Rich Freudenberger (actually a former SRI) to be the point of contact after hours (between now and 0700 tomorrow). If the call comes to pick them up between now and then, you can get me or Rich and we will make it happen.

Facility:

His cell phone is (b)(6)

Thanks hope this is able to be used

Andy

Source: Email from Andy Sabisch at
2036

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

(b)(6)

Date/Time: 03/16/2011 20:38:21 (ET)

Position: RST Chronologist

Name: Steven Bloom

Record: 1512

Steve,

The licensee has confirmed that they have three (3) of the nozzle units available and are in the process of preparing them for transport if required. They are using wooden boxes to facilitate the transport.

I am attaching a copy of the station's AP which covers the loss of level in the SF Pool and the use of the Boggs Box as they call it. The Enclosure 5.6 covers the use of the device under "Makeup for Breached SFP". You can so a search on "BOGGS" to find other references in the document.

I can have the licensee draft a one-page operating instruction for it but in essence, you simply connect the required length of 5" hose to the Boggs Box, place it on the edge of the spent fuel pool (or on a mount if needed), the other end to the pump or hydrant and turn on the water. The pattern is set to avoid direct spray on the fuel and scrubs radionuclides from steam that rises once the water comes into contact with the fuel assemblies.

Let me know if there is any additional information I can provide or if you hear anything on the transport needs. We will continue to work through preparing them so they are ready when and if called for.

Facility:

Andy

Andrew T. Sabisch

U.S. Nuclear Regulatory Commission

Senior Resident Inspector

Oconee Nuclear Station

Seneca, SC 29678

(O) 864-882-6927/6928

(F) 864-882-0189

(c)(b)(6)

Source: Email from Andy Sabisch at
2026 on March 16, 2011

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

Date/Time: 03/16/2011 20:06:54 (ET)

Position: RST Chronologist

Name: Steven Bloom

Record: 1511

Facility:

Source: Telecon

Received call from Major Voruz at Vandenberg AF asking about MDS for Boron. Called Mr. Steve David of PGE who will forward information to the Major.

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

Date/Time: 03/16/2011 18:51:46 (ET)

Position: RST BWR Systems and Ops
Analyst

Name: Charles Norton

Record: 1510

Facility:

Source: Chuck Casto

Status of Fuel pools
U4 structural integrity in doubt, likely dry
U3 steaming
U2 steaming
U1 not steaming, status unknown

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

Date/Time: 03/16/2011 18:32:51 (ET)

Position: RST Chronologist

Name: Steven Bloom

Record: 1509

Facility:

Source: Telecon

Major Voruz at Vandenberg AF Base called to confirm that the Boron is still needed. Told him yes. He would contact his counterpart in Japan for transport to Japan.

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

Date/Time: 03/16/2011 16:43:12 (ET)

Position: RST Severe Accident Analyst

Name: Hossein Esmaili

Record: 1508

Facility:

Source:

NEI factsheet on used fuel storage at Daiichi states gamma dose rate is typically less than 2 mrem/hr. RTM Section D states that pool must be virtually drained for substantial damage to occur and also the dose near an empty pool could be 300 rem/hr decreasing to about 10 rem/hr at a distance of 100 m from pool edge.

Address/Location:

Attachment:

This information is Official Use Only - Sensitive Internal Information.

(b)(6)

10/23/13

~~OUO - Sensitive Internal Information~~

Date/Time:	03/16/2011 16:46:11 (ET)	Sent Bechtel contact information to Dave Moss of INPO.
Position:	RST Chronologist	
Name:	Steven Bloom	
Record:	1507	
Facility:		
Source:		

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/16/2011 16:44:24 (ET)	Rick Hasselberg sent equipment list and diagram to USAID at 2:51 pm on 3/16/2011.
Position:	RST Chronologist	
Name:	Steven Bloom	
Record:	1506	
Facility:		
Source:		

Address/Location:	
Attachment:	

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Date/Time:	03/16/2011 15:58:35 (ET)	Logged in BWR Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1505	
Facility:		
Source:		

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/16/2011 15:55:07 (ET)	logged out
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	1504	
Facility:		
Source:		

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/16/2011 15:02:23 (ET)	Assumed position.
Position:	RST Severe Accident Analyst	
Name:	Hossein Esmaili	
Record:	1503	
Facility:		
Source:		

(b)(6)

412/495

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/16/2011 14:25:52 (ET)	Unit 2 Roof Water Drop Recommendations:
Position:	RST BWR Systems and Ops Analyst	<ul style="list-style-type: none"> • Locate roof blowout panels over the fuel pool (should be in a quadrant of the building roof – we think it is the 3rd quadrant as viewed from the ocean side) – Dropping in any other quadrant will have no affect since water would not overcome the curbing and or floor drain system etc. • Puncture blowout panels (weight of water should break blowout panel) • Drop water into blowout panel • Repeat drops as necessary to re-flood the fuel pool
Name:	Lawrence Vick	
Record:	1502	
Facility:		
		Structural Engineering (Pravin Patel) concurs with recommendation.
Source:		

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		

Date/Time:	03/16/2011 14:14:40 (ET)	Unit 3 Roof Water Drop Recommendations:
Position:	RST BWR Systems and Ops Analyst	<ul style="list-style-type: none"> • Locate roof blowout panels over the fuel pool (should be in a quadrant of the building roof – we think it is the 3rd quadrant as viewed from the ocean side) – Dropping in any other quadrant will have no affect since water would not overcome the curbing and or floor drain system etc. • Puncture blowout panels (weight of water should break blowout panel) • Drop water into blowout panel • Repeat drops as necessary to re-flood the fuel pool
Name:	Lawrence Vick	
Record:	1498	
		Structural Engineering concurs with recommendation.
		Unit 2 Roof Water Drop Recommendations:
		<ul style="list-style-type: none"> • Locate roof blowout panels over the fuel pool (should be in a quadrant of the building roof – we think it is the 3rd quadrant as viewed from the ocean side) – Dropping in any other quadrant will have no affect since water would not overcome the curbing and or floor drain system etc. • Puncture blowout panels (weight of water should break blowout panel) • Drop water into blowout panel • Repeat drops as necessary to re-flood the fuel pool
		Structural Engineering concurs with recommendation.
		RST BWR Systems and Ops Analyst - Lawrence Vick at 14:23:34 on 3/16/2011
		Unit 2 Roof Water Drop Recommendations:

Facility:

- Locate roof blowout panels over the fuel pool (should be in a quadrant of the building roof – we think it is the 3rd quadrant as viewed from the ocean side) – Dropping in any other quadrant will have no affect since water would not overcome the curbing and or floor drain system etc.
- Puncture blowout panels (weight of water should break blowout panel)
- Drop water into blowout panel
- Repeat drops as necessary to re-flood the fuel pool

Structural Engineering concurs with recommendation.

Unit 2 Roof Water Drop Recommendations:

- Locate roof blowout panels over the fuel pool (should be in a quadrant of the building roof – we think it is the 3rd quadrant as viewed from the ocean side) – Dropping in any other quadrant will have no affect since water would not overcome the curbing and or floor drain system etc.
- Puncture blowout panels (weight of water should break blowout panel)
- Drop water into blowout panel
- Repeat drops as necessary to re-flood the fuel pool

Structural Engineering concurs with recommendation.

RST BWR Systems and Ops Analyst - Lawrence Vick at 14:23:34 on 3/16/2011

RST BWR Systems and Ops Analyst - Lawrence Vick at 14:24:20 on 3/16/2011

RST BWR Systems and Ops Analyst - Lawrence Vick at 14:25:31 on 3/16/2011

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/16/2011 14:14:40 (ET)

Position: RST BWR Systems and Ops Analyst

Name: Lawrence Vick

Record: 1501

Unit 3 Roof Water Drop Recommendations:

- Locate roof blowout panels over the fuel pool (should be in a quadrant of the building roof – we think it is the 3rd quadrant as viewed from the ocean side) – Dropping in any other quadrant will have no affect since water would not overcome the curbing and or floor drain system etc.
- Puncture blowout panels (weight of water should break blowout panel)
- Drop water into blowout panel
- Repeat drops as necessary to re-flood the fuel pool

Structural Engineering concurs with recommendation.

(b)(6)

Unit 2 Roof Water Drop Recommendations:

- Locate roof blowout panels over the fuel pool (should be in a quadrant of the building roof – we think it is the 3rd quadrant as viewed from the ocean side) – Dropping in any other quadrant will have no affect since water would not overcome the curbing and or floor drain system etc.
- Puncture blowout panels (weight of water should break blowout panel)
- Drop water into blowout panel
- Repeat drops as necessary to re-flood the fuel pool

Structural Engineering concurs with recommendation.

RST BWR Systems and Ops Analyst - Lawrence Vick at 14:23:34 on 3/16/2011

Unit 2 Roof Water Drop Recommendations:

- Locate roof blowout panels over the fuel pool (should be in a quadrant of the building roof – we think it is the 3rd quadrant as viewed from the ocean side) – Dropping in any other quadrant will have no affect since water would not overcome the curbing and or floor drain system etc.
- Puncture blowout panels (weight of water should break blowout panel)
- Drop water into blowout panel
- Repeat drops as necessary to re-flood the fuel pool

Structural Engineering concurs with recommendation.

Unit 2 Roof Water Drop Recommendations:

- Locate roof blowout panels over the fuel pool (should be in a quadrant of the building roof – we think it is the 3rd quadrant as viewed from the ocean side) – Dropping in any other quadrant will have no affect since water would not overcome the curbing and or floor drain system etc.
- Puncture blowout panels (weight of water should break blowout panel)
- Drop water into blowout panel
- Repeat drops as necessary to re-flood the fuel pool

Structural Engineering concurs with recommendation.

RST BWR Systems and Ops Analyst - Lawrence Vick at 14:23:34 on 3/16/2011

RST BWR Systems and Ops Analyst - Lawrence Vick at 14:24:20 on 3/16/2011

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/16/2011 14:14:40 (ET)

Unit 3 Roof Water Drop Recommendations:

RST BWR Systems and Ops

(b)(6)

Position:	Analyst	<ul style="list-style-type: none"> • Locate roof blowout panels over the fuel pool (should be in a quadrant of the building roof – we think it is the 3rd quadrant as viewed from the ocean side) – Dropping in any other quadrant will have no affect since water would not overcome the curbing and or floor drain system etc. • Puncture blowout panels (weight of water should break blowout panel) • Drop water into blowout panel • Repeat drops as necessary to re-flood the fuel pool <p>Structural Engineering concurs with recommendation.</p> <p>Unit 2 Roof Water Drop Recommendations:</p> <ul style="list-style-type: none"> • Locate roof blowout panels over the fuel pool (should be in a quadrant of the building roof – we think it is the 3rd quadrant as viewed from the ocean side) – Dropping in any other quadrant will have no affect since water would not overcome the curbing and or floor drain system etc. • Puncture blowout panels (weight of water should break blowout panel) • Drop water into blowout panel • Repeat drops as necessary to re-flood the fuel pool <p>Structural Engineering concurs with recommendation.</p> <p>RST BWR Systems and Ops Analyst - Lawrence Vick at 14:23:34 on 3/16/2011</p>
Name:	Lawrence Vick	
Record:	1500	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/16/2011 14:14:40 (ET)	<p>Unit 3 Roof Water Drop Recommendations:</p> <ul style="list-style-type: none"> • Locate roof blowout panels over the fuel pool (should be in a quadrant of the building roof – we think it is the 3rd quadrant as viewed from the ocean side) – Dropping in any other quadrant will have no affect since water would not overcome the curbing and or floor drain system etc. • Puncture blowout panels (weight of water should break blowout panel) • Drop water into blowout panel • Repeat drops as necessary to re-flood the fuel pool <p>Structural Engineering concurs with recommendation.</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Lawrence Vick	
Record:	1499	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/16/2011 14:08:53 (ET)	Forwarded email to USFJ describing equipment request to GE Hitachi:

(b)(6)

Position:	RST Chronologist	GE.HitachiNuclearResponseTeam@ge.com.
Name:	Joseph Williams	
Record:	1495	Contact is Victor Abelairas, 305-790-2349.
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/16/2011 14:08:03 (ET)	Japanese authorities report site dose rates of 20-30rem near on-site and control room dose of 200mrem.
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	1496	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/16/2011 14:08:53 (ET)	Forwarded email to USFJ describing equipment request to GE Hitachi:
Position:	RST Chronologist	GE.HitachiNuclearResponseTeam@ge.com.
Name:	Joseph Williams	
Record:	1497	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/16/2011 14:02:03 (ET)	Defense Threat Assessment team Jim Hodge provided rough estimated dose assessment using conservative values based on full fuel pool and point source. Estimate was 1,000-1500 Rem/hr at 300 ft.
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	Information from Japan from a fly-over at some unspecified elevation measured 247mSV, RST staff assumed this was at approximately 1,000ft.
Record:	1494	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/16/2011 13:27:38 (ET)	Contact information for Carl Rau (President of Bechtel Nuclear) is 301-228-8740.
Position:	RST Coordinator	
Name:	Rick Hasselberg	Entry by Joe Williams
Record:	1493	
Facility:		
Source:		
Address/Location:		

(b)(6)

Attachment:

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Date/Time:	03/16/2011 13:12:54 (ET)	Discussed boron shipment from Diablo Canyon with Col. Phil Barks, who was reached via the National Military Command Center. Col. Barks may be reached at 703-614-3323.
Position:	RST Chronologist	
Name:	Joseph Williams	
Record:	1492	
Facility:		Via email, I forwarded a reply from Major Joseph Cook at US Forces, Japan which documented the tasking of the boron shipment. I requested that Col. Barks ensure coordination with Vandenberg AFB. I suggested that Col. Barks coordinate directly with USFJ and Diablo Canyon, as necessary, to ensure the transfer of the material. NRC will facilitate this effort, as needed.
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/16/2011 12:42:09 (ET)	Forwarded equipment request described below to US Forces, Japan contact (b)(6)
Position:	RST Chronologist	
Name:	Joseph Williams	
Record:	1491	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/16/2011 12:40:14 (ET)	Coordinating transport of 20,000 pounds of boron from Diablo Canyon. Text of email provided below.
Position:	RST Chronologist	
Name:	Joseph Williams	
Record:	1490	
Facility:		<p>This message provides my understanding of arrangements to be made for shipment of 20,000 pounds of boron from Diablo Canyon to Fukushima via US military assets.</p> <p>The point of contact at Diablo Canyon is Steve David, Director of Site Services, 805-545-3374, sad1@pge.com.</p> <p>The material will be packed in 40 pound bags loaded on pallets, approximately 5500 pounds per pallet. Diablo Canyon will require about 2.5 hours to prepare the material once they receive confirmation of the need for the shipment. This email provides confirmation of that need.</p> <p>Mr. David informed me that he expects that his company can transport the material to Vandenberg AFB. We are trying to establish the point of contact at Vandenberg. In conversation with USFJ personnel, it is my understanding that they are trying to establish that contact, as well, as part of the overall tasking.</p> <p>The US Forces, Japan point of contact is Major Cook, CAT J4 Watch Officer. Commercial phone contact can be made at 011 81 3117 55 4110 or 011 81 3117 55 4105. Email (b)(6)</p> <p>Please contact the NRC Reactor Safety Team immediately if you have questions or additional relevant information to share.</p>

(b)(6)

My most sincere thanks to you for your support.

Joe Williams
Reactor Safety Team Communicator
U.S. Nuclear Regulatory Commission

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/16/2011 12:02:45 (ET)

Japan Gov Request for Pumping Assets to cool fuel pool.

Position: RST BWR Systems and Ops Analyst

Requested 4 trains of mobile pumps including the following

Name: James Shea

Record: 1489

4 each Diesel Sea Water Suction pump with Strainer.
4 each Diesel Booster Pumps.
4 each Diesel Spray Pumps. 100m Length 50m High
Provide approximately 500 gpm water flow to Fukushima Daiichi Spent Fuel Pools.
Diesel Fuel tanks and Fuel to support pump trains.
500 meters of Piping for 2 trains.
700 meters of Piping for 2 trains.
People to assist in assembly of trains
20,000 # or more Boron
Back-up Systems including
4 Pumper Trucks
Robots for High Rad work with camera capability.

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/16/2011 11:17:31 (ET)

Requested Dose Rate Profile above the Unit 3 & 4 Fuel Pools from the Defense Threat Reduction Agency (DTRA) Dr. Jim Hodge 703-767-3445

Position: RST BWR Systems and Ops Analyst

Name: James Shea

Record: 1488

This request is related to possible (b)(5) to add shielding materials to the Fukushima Daiichi damaged spent fuel pools.

Facility:

Source:

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/16/2011 10:45:39 (ET)

Phone Call with Major Cook of US Military Command Yokota Air Base, see Joe Williams RST entry above.

Position: RST BWR Systems and Ops Analyst

(b)(6)

10/23/13

OUO - Sensitive Internal Information

Name:	James Shea
Record:	1487
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/16/2011 10:35:50 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	James Shea
Record:	1486
Facility:	Phone call with INPO to discuss Plant Status. Confirmed information that NRC Staff already had. RST Director requested industry assistance with assessts including Boron, Dolomite, Lead, Heavy Equipment ect. Would coordinate with Military for Delivery. INPO identified Born at Diablo Canyon (20K #s) of Boron available to send to neareast Military Base. RST staff will follow-up and monitor status. INPO Needs list included the following: Five high capacity Pumps Ladder Fire Pumper Trucks 800 meters of hard pipe Heavy Equipment for debris removal Shielding, Off all kinds
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/16/2011 09:12:04 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Lawrence Vick
Record:	1485
Facility:	Recommendations: • Expedite Unit 3 and 4 sanding of spent fuel pools - increase shielding - DO NOT add water. • Continue efforts to maintain water levels in Units 1, 2, and 3 - add more pumping capacity • Need technical update of Unit 5 & 6 as well as the common fuel pool • Japanese interpreter present at NRC EOC to assist with technical communication needs. • Urgent request technical e-copy of PI&Ds for affected units
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	

(b)(6)

420495

10/23/13

~~OOO - Sensitive Internal Information~~

Date/Time:	03/16/2011 08:44:36 (ET)	Staff recommends that fuel pools for Unit 3 & 4 should be shielded using any means possibly sand dropped from above as well as any other material that could be used to help shield and contain the spent fuel pool materials.
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	1484	
Facility:		A Staff Structural Engineer has been tasked to review the consequence of added material to the building structure.
		Staff is pursuing dose estimates above the SFP in the event of required air lift of shielding materials
		In addition the Structural Staff would be evaluating potential ultimate containment for the spent fuel pools.
		High head pumps from the US Navy en-route could be used to shore up other unit water needs but it is not recommended at this time to put any water on the Unit 3 or 4 Fuel Pools.
Source:		

Address/Location:

Attachment:

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Date/Time:	03/16/2011 07:46:31 (ET)	Assumed the Watch as BWR Systems Analyst 7:00am
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	1483	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/16/2011 06:57:37 (ET)	Turning over to Larry Vick
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1482	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/16/2011 06:39:50 (ET)	Suggested the use of spray concrete to reinforce SFP and mitigate radioactive release.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1481	
Facility:		
Source:	Brenda Mozafari, NRC	

(b)(6)

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Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/16/2011 06:10:41 (ET)	Recommendations: clay clay & sand dolomite (calcium magnesium carbonate) boron compounds dikes steel plate - structural steel moat concrete These are recommendations to support failed SFP structure. RST BWR Systems and Ops Analyst - Eva Brown at 06:39:08 on 3/16/2011
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1477	
Facility:		
Source:	Farhad Farzam, Sami Shernini, Dan Hough, George Thomas (NRR)	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/16/2011 06:31:33 (ET)	Provided recommendations for SFP structural integrity concern: - Start forming sarcophagus - borated sand - dropping supersacks
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1479	
Facility:		
Source:	Glen Watford, GEH	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/16/2011 06:28:47 (ET)	Sent: Wednesday, March 16, 2011 6:25 AM To: CherryRC@state.gov; Trapp, James; Ulses, Anthony Cc: RST01 Hoc Importance: High
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1478	
		Please forward to Chuck Casto and/or Jim Trapp From NUREG-1353, Regulatory Analyses for Resolution of Generic Issue 82 "Beyond Design Bases Accidents in Spent Fuel Pools" [ML082330232]

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5.6 Alternative 6 - Cover Fuel Debris With Solid Materials

This proposed alternative would require the development of a contingency plan to dump massive amount of solid materials into a drained spent fuel pool to cover the rubble bed to a depth of several feet. The necessary materials would not be stockpiled on site, but could be obtained in a timely manner on an ad hoc basis, the materials (sand, clay, dolomite, boron compounds, lead, etc.) being commonly available in all parts of the country. This alternative

would be directed at risk mitigation, not prevention.

Facility:

This alternative was not quantified as part of this value/impact study. The contingency plan would be concerned with a low frequency event (on the order of 1×10^{-6} per reactor year), with potential high consequence event. The results at Chernobyl can be used as a rough gauge of the efficacy of this measure, when carried out on a strictly ad hoc basis with no apparent advanced planning. However, since the dominant risk sequence for the spent fuel pool accident is a beyond design basis earthquake, BNL concludes that it is dubious that the measures could be

implemented soon enough to prevent the major release to the environment during the first few hours of the accident.

Eva Brown, RST BWR Systems and Ops Analyst

Nuclear Regulatory Commission

(301) 816-5516

Source: E-Mail to Ron Cherry


Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/16/2011 06:10:41 (ET)	Recommendations:
Position:	RST BWR Systems and Ops Analyst	clay
Name:	Eva Brown	clay & sand
Record:	1480	dolomite (calcium magnesium carbonate)
		boron compounds
		dikes
Facility:		steel plate - structural steel

(b)(6)

		moat concrete
Source:	Farhad Farzam, Sami Shernini, Dan Houg, George Thomas (NRR)	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/16/2011 06:11:45 (ET)	Attention 0600 Plant Status
Position:	RST Coordinator	
Name:	Mike Morlang	
Record:	1476	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/16/2011 06:07:34 (ET)	Requested by ET to brainstorm regarding possible loss of structural integrity for Unit 4 spent fuel pool.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1475	
Facility:		
Source:	US Ambassador - Tokyo	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/16/2011 05:26:38 (ET)	Text of e-mail provided to Ron Cherry, State Department for Checuk Casto
Position:	RST BWR Systems and Ops Analyst	Ron,
Name:	Eva Brown	
Record:	1474	
Facility:		Please communicate the following information to Charles Casto, the lead for the NRC response team. The GE Hitachi contact in Tokyo is Rich Rossi, Head Engineering Contact Team, at GEH Command Center [090 3108 2207].
		Thanks so much for your cooperation and support.
		Eva Brown, Reactor Safety Team - BWR Systems and Ops Analyst United States Nuclear Regulatory Commission (301) 816-5516
Source:	E-mail sent 05:24 3/16	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		

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~~OUO - Sensitive Internal Information~~

Date/Time:	03/16/2011 05:11:56 (ET)	Provided GE Hitachi Tokyo contact -
Position:	RST BWR Systems and Ops Analyst	Rich Rossi, Engineering Liason
Name:	Eva Brown	Japan local # 090 3108 2207.
Record:	1473	
Facility:		
Source:	Glen Watford (910) 819 1007	

Address/Location:	
Attachment:	

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Date/Time:	03/16/2011 04:37:29 (ET)	Discussed errors identified in USNRC EOC Status Update 3/15 1930EDT.
Position:	RST BWR Systems and Ops Analyst	Microsieverts should have been millisieverts.
Name:	Eva Brown	
Record:	1472	Discuss status of core coverage for Unit 3. Szeto calculates coverage at 1/2 to 2/3 of core.
Facility:		Questioned vent path for vessel. Venting straight to atmosphere?
		6 high pressure pumps on the way. Status pending.
Source:	Gordon Szeto (202) 781-6387	

Address/Location:	
Attachment:	

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/16/2011 03:55:04 (ET)	Requested priorities.
Position:	RST BWR Systems and Ops Analyst	- Water to Reactor Vessels on Units 1-3 and 5-6
Name:	Eva Brown	- Water to SFPs for all units
Record:	1471	- Water to SFPs for Common
Facility:		Provide feedback on what they should be asking for and are not.
Source:	Tom Roberts, Naval Reactors (202) 781-6387	

Address/Location:	
Attachment:	

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Date/Time:	03/16/2011 02:50:51 (ET)	Requested GEH source the information provided. Is it from TEPCO or is it analysis?
Position:	RST BWR Systems and Ops Analyst	GEH indicated information provided by TEPCO.
Name:	Eva Brown	RST BWR Systems and Ops Analyst - Eva Brown at 03:21:31 on 3/16/2011
Record:	1468	
Facility:		
Source:	Tony Ulises	

Address/Location:	
Attachment:	

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(b)(6)

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~~OUO - Sensitive Internal Information~~

Date/Time:	03/16/2011 03:20:00 (ET)	RST Director requested location of Diesel Storage Tank Locations.
Position:	RST BWR Systems and Ops Analyst	West Coast:
Name:	Eva Brown	Diablo Canyon - Underground
Record:	1469	San Onofre - Underground
Facility:		Columbia - Underground
Source:	Plant FSARs	

Address/Location:

Attachment:

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Date/Time:	03/16/2011 02:50:51 (ET)	Requested GEH source the information provided. Is it from TEPCO or is it analysis?
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1470	
Facility:		
Source:	Tony Ulises	

Address/Location:

Attachment:

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Date/Time:	03/16/2011 02:39:48 (ET)	Unit 5 water level has decreased to 201 cm above top of fuel. This is a 40 cm drop over a 5 hour period. TEPCO plans to use an operational diesel generator in unit 6 to supply water to unit 5.
Position:	RST Counterpart Communicator	
Name:	Ken Hart	
Record:	1467	
Facility:		
Source:	IAEA	

Address/Location:

Attachment:

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Date/Time:	03/16/2011 02:34:30 (ET)	Requested contact information for GE Hitachi assets in country (Japan). Indicated that there is a Hitachi Command Center in Tokyo.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1466	
Facility:		
Source:	Glen Watford (910) 819-1007	

Address/Location:

Attachment:

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Date/Time:	03/16/2011 02:31:24 (ET)	Requested contact information for the GE Hitachi folks in country (Japan).
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	

(b)(6)

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Record:	1465	
Facility:		
Source:	Tony Ulises	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/16/2011 02:17:17 (ET)	Jim,
Position:	RST BWR Systems and Ops Analyst	As a follow-up to our earlier, this is the info we received from GEH about 4 hours ago (~11:52a JPT):
Name:	Eva Brown	
Record:	1464	
Facility:		<p>Daiichi Unit 1 Primary : Intact - Believed RCS Breach Secondary: Lost SFP Status: Unknown</p> <p>Daiichi Unit 2 Primary : Intact- Believed RCS Breach Secondary: Lost SFP Status: Unknown</p> <p>Daiichi Unit 3 Primary : Believed RCS Breach Secondary: Lost SFP Status: Unknown</p> <p>Daiichi Unit 4 Primary : Intact; core offloaded (~107 days ago) Secondary: Lost SFP Status: Fuel reported uncovered</p> <p>Daiichi Unit 5 Primary : Intact Secondary: Intact SFP Status: Increasing temperature (80 degrees C)</p> <p>Daiichi Unit 6 Primary : Intact Secondary: Intact SFP Status: Increasing temperature (80 degrees C)</p> <p>Eva Brown, RST BWR Systems and Ops Analyst Nuclear Regulatory Commission (301) 816-5516</p>

(b)(6)

Source: E-Mail Sent to Jim Trapp	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/16/2011 02:00:09 (ET)	Unit 5 - January 3, 2011 Fully Loaded
Position: RST BWR Systems and Ops Analyst	Unit 6 - August 14, 2010 Fully Loaded
Name: Eva Brown	
Record: 1463	
Facility:	
Source: IAEA 1800 GMT 3/15	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/16/2011 01:29:28 (ET)	E-Mailed Jeff Kowalczyk status sheet for brief with USAID Administrator
Position: RST BWR Systems and Ops Analyst	
Name: Eva Brown	
Record: 1462	
Facility:	
Source:	
Address/Location:	
Attachment: 	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/16/2011 00:49:35 (ET)	TEPCO releases photo of No.4 reactor
Position: RST BWR Systems and Ops Analyst	Tokyo Electric Power Company has released a photograph of the No.4 reactor building at the Fukushima Daiichi nuclear power plant where fires were reported on Tuesday and Wednesday.
Name: Eva Brown	
Record: 1461	
Facility:	<p>It shows that a large portion of the buildings outer wall has collapsed.</p> <p>The company produced the photo at a news conference on Wednesday.</p> <p>The photo, shot the day before from the northwestern side of the reactor, shows that a large portion of the buildings outer wall has collapsed. There is an 8-meter hole on the 4th floor, and the interior is visible.</p> <p>Another 8-meter square hole was also confirmed on the outer wall of the building. Both appeared after an explosion early on Tuesday.</p> <p>An ensuing fire near the 4th floor reportedly later went out on its own.</p> <p>Flames were also found spewing from the building early Wednesday, but the utility company said they were no longer visible half-an-hour later.</p>

(b)(6)

Wednesday, March 16, 2011 11:57 +0900 (JST)

Source: NHK Website

Address/Location:

Attachment:

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Date/Time: 03/16/2011 00:11:21 (ET)

Called GEH (Glen Watford).

Position: RST BWR Systems and Ops
Analyst

Name: Eva Brown

Record: 1460

Facility:

Source:

- Requested GEH find out complement of SFPs for Daiichi
- Confirmed GEH receipt of TEPCO request for Gas turbines and dosimeters

Address/Location:

Attachment:

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Date/Time: 03/15/2011 23:59:02 (ET)

Assumed the watch from Chuck Norton at 2300

Position: RST BWR Systems and Ops
Analyst

Name: Eva Brown

Record: 1459

Facility:

Source:

- Request from TEPCO to GE for Turbines/Dosimeters
- Support to Ulises on SFP

Address/Location:

Attachment:

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Date/Time: 03/15/2011 23:22:21 (ET)

Chuck Norton Logging out

Position: RST BWR Systems and Ops
Analyst

Name: Charles Norton

Record: 1458

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/15/2011 23:02:28 (ET)

Signing off

Position: RST Accident Seq Analyst

Name: michael salay

Record: 1457

Facility:

Source:

Address/Location:

Attachment:

(b)(6)

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This information is Official Use Only - Sensitive Internal Information.

Date/Time:	03/15/2011 21:32:08 (ET)	Regulatory Analysis for the Resolution of Generic Issue 82 "Beyond Design Basis Accidents in Spent Fuel Pool" NUREG-1353, page 4-10, indicates that no absorbers are used in high density racks, just spacing.
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1456	
Facility:		This information is from 1989 and may have since changed.
Source:		The NUREG has been placed in Mishared\Fuel Pools

Address/Location:	
Attachment:	

This information is Official Use Only - Sensitive Internal Information.

Date/Time:	03/15/2011 20:53:36 (ET)	Discussion with PMT and DOE regarding concerns over similar times of reported explosions in Unit 2 and Unit 4
Position:	RST Coordinator	
Name:	Frank Collins	
Record:	1455	
Facility:		
Source:		RST related information from J.Trapp that TEPCO now attributes source of noise to Unit 4 explosion instead of Unit 2

Address/Location:	
Attachment:	

This information is Official Use Only - Sensitive Internal Information.

Date/Time:	03/15/2011 20:36:53 (ET)	Heard on phone call from GE that spent fuel pool loading for all 6 units have been converted to high density storage. Concern that absorber racks may melt first. Looking for information.
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1454	
Facility:		
Source:	GEH	

Address/Location:	
Attachment:	

This information is Official Use Only - Sensitive Internal Information.

Date/Time:	03/15/2011 19:56:19 (ET)	Provided GE info on MOX info to RPT and to NARAC. Will provide loadings as provided by GE.
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1453	
Facility:		
Source:		

Address/Location:	
Attachment:	

This information is Official Use Only - Sensitive Internal Information.

Date/Time:	03/15/2011 19:44:48 (ET)	GEH is having a conference call with TEPCO. They will ask the status of the fire on U4. The dose at U4. The make up of the fuel pool (high density?) They will call us after the call.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1452	

(b)(6)

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Facility:	
Source:	GEH, Madronera
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/15/2011 18:48:57 (ET)
Position:	RST Coordinator
Name:	Frank Collins
Record:	1451
Facility:	
Source:	LT
LT related DOS requests NRC impression on validity of reported fire at Unit 4 RST acknowledged open source info	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/15/2011 18:46:30 (ET)
Position:	RST Coordinator
Name:	Frank Collins
Record:	1450
Facility:	
Source:	CNN and TEPCO reports
Fire in Unit 4, NE corner	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/15/2011 18:42:54 (ET)
Position:	RST Accident Seq Analyst
Name:	michael salay
Record:	1449
Facility:	
Source:	GEH
Contacted GEH about which plants have MOX. Unit 3 is the only plant at Fukushima-Daiichi that has MOX. It has 32 bundles. GE would try to find out this information.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/15/2011 18:40:26 (ET)
Position:	RST Accident Seq Analyst
Name:	michael salay
Record:	1448
Facility:	
Source:	NARAC
NARAC requested confirmation about which reactors had MOX fuel and what the loadings would be. This information was requested for RASCAL calculations. The concern was that calculated doses may be non conservative.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/15/2011 18:19:41 (ET)
	RST BWR Systems and Ops
CNN reports that there is a new fire at Unit 4. State Department asking through the Government liason for our assesment of the impact of this report.	

(b)(6)

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Position:	Analyst	Jim Trapp in Japan has not recieved any report from the Japanese about this reported fire. No assessment at this time until the source of the fire is determined.
Name:	Charles Norton	
Record:	1447	
Facility:		
Source:	CNN	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/15/2011 17:03:44 (ET)	Verified question on potential OPA questions. Highlighted section consistent with GDC.
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1446	
Facility:		
Source:	10 CFR 50 Appendix A	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/15/2011 16:58:47 (ET)	Verifying accuracy of responses to Q&A for potential OPA questions.
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1445	
Facility:		
Source:	10 CFR 50 Appendix A	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/15/2011 15:10:21 (ET)	Assumed Severe Accident Analyst Position
Position:	RST Accident Seq Analyst	
Name:	michael salay	
Record:	1444	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/15/2011 15:08:03 (ET)	completed dayshift support of RST Coordinator
Position:	RST Coordinator	
Name:	Peter Alter	
Record:	1443	
Facility:		
Source:		
Address/Location:		

(b)(6)

Attachment:

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Date/Time: 03/15/2011 15:06:02 (ET)

Turn-over.

Position: RST Accident Seq Analyst

Name: Jeff Circle

Record: 1442

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/15/2011 15:05:06 (ET)

assumed BWR Analyst position

Position: RST BWR Systems and Ops Analyst

Name: Charles Norton

Record: 1441

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/15/2011 14:16:44 (ET)

Status report from IAEA Emergency Center -

Position: RST Chronologist

- Reduction in onsite dose rates

Name: Donna Williams

- Unit 1 maintaining shutdown. mobile power generators in use.

Record: 1439

- Unit 2 maintained shutdown. mobile power generators in use. at 21/14 UTC 14 March suppression chamber pressure decreased, smoke observed.

Facility:

- Unit 3 - maintained shutdown.

RST Chronologist - Donna Williams at 14:22:53 on 3/15/2011

Source: IAEA

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/15/2011 14:16:44 (ET)

Status report from IAEA Emergency Center -

Position: RST Chronologist

- Reduction in onsite dose rates

Name: Donna Williams

- Unit 1 maintaining shutdown. mobile power generators in use.

Record: 1440

- Unit 2 maintained shutdown. mobile power generators in use. at 21/14 UTC 14 March suppression chamber pressure decreased, smoke observed.

Facility:

- Unit 3 - maintained shutdown.

Source: IAEA

Address/Location:

Attachment:

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Date/Time: 03/15/2011 13:55:47 (ET)

Information from WANO Tokyo Center:

(b)(6)

10/23/13

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Position:	RST Chronologist	-no water is being injected into the SFPs -- operators are focusing on getting water into the cores. - For units 1 and 3, fire trucks are pumping seawater through core spray into the RCS. Units 1 and 3 are stable. - Unit 2 lost RCIC 32 hours ago. Manually operating SRVs. Core was uncovered for 2 hours before seawater injection initiated with diesel driven fire pump. Level recovered to halfway up fuel. Defect in torus. - Unit 4. Elevated dose rates prohibit connecting seawater to the SFP. - Control room dose 10-20 R/hr. - INPO to put out an event report later today.
Name:	Donna Williams	
Record:	1438	
Facility:		
Source:	INPO Operations Center	

Address/Location:	
Attachment:	

This information is Official Use Only - Sensitive Internal Information.

Date/Time:	03/15/2011 13:29:39 (ET)	Conference call with GE - Wilmington on spent fuel pool questions. GE believes that U4 has a full core offload. U5/U6 had done a "normal" refueling. They have no information on piping isometrics to determine possible injection paths. Asked about alternate decay heat removal. For longer term storage, the site has dry cask and a large common pool which has fuel from all six units.
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1436	
Facility:		GE call at 12:00 EDT. RST Accident Seq Analyst - Jeff Circle at 13:33:50 on 3/15/2011
Source:		

Address/Location:	
Attachment:	

This information is Official Use Only - Sensitive Internal Information.

Date/Time:	03/15/2011 13:29:39 (ET)	Conference call with GE - Wilmington on spent fuel pool questions. GE believes that U4 has a full core offload. U5/U6 had done a "normal" refueling. They have no information on piping isometrics to determine possible injection paths. Asked about alternate decay heat removal. For longer term storage, the site has dry cask and a large common pool which has fuel from all six units.
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1437	
Facility:		
Source:		

Address/Location:	
Attachment:	

This information is Official Use Only - Sensitive Internal Information.

Date/Time:	03/15/2011 13:09:35 (ET)	Unit 4 core was fully offloaded to replace core internals. Units 5 and 6 in a normal refueling outage. Common fuel pool onsite with spent fuel from all 6 units. status unknown. Temperature elements in Unit 4 SFP operating correctly, assume water in SFP up to upper thermocouples. Temperature stabilized at 100C.
Position:	RST Chronologist	
Name:	Donna Williams	
Record:	1435	
Facility:		
Source:	GEH - phone call	

Address/Location:	
Attachment:	

This information is Official Use Only - Sensitive Internal Information.

Date/Time:	03/15/2011 11:18:53 (ET)	Reported that Japanese are airlifting water to the Unit 4 SFP.
Position:	RST Chronologist	
Name:	Donna Williams	

(b)(6)

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Record:	1434
Facility:	
Source:	NRC staff in Japan - Tony Ulises
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/15/2011 10:29:00 (ET)
Position:	RST Chronologist
Name:	Donna Williams
Record:	1433
Facility:	
Source:	NRC staff at embassy, Japan
<p>Phone call from Jim Trapp/Tony Ulises. Stated that the US navy base in Yokouska (approx 200 miles from site) read 1.5 mR (10mR/hr thyroid/ 1.5 mR/hr TEDE). Admiral plans to shelter people on base.</p> <p>2 fire engines delivered this morning to site. US has other equipment available, but cannot deliver unless Japanese government requests.</p> <p>NISA reps. confirmed hydrogen explosion in U4, SFP uncovered, no damage to secondary containment. No information on level of SFPs or whether cooling is being pursued.</p> <p>Unit 5 and 6 SFP temperatures increasing.</p>	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/15/2011 08:51:29 (ET)
Position:	RST Coordinator
Name:	Peter Alter
Record:	1432
Facility:	
Source:	
Assisting R. Hasselberg	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/15/2011 08:25:47 (ET)
Position:	RST Accident Seq Analyst
Name:	Jeff Circle
Record:	1431
Facility:	
Source:	
Discussion of potential boil-off of spent fuel pool at U4 and reports of 40R/hr rad field between U3 and U4.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/15/2011 08:02:48 (ET)
Position:	RST Counterpart Communicator
Name:	Donna Williams
Record:	1430
Facility:	
Source:	NRC - Tony Ulises/Jim Trapp
<p>email from NRC staff in Japan provided details of an interview with a NISA engineer. NRC team had incorrectly concluded that Unit 2 core cooling was lost and 3 fission barriers were compromised, and that Unit 4 SFP experienced a fire. Currently believe that Unit 2 is being cooled. Possibility that SRV could malfunction in Unit 2. Unit 4 fire explained to be an oil fire in U4 reactor building. NISA believes there was a hydrogen explosion at Unit 4.</p>	
Address/Location:	
Attachment:	

10/23/13

OUO - Sensitive Internal Information

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/15/2011 07:54:43 (ET)	Turnover from Steve Laur.
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1429	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/15/2011 07:36:47 (ET)	assumed watch at 7:00 3/15
Position:	RST Counterpart Communicator	
Name:	Donna Williams	
Record:	1428	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/15/2011 07:36:13 (ET)	Assumed watch as BWR OPS Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	James Shea	
Record:	1427	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/15/2011 06:55:00 (ET)	ET briefing reported that the Unit 2 fire was NOT a zirconium fire in the SFP but was apparently a lube oil fire.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1426	
Facility:		
Source:	Executive Team Briefing	

Address/Location:

Attachment:

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Date/Time:	03/15/2011 06:45:16 (ET)	NISA has indicated that Unit 2 primary intact; SRV control restored Unit 4 reactor building fire was not a zirc fire; turns out to be a RB generator lube oil fire. Dose rates trending down
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1425	
Source:		

(b)(6)

436495

Facility:	
Source:	Tony Ulises
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/15/2011 06:13:21 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Eva Brown
Record:	1424
Facility:	<p>Text of e-mail sent:</p> <p>Jim/Tony,</p> <p>Alex Robinson, from Defense Threat Reduction Agency (DTRA) should be trying to coordinate the delivery of 4 diesel driven pumps to Fukushima Daiichi. The pumps appear to be appropriately sized (75 to 150 psi) to pump against the head we are seeing in the RPV. DTRA indicated that they should be able to pump from a pool and they will provide logistics regarding maintaining adequate fuel.</p> <p>TEPCO will need to indicate the best place to connect the pumps.</p> <p>Eva Brown, RST BWR Systems and Ops Analyst Office of Nuclear Reactor Regulation Nuclear Regulatory Commission (301) 816-5516</p>
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/15/2011 06:02:44 (ET)
Position:	RST Accident Seq Analyst
Name:	Steven Laur
Record:	1423
Facility:	
Source:	DTRA representative
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/15/2011 04:41:40 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Eva Brown
Record:	1422
Facility:	
Source:	HSE - British
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	

(b)(6)

Date/Time:	03/15/2011 04:39:14 (ET)	Information received from Edano, Chief Cabinet Secretary, indicated dose rates of 596 uSv (59.6 mrem) at front gate
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1421	
Facility:		
Source:	Mathew Sharpe (202) 647-6611	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/15/2011 03:49:43 (ET)	Subsequent Tepco news release did NOT show Unit 4 Daini damaged. Latest report shows all 4 Daini units in cold shutdown.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1420	
Facility:		
Source:	Tepco News	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/15/2011 03:41:24 (ET)	Fukushima Daini Nuclear Power Station Unit 4: There was an increase of radiation dose at site boundary measured at the monitoring post of Fukushima Daini Nuclear Power Station. Accordingly, at 10:07 pm [Japan local time] Mar 14th and at 12:35am Mar 15th, it was determined that that a specific incident stipulated in article 10, clause 1 (Increase of radiation dose at site boundary) has occurred.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1419	
Facility:		
Source:	Tepco News	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/15/2011 03:01:06 (ET)	Conference call with Nuclear and Industrial Safety Agency (Japanese Regulator) at 0155 EDT Tuesday (3/15)
Position:	RST Counterpart Communicator	
Name:	Ken Hart	
Record:	1418	
Facility:		
		<p>Daiichi Units</p> <p>Unit 1 - H2 explosion and core damage has occurred. Water is being pumped into the core and core water level is -1750 mm. (We need to determine reference point to evaluate further.)</p> <p>Unit 2 - H2 explosion and core damage has occurred. Water being pumped into the core/vessel and pressure is at 88.8 psi. Drywell pressure is at 10.6 psi. Torus pressure is downscale low - we suspect instrument failure.</p> <p>Unit 3 - H2 explosion and core damage has occurred. Water being pumped into the core and core water level is -1800.</p> <p>Unit 4 - spent fuel pool (SFP) fire is believed to be out, but need to confirm.</p> <p>Units 4-6 are in safe condition.</p> <p>Spent fuel pools 1-3 and 5-6 status is unknown.</p> <p>40-50 personnel remain onsite for emergency operations</p> <p>Daini Units</p> <p>Units 1-4 are in safe condition</p>
Source:	NISA	

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/15/2011 02:55:31 (ET)	Fire at No.4 reactor put down
Position:	RST BWR Systems and Ops Analyst	Tokyo Electric Power Company says the fire has been extinguished at the No.4 reactor at the quake-hit nuclear power plant in Fukushima prefecture.
Name:	Eva Brown	
Record:	1417	
Facility:		<p>Company officials said that the fire had started at 9:38 AM local time on Tuesday near the northwestern part of the 4th floor of the building that houses the reactor at the Fukushima No.1 nuclear power plant.</p> <p>The officials said before the fire, an explosion was heard and that an area near the roof of that building was found to have been damaged.</p> <p>TEPCO is confirming reports that the temperature of the pool which contains spent nuclear fuel had risen from its usual 40 degrees Celsius to 84 degrees.</p> <p>A company official says a hydrogen explosion is thought to have occurred at the No.4 reactor, but details including its relation to the fire are unknown.</p> <p>Chief Cabinet Secretary Yukio Edano told reporters shortly after 11:00 AM on Tuesday that a fire had broken out at the No.4 reactor.</p> <p>He said the reactor has not been operating after the earthquake, but hydrogen is being produced because spent fuel creates its own heat.</p> <p>He said so it can be inferred that a hydrogen explosion similar to those that took place at the No. 1 and 3 reactors occurred.</p> <p>Tuesday, March 15, 2011 13:48 +0900 (JST)</p> <p>.Top StoriesWorldPolitics & BusinessSociety & Others.Massive quake hits northeastern Japan Government frames quake response policy Reactor cooling equipment fails at TEPCO Tsunami warnings out for broad Pacific areas Govt sets up situation room Foreign Minister launches task force Major tsunami alert Disaster bulletin board set up by phone carriers Countries, UN offering helpHelplines for Chinese, Taiwanese, S.KoreansUS House probes Muslim-terror linksTsunami warnings issued for Pacific regionRed Cross chief concerned about Libyan civiliansGulf states offer \$20 billion to Oman, BahrainJapanese rescuers end NZ missionUS defense official cancels trip to OkinawaFrance, UK ask EU to recognize Libyas oppositionYemeni protesters reject presidents vow to reformTension high in Saudi Arabia Clinton to visit Egypt, Tunisia Asian officials discuss rising food prices Russia remains cautious about no-fly zone NATO: UNSC needed for Libya no-fly zone NZ team investigates collapsed building Witness: "the collapse occurred in a second"Libya sanctions extended by EU Japan to support rebuilding schools in IraqLifeline air bombed France recognizes Libyas opposition council People in Tokyo urged to waitUS, South Korea offer helpGovernment frames quake response policyDisaster</p>

bulletin board set up by phone carriersGov sets up earthquake task forceNHK asked to focus on govt policiesJapan to criminalize creation of computer virusesOpposition camp reaction to Kans fund issueOkada: Kan neednt resignMinisters: Kan doesnt have to resignChild abuse cases in Japan hit record highKan admits receiving illegal funds from foreignerObama urged to bar Maher from Japan posts

Source: NHK World English 12:56am

Address/Location:

Attachment:

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Date/Time: 03/15/2011 01:03:38 (ET)

Provided information from SFP Decommissioning Study see attachment

Position: RST BWR Systems and Ops Analyst

Name: Eva Brown

Record: 1416

Facility:

Source: Tanya Mensah

Address/Location:

Attachment: 

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/15/2011 00:38:15 (ET)

Unit 4

Position: RST BWR Systems and Ops Analyst

- Fire in spent fuel pool (SFP)

- SFP drained

Name: Eva Brown

Unit 2

Record: 1415

- loud noise assumed core going ex-vessel

Facility:

- primary failed

- no ac; having problems controlling SRVs

- 4MPa (~500 psi)

- based on pressure fire pump not believed effective

- Suppression pool pressure went from 3 atmosphere to 1 atmosphere

Source: Tony Ulises 13:38 Japan

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time: 03/15/2011 00:21:45 (ET)

Daiichi Units

Position: RST Counterpart Communicator

Unit 1 Core cooling stable, SFP OK

Unit 2 No core cooling, loud sound in drywell and containment pressure dropped from 3 to 1 atmosphere. Core melt and breach of containment suspected.

Name: Ken Hart

Unit 3 - Core Cooling stable, no info on SFP

Record: 1412

Unit 4 - Reactor fuel offloaded 105 days ago, SFP dry and on fire.

Winds have shifted from the northeast - toward Tokyo. 10R/hr at site boundary

Daini Reactors - no change

9 people enroute to Japan

DOE monitoring team enroute - 7 hours out.

(b)(6)

10/23/13

~~OUO - Sensitive Internal Information~~

Facility:	10 R/hr at unit 4.	
RST Counterpart Communicator - Ken Hart at 00:41:46 on 3/15/2011		
Source:	TA Brief at 2330	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/15/2011 00:19:46 (ET)	Did some research regrading spent fuel pool fires related to decommissioning. Recommendation was to use sand.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1413	
Facility:		
Source:	Tanyah Mensah	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/15/2011 00:21:45 (ET)	<p>Daiichi Units</p> <p>Unit 1 Core cooling stable, SFP OK</p> <p>Unit 2 No core cooling, loud sound in drywell and containment pressure dropped from 3 to 1 atmosphere. Core melt and breach of containment suspected.</p> <p>Unit 3 - Core Cooling stable, no info on SFP</p> <p>Unit 4 - Reactor fuel offloaded 105 days ago, SFP dry and on fire.</p> <p>Winds have shifted from the northeast - toward Tokyo. 10R/hr at site boundary</p> <p>Daini Reactors - no change</p> <p>9 people enroute to Japan</p> <p>DOE monitoring team enroute - 7 hours out.</p>
Position:	RST Counterpart Communicator	
Name:	Ken Hart	
Record:	1414	
Facility:		
Source:	TA Brief at 2330	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/15/2011 00:03:47 (ET)	<p>Fukushima (Daiichi) Reactor 2 - status and recommendation 00:05 EDT March 15, 2011</p> <p>Unit 2 has been reported to have core melt, vessel breach, and containment breach. Recommendation - continue to flood the drywell to keep the core covered and provide some level of scrubbing of fission products and reduce potential for further failure of primary containment (e.g., core-concrete interactions and failure of drywell bottom.</p>
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1411	
Facility:		
Source:	RST discussions	

(b)(6)

441/495

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/15/2011 00:00:10 (ET)	Dose Estimate:
Position:	RST BWR Systems and Ops Analyst	Unit 1 38mSv/hr (3.8R/hr)
Name:	Eva Brown	Unit 3 400mSv/hr (40R/hr)
Record:	1410	Unit 4 100mSv/hr (10R/hr)
Facility:		
Source:	Gordon Szeto, DD Naval Reactors	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/14/2011 23:55:02 (ET)	Confirmed that fuel offload was 105 days for Daiichi
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1409	
Facility:		
Source:	Glen Watford, GEH	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/14/2011 23:58:11 (ET)	Fukushima (Daiichi) Reactors 1, 2, and 3 Status at 2000 hrs EDT, March 14, 2011 (Len Ward)
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	NRC staff analysts reviewing what is known about the Unit 1, 2, and 3 reactors estimate that as much as 50% core damage and melting of the core may have occurred due to the reported extended lack of coolant addition to the reactor vessel. Under these conditions some nuclear fuel and other core debris material is expected to have relocated into the lower plenum region of the vessel. The NRC staff suspects, however, that the operators have been able to inject water into either the core or drywell portion of the containment, thereby cooling either the core and/or lower plenum regions of the vessel, preventing a possible containment failure. This cooling condition is inferred by the absence of high radioactivity levels.
Record:	1408	
Facility:		
Source:	Len Ward (late entry)	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/14/2011 23:55:03 (ET)	Severe Accident Consequences Brief - Len Ward 18:00 EDT March 14, 2011
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	In this hypothetical event in which no cooling water is added to the core, the water level in the core will decrease, exposing the top of the core to a steam environment and a subsequent heat-up of the fuel rods. As the water continues to boil and recede toward the core bottom, the heat-up rate of the rods will increase rapidly resulting in fuel cladding failure and melt. With the continued lack of cooling water, the melting rods will relocate toward the bottom of the core and eventually into the lower plenum of the reactor vessel. Molten fuel and core debris entering
Record:	1407	
Facility:		

(b)(6)

Facility:	<p>the lower plenum will then cause the lower plenum liquid to boil. If cooling water is added to the drywell to a level above the top elevation of the lower plenum, lower head failure can be prevented. With no cooling water added to the drywell, the lower head will fail by creep rupture allowing molten fuel to enter the drywell. Moreover, the absence of cooling water to the drywell could also result in a containment failure. With cooling water added to the drywell, however, a containment venting capability is also needed to preclude failure from over-pressurization. A containment failure will result in a large radioactive release to the environment.</p> <p>Please note that failure to add water to the core and drywell is a hypothetical worst case event that will result in containment failure and radioactive release to the environment.</p>	
Source:	Len Ward (late entry)	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 23:50:29 (ET)	Recommendation for zirc fire is to use sand to aid in prevention of hydrogen generation
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1406	
Facility:		
Source:	Gordon Szeto, Deputy Director for Naval Reactors 23:02	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 23:49:20 (ET)	Called NRC fire experts G. Wiseman and P. Qualls regarding zirc fire recommendations
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1405	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 23:27:55 (ET)	<p>Performed estimate of Daiichi Unit 4 boil-off.</p> <p>Believes ~ 1m over SFP unless sloshing or crack in the liner</p> <p>Recommended to spray from the top</p> <p>Boil of rate ~1.5-2 m/H</p> <p>Using PB model, full core offload</p>
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1404	
Facility:		
Source:	Charlie Tinkler	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		

(b)(6)

Date/Time:	03/14/2011 23:47:23 (ET)	Provided LWR source term information to dose team: Tables 5.1-1 and 5.1-3 of NUREG/CR-6042.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1403	
Facility:		
Source:	NUREG/CR-6042	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 23:47:31 (ET)	Kimyata Morgan Butler logging off as RST PMT Assessment Liaison.
Position:	RST PMT Assessment Liaison	
Name:	Kimyata MorganButler	
Record:	1402	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 23:20:11 (ET)	Update: 10 R per hour at the gate of Unit 4.
Position:	RST PMT Assessment Liaison	
Name:	Kimyata MorganButler	
Record:	1401	
Facility:		
Source:	PMT team	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 23:18:09 (ET)	Dose at unit 4 gate from spent fuel fire is reported to be around 10 Rem/hour.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1400	
Facility:		
Source:	Dose Team Member	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 23:07:39 (ET)	Len indicated that unit 4 has a reported zirconium fire in the spent fuel pool. Team is researching best way to fight a zirconium fire; trying to contact Mark Salley or Phil Qualls to determine if fog nozzles, sprays, or other means should be used. Question: what dose rates would be expected near the burning spent fuel?
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1399	
Facility:		
Source:	Len Ward (turnover)	
Address/Location:		

(b)(6)

Attachment:

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Date/Time:	03/14/2011 23:07:30 (ET)	U2 fuel has gone ex vessel Zirc Fire confirmed on U4 fuel pool
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1398	
Facility:		
Source:	Tony Ulyes	

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/14/2011 22:43:04 (ET)	Unit 2 is ex-vessel. Unit 4 is experiencing a zirconium spent fuel fire. RST PMT Assessment Liaison - Kimyata MorganButler at 23:04:24 on 3/14/2011
Position:	RST PMT Assessment Liaison	
Name:	Kimyata MorganButler	
Record:	1394	
Facility:		
Source:	Tony Ulyes	

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/14/2011 23:02:37 (ET)	Relieved Len Ward at 23:00 EDT after turnover.
Position:	RST Accident Seq Analyst	
Name:	Steven Laur	
Record:	1396	
Facility:		
Source:		

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/14/2011 23:00:18 (ET)	relieved by Steve Laur at 2300 EDT
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	1395	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	03/14/2011 22:43:04 (ET)	Unit 2 is ex-vessel. Unit 4 is experiencing a zirconium spent fuel fire.
Position:	RST PMT Assessment Liaison	
Name:	Kimyata MorganButler	
Record:	1397	
Facility:		

(b)(6)

Source:	Tony Ulyses	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 22:17:42 (ET)	40 mSv (4 rem) per hour is being released close to Unit 4 due to spent fuel pool zirconium fire.
Position:	RST PMT Assessment Liaison	
Name:	Kimyata MorganButler	
Record:	1393	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 22:11:48 (ET)	Reports of fire on site at Unit 4 Fukushima. Tokyo Power & Electric requested help to extinguish, nuclear fuel/Oil on fire, request assistance with firetrucks and helicopters to extinguish. They are designating a safe area for responders.
Position:	RST PMT Assessment Liaison	
Name:	Kimyata MorganButler	
Record:	1392	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 22:11:52 (ET)	Spent Fuel burning in unit 4
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1391	
Facility:		
Source:	Japan Government official	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 21:58:16 (ET)	Injection of coolant into the reactor vessel and/or drywell will maximize potential for preventing containment failure. Drywell needs to be filled above mid plane elevation of core to facilitate lower head cooling containing relocated core fuel/debris.
Position:	RST Accident Seq Analyst	
Name:	Leonard Ward	
Record:	1390	
Facility:		
Source:	Staff recommendation	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 21:46:26 (ET)	Conference call with Gordon Szeto of the US Navy. Reported dose measurement at the perimeter as 8217µSv (820 mrem) per hour for Plant #1 at the fence. This is a factor of about 10 above the normal monitoring levels.
Position:	RST PMT Assessment Liaison	
Name:	Kimyata MorganButler	

Record:	1389
Facility:	
Source:	Gordon Szeto
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information	
Date/Time:	03/14/2011 21:20:18 (ET)
Position:	RST PMT Assessment Liaison
Name:	Kimyata MorganButler
Record:	1388
Facility:	
Source:	
Kimyata Morgan Butler signed on as RST-PMT Liaison at 4:20pm EST.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information	
Date/Time:	03/14/2011 21:17:52 (ET)
Position:	RST Accident Seq Analyst
Name:	Leonard Ward
Record:	1387
Facility:	<p>Information for Jim Trapp</p> <p>Jeff circle has passed on some information for from the J.A. Fitzpatrick IPE PRA as follows:</p> <p>Drywell failure probability with DW at > 30 psig, high H2 concentration and deflagration burn = ~ 0.61</p> <p>Drywell failure probability with DW at > 30 psig, medium h2 concentration and deflagration burn = ~0.057</p> <p>Drywell failure probability with high DW pressure, low RPV pressure = ~ 0.016</p> <p>Pedestal melt thru given drywell and superheated debris = ~ 0.84</p> <p>Some of these are related to the conditions at Fukushima; long term station blackout, complete loss of decay heat removal, loss of injection and no containment venting. If they vent containment and not ignite H2, the failure probability drops off significantly. These will be checked with NUREG/CR-4550.</p>
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information	
Date/Time:	03/14/2011 19:48:06 (ET)
Position:	RST Accident Seq Analyst
Name:	Leonard Ward
Record:	1386
Facility:	<p>Information for Jim Trapp</p> <p>Jeff circle has passed on some information for from the J.A. Fitzpatrick IPE PRA as follows:</p> <p>Drywell failure probability with DW at > 30 psig, high H2 concentration and deflagration burn = ~ 0.61</p> <p>Drywell failure probability with DW at > 30 psig, medium h2 concentration and deflagration burn = ~0.057</p> <p>Drywell failure probability with high DW pressure, low RPV pressure = ~ 0.016</p>

Facility:	Pedestal melt thru given drywell and superheated debris = ~ 0.84	
	Some of these are related to the conditions at Fukushima; long term station blackout, complete loss of decay heat removal, loss of injection and no containment venting. If they vent containment and not ignite H2, the failure probability drops off significantly. These will be checked with NUREG/CR-4550.	
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 19:45:14 (ET)	Jim Trapp confirmed the sea water is being injected to Units 1, 2 and 3. It is unknown if the Unit 2 explosion interrupted the seawater injection.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1385	
Facility:		
Source:	Jim Trapp	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 19:38:03 (ET)	Explosion on U2 was in secondary containment but the primary containment was damaged at the suppression chamber. Dose rate reached 96mR/hr and stabilized at 88mR/hr.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1384	
Facility:		
Source:	Jim Trapp	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 19:15:34 (ET)	Daiichi unit 2 possible damage to U2 primary containment. Plant Operators evacuated from the Suppression Room area.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1383	
Facility:		
Source:	NHK world news	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 19:12:49 (ET)	Explosion reported on Daiichi Unit 2. There is a potential radioactive release.
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	

Record:	1382	
Facility:		
Source:	NHK World	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 15:16:47 (ET)	Turned over Coordinator Job to R. Berry.
Position:	RST Coordinator	
Name:	Peter Alter	
Record:	1381	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 15:12:26 (ET)	Turnover to Len Ward
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1380	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 15:10:57 (ET)	Revised severe accident write up and recommendations
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1379	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 14:33:44 (ET)	Chuck Norton signed on as BWR Analyst
Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1378	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 14:15:08 (ET)	BWR Severe Accident Analyst is on call.

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Position:	RST Chronologist	Charlie Tinkler is available at (b)(6) (home) and (b)(6) (cell).
Name:	Steven Bloom	
Record:	1377	
Facility:		
Source:	Mike Scott	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 12:48:54 (ET)	Unit 2 lost reactor coolant and level dropped below the bottom of the fuel rods. Water injection was hindered by reactor pressure increase due to unintentional closure of safety relief valve. The cause is under investigation.
Position:	RST Accident Seq Analyst	
Name:	Steven Bloom	
Record:	1375	Reactor pressure was 0.207MPa at 2300 (1000 ET) and then 0.653 MPa at 2354 (1054 ET).
Facility:		
Source:	Email from Anon Kenjiro	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 12:48:54 (ET)	Unit 2 lost reactor coolant and level dropped below the bottom of the fuel rods. Water injection was hindered by reactor pressure increase due to unintentional closure of safety relief valve. The cause is under investigation.
Position:	RST Accident Seq Analyst	
Name:	Steven Bloom	
Record:	1376	Reactor pressure was 0.207MPa at 2300 (1000 ET) and then 0.653 MPa at 2354 (1054 ET).
Facility:		
Source:	Email from Anon Kenjiro	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 12:53:48 (ET)	Notified that I am leaving for Japan. Will turn over to Jeff Circle.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1374	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 12:25:55 (ET)	TEPCO at 0000 (1100 ET) that radiation dose at main gate at 2100 was 760 microsieverts and at location 9, the highest was 3130 microsieverts. At 2215, the level was down to 431.7 microsieverts.
Position:	RST Accident Seq Analyst	
Name:	Steven Bloom	
Record:	1373	
Facility:		
Source:	NHK	
Address/Location:		
Attachment:		

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Date/Time:	03/14/2011 12:14:44 (ET)	Confirmed that Rx Water Level in Unit 2 Reactor went below BAF again at 10:20 am. TEPCO attempting vent the Rx Vessel to lower pressure to allow injection.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1372	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	03/14/2011 12:02:54 (ET)	TEPCO at 2300 (1000 ET), announced that for unit 2, all the fuel rods were exposed.
Position:	RST Accident Seq Analyst	
Name:	Steven Bloom	
Record:	1371	
Facility:		
Source:	NHK	

Address/Location:

Attachment:

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Date/Time:	03/14/2011 11:26:36 (ET)	Provided Severe Accident Consequences talking points to Chairman for briefing at White House.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1370	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	03/14/2011 10:50:52 (ET)	As of 1330, 4 TEPCO employees and 3 workers from other companies have sustained injuries (all of them are conscious). 3 ambulances are in operation to care for them and 2 have already dispatched the casualties to the hospital.
Position:	RST Accident Seq Analyst	
Name:	Steven Bloom	
Record:	1369	
Facility:		
Source:	TEPCO Press Release	

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information.~~

Date/Time:	03/14/2011 10:48:47 (ET)	As of 00:30 (11:30 ET) the measured value of radiation dose at the monitoring post in Fukushima Daini Power Station located approximately 10 km south of Fukushima Daiichi Power Station remains at the same level.
Position:	RST Accident Seq Analyst	
Name:	Steven Bloom	
Record:	1368	
Facility:		

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Source:	TEPCO Press Release	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/14/2011 10:44:40 (ET)	At 00:30 (11:30 ET), the measured value of radiation dose near MP6 was 4 μ SV/h. The increase of the radiation does cannot be confirmed at this time.
Position:	RST Accident Seq Analyst	
Name:	Steven Bloom	
Record:	1367	
Facility:		
Source:	TEPCO Press Release	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/14/2011 10:45:21 (ET)	Provided equipment list associated with items needed to help supply water to Units 1 thru 3 plants to James Trapp. Working on Severe Accident Consequences Timeline.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1366	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/14/2011 09:00:37 (ET)	Previous entry about minimum flow is looking ahead to confirm GE's calculation that 250gpm flow to core would be sufficient to keep core from total dispersion. These conditions have not been met.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1365	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/14/2011 09:15:12 (ET)	Developing a list of priorities of what TEPCO needs to get from the US Navy
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1364	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/14/2011 09:00:20 (ET)	Relieved Brett Rini at 0700 Rollie Berry here at 0845 to help with coordination
Position:	RST Coordinator	

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Name:	Peter Alter	
Record:	1363	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 08:51:56 (ET)	Confirmed using Quad Cities SAM G that the minimum debris retention flow rate into containment is 200 gpm.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1362	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 08:37:31 (ET)	In response to event, water injection into Unit 2s reactor were being carried out by the Reactor Core Isolation Cooling System. However, as the RCIC system failed today, it was determined that a specific incident (failure of reactor cooling function) stipulated in article 15, clause 1 has occurred at 13:25 (00:25 ET) today.
Position:	RST Accident Seq Analyst	
Name:	Steven Bloom	
Record:	1361	
Facility:		
Source:	TEPCO Press Release	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 08:25:51 (ET)	At approximately 11:01 am (2:01 ET), an explosive sound followed by white smoke occurred at the reactor building of the Unit 3. It was believed to be a hydrogen explosion.
Position:	RST Accident Seq Analyst	
Name:	Steven Bloom	
Record:	1357	
Facility:		It is estimated that the reactor containment vessel remains intact. As of 11:44 am, the measured value of radiation dose is 20µSv/h and radiation level remains stable.
		RST Accident Seq Analyst - Steven Bloom at 08:35:25 on 3/14/2011 RST Accident Seq Analyst - Steven Bloom at 08:36:01 on 3/14/2011
		At approximately 11:01 am (22:01 ET), an explosive sound followed by white smoke occurred at the reactor building of the Unit 3. It was believed to be a hydrogen explosion.
		It is estimated that the reactor containment vessel remains intact. As of 11:44 am, the measured value of radiation

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~~OOO - Sensitive Internal Information~~dose is 20 μ Sv/h and radiation level remains stable.

RST Accident Seq Analyst - Steven Bloom at 08:36:13 on 3/14/2011

Source: TEPCO Press Release

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information~~

Date/Time: 03/14/2011 08:25:51 (ET)

Position: RST Accident Seq Analyst

Name: Steven Bloom

Record: 1360

At approximately 11:01 am (2:01 ET), an explosive sound followed by white smoke occurred at the reactor building of the Unit 3. It was believed to be a hydrogen explosion.

It is estimated that the reactor containment vessel remains intact. As of 11:44 am, the measured value of radiation dose is 20 μ Sv/h and radiation level remains stable.

Facility:

RST Accident Seq Analyst - Steven Bloom at 08:35:25 on 3/14/2011

RST Accident Seq Analyst - Steven Bloom at 08:36:01 on 3/14/2011

Source: TEPCO Press Release

Address/Location:

Attachment:

~~This information is Official Use Only - Sensitive Internal Information~~

Date/Time: 03/14/2011 08:25:51 (ET)

Position: RST Accident Seq Analyst

Name: Steven Bloom

Record: 1359

At approximately 11:01 am (2:01 ET), an explosive sound followed by white smoke occurred at the reactor building of the Unit 3. It was believed to be a hydrogen explosion.

It is estimated that the reactor containment vessel remains intact. As of 11:44 am, the measured value of radiation dose is 20 μ Sv/h and radiation level remains stable.

Facility:

RST Accident Seq Analyst - Steven Bloom at 08:35:25 on 3/14/2011

Source: TEPCO Press Release

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Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 08:25:51 (ET)	At approximately 11:01 am (2:01 ET), an explosive sound followed by white smoke occurred at the reactor building of the Unit 3. It was believed to be a hydrogen explosion.
Position:	RST Accident Seq Analyst	
Name:	Steven Bloom	It is estimated that the reactor containment vessel remains intact. As of 11:44 am, the measured value of radiation dose is 20µSv/h and radiation level remains stable.
Record:	1358	
Facility:		
Source:	TEPCO Press Release	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 08:13:31 (ET)	Phone Con with Info exchange with UK Nuclear Regulator to prep for meeting between Secretary of State and Prime Minister. Liason team room. 0930 call.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1356	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 07:56:47 (ET)	Request from Chairman on what happens when core melts thru bottom of vessel. Provided simplified drawing of vessel and containment and described dispersal of fuel when hits water or containment floor.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1355	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 07:56:38 (ET)	Questions on what the consequences will be should inventory not be restored.
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1354	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 07:46:26 (ET)	Fuel Pool Status update: Currently at 155 F with no cooling capability. Predicted to reach boiling conditions in 3 to 4 days. Estimate is 12 F/day heatup. After reaching boiling conditions then a couple GPM boiloff rate.
Position:	RST BWR Systems and Ops Analyst	


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Name:	Timothy Kolb	
Record:	1353	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 07:55:46 (ET)	Call with Exelon and GE on areas that TEPCO should concentrate on with US Navy support - discussed inventory control and power
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1352	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 07:55:34 (ET)	Started shift
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1351	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 07:44:51 (ET)	Held conference call with Exelon and GE. Suggestions for water source, flowpath and power sources provided to ET. Navy to help as much as possible.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1350	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 07:28:34 (ET)	turning over to Peter Alter @ 0700
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1349	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		

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Date/Time:	03/14/2011 07:10:49 (ET)	turning over to Jeff Circle
Position:	RST Accident Seq Analyst	
Name:	Michael Cheok	
Record:	1348	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 07:04:17 (ET)	Received new summary from Japanese on events at reactors to date.
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1347	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 06:50:53 (ET)	GE called in with suggestions for help to keep core covered.
Position:	RST BWR Systems and Ops Analyst	Recommendations:
Name:	Timothy Kolb	At least 250gpm needed per plant.
Record:	1346	Navy could supply Fire Fighting Gear, portable emergency diesels, dewatering equipment.
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 06:42:49 (ET)	Turnover to T. Kolb
Position:	RST BWR Systems and Ops Analyst	Focus Items:
Name:	Eva Brown	Monitoring Daiichi Unit 2
Record:	1345	Coordination with Exelon and GEH
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 06:34:11 (ET)	B5b document for Dresden - ML072150243
Position:	RST Coordinator	B5b document for Quad Cities - ML072150247
Name:	Brett Rini	
Record:	1344	
Facility:		
Source:		

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Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 06:18:30 (ET)	RST Director (Skeen) contacted by Glenn Watford, GM - GEH (910) 819-1007 to provide support. GEH will call RST back in 15-30 minutes.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1343	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 06:14:59 (ET)	Exelon (Darrin Benyak) returned call for support to RST Director. Skeen requested Exelon to start brainstorming.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1342	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 06:12:45 (ET)	Called Pam Cowan (574) 315-7900 from Exelon to request support. Pam indicated that Exelon was set up to support and would call back with contact information.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1341	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 06:11:25 (ET)	Request from Japan for support to identify sources of low pressure or high pressure injection. What equipment is required? How much power is needed, and of what type?
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1340	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 05:48:04 (ET)	Japan is currently rating the event at INES leve 4 based on radioactive levels at the site boundary.
Position:	RST Accident Seq Analyst	

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Name:	Michael Cheok
Record:	1339
Facility:	
Source:	INES Website
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/14/2011 04:02:36 (ET)
Position:	RST Accident Seq Analyst
Name:	Eva Brown
Record:	1337
Facility:	<p>Q. How would US boiling water reactor (BWR) plants cope with the loss of spent fuel pool (SFP) cooling?</p> <p>A. Typically upon loss of all cooling, it would take several days to uncover the spent fuel. The facilities have a redundant system able to be aligned to provide cooling in the event of a loss of normal SFP cooling. Should that system be unavailable, plant procedures dictate:</p> <ul style="list-style-type: none">- verification of the status of the secondary containment building,- monitoring of the affected area, and,- using other sources of cooling (i.e. demineralized water, fire water, etc...). <p>In the event of a loss of secondary containment, the above cooling mechanisms would remain available and there should be sufficient time to implement alternate sources of cooling.</p> <p>Proposed new Q & A regarding loss of SFP cooling for US BWRs for Commissioners Q&A list. Liason team and Executive team reviewing.</p> <p>RST Accident Seq Analyst - Eva Brown at 04:07:00 on 3/14/2011</p>
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/14/2011 04:02:36 (ET)
Position:	RST Accident Seq Analyst
Name:	Eva Brown
Record:	1338
Facility:	<p>Q. How would US boiling water reactor (BWR) plants cope with the loss of spent fuel pool (SFP) cooling?</p> <p>A. Typically upon loss of all cooling, it would take several days to uncover the spent fuel. The facilities have a redundant system able to be aligned to provide cooling in the event of a loss of normal SFP cooling. Should that system be unavailable, plant procedures dictate:</p> <ul style="list-style-type: none">- verification of the status of the secondary containment building,- monitoring of the affected area, and,- using other sources of cooling (i.e. demineralized water, fire water, etc...). <p>In the event of a loss of secondary containment, the above cooling mechanisms would remain available and there should be sufficient time to implement alternate sources of cooling.</p>
Source:	
Address/Location:	

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Attachment:		
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Date/Time:	03/14/2011 03:47:40 (ET)	Confirmed that Daiichi Unit 2 level is trending down
Position:	RST Accident Seq Analyst	
Name:	Eva Brown	
Record:	1336	
Facility:		
Source:	Tony Ulises 3:40 am	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 02:54:10 (ET)	RST concerns going forward
Position:	RST Accident Seq Analyst	- Potential loss of secondary due to H2 explosion
Name:	Eva Brown	- Recovery of injection for Fukushima Daiichi units
Record:	1335	- Status of Fukushima Daiichi ultimate heat sink
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 02:42:45 (ET)	All Fukushima Daiichi units loss ability to inject ~1 to 3: am Japan. Daiichi Unit 2 level trending down.
Position:	RST Accident Seq Analyst	Last update all cores covered.
Name:	Eva Brown	Venting setpoint @ 90#s
Record:	1334	All SFPs in good shape.
Facility:		AC power unable to be restored; problems with hooking up batteries.
		Unit 3 level at -6 ft (reference point unknown).
		Trapp support of US Ambassador briefing at 4:00 pm Japan.
Source:	Tony Ulises 2:39 Japan	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 02:17:16 (ET)	E-mail from Jim Trapp - "might want to start thinking about met and contamination and evacuating US assets.
Position:	RST Accident Seq Analyst	Ambassador will need this info if cooling is not recovered. Lost cooling all day." - Sent 2:16 AM EDT
Name:	Eva Brown	
Record:	1333	
Facility:		
Source:	Jim Trapp 2:16 am	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/14/2011 02:06:30 (ET)	"Situation very grave - lost cooling at all 3 units!"
Position:	RST Accident Seq Analyst	
Name:	Eva Brown	
Record:	1332	

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Facility:	
Source:	Jim Trapp 2:05 am Japan
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/14/2011 01:24:11 (ET)
Position:	RST Accident Seq Analyst
Name:	Eva Brown
Record:	1328
Facility:	Quad Cities Reference Info For Ulses/Trapp sent via e-mail Attached RST Coordinator - Brett Rini at 01:29:28 on 3/14/2011 RST Coordinator - Brett Rini at 01:30:48 on 3/14/2011 The Fuel Zone instrument range is -340 in. to +60 in. We believe 0 in. is TAF (use only if indicated level about - 303 in.). RST Coordinator - Brett Rini at 01:30:59 on 3/14/2011
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/14/2011 01:24:11 (ET)
Position:	RST Accident Seq Analyst
Name:	Eva Brown
Record:	1331
Facility:	Quad Cities Reference Info For Ulses/Trapp sent via e-mail Attached RST Coordinator - Brett Rini at 01:29:28 on 3/14/2011 RST Coordinator - Brett Rini at 01:30:48 on 3/14/2011
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/14/2011 01:24:11 (ET)
Position:	RST Accident Seq Analyst
Name:	Eva Brown
Record:	1330
Facility:	Quad Cities Reference Info For Ulses/Trapp sent via e-mail Attached RST Coordinator - Brett Rini at 01:29:28 on 3/14/2011
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/14/2011 01:24:11 (ET)
Position:	RST Accident Seq Analyst
Name:	Eva Brown
Record:	1329
Facility:	Quad Cities Reference Info For Ulses/Trapp sent via e-mail Attached
Source:	
Address/Location:	

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Attachment:

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Date/Time:	03/13/2011 23:29:22 (ET)	11:01 am Japan- Daiichi Unit 3 hydrogen explosion (bright yellow flash seen)- Seems to be a more energetic explosion than Unit 1 (4 times Met Tower)
Position:	RST BWR Systems and Ops Analyst	11:15 am Japan-TEPCO confirmed containment intact
Name:	Eva Brown	11:35 am Japan
Record:	1324	
Facility:		RPV Level = -108 cm (no reference given) RPV Pressure = 0.17MPa -A = 0.18MPa -B Drywell Pressure = 360 kPa Wetwell Pressure = 380 kPa No ac; DC power cart 11:35 am Japan RPV Level = -108 cm (no reference given) RPV Pressure = 0.17MPa (24.66 psi) -A = 0.18MPa (26.11 psi) -B Drywell Pressure = 360 kPa (52 psi) Wetwell Pressure = 380 kPa (55 psi) Dose rate at site boundary reading 20 uSv/hr (2 mrem/hr) RST BWR Systems and Ops Analyst - Eva Brown at 23:39:57 on 3/13/2011 Corrected RPV level should be -180cm RST BWR Systems and Ops Analyst - Eva Brown at 00:18:05 on 3/14/2011
Source:	Tony Ulse-Jim Trapp	

Address/Location:

Attachment:

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Date/Time:	03/13/2011 23:29:22 (ET)	11:01 am Japan- Daiichi Unit 3 hydrogen explosion (bright yellow flash seen)- Seems to be a more energetic explosion than Unit 1 (4 times Met Tower)
Position:	RST BWR Systems and Ops Analyst	11:15 am Japan-TEPCO confirmed containment intact
Name:	Eva Brown	11:35 am Japan
Record:	1327	
		RPV Level = -108 cm (no reference given) RPV Pressure = 0.17MPa -A = 0.18MPa -B Drywell Pressure = 360 kPa Wetwell Pressure = 380 kPa No ac; DC power cart 11:35 am Japan

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Facility:	RPV Level = -108 cm (no reference given) RPV Pressure = 0.17MPa (24.66 psi) -A = 0.18MPa (26.11 psi) -B Drywell Pressure = 360 kPa (52 psi) Wetwell Pressure = 380 kPa (55 psi) Dose rate at site boundary reading 20 uSv/hr (2 mrem/hr) RST BWR Systems and Ops Analyst - Eva Brown at 23:39:57 on 3/13/2011	
Source:	Tony Ulises Jim Trapp	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/13/2011 23:38:44 (ET)	Requested - Fuel Zone range info - Reactor Vessel level info
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1325	
Facility:		
Source:	23:26 Phone Call with Ulises/Trapp	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/13/2011 23:29:22 (ET)	11:01 am Japan- Daiichi Unit 3 hydrogen explosion (bright yellow flash seen)- Seems to be a more energetic explosion than Unit 1 (4 times Met Tower) 11:15 am Japan-TEPCO confirmed containment intact 11:35 am Japan
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1326	
Facility:	RPV Level = -108 cm (no reference given) RPV Pressure = 0.17MPa -A = 0.18MPa -B Drywell Pressure = 360 kPa Wetwell Pressure = 380 kPa No ac; DC power cart	
Source:	Tony Ulises Jim Trapp	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/13/2011 23:29:55 (ET)	23:00 - Assumed RST Coordinator position from Rick Hasselberg
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1323	
Facility:		

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Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/13/2011 23:28:53 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Eva Brown
Record:	1322
Facility:	
Source:	
22:59 Assuming watch from Chcuk Nortoin	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/13/2011 23:03:24 (ET)
Position:	RST Accident Seq Analyst
Name:	Michael Cheok
Record:	1321
Facility:	
Source:	
Cheok assuming position	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/13/2011 22:55:56 (ET)
Position:	RST Severe Accident Analyst
Name:	Hossein Esmaili
Record:	1320
Facility:	
Source:	
turn over to Cheok	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/13/2011 22:24:10 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Charles Norton
Record:	1319
Facility:	
Source:	Jim Trapp
U3 containment has blown off while trying to vent.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/13/2011 22:20:17 (ET)
Position:	RST BWR Systems and Ops Analyst
Sounds of an explosion at unit 3.	
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Position:	Analyst
Name:	Charles Norton
Record:	1318
Facility:	
Source:	NHK World News
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/13/2011 19:30:16 (ET)
Position:	RST Severe Accident Analyst
Name:	Hossein Esmaili
Record:	1317
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/13/2011 17:59:54 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Charles Norton
Record:	1315
Facility:	
Source:	EDO
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/13/2011 17:59:54 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Charles Norton
Record:	1316
Facility:	
Source:	EDO
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/13/2011 16:13:21 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Charles Norton
Record:	1314
Facility:	

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Source:	NHK World News	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/13/2011 14:46:35 (ET)	Conducted an information exchange with UK Nuclear Regulators. See email request on RST01.
Position:	RST Coordinator	RST Coordinator - Peter Alter at 15:20:56 on 3/13/2011
Name:	Peter Alter	
Record:	1310	UK regulator reported that they had seen a TEPCO report that fire water is being added to the Unit 1 Spent Fuel Pool, need to confirm this!
Facility:		RST Coordinator - Peter Alter at 15:21:44 on 3/13/2011
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/13/2011 14:46:35 (ET)	Conducted an information exchange with UK Nuclear Regulators. See email request on RST01.
Position:	RST Coordinator	RST Coordinator - Peter Alter at 15:20:56 on 3/13/2011
Name:	Peter Alter	
Record:	1313	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/13/2011 15:02:44 (ET)	Turn over to Hossein Esmaili
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1311	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/13/2011 14:46:35 (ET)	Conducted an information exchange with UK Nuclear Regulators. See email request on RST01.
Position:	RST Coordinator	
Name:	Peter Alter	
Record:	1312	
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/13/2011 14:47:44 (ET)	Assumed BWR Analyst Position

Position:	RST BWR Systems and Ops Analyst	
Name:	Charles Norton	
Record:	1309	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/13/2011 14:44:19 (ET)	Relieved by Chuck Norton.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1308	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/13/2011 13:36:22 (ET)	Contacted by James Trapp from Japan and provided RST questions with the priority pertaining to electrical power and status of fuel pool.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1307	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/13/2011 12:42:42 (ET)	Via news reports, RST staff determined that four plants at the Kashiwazaki-Kariwa site have continued to operate after the earthquake.
Position:	RST Chronologist	
Name:	Joseph Williams	RST Coordinator - Peter Alter at 13:14:14 on 3/13/2011
Record:	1304	
Facility:		
Source:		
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/13/2011 13:09:55 (ET)	Meeting in 5 hours with Japanese on questions.
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1305	
Facility:		
Source:		

Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/13/2011 12:42:42 (ET)	Via news reports, RST staff determined that four plants at the Kashiwazaki-Kariwa site have continued to operate after the earthquake.
Position:	RST Chronologist	
Name:	Joseph Williams	
Record:	1306	
Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	03/13/2011 12:13:36 (ET)	Priorities from ET are to update the Chairmans Questions with more technical information for backup. Next is to develop potential question we may expect from the public for Monday.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1303	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/13/2011 08:55:31 (ET)	Priority is to answer the Q&A's, add more questions; add more to questions for TEPCO; US plants extent-of-condition, checking into SBO rule coping time and configurations
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1302	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/13/2011 08:54:49 (ET)	Trying to determine time of seawater injection to Daiichi U1/U3.
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1301	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/13/2011 07:14:31 (ET)	E-mailed list of critical questions for the RST Team to Tony Ulises that were developed 3/12/2011.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	

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Record:	1300
Facility:	
Source:	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/13/2011 06:55:11 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Timothy Kolb
Record:	1299
Facility:	
Source:	
Assumed the shift.	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/13/2011 07:11:37 (ET)
Position:	RST Chronologist
Name:	Jerry Dozier
Record:	1298
Facility:	
Source:	
Jerry Dozier assumes shift as chronologist	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/13/2011 07:10:48 (ET)
Position:	RST Accident Seq Analyst
Name:	Jeff Circle
Record:	1297
Facility:	
Source:	
Jeff Circle assumed shift	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/13/2011 06:50:43 (ET)
Position:	RST BWR Systems and Ops Analyst
Name:	Eva Brown
Record:	1296
Facility:	
Source:	
Turnover to T. Kolb	
Address/Location:	
Attachment:	
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Date/Time:	03/13/2011 06:10:52 (ET)	Questions for Uses
Position:	RST BWR Systems and Ops Analyst	March 13, 2011- 06:06 am EST
Name:	Eva Brown	Reactor Safety Team Questions:
Record:	1291	
Facility:		<p>1] What is the alignment for the sea water and boric acid injection?</p> <p>2] How are the Daiichi units lowering containment vessel pressure?</p> <p>3] What is the RPV level, temperature and pressure for each of the Fukushima Daiichi Units?</p> <p>4] What are the issues related to using the portable generators?</p> <p>5] What is the status of spent fuel pool (SFP) and SFP cooling for Fukushima Daiichi Unit 1? Is there any evidence of SFP leakage?</p> <p>RST BWR Systems and Ops Analyst - Eva Brown at 06:25:04 on 3/13/2011</p> <p>6] What is the general condition of the site with respect to acceptability?</p> <p>7] Identify the key areas (switchgear, batteries, etc...) that are flooded?</p> <p>8] What is the long term status of offsite power for Fukushima Daiichi units?</p> <p>9] What is the core damage assessment for Fukushima Daiichi Units 1-3?</p> <p>10] What is the status of the reported stuck control rod for Fukushima Daiichi Unit 1?</p> <p>RST BWR Systems and Ops Analyst - Eva Brown at 06:25:16 on 3/13/2011</p>
Source:		

Address/Location:

Attachment:

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Date/Time:	03/13/2011 06:10:52 (ET)	Questions for Uses
Position:	RST BWR Systems and Ops Analyst	March 13, 2011- 06:06 am EST
Name:	Eva Brown	Reactor Safety Team Questions:
Record:	1295	
Facility:		<p>1] What is the alignment for the sea water and boric acid injection?</p> <p>2] How are the Daiichi units lowering containment vessel pressure?</p> <p>3] What is the RPV level, temperature and pressure for each of the Fukushima Daiichi Units?</p> <p>4] What are the issues related to using the portable generators?</p>

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5] What is the status of spent fuel pool (SFP) and SFP cooling for Fukushima Daiichi Unit 1? Is there any evidence of SFP leakage?

RST BWR Systems and Ops Analyst - Eva Brown at 06:25:04 on 3/13/2011

Source:

Address/Location:

Attachment:

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Date/Time: 03/13/2011 06:13:08 (ET)

Fukushima Daiichi Unit 3 contains 32 MOX assemblies.

Position: RST BWR Systems and Ops Analyst

Name: Eva Brown

RST BWR Systems and Ops Analyst - Eva Brown at 06:14:12 on 3/13/2011

Record: 1292

Facility:

Source: GEH Contacts in Wilimington

Address/Location:

Attachment:

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Date/Time: 03/13/2011 06:13:08 (ET)

Fukushima Daiichi Unit 3 contains 32 MOX assemblies.

Position: RST BWR Systems and Ops Analyst

Name: Eva Brown

Record: 1293

Facility:

Source: GEH

Address/Location:

Attachment:

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Date/Time: 03/13/2011 06:10:52 (ET)

Questions for Ulses

Position: RST BWR Systems and Ops Analyst

Name: Eva Brown

Record: 1294

March 13, 2011- 06:06 am EST

Reactor Safety Team Questions:

Facility:

1] What is the alignment for the sea water and boric acid injection?

2] How are the Daiichi units lowering containment vessel pressure?

3] What is the RPV level, temperature and pressure for each of the Fukushima Daiichi Units?

4] What are the issues related to using the portable generators?

5] What is the status of spent fuel pool (SFP) and SFP cooling for Fukushima Daiichi Unit 1? Is there any evidence of SFP leakage?

Source:

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Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/13/2011 05:26:18 (ET)	Status of Daiichi units improving. Units 1 and 3 using sea water and boric acid for cooling and to maintain plant in shutdown. Unit 2 is taking measures to reduce containment pressure.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1290	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/13/2011 04:44:44 (ET)	See attached plant status for Daichi
Position:	RST Coordinator	
Name:	Mike Morlang	
Record:	1288	
Facility:		
Source:	IAEA	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/13/2011 04:31:17 (ET)	Tony Ulises safe and onsite. RST Director provided most recent information.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1287	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/13/2011 03:48:32 (ET)	Completed Initial Daini RST Status ; Recent IAEA update seems to match TEPCO report
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1286	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/13/2011 01:15:21 (ET)	Completed initial generation of RST Plant Status Concerns:
Position:	RST BWR Systems and Ops	

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Analyst	- Presuming Unit 1 explosion was due to hydrogen collection in SBTG - Potential slow buildup of hydrogen in Unit 2
Name: Eva Brown	
Record: 1285	- Boron precipitation on Unit 1 due to sea water and boron injection into primary containment
Facility:	
Source:	

Address/Location:	
Attachment:	

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Date/Time: 03/13/2011 00:23:06 (ET)	Assumed the BWR Systems and Ops Analyst and Accident Sequence Analyst duties as of 23:29 3/12
Position: RST BWR Systems and Ops Analyst	
Name: Eva Brown	
Record: 1284	
Facility:	
Source:	

Address/Location:	
Attachment:	

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Date/Time: 03/12/2011 23:29:28 (ET)	turn over to Eva Brown
Position: RST Accident Seq Analyst	
Name: Donald Dube	
Record: 1283	
Facility:	
Source:	

Address/Location:	
Attachment:	

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Date/Time: 03/12/2011 21:05:36 (ET)	says level in Unit 3 is -3 meters; called Mr. Nichols at GEH who said 0-level is TAF, so -3 m is basically bottom of fuel
Position: RST Accident Seq Analyst	
Name: Donald Dube	
Record: 1279	
Facility:	RST Accident Seq Analyst - Donald Dube at 22:49:09 on 3/12/2011 NRC staff is questioning the validity of this statement RST Accident Seq Analyst - Donald Dube at 22:49:49 on 3/12/2011
Source: Swedish regulator	

Address/Location:	
Attachment:	

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Date/Time: 03/12/2011 21:05:36 (ET)	says level in Unit 3 is -3 meters; called Mr. Nichols at GEH who said 0-level is TAF, so -3 m is basically bottom of fuel
Position: RST Accident Seq Analyst	
Name: Donald Dube	
Record: 1282	
Facility:	RST Accident Seq Analyst - Donald Dube at 22:49:09 on 3/12/2011

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Source:	Swedish regulator	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 21:55:55 (ET)	Table C4-5 Maximum core uncover time limit for 40 to 50 hours after shutdown is about 14 to 15 minutes
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1280	
Facility:		
Source:	BWROG-95007 SAMG overview	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 21:05:36 (ET)	says level in Unit 3 is -3 meters; called Mr. Nichols at GEH who said 0-level is TAF, so -3 m is basically bottom of fuel
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1281	
Facility:		
Source:	Swedish regulator (STUK)	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 20:11:42 (ET)	suggests flooding of EDG building is reason having difficult time connecting portable diesel generators; Unit 1: reactor vessel level decreased to below top of active fuel; injecting seawater; manually opened containment vent valve in high radiation level; Units 2 & 3: RV level above top of active fuel; still not able to restore ultimate heat sink (seawater)
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1278	
Facility:		
Source:	e-mail from Bob Bart, BNL	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 19:25:59 (ET)	radiation levels in vicinity of plant is 50 mR/hr
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1277	
Facility:		
Source:	World Nuclear News	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 18:50:39 (ET)	Phone number for Louis Quintana, GE Hitachi VP for Engineering, is 910-819-1007.
Position:	RST Chronologist	

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Name:	Mark Padovan	
Record:	1276	
Facility:		
Source:	Phone call with GE Hitachi	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 18:48:02 (ET)	Yukio Edano, Japanese Chief Cabinet Secretary
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1275	
Facility:		
Source:	Japanese minister	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 18:40:01 (ET)	1) Dont know if Japanes BWR Mark Is have hardened wetwell vents
Position:	RST Accident Seq Analyst	2) GEH is not sure how containment is being vented.
Name:	Donald Dube	3) Speculate that TEPCO may have wanted to hold up the release by venting into the reactor building
Record:	1274	4) GEH speculate that it was a hydrogen explosion, confirmed by Nuclear Energy Institute and the Japanese minister.
Facility:		5) RCIC pumps can operate with saturated water up to 220 F
Source:	Jim Klappoth, Chief Engineer, GEH	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 18:22:39 (ET)	Generating list of questions for GEH for 7 pm EST
Position:	RST Accident Seq Analyst	1) Do Japanese plants have hardened wetwell vents?
Name:	Donald Dube	2) If no, are the venting containment using SGT lines?
Record:	1273	3) Can RCIC pumps operate taking suction of water at saturated temperatures?
Facility:		
Source:	GEH	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 18:11:46 (ET)	generated list of US coastal nuclear sites for OPA and Annie
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1272	
Facility:		
Source:		
Address/Location:		
Attachment:		

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Date/Time:	03/12/2011 09:18:33 (ET)	Determined similar plant (Dresden U-2) SSE seismic design basis is 0.20 g Horizontal ground acceleration and .133 g Vertical ground acceleration. RST Chronologist - Mark Padovan at 17:52:39 on 3/12/2011 RST Chronologist - Mark Padovan at 17:53:11 on 3/12/2011
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1244	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	03/12/2011 09:18:33 (ET)	Determined similar plant (Dresden U-2) SSE seismic design basis is 0.20 g Horizontal ground acceleration and .133 g Vertical ground acceleration. RST Chronologist - Mark Padovan at 17:52:39 on 3/12/2011
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1271	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	03/12/2011 09:16:45 (ET)	Called in seismic specialist (Annie Kammerer) to help provide information concerning seismic design basis for US plants. RST Chronologist - Mark Padovan at 17:48:26 on 3/12/2011 RST Chronologist - Mark Padovan at 17:50:06 on 3/12/2011
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1242	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	03/12/2011 08:00:54 (ET)	Attempting to determine status of Fukushima Daiichi Units 2 & 3. RST Chronologist - Mark Padovan at 17:46:03 on 3/12/2011 RST Chronologist - Mark Padovan at 17:49:36 on 3/12/2011
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1238	
Facility:		
Source:		

Address/Location:

Attachment:

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Date/Time:	03/12/2011 09:16:45 (ET)	Called in seismic specialist (Annie Kammerer) to help provide information concerning seismic design basis for US plants. RST Chronologist - Mark Padovan at 17:48:26 on 3/12/2011
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	

(b)(6)

- 3) generate NRC Q&As
4) transition over the next 12 hours to concerns with US plants

Source: Borchardt

Address/Location:

Attachment:

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Date/Time: 03/12/2011 15:38:21 (ET)

I have been relieved as RST Coordinator by Rick H.

Position: RST Chronologist

Name: Peter Alter

Record: 1262

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/12/2011 15:12:18 (ET)

assumed shift

Position: RST Accident Seq Analyst

Name: Donald Dube

Record: 1261

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/12/2011 15:06:31 (ET)

Turnover to Don Dube

Position: RST Accident Seq Analyst

Name: Jeff Circle

Record: 1260

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/12/2011 14:47:42 (ET)

Prepared questions for Tokyo Electric on issues with Fukushima-1 and -2.

Position: RST Accident Seq Analyst

Name: Jeff Circle

Record: 1259

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/12/2011 13:38:46 (ET)

Commencing to work on list of parameters related to RPV, containment, electrical distribution, site access, etc.

(b)(6)

Position:	RST BWR Systems and Ops Analyst	once contact with Japan is established.
Name:	Timothy Kolb	
Record:	1258	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 11:44:08 (ET)	Concerns over ac power - if flood impacted fuel oil tanks and EDGs and day tanks are intact, are safety switchgear intact? What is preventing onsite ac power restoration?
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1256	AC power restoration should take priority.
Facility:		RST Accident Seq Analyst - Jeff Circle at 11:46:11 on 3/12/2011
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 11:44:08 (ET)	Concerns over ac power - if flood impacted fuel oil tanks and EDGs and day tanks are intact, are safety switchgear intact? What is preventing onsite ac power restoration?
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1257	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 11:42:28 (ET)	Speculating on U2 - discussion of SAMGs for a plant with RCIC - looked into SAMG for Pilgrim (BWR/3) on procedurally venting containment.
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1255	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 11:40:45 (ET)	Provided SAMGs for RCIC and Iso Condenser plants to RST team lead.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1254	
Facility:		
Source:		
Address/Location:		

Attachment:

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Date/Time: 03/12/2011 11:37:14 (ET)

Turned over What we know chronology to Margie Kotzalas at about 10:30 to maintain.

Position: RST Chronologist

Name: Steven Bloom

Record: 1253

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/12/2011 10:34:21 (ET)

U1 SBO using isocondenser plant. reached heat capacity limit of suppression pool. drove pressure up to 120 psi. dose rates to CR went up 1000 time and 8 times at site boundary. batteries hooked up. requested 4 EDGs. None hooked up yet. Hydrogen explosion. Inside secondary containment, outside primary containment. Successfully vented primary containment. Reduced pressure by 50%. Dose rate 100mR/hr at boundary. Dropped to 7 mR/hr. Seen I and Cs which indicates fuel melt. In process of filling containment with borated sea water. Maintaining below design pressure of containment.

Position: RST Coordinator

Name: Rick Hasselberg

Record: 1252

Facility:

U2 has not reached cold shutdown yet. Working to reduce temperature. Has RCIC system. Suppression pool at saturated temp. No indication that they are cooling suppression pool. No AC power.

Source: Copied from ET Chronology

Address/Location:

Attachment:

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Date/Time: 03/12/2011 10:23:19 (ET)

Latest Update from ET:

Position: RST BWR Systems and Ops Analyst

Unit 1 vessel and containment in tact and containment now below design pressure.

Name: Timothy Kolb

3 Diesels on site and personnel attempting to establish power.

Record: 1251

Vessel level still decreasing.

Facility:

Offsite dose at boundary increased to 100mr/hr and then decreased back to 7 mr/hr.

Source:

Address/Location:

Attachment:

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Date/Time: 03/12/2011 10:27:22 (ET)

Question - Is seawater being pumped into unit 1 or unit 2 containment?

Position: RST Coordinator

Name: Rick Hasselberg

Record: 1250

Facility:

Source:

Address/Location:

Attachment:

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Date/Time: 03/12/2011 10:22:28 (ET)

Status call from INPO relaying information from TEPCO - unit 1 containment still intact.; H2 explosion in reactor

(b)(6)

Position:	RST Accident Seq Analyst	building; suppressio pool at sat.
Name:	Jeff Circle	
Record:	1248	U2 - has RCIC - but, no emergency ac power nor suppression pool cooling.
Facility:		Seawater being pumped into the primary containment. RST Accident Seq Analyst - Jeff Circle at 10:24:21 on 3/12/2011
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 10:22:28 (ET)	Status call from INPO relaying information from TEPCO - unit 1 containment still intact.; H2 explosion in reactor building; suppressio pool at sat.
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1249	U2 - has RCIC - but, no emergency ac power nor suppression pool cooling.
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 09:15:32 (Z)	IAEA requested phone conversation with BWR expert on Iso Condensers. Will set up call later this morning.
Position:	RST BWR Systems and Ops Analyst	RST Coordinator - Rick Hasselberg at 09:22:12 on 3/12/2011
Name:	Timothy Kolb	RST Coordinator - Rick Hasselberg at 09:40:31 on 3/12/2011
Record:	1241	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 09:15:32 (ET)	IAEA requested phone conversation with BWR expert on Iso Condensers. Will set up call later this morning.
Position:	RST BWR Systems and Ops Analyst	RST Coordinator - Rick Hasselberg at 09:22:12 on 3/12/2011
Name:	Timothy Kolb	
Record:	1247	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 09:19:31 (ET)	Comparison using GSI-199 on USGS curves for iso. condenser plants (Oyster Creek, Dresden 2/3, and Ninemile Point 1)
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1245	
Facility:		

(b)(6)

Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 09:18:33 (ET)	Determined similar plant (Dresden U-2) SSE seismic design basis is 0.20 g Horizontal ground acceleration and .133 g Vertical ground acceleration.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1270	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 09:18:31 (ET)	INPO briefing on latest TEPCO information scheduled in about 1 hr.
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1243	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 09:16:45 (ET)	Called in seismic specialist (Annie Kammerer) to help provide information concerning seismic design basis for US plants.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1267	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 09:15:32 (ET)	IAEA requested phone conversation with BWR expert on Iso Condensers. Will set up call later this morning.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1246	
Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	03/12/2011 08:54:28 (ET)	Message to Peter Alter -


(b)(6)

Position:	RST Coordinator	Please give me a call at (b)(6) to discuss turnover. Thanks!
Name:	Rick Hasselberg	
Record:	1240	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 08:02:20 (ET)	Delivered Personal Copy of NUREG/CR-6042, Rev 2, "Perspectives on Reactor Safety" to RST Room. Please return to T-4A18.
Position:	RST Chronologist	
Name:	Peter Alter	
Record:	1239	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 08:00:54 (ET)	Attempting to determine status of Fukushima Daiichi Units 2 & 3.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1266	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 07:12:21 (ET)	Jeff Circle starting shift
Position:	RST Accident Seq Analyst	
Name:	Jeff Circle	
Record:	1237	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 07:09:58 (ET)	Turning over to Peter Alter
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1236	
Facility:		
Source:		
Address/Location:		
Attachment:		

(b)(6)


10/23/13

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Date/Time:	03/12/2011 07:06:53 (ET)	Signed is as BWR Analyst. Coordinating information and questions for LT.
Position:	RST BWR Systems and Ops Analyst	
Name:	Timothy Kolb	
Record:	1235	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 07:03:59 (ET)	Turning over to Jeff Circle
Position:	RST Accident Seq Analyst	
Name:	Michael Cheok	
Record:	1234	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 06:51:29 (ET)	Signing off for night. Turning over to T. Kolb.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1233	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 06:11:00 (ET)	Photo of Unit 1 after explosion may indicate that blowout panels went and drywell could possibly still be intact. RST reviewing photos to determine unit status.
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1232	
Facility:		
Source:	IBN (CNN Affiliate)	
Address/Location:		
Attachment: 		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 04:41:53 (ET)	Additional questions: Is the core still covered? If reactor is still intact, what is the RPV level, temperature and pressure for Units 1, 2 & 3? What are the onsite and offsite doses?
Position:	RST Accident Seq Analyst	
Name:	Michael Cheok	
Record:	1229	

(b)(6)

484/495

Facility:	What are the effects of the U1 explosion on mitigation efforts in Units 2 & 3?	
Source:	RST BWR Systems and Ops Analyst - Eva Brown at 05:53:13 on 3/12/2011	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/12/2011 05:37:03 (ET)	Conversation with GEH Wilmington
Position:	RST Accident Seq Analyst	- they have same concerns as we do, i.e., effects of explosion on SFP and other units
Name:	Michael Cheek	- they think it is a hydrogen explosion
Record:	1230	- their evaluations seem to indicate that Rx Bldg pressure that high is not probable unless something (F&B) did not work.
Facility:		
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/12/2011 04:41:53 (ET)	Additional questions:
Position:	RST Accident Seq Analyst	Is the core still covered?
Name:	Michael Cheek	If reactor is still intact, what is the RPV level, temperature and pressure for Units 1, 2 & 3?
Record:	1231	What are the onsite and offsite doses?
Facility:	What are the effects of the U1 explosion on mitigation efforts in Units 2 & 3?	
Source:		
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/12/2011 04:17:42 (ET)	Hydrogen explosion from generator building. CIA suggests that reactor building substructure still present.
Position:	RST BWR Systems and Ops Analyst	Staff concerns:
Name:	Eva Brown	Affects on Units 2 and 3
Record:	1226	Status of spent fuel pool (SFP) and SFP cooling- since SFP atop drywell
Facility:	Additional concerns: Assuming Unit 1 drywell still intact, concerned with method to maintain level/decay heat removal - Is Isolation Condenser still functional? - Is TEPCO still able to provide level control through fire trucks? - Is TEPCO still able to provide power through external supply trucks RST BWR Systems and Ops Analyst - Eva Brown at 04:34:08 on 3/12/2011 RST BWR Systems and Ops Analyst - Eva Brown at 04:36:25 on 3/12/2011	
Source:	CIA/Reuters	
Address/Location:		

Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/12/2011 04:17:42 (ET)	Hydrogen explosion from generator building. CIA suggests that reactor building substructure still present.
Position:	RST BWR Systems and Ops Analyst	Staff concerns:
Name:	Eva Brown	Affects on Units 2 and 3
Record:	1228	Status of spent fuel pool (SFP) and SFP cooling- since SFP atop drywell
Facility:		Additional concerns: Assuming Unit 1 drywell still intact, concerned with method to maintain level/decay heat removal - Is Isolation Condenser still functional? - Is TEPCO still able to provide level control through fire trucks? - Is TEPCO still able to provide power through external supply trucks RST BWR Systems and Ops Analyst - Eva Brown at 04:34:08 on 3/12/2011
Source:	CIA/Reuters	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/12/2011 04:17:42 (ET)	Hydrogen explosion from generator building (b) suggests that reactor building substructure still present.
Position:	RST BWR Systems and Ops Analyst	Staff concerns:
Name:	Eva Brown	Affects on Units 2 and 3
Record:	1227	Status of spent fuel pool (SFP) and SFP cooling- since SFP atop drywell
Facility:		
Source:	CIA/Reuters	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/12/2011 04:03:46 (ET)	News footage indicates loss of containment for Unit 1 Fukushima Daiichi
Position:	RST BWR Systems and Ops Analyst	Potential ceiling collapse in reactor building
Name:	Eva Brown	RST BWR Systems and Ops Analyst - Eva Brown at 04:08:32 on 3/12/2011
Record:	1223	
Facility:		RST BWR Systems and Ops Analyst - Eva Brown at 04:12:44 on 3/12/2011
Source:	Fox News	
Address/Location:		
Attachment:		
<i>This information is Official Use Only - Sensitive Internal Information.</i>		
Date/Time:	03/12/2011 04:03:46 (ET)	News footage indicates loss of containment for Unit 1 Fukushima Daiichi
Position:	RST BWR Systems and Ops Analyst	

(b)(6)

Name:	Eva Brown	Potential ceiling collapse in reactor building
Record:	1225	RST BWR Systems and Ops Analyst - Eva Brown at 04:08:32 on 3/12/2011
Facility:		
Source:	Fox News	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 04:03:46 (ET)	News footage indicates loss of containment for Unit 1 Fukushima Daiichi
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1224	
Facility:		
Source:	Fox News	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 02:46:26 (ET)	170 cm below TAF
Position:	RST BWR Systems and Ops Analyst	Containment pressure believed at 109 psi vice the typical design pressure of 58 psig (NUREG/CR 6906)
Name:	Eva Brown	
Record:	1222	
Facility:		
Source:	NISA 2:00pm 3/12 JPT	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 02:01:41 (ET)	Indicated Cesium detected
Position:	RST BWR Systems and Ops Analyst	Cooling water level dropping
Name:	Eva Brown	All 13 EDGs failed due to quake
Record:	1221	
Facility:		
Source:	NHK News 4:00pm JPT	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 01:42:18 (ET)	Reporter indicates 170cm core uncover - This information has not been confirmed
Position:	RST BWR Systems and Ops Analyst	If correct, this is below two thirds top of active fuel
Name:	Eva Brown	RST Accident Seq Analyst - Michael Cheok at 02:09:10 on 3/12/2011
Record:	1216	
Facility:		
Source:	NHK News 1:22 am	
Address/Location:		

Attachment:

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Date/Time:	03/12/2011 02:03:25 (ET)	(Information unconfirmed) Utility using fire engine to pump water into reactor, as water levels briefly dropped to 50 cm below TAF.
Position:	RST Coordinator	
Name:	Brett Rini	
Record:	1219	
Facility:		
Source:	Jiji Press	

Address/Location:

Attachment:

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Date/Time:	03/12/2011 01:45:09 (ET)	Indicates level 50 cm below TAF - around 12:00am EST
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1218	
Facility:		
Source:	DOE	

Address/Location:

Attachment:

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Date/Time:	03/12/2011 01:43:51 (ET)	9:20 pm EST reports 90 cm below TAF
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1217	
Facility:		
Source:	NISA	

Address/Location:

Attachment:

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Date/Time:	03/12/2011 01:42:18 (ET)	Reporter indicates 170cm core uncover - This information has not been confirmed
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1220	
Facility:		
Source:	NHK News 1:22 am	

Address/Location:

Attachment:

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Date/Time:	03/12/2011 01:19:28 (ET)	NISA reporting that they have detected cesium outside Unit 1. Some fuel may have melted
Position:	RST Accident Seq Analyst	
Name:	Michael Check	

(b)(6)

Record:	1215	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 00:56:55 (ET)	Info from e-mail from Mr. Kondo of Japan AEC: Hi radiation associated with containment venting suggest core damage
Position:	RST Accident Seq Analyst	
Name:	Michael Cheok	TEPCO appears to be supplying fire water to reactor via power supply trucks and batteries
Record:	1213	TEPCO is venting containment under high rad conditions - wind direction is out toward the sea
Facility:		RST Accident Seq Analyst - Michael Cheok at 01:08:55 on 3/12/2011
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 00:56:55 (ET)	Info from e-mail from Mr. Kondo of Japan AEC: Hi radiation associated with containment venting suggest core damage
Position:	RST Accident Seq Analyst	
Name:	Michael Cheok	TEPCO appears to be supplying fire water to reactor via power supply trucks and batteries
Record:	1214	TEPCO is venting containment under high rad conditions - wind direction is out toward the sea
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 00:37:43 (ET)	14. E-Mail from Shunsuke Kondo, Chairman of the Japan Atomic Energy Commission to Daniel Poneman, Deputy Secretary DOE - UPDATE Fukushima Daiichi Unit 1
Position:	RST BWR Systems and Ops Analyst	a. Information recently obtained is not inconsistent with NRC previous hypothesis which was based on wire reports and public information
Name:	Eva Brown	b. High radiation associated with containment venting suggest core damage, the extent of which is not known
Record:	1212	c. TEPCO appears to be taking extraordinary measures to supply water to the reactor, including using power supply trucks and batteries to supply power. The reactor vessel level is stabilized, possibly indicating a measure of control
Facility:		d. TEPCO is venting containment under high radiation conditions; wind direction is to see
Source:	Shunsuke Kondo, Chairman-JAEC	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/12/2011 00:24:31 (ET)	Received turnover from Rick Hasselberg
Position:	RST Coordinator	

(b)(6)

Name:	Brett Rini	
Record:	1211	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/12/2011 00:21:03 (ET)	Received turnover from T. Nakanishi
Position:	RST BWR Systems and Ops Analyst	
Name:	Eva Brown	
Record:	1210	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/12/2011 00:19:44 (ET)	Got turnover from Don Dube
Position:	RST Accident Seq Analyst	
Name:	Michael Cheek	
Record:	1209	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/11/2011 23:43:23 (ET)	Mike Cheek relief
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1208	
Facility:		
Source:		
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		
Date/Time:	03/11/2011 22:44:44 (ET)	upto 5 units affected; Unit 2 reached 100 C in suppression pool and had to secure RCIC; 10 hours or so until core damage
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1207	
Facility:		
Source:	GE-Hitachi	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information		

Date/Time: 03/11/2011 22:17:31 (ET)	TEPCO press release as of 7:22 PM Eastern time indicated 100 degrees (we think F) TEPCO went to article 15, clause 1 status which we think is some sort of General Emergency.
Position: RST Core Cool/Heat Removal	
Name: Anthony Ulises	
Record: 1206	
Facility:	
Source: Anthony Ulises	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/11/2011 22:15:12 (ET)	Call with Exelon at approx. 8:00 PM indicated:
Position: RST Core Cool/Heat Removal	
Name: Anthony Ulises	1. onsite diesel fuel tanks damaged by tsunami causing loss of AC.
Record: 1205	2. Engineering building collapsed potentially killing response staff.
Facility:	3. Japan uses event based EOPs and not scenario based EOPs.
	4. Exelon passed this information along to GEH for possible TEPCO use.
Source: Anthony Ulises	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/11/2011 22:14:38 (ET)	estimate "at least a 3" on the INES scale of nuclear incidents
Position: RST Accident Seq Analyst	
Name: Donald Dube	
Record: 1204	
Facility:	
Source:	
Address/Location:	
Attachment:	
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Date/Time: 03/11/2011 22:14:49 (ET)	Chairman briefing in SCIF from 5:00 PM to 7:00 PM.
Position: RST Core Cool/Heat Removal	
Name: Anthony Ulises	
Record: 1203	
Facility:	
Source: Anthony Ulises	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time: 03/11/2011 22:13:26 (ET)	Based on SOARCA calculations, worst case scenario estimates would lead to containment shell melt through at 20 hours or between 10:00 - 12:00 PM. Again, assumes no mitigation
Position: RST Core Cool/Heat Removal	
Name: Anthony Ulises	
Record: 1202	
Facility:	
Source: Anthony Ulises	
Address/Location:	

Attachment:		
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Date/Time:	03/11/2011 22:12:31 (ET)	Worst case scenario for Unit 2 would be core damage at 13 hours of 4:00 PM Eastern assuming complete loss of AC and a 4 hour battery discharge.
Position:	RST Core Cool/Heat Removal	
Name:	Anthony Ulises	
Record:	1201	
Facility:		
Source:	Anthony Ulises	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/11/2011 22:10:56 (ET)	As of 4:00 PM Eastern time, Units 1 and 2 have been without AC for approximately 13 hours.
Position:	RST Core Cool/Heat Removal	
Name:	Anthony Ulises	
Record:	1200	
Facility:		
Source:	Anthony Ulises	
Address/Location:		
Attachment:		
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Date/Time:	03/11/2011 22:07:22 (ET)	IAEA reports as of 2:45 PM Eastern time for Unit 1 51 in. core coverage. For Unit 2, 138 in. core coverage. For Unit 3, IAEA reports that Unit 3 has power.
Position:	RST Core Cool/Heat Removal	
Name:	Anthony Ulises	
Record:	1199	
Facility:		
Source:	Anthony Ulises	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/11/2011 22:06:37 (ET)	Estimates of battery life is approximately 4-6 hours indicating loss of DC between 6:41 - 8:41 AM Eastern time
Position:	RST Core Cool/Heat Removal	
Name:	Anthony Ulises	
Record:	1198	
Facility:		
Source:	Anthony Ulises	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/11/2011 22:00:22 (ET)	Assumed the watch 1445. Initial plant condition is loss of all AC for Units 1, 2, and 3. Indications are that loss of AC happened approximately 1:46 Eastern time.
Position:	RST Core Cool/Heat Removal	
Name:	Anthony Ulises	
Record:	1194	
Facility:		RST Core Cool/Heat Removal - Anthony Ulises at 22:03:03 on 3/11/2011
		Assumed the watch 1445. Initial plant condition is SCRAM for Units 1, 2, and 3.
		RST Core Cool/Heat Removal - Anthony Ulises at 22:04:02 on 3/11/2011

(b)(6)

Source:	Anthony Ulises	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/11/2011 22:03:12 (ET)	TEPCO press release indicated loss of AC at 2:41 AM Eastern time.
Position:	RST Core Cool/Heat Removal	
Name:	Anthony Ulises	
Record:	1196	
Facility:		
Source:	Anthony Ulises	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/11/2011 22:00:22 (ET)	Assumed the watch 1445. Initial plant condition is loss of all AC for Units 1, 2, and 3. Indications are that loss of AC happened approximately 1:46 Eastern time. RST Core Cool/Heat Removal - Anthony Ulises at 22:03:03 on 3/11/2011
Position:	RST Core Cool/Heat Removal	
Name:	Anthony Ulises	
Record:	1197	
Facility:		
Source:	Anthony Ulises	
Address/Location:		
Attachment:		
This information is Official Use Only - Sensitive Internal Information.		
Date/Time:	03/11/2011 22:00:22 (ET)	Assumed the watch 1445. Initial plant condition is loss of all AC for Units 1, 2, and 3. Indications are that loss of AC happened approximately 1:46 Eastern time.
Position:	RST Core Cool/Heat Removal	
Name:	Anthony Ulises	
Record:	1195	
Facility:		
Source:	Anthony Ulises	
Address/Location:		
Attachment:		
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Date/Time:	03/11/2011 22:01:06 (ET)	continue to monitor; responding to Q&A; As from OPA
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1193	
Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	03/11/2011 20:09:29 (ET)	tsunami 35 feet high; ripped out above ground diesel fuel storage tank; EDGs stopped; not clear whether Unit 1 with isolation condenser has long term secondary make-up; containment pressure is high; station has event-based procedures
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1192	

(b)(6)

Facility:	
Source:	Exelon briefing
Address/Location:	
Attachment:	
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Date/Time:	03/11/2011 19:07:17 (ET)
Position:	RST Accident Seq Analyst
Name:	Donald Dube
Record:	1191
Facility:	
Source:	
continue to monitor situation; all data are consistent with Unit 2 containment venting; no other change in information	
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/11/2011 18:13:55 (ET)
Position:	RST Accident Seq Analyst
Name:	Donald Dube
Record:	1189
Facility:	<p>"Almost nine hours later, an announcement from the Ministry of Economy, Trade and Industry said that three of four mobile power supplies had arrived at Fukushima Daiichi and cables were being set up to supply emergency power. Other power modules were in transit by air.</p> <p>However, pressure inside the containment of unit 1 had been steadily increasing over the time that emergency core cooling systems had not been active. Tepco reported at 2am that pressure had increased to around 600 kPa (~90 psia), compared to normal operating levels of 400 kPa."</p> <p>RST Accident Seq Analyst - Donald Dube at 18:16:02 on 3/11/2011</p>
Source:	Japan METI
Address/Location:	
Attachment:	
This information is Official Use Only - Sensitive Internal Information.	
Date/Time:	03/11/2011 18:13:55 (ET)
Position:	RST Accident Seq Analyst
Name:	Donald Dube
Record:	1190
Facility:	<p>"Almost nine hours later, an announcement from the Ministry of Economy, Trade and Industry said that three of four mobile power supplies had arrived at Fukushima Daiichi and cables were being set up to supply emergency power. Other power modules were in transit by air.</p> <p>However, pressure inside the containment of unit 1 had been steadily increasing over the time that emergency core cooling systems had not been active. Tepco reported at 2am that pressure had increased to around 600 kPa (~90 psia), compared to normal operating levels of 400 kPa."</p>
Source:	Japan MITI
Address/Location:	
Attachment:	
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Date/Time:	03/11/2011 18:05:38 (ET)	containment pressure at one unit is about 2 times design; based on typical SAMG containment pressure guidelines for US plants, wetwell venting is imminent if not already happening; we do not know the pathway of the venting (e.g., hardened elevated vent pipe or ground level release into reactor or turbine building)
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1188	
Facility:		
Source:	INPO	
Address/Location:		
Attachment:		
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Date/Time:	03/11/2011 17:54:20 (ET)	evacuation zone expanded to 6 miles radius around plant site at 5:45 am Japan time
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1187	
Facility:		
Source:	NY times	
Address/Location:		
Attachment:		
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Date/Time:	03/11/2011 17:33:47 (ET)	reported in at 1732 and assuming shift duties
Position:	RST Accident Seq Analyst	
Name:	Donald Dube	
Record:	1186	
Facility:		
Source:		
Address/Location:		
Attachment:		
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Date/Time:	03/11/2011 12:23:26 (ET)	Late Entry: Came to Ops Center to assist RST PM during the event
Position:	RST Chronologist	
Name:	Peter Alter	
Record:	1185	
Facility:		
Source:		
Address/Location:		
Attachment:		
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