Schaperow, Jason

From: Sent: To: Subject: Santiago, Patricia Friday, March 11, 2011 11:43 AM Schaperow, Jason RE: Fukushima

On this morning's news they said no release...time will tell...

From: Schaperow, Jason Sent: Friday, March 11, 2011 11:40 AM To: Santiago, Patricia Subject: FW: Fukushima

Today's Japanese earthquake seems to have caused one of the SOARCA scenarios (long-term station blackout). Please see attached article from Bloomberg news.

1

From: Schaperow, Jason
Sent: Friday, March 11, 2011 10:57 AM
To: 'kcw@dycoda.com'; <u>mtl@dycoda.com</u>; 'Ross, Kyle Wayne'; 'Gauntt, Randall O'
Cc: Tinkler, Charles
Subject: Fukushima

Attached article indicates that the plant is relying on the battery for core cooling.

Schaperow, Jason

From:	M.T. Leonard [mtl@dycoda.com]
Sent:	Friday, March 11, 2011 2:30 PM
То:	Tinkler, Charles; 'Gauntt, Randall O'; kcw@dycoda.com; Schaperow, Jason; 'Ross, Kyle Wavne'
Subject:	U.S. Air Force "delivers coolant" to nuclear plant in Japan?

Statements like these will be difficult to interpret ...

"Secretary of State Hillary Rodham Clinton said Friday morning that U.S. Air Force planes in Japan had delivered coolant to a nuclear power plant affected by the quake."

http://www.washingtonpost.com/wp-dyn/content/article/2011/03/11/AR2011031103673.html

From: Tinkler, Charles [mailto:Charles.Tinkler@nrc.gov] **Sent:** Friday, March 11, 2011 11:15 AM **To:** Gauntt, Randall O; 'kcw@dycoda.com'; Schaperow, Jason; Ross, Kyle Wayne; 'mtl@dycoda.com' **Subject:** RE: Japan to evacuate residents near nuke plant - From comcast.com

I saw a very brief summary issued out of our incident response center which seemed to confirm that Fukushima Daichi (1 or 2 of the units) had an SBO. News reports that the unit was cooled thru the use of batteries might suggest RCIC was being used. NRC incident response center also indicated that another EDG was brought in or was being brought in.

Other units at the site (Fukushima Daini) were being cooled down with RCIC.

We also heard water was sloshed out of a spent fuel pool but it sounded like a trivial amount of water.

Also heard one unit may have a had a leak into containment that resulted in ECCS actuation. sketchy info on that)

From: Gauntt, Randall O [mailto:rogaunt@sandia.gov]
Sent: Friday, March 11, 2011 12:59 PM
To: 'kcw@dycoda.com'; Tinkler, Charles; Schaperow, Jason; Ross, Kyle Wayne; 'mtl@dycoda.com'
Cc: McClellan, Yvonne
Subject: Re: Japan to evacuate residents near nuke plant - From comcast.com

Something else to ponder!

From: Casey Wagner [mailto:kcw@dycoda.com]
Sent: Friday, March 11, 2011 08:42 AM
To: Charles.Tinkler@nrc.gov <Charles.Tinkler@nrc.gov>; 'Schaperow, Jason' <Jason.Schaperow@nrc.gov>; Ross, Kyle
Wayne; 'M.T. Leonard' <<u>mtl@dycoda.com</u>>
Cc: McClellan, Yvonne; Gauntt, Randall O
Subject: Japan to evacuate residents near nuke plant - From comcast.com

Japan to evacuate residents near nuke plant

· By MARI YAMAGUCHI, AP

1 hour ago

TOKYO — Japan ordered thousands of residents near a northeastern nuclear power plant to evacuate on Friday following a massive earthquake that caused a problem in the plant's cooling system.

Chief Cabinet Secretary Yukio Edano said the Fukushima No. 1 power plant was not leaking radiation. The plant is in Onahama city, about 170 miles (270 kilometers) northeast of Tokyo.

Japan's nuclear safety agency said the evacuation, ordered by the local government of Fukushima, affects at least 2,800 people. It comes after the government declared a state of emergency at the plant.

The quake triggered a power outage and when a backup generator also failed, the cooling system was unable to supply water to cool the reactor. The reactor core remains hot even after a shutdown.

Edano said residents were told to stay at least two miles (three kilometers) from the plant and to stay inside buildings.

He said both the state of emergency and evacuation order are meant to be a precaution. It was the first time Japan has declared a state of emergency at a nuclear power plant.

"We launched the measure so we can be fully prepared for the worst scenario," he said. "We are using all our might to deal with the situation."

If the outage in the cooling system persists, eventually radiation could leak out into the environment, and, in the worst case, could cause a reactor meltdown, a nuclear safety agency official said on condition of anonymity, citing sensitivity of the issue.

The plant is just south of the worst-hit Miyagi prefecture, where a fire broke out at another nuclear plant. The blaze was in a turbine building at one of the Onagawa power plants; smoke could be seen coming out of the building, which is separate from the plant's reactor, Tohoku Electric Power Co. said. It has since been extinguished.

Another plant at Onagawa is experiencing a water leak.

The U.S. Geological Survey said the 2:46 p.m. quake was a magnitude 8.9, the biggest earthquake to hit Japan since officials began keeping records in the late 1800s.

A tsunami warning was issued for a number of Pacific, Southeast Asian and Latin American nations.

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Schaperow, Jason

From: Sent: To: Subject: Gibson, Kathy Friday, March 11, 2011 4:21 PM Schaperow, Jason Re: Press Release: NRC Monitors Notice of Unusual Event at Diablo Canyon Power Plant, Tusnami Issues

I believe the Ops Center is.

From: Schaperow, Jason
To: Gibson, Kathy
Sent: Fri Mar 11 16:15:56 2011
Subject: RE: Press Release: NRC Monitors Notice of Unusual Event at Diablo Canyon Power Plant, Tusnami Issues

Thanks. Is anyone at NRC compiling a list of the events happening at Fukushima Daiichi Unit 2? To find out what is going on, I am going through the TEPCO website. It looks like they have been in SBO conditions for many, many hours.

From: Gibson, Kathy
Sent: Friday, March 11, 2011 4:13 PM
To: RES_DSA
Subject: Fw: Press Release: NRC Monitors Notice of Unusual Event at Diablo Canyon Power Plant, Tusnami Issues

From: Sheron, Brian

To: Bonaccorso, Amy; Calvo, Antony; Case, Michael; Coe, Doug; Correia, Richard; Dion, Jeanne; Gibson, Kathy; Lui, Christiana; Richards, Stuart; Rini, Brett; Sangimino, Donna-Marie; Uhle, Jennifer; Valentin, Andrea
 Sent: Fri Mar 11 14:29:02 2011
 Subject: FW: Press Release: NRC Monitors Notice of Unusual Event at Diablo Canyon Power Plant, Tusnami Issues

From: OPA Resource

Sent: Friday, March 11, 2011 11:59 AM

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

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Werner, Greg; Wiggins, Jim; Williams, Evelyn; Zimmerman, Roy; Zorn, Jason **Subject:** Press Release: NRC Monitors Notice of Unusual Event at Diablo Canyon Power Plant, Tusnami Issues

Attached for immediate posting and release.

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

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Consideration of Rare Natural Events within NRC Regulatory Infrastructure

- Rare event = Event in excess of design basis
- March 11, 2011 Earthquake and Tsunami as Case Examples
 - Magnitude 9.0 Earthquake and ~15 to 20 meter Tsunami are greater than expected – regulatory expectations
 - Serious consequences observed devastation to civil and nuclear infrastructure alike
 - Was there sufficient seismic margin?
 - Was there sufficient margin for the tsunami?

Treatment of Natural Events Existing & New NPPs

- General Design Criteria 2, 10 CFR Part 50 App A, Design bases for protection against natural phenomena - seismic, tsunamic, flooding, etc
- Basic Requirements applies to all reactors new or existing
 - GDC 2 does not make a distinct about the frequency or periodicity of an event - size is the critical element
 - GDC 2 examine the predicted Ground Motion, not the Magnitude

Treatment of Seismic Events in Regulation for Existing NPPs

- Seismic has specific regulation 10 CFR Part 100, Reactor Site Criteria, and Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants"
- Although there have been adjudicatory issues, 104 NPPs have been licensed and operated –
- Deterministic approach Scenario Historic event
 - Existing NPPs principally followed the deterministic criteria of App A + Multiple RGs & SRP sections

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- Diablo Canyon San Onofre Columbia
- Indian Point Calvert Cliff Turkey Point
- South Texas Seabrook etc.
- App A equivalent
 - Fukushima Onagawa etc.

Treatment of Seismic Events in Regulation for New NPPs

- GDC 2 Basic Regulation
 - New NPPs follow a probabilistic approach RGs 1.165 (w)
 & 1.208 Performance-based after ASCE approach
 - Consider all earthquakes in the development of a model
 - Currently developing a consensus model NRC, DOE, USGS, & Industry representatives

Treatment of Rare Seismic Events in Regulation

- Existing NPPs
 - Rare natural events, i.e. in excess of the Design Basis, have been accommodated principally via a margins approach, i.e., What is the margin? Some Seismic PRAs
- New NPPs
 - Seismic Margins required for Design Certification
 - Full PRA, including seismic, required for new plants before fuel loading
 - Vogtle
 - VC Summer
 - Clinton
 - Etc

Treatment of Tsunamic Events in Regulation for Existing NPPs

- Tsunami specific regulation 10 CFR Part 100, Reactor Site Criteria
 - Approach is deterministic
 - The above NRC regulation mentions seismically induced water wave, but does not refer to tsunamis specifically
 - The guidance documents are better associated with flooding
 - RG 1.102 Flood Protection for NPPs
 - Exterior Barriers seawalls, levees, floodwalls, etc.
 - Interior Barriers specifically designed walls and penetration closures
 - NRC staff considers water level, sand movement, wave pressure, and floating objects
 - NRC initiated additional study of Tsunami following the 2004 Great Sumatran Earthquake & Tsunami

Treatment of Tsunamic Events in Regulation for New NPPs

- Same basic guidance as for existing NPPs
- Sufficient probabilistic data is not available or fully studied for use
 - New guidance is being developed DG 1258 Tsunami Assessment for New NPPs

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Treatment of Rare Tsunamic Events in Regulation

- Existing NPPs deterministic Margins approach
 - Diablo Canyon
 - San Onofre
 - Coastal sites Atlantic & Gulf coasts as appropriate
 - Calvert Cliffs St. Lucie Turkey Point
 - Hope Creek Oyster Creek Salem
- New NPPs still deterministic Margins-PRA probabilistic being developed
 - Coastal sites Atlantic & Gulf coasts as appropriate

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Calvert Cliffs

PRA Treatment of Seismic/Natural Events in Regulation for Existing NPPs

- Seismic Margins and PRAs have been used in the past, such as for IPEEE submittals
 - SSE or RLE specified by NRC
 - Generic fragility used
 - Plant-specific is not readily available
- PRA to be provided with application for future NPP modifications

PRA Treatment of Rare Seismic/Natural Events in Regulation for New NPPs

- New NPPs
 - Covered by Part 52
 - Requirement to develop a plant-specific PRA & SPRA before fuel loading
 - Provides information on plant-specific fragilities
 - Provides "latest" PSHA values (PSHA can change with time, e.g., new information or 10-year update)
- New NPPs
 - Vogtle
 - VC Summer
 - Calvert Cliffs

GI-199 Treatment of Seismic/Natural Events in Regulation

- Existing NPPs
 - Provide adequate protection
 - Covered by GI-1.99
 - Need plant-specific fragility information
 - Need improved PSHA values
- New NPPs
 - Lessons learned
 - Covered by Part 52 -
 - Requirement to develop a plant-specific PRA & Seismic PRA
 - Provides information on plant-specific fragilities
 - Provides "latest" PSHA values

Schaperow, Jason

♂ From: Sent: To: Attachments:

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Tinkler, Charles Friday, March 11, 2011 10:31 AM Schaperow, Jason fukushima.doc

Charles Tinkler Charles.Tinkler@nrc.gov

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March 11 (Bloomberg) -- Residents near a Tokyo Electric Power Co. nuclear reactor were ordered to evacuate because of a possible radiation leak as Japan's strongest earthquake in a century shut power plants and oil refineries. About 1,800 residents living within 2 kilometers (1.2 miles) of the Fukushima Dai-Ichi No. 1 reactor were ordered to evacuate. Bloomberg's John Brinsley reports. (Source: Bloomberg)

About 5,800 residents near a Tokyo Electric Power Co. atomic plant were ordered to evacuate because of a possible radiation leak and the failure of the cooling system after Japan was struck by a powerful earthquake.

People within 3 kilometers (2 miles) of the Fukushima Daiichi nuclear power plant were told to evacuate, Chief Cabinet Secretary Yukio Edano said in Tokyo today. Residents within 10 kilometers were told to stay indoors, said Ryohei Shiomi, a spokesman at the Emergency Information Center of the Nuclear and Industrial Safety Agency.

Emergency power supply at the 4,696-megawatt plant 210 kilometers north of Tokyo failed after the quake triggered automatic shutdowns of the reactors, officials at the trade ministry's Nuclear and Industrial Safety Agency told reporters without identifying themselves. Power is needed to keep cooling the reactor to prevent rising pressure and damage, they said.

A battery, which can last about eight hours, is being used to cool the reactor for now, the agency officials said. Another six batteries have been secured, and the government may use military helicopters to fly them in, they said.

The 8.9-magnitude quake struck at 2:46 p.m. local time and unleashed a tsunami as high as 10 meters, engulfing towns along the northern coast and killing at least 26 people. The temblor, the biggest in more than a century, hit 130 kilometers off the coast of Sendai, north of Tokyo, at a depth of 24 kilometers, the U.S. Geological Survey said. A 7.1-magnitude aftershock followed at 4:25 p.m., it said.

Tokyo Electric is still seeking government approvals for a full restart of the Kashiwazaki Kariwa nuclear power plant, the world's biggest, which was shut after being damaged by an earthquake in 2007. The company posted its first loss in 28 years after it was forced to buy fossil fuels at record prices to make up for lost nuclear output.

To contact the reporters on this story: Tsuyoshi Inajima in Tokyo at tinajima@bloomberg.net; Yuji Okada in Tokyo at yokada6@bloomberg.net

To contact the editor responsible for this story: Will Kennedy at wkennedy3@bloomberg.net

Schaperow, Jason

From:Ross, Kyle Wayne [kwross@sandia.gov]Sent:Friday, March 11, 2011 11:26 AMTo:'mtl@dycoda.com'; Schaperow, Jason; kcw@dycoda.com; Gauntt, Randall OCc:Tinkler, CharlesSubject:RE: Tsunami video

Curious... would the ultimate heat sinks for Diablo Canyon or SONGS be at risk in a tidal wave?

From: M.T. Leonard [mailto:mtl@dycoda.com] Sent: Friday, March 11, 2011 9:08 AM To: 'Schaperow, Jason'; <u>kcw@dycoda.com</u>; Ross, Kyle Wayne; Gauntt, Randall O Cc: 'Tinkler, Charles' Subject: Tsunami video

Take a look at this video posted by BBC from a Japanese news helicopter over the tsunami.

http://www.bbc.co.uk/news/world-asia-pacific-12709850

From: Schaperow, Jason [mailto:Jason.Schaperow@nrc.gov]
Sent: Friday, March 11, 2011 8:57 AM
To: kcw@dycoda.com; mtl@dycoda.com; Ross, Kyle Wayne; 'Gauntt, Randall O'
Cc: Tinkler, Charles
Subject: Fukushima

Attached article indicates that the plant is relying on the battery for core cooling.

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From: Sent: To: Subject: Attachments: Wegner, Mary Friday, March 11, 2011 8:54 AM Thomas, Eric FW: Earthquake in Japan

MAL

Powerful quake rocks northern Japan - Onagawa reactor automatically shuts down; Japan: Onagawa and Fukushima plants shut down; Japan: Onagawa map and details; Japan earthquake: Government Says No radioactive leaks at Tohoku nuke plants; Japan earthquake/tsunami - more reactors shut down; Japan: No Radiation Leaks Or Abnormalities -11 reactors shut down; Japan: Fukushima diesel generator failure; Japan: media reports government has decided to declare a nuclear power emergency situation; Japan: Fukushima 1 & 2 cooling system problems; Japan Update: Emergency Cooling System Working at Quake-hit Fukushima Plant; Japan's Tepco shuts seven nuclear units after earthquake ; Japan initiates emergency protocol after earthquake; image001.png; image002.jpg; image003.png; image004.png; image005.png; image006.png; image007.png; image008.jpg; image009.jpg; image010.jpg; image011.jpg; image012.png; image013.jpg

From: Wegner, Mary Sent: Friday, March 11, 2011 7:38 AM To: Beasley, Benjamin; Criscione, Lawrence; King, Mark Subject: Earthquake in Japan

Please forward if you like. I do not have my lists at home.





Magnitude 8.9 - NEAR THE EAST COAST OF HONSHU, JAPAN

2011 March 11 05:46:23 UTC

Earthquake Details

• This is a computer-generated message -- this event has not yet been reviewed by a seismologist.

Magnitude	8.9	
Date-Time	 Friday, March 11, 2011 at 05:46:23 UTC Friday, March 11, 2011 at 02:46:23 PM at epicenter <u>Time of Earthquake in other Time Zones</u> 	
Location	38.322°N, 142.369°E	
<u>Depth</u>	24.4 km (15.2 miles) set by location program	
Region	NEAR THE EAST COAST OF HONSHU, JAPAN	
<u>Distances</u>	130 km (80 miles) E of Sendai, Honshu, Japan 178 km (110 miles) E of Yamagata, Honshu, Japan 178 km (110 miles) ENE of Fukushima, Honshu, Japan 373 km (231 miles) NE of TOKYO, Japan	
Location Uncertainty	horizontal +/- 13.5 km (8.4 miles); depth fixed by location program	
Parameters	NST=350, Nph=351, Dmin=416.3 km, Rmss=1.46 sec, Gp= 29°, M-type="moment" magnitude from initial P wave (tsuboi method) (Mi/Mwp), Version=A	
Source	USGS NEIC (WDCS-D)	
Event ID	usc0001xgp	

Very strong quake rattles Japan



shelves at this liquor store in Tokyo's Koto Ward during a strong earthquake that hit Friday. (Azumi



Fukuoka) Can's of beer are strewn across the floor of a liquor store in Tokyo's Koto Ward after a strong quake jolted eastern Japan on Friday. (Azumi Fukuoka) Editor's note: We will update our earthquake news as frequently as possile on AJW's Facebook page: http://www.facebook.com/AJW.Asahi. Please check to keep informed on what's happening. / Toshio Jo, managing editor at International Division, The Asahi Shimbun.

* * *

An earthquake with an estimated magnitude of 7.9 struck off the northern coast of Japan on Friday, shaking buildings in Tokyo and triggering tsunami warnings.

It was not immediately clear if there were any casualties. Smoke could be seen billowing from some buildings in the capital.

The Japan Meteorological Agency put the epicenter of the quake off the eastern coast of Miyagi Prefecture, which is part of the Tohoku region.

The temblor hit at 2:46 p.m. and was followed by strong aftershocks.

According to reports, the quake had an intensity of 7 on the Japanese scale of 7 in Kurihara, Miyagi Prefecture, and upper 6 in parts of Miyagi, Fukushima, Ibaraki and Tochigi prefectures.

Services on the Tohoku Shinkansen Line, as well as on the Tokaido and Sanyo Shinkansen lines, were suspended.

Warnings for large tsunami were issued for the Pacific coast of Iwate, Miyagi and Fukushima prefectures. Tsunami warnings were also issued for coastal areas of Hokkaido Aomori, Ibaraki, Chiba, and Shizuoka prefectures.

All services on the Tokyo Metro subway systems in the Tokyo metropolitan area were stopped.

The government of Prime Minister Naoto Kan set up an emergency disaster headquarters

(This article was compiled from The Asahi Shimbun and wire reports.)

Massive quake strikes northern Japan

The Daily Yomiuri

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Smoke billows from a building in Minato Ward, Tokyo, in a fire that broke out following a major earthquake on Friday afternoon.



A powerful earthquake measuring magnitude 8.8 hit northern Japan on Friday afternoon, causing extensive damage in the area, the Meteorological Agency said.

The quake struck 20 kilometers deep off the Sanriku coast in Iwate Prefecture at 2:46 p.m. and lasted several minutes, the agency said. Tsunami caused by the quake struck Kamaishi, Miyako and Yamadamachi in the prefecture, washing away houses.

The quake registered a maximum 7 on the Japanese intensity scale in Kurihara, Miyagi Prefecture.

The Meteorological Agency issued tsunami warnings for Aomori, Iwate, Miyagi, Fukushima, Ibaraki and Chiba prefectures, as well as western Hokkaido along the Pacific Ocean side.

The agency warned the tsunami could reach as high as 10 meters.

Around 3 p.m. a 20-centimeter-high tsunami was observed in Ofunato, Iwate Prefecture, and a 50-centimeterhigh tsunami was observed Ishinomaki in the prefecture by 2:52 p.m.

An aftershock measuring 5 on the Japanese intensity scale hit coastal areas in Iwate Prefecture at 3:08 p.m.

Strong tremors were also felt in Tokyo, registering 5 on the Japanese intensity scale.

The quake rattled buildings in central Tokyo, causing at least 10 fires, according to the Tokyo Fire Department

• Parts of the ceiling at Kudan Kaikan hall in Chiyoda Ward, Tokyo, collapsed, injuring a large number of people, according to the fire department. A graduation ceremony of a vocational school was held at that time.

The Economy, Trade and Industry Ministry said the Onagawa nuclear power plant in Onagawa, eastern Miyagi Prefecture, suspended its operations following the earthquake.

East Japan Railway Co. suspended all services on its Shinkansen bullet train and other lines in the Tokyo metropolitan area

From:Bernardo, RobertSent:Friday, March 11, 2011 8:07 AMTo:Brown, MichaelCc:King, Mark; Sigmon, RebeccaSubject:RE: Japanese Tsunami

Nothing yet other than what we've gotten through news sources.

A fire broke out in the turbine building of Onagawa nuclear plant in Miyagi Prefecture on Friday, Kyodo News reported, after an 8.9-magnitude earthquake struck Japan and triggered a huge tsunami. It was not immediately clear if there was a risk of a radioactive leak as a result of the fire at the plant operated by Tohoku Electric Power. Miyagi prefecture was one of the areas worst hit by the tsunami.

Kyodo also reported that an emergency core-cooling unit had been activated at Fukushima nuclear plant, without giving further details.

NRA

Earlier Friday Prime Minister Naoto Kan had said no radiation leaks have been detected from Japan's nuclear power stations after the massive quake struck the country.

Four Japanese nuclear power plants closest to the epicentre of the quake have been safely shut down, the UN atomic watchdog said Friday.

The quake struck just under 400 kilometres (250 miles) northeast of Tokyo, the US Geological Survey said. It was followed by more than a dozen aftershocks, one as strong as 7.1.

The four Japanese nuclear power plants closest to the epicenter of the quake have been safely shut down, the United Nations atomic watchdog (IAEA) said Friday.

Some reports of EDG challenges at one of the Fukushima nuclear plants.

Bob Bernardo Reactor Systems Engineer US Nuclear Regulatory Commission NRR/DIRS/IOEB Mail Stop: O-7C02A 301-415-2621 Robert.Bernardo@nrc.gov

From: Brown, Michael Sent: Friday, March 11, 2011 7:48 AM To: King, Mark; Bernardo, Robert; Sigmon, Rebecca Subject: Japanese Tsunami

Mark et al,

Any report on the Japanese Reactors and how they faired during the earthquake?

8.9 is that greater than design basis?

Just wondering

Mike

From: Sent: To: Bernardo, Robert Friday, March 11, 2011 11:23 AM Bernardo, Robert

U.S. delivers coolant to Japan nuclear plant: Clinton **WASHINGTON** | Fri Mar 11, 2011 11:05am EST

(Reuters) - The United States has transported coolant to a <u>Japan</u>ese nuclear plant affected by a massive earthquake and will continue to assist Japan, Secretary of State Hillary Clinton said on Friday.

NNN

"We just had our Air Force assets in Japan transport some really important coolant to one of the nuclear plants," Clinton said at a meeting of the President's Export Council.

"You know Japan is very reliant on nuclear power and they have very high engineering standards but one of their plants came under a lot of stress with the earthquake and didn't have enough coolant," Clinton said. (Reporting by <u>Doug Palmer</u>; editing by <u>Will Dunham</u>)

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Bob Bernardo Reactor Systems Engineer US Nuclear Regulatory Commission NRR/DIRS/IOEB Mail Stop: O-7C02A 301-415-2621 Robert.Bernardo@nrc.gov

Cartwright, William	NUL
From: Sent: To: Co:	Thorp, John Friday, March 11, 2011 11:33 AM Thomas, Eric NRR, DIRS, IOFB Distribution: Kobetz, Timothy: Brown, Frederick
Subject:	FW: earthquake pictures

FYI. Lots of pictures of the devastation at the below link.

John

From: Diane.JACKSON@oecd.org [mailto:Diane.JACKSON@oecd.org] To: Thorp, John Subject: earthquake pictures!

http://news.yahoo.com/nphotos/Huge-Japan-quake-causes-tsunami-fireslandslide/ss/events/wl/031111japanquake; ylt=AiMuEkVx3tlQ.WgyhuBH3f79xg8F; ylu=X3oDMTEwcnEwM2g 5BHBvcwMyNQRzZWMDeW5fZmVhdHVyZWQEc2xrA2ltYWdl#photoViewer=/110311/481/urn_publicid_ap_or g91e412e044594bf48337660b0143cd82

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From: Sent: To: Cc: Subject: Attachments: Thorp, John Friday, March 11, 2011 11:29 AM Thomas, Eric; Brown, Frederick NRR_DIRS_IOEB Distribution Epicenter Map image001.jpg

MAN

Pasting this separately into this e-mail, so it doesn't get lost in all the other traffic. My apologies if you've already gotten this via other sources.

John



m

NVL

From: Sent: To: Cc: Subject: Pannier, Stephen Friday, March 11, 2011 11:15 AM Thorp, John; Thomas, Eric NRR_DIRS_IOEB Distribution RE: Snippets gleaned from all the Stuff I'm Reading + Good Map

Hi Folks.

There are two nuclear sites in Fukushima. Both are operated by Tokyo Electric Power Co (TEPCO). Fukushima Daiichi (also known as Fukushima One), and Fukushima Daini (also known as Fukushima Two). There are six units at Fukushima I. There are four units at Fukushima 2.

From what I have read, the units with cooling issues are Fukushima One - Units 1 and 2.

Steve

From: Thorp, John Sent: Friday, March 11, 2011 10:46 AM To: Thomas, Eric Cc: NRR_DIRS_IOEB Distribution Subject: Snippets gleaned from all the Stuff I'm Reading + Good Map

Eric,

An excellent map is attached. I've saved it in a folder in G: drive subject folders entitled JAPAN EARTHQUAKE 11 MARCH 2011

Let's start saving information in that folder for our use in the days and weeks to come.

Thanks,

John

- From Wikipedia article of today, provided to me by Ross T. "Japanese Prime Minister <u>Naoto</u> <u>Kan</u> said shortly after the earthquake that four nuclear power plants were shut down automatically. According to the <u>Associated Press</u> Japan has declared a state of emergency following the failure of the cooling system at one nuclear plant.^[18] Officials say there has been no leak of radiation or radioactive material.^[19] More than 2800 residents living near the power plant were ordered to evacuate.^[20]
- 2. From 0634 e-mail from Clarence Breskovic: "This is an older message but gives a more complete picture of the reactor situation when the earthquake hit. Japan's Tepco shuts seven nuclear units after earthquake Singapore (Platts)--11Mar2011/555 am EST/1055 GMTJapan's Tokyo Electric Power Company has shut a total of seven nuclear units at two of its nuclear power plants in Fukushima prefecture after a 8.9-magnitude earthquake struck northeastern Japan off the main Honshu island Friday, a company spokesman said.

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

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

Why.

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

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

N N

From:
Sent:
To:
Cc:

Subject:

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

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

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

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

http://www.industryweek.com/articles/u-s- delivers coolant to japanese nuclear reactor 24111.aspx

From:
Sent:
To:
Cc:
Subject:

King, Mark Friday, March 11, 2011 2:30 PM Bernardo, Robert; Thomas, Eric Thorp, John Japan earthquake and nuclear plant impacts - http://en.wikipedia.org/wiki/2011 _Sendai_earthquake_and_tsunami FYI

Nuclear power plants

<u>Onagawa, Fukushima I, Fukushima II</u> and <u>Tōkai</u> nuclear power stations <u>automatically shut down</u> following the earthquake. <u>Higashidōri</u>, also on the northeast coast, was already shut down for a periodic inspection. The <u>Rokkasho nuclear reprocessing plant</u>, also on the coast, was being powered by emergency diesel generators.^[63]

HUL

According to the <u>Associated Press</u> Japan has declared a state of emergency following the failure of the cooling system at the <u>Fukushima I Nuclear Power Plant</u>.^[64] Officials say there has been no leak of radiation or radioactive material.^[65]

One facility in <u>Fukushima</u> developed a mechanical failure in the reactor cooling system after it was shut down and emergency power supply failed but there was no radiation leak.^[66] Past midnight local time, it was reported that <u>The Tokyo Electric Power Company</u> was considering venting out superhot gas from the reactor vessel into the atmosphere, which could result in the release of radioactives.^[67] The core of the reactor remains hot however, so cooling is still required. Unnamed officials at the Japanese <u>Nuclear and Industrial Safety Agency</u> reported that due to lack of electricity the emergency cooling system is currently powered by a battery, which lasts about eight hours. Another six batteries have been secured, and the government may use military helicopters to fly them in.^[68] A precautionary state of emergency has been declared.^[69] More than 2,000 residents living within a 3-kilometer (1.9 mi) radius of the plant were evacuated, while residents living within a zone 3 to 10 kilometers (1.9 to 6.2 mi) away were asked to evacuate.^{[70][71]}

At 1:43 p.m. EST, Fox News Channel reported that gas venting was to take place to relieve pressure within the reactor vessel.^[72]

Separately, a fire broke out at <u>Onagawa nuclear plant</u> in <u>Miyagi Prefecture</u>.^[63] The blaze was in a building housing the turbine, which is sited separately from the plant's reactor.^[69]

SOURCE: http://en.wikipedia.org/wiki/2011 Sendai earthquake and tsunami

From:
Sent:
To:

Bernardo, Robert Friday, March 11, 2011 2:24 PM Thomas, Eric

4) MAGNITUDE 8.9 EARTHQUAKE OFF THE COAST OF JAPAN

The following information was gathered from several different sources. The best online source of information we have noted thus far is the Tokyo Electric Power Company (TEPCO) website:

<u>http://www.tepco.co.jp/en/index-e.html</u> which is issuing hourly press releases on the status of its facilities. IOEB will continue to follow these events.

NON

1. A magnitude 8.9 earthquake occurred approximately 80 km east of Onagawa NPP and 150 km NE of Fukushima Daichi. 5 aftershocks measuring between 6.2 and 7.1 on the Richter Scale have been reported.

2. Based on stack monitoring, no radiation releases have occurred from any nuclear facilities.

3. All units that were operating at the time at the Onagawa, Fukushima Daichi, Fukushima Daini, and Tokai Daini sites (11 units in all) automatically shutdown when the earthquake hit at 2:45 pm local time on 3/11.

4. The following complications occurred:

a. Onagawa – A small fire occurred in the turbine building and was extinguished.
b. Fukushima Daichi – A small fire occurred in a service building and was subsequently extinguished.

c. Fukushima Daichi – A first level emergency was declared at 3:42 pm local on 3/11 due to a loss of offsite power and subsequent failure of EDGs which resulted in a station blackout. The loss of EDGs may have been due to a seawater cooling issue. A backup EDG was being brought in on a truck to provide power. An evacuation has been ordered out to 3 km, and residents have been told to shelter in place out to 10 km.

d. Fukushima Daini – RCIC is providing cooling to all 4 units that shutdown. In Unit 1, ECCS actuated due to a possible RCS leak into containment. The first level emergency declaration also applies to Fukushima Daini Unit 1.

5. The NRC is in the Monitoring Response Mode as of 0946 on 3/11/11. Region IV will take the lead for U.S. sites and HQ for international sites to provide assistance in response to the earthquake in Japan and any adverse affects from a tsunami. This response mode change is NOT associated with event number 46668.

From the Region IV morning phone call

Diablo Canyon: Both units remain at power (100%). Licensee declared a notice of unusual event (NOUE) due to potential tsunami impacts from Japan's earthquake, earlier today. At this time the alert is strictly a precautionary measure. Site access limited to essential personnel only. Several high risk maintenance activities have been suspended.

SONGS: Both units remain at power, unit 2 (100%), unit 3 (98%).

Bob Bernardo Reactor Systems Engineer US Nuclear Regulatory Commission NRR/DIRS/IOEB Mail Stop: O-7C02A 301-415-2621 <u>Robert.Bernardo@nrc.gov</u>

From: Sent: To: Cc: Subject: Brown, Frederick Friday, March 11, 2011 2:05 PM Thorp, John; Thomas, Eric Skeen, David; Hiland, Patrick; Westreich, Barry Lessons Learned from Japan

ANN

Eric, John:

Let's make sure we know whether our plant EDGs are subject to the condition that effected the Japanese EDGs post-earthquake (IFR?)

	/
From:	Pannier, Stephen
Sent:	Friday, March 11, 2011 1:57 PM
То:	Thomas, Eric
Subject:	Status update Fukushima One

http://www.tepco.co.jp/en/press/corp-com/release/11031203-e.html

From: Thomas, Eric Sent: Friday, March 11, 2011 11:13 AM To: Brown, Frederick Cc: Thorp, John; Garmon-Candelaria, David; Bernardo, Robert; Haskell, Russell; Pannier, Stephen Subject: Earthquake Update as of 11 am

NA

Fred,

I have been monitoring the phone and email traffic as best I can this morning. There is a lot of repetition so I think it may be useful to summarize the salient points every couple of hours. Here is what I have as of 11:00. I am going over to the Ops Center to see what I can pickup on the 11:00 and 11:45 calls. Based on the amount of traffic going around, you may find it useful (or not) to forward this to ET/LT members.

The following information was gathered from several different sources. The best online source of information we have noted thus far is the Tokyo Electric Power Company (TEPCO) website: <u>http://www.tepco.co.jp/en/index-e.html</u> which is issuing hourly press releases on the status of its facilities.

- 1. A magnitude 8.9 earthquake occurred approximately 80 km east of Onagawa NPP and 150 km NE of Fukushima Daichi. USGS believes the quake may have actually been a 7.9. 5 aftershocks measuring between 6.2 and 7.1 on the Richter Scale have been reported.
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Eric てhomas U.S. Nuclear Regulatory Commission NRR/DIRS/IOEB OWFN-7E24
From:	Wegner, Mary
Sent:	Friday, March 11, 2011 12:27 PM
То:	Thomas, Eric
Subject:	TEPCO Press Coverage

TEPCO confirmed that water levels inside the reactors at its Fukushima-Daiichi nuclear plant were on a falling trend, but added it was working to maintain water levels to avert the exposure of nuclear fuel rods.

The company has been trying to restore power to its emergency power system so that it can add water to the inside of the reactors, a TEPCO spokesman said.

AM

From Reuters

From:	Haskell, Russell
Sent:	Friday, March 11, 2011 11:37 AM
То:	Thomas, Eric
Subject:	RE: Earthquake Update as of 11 am

Eric,

Just another data point:

From the RGN IV call, there are no immediate operational concerns at SONGS/Diablo Canyon. The licensee had some preliminary discussions associated with an "out surge" of tidal activity at Diablo Canyon. This out surge would occur prior to the projected tsunami impacts on the west coast (10-11 am PST). An out surge has a potential of impacting plant service water intakes. The final decision was made to maintain current plant conditions (both units reported at 100%). It was determined an out surge would not impact the plant...... if anything changes, we'll get it passed on

and

 Russell S. Haskell II

 United States Nuclear Regulatory Commission (NRC)

 Reactor Systems Engineer (NRR/DIRS/IOEB)

 Russell.Haskell@nrc.gov

From: Thomas, Eric
Sent: Friday, March 11, 2011 11:13 AM
To: Brown, Frederick
Cc: Thorp, John; Garmon-Candelaria, David; Bernardo, Robert; Haskell, Russell; Pannier, Stephen
Subject: Earthquake Update as of 11 am

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- NYM

Cartwright, William

From:	Thorp, John
Sent:	Friday, March 11, 2011 11:16 AM
То:	Thomas, Eric
Subject:	RE: Earthquake Update as of 11 am

Good update.

From: Thomas, Eric Sent: Friday, March 11, 2011 11:13 AM To: Brown, Frederick Cc: Thorp, John; Garmon-Candelaria, David; Bernardo, Robert; Haskell, Russell; Pannier, Stephen Subject: Earthquake Update as of 11 am

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Eric Thomas **U.S. Nuclear Regulatory Commission** NRR/DIRS/IOEB OWFN-7E24

Cartwright, W	illiam
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From: Sent: To: Subject: Hopkins, Jon Friday, March 11, 2011 8:45 AM Brown, Frederick; Thomas, Eric FW: Japan initiates emergency protocol after earthquake

ANCH

From: Astwood, Heather

Sent: Friday, March 11, 2011 8:32 AM

To: Leeds, Eric; Boger, Bruce; McGinty, Tim; Valentine, Nicholee; Titus, Brett; Susco, Jeremy; Roquecruz, Carla; Nguyen, Quynh; Meighan, Sean; Heida, Bruce; Fields, Leslie; Cusumano, Victor; Cartwright, William; Azeem, Almas **Cc:** Cullingford, Michael; Hopkins, Jon; Quinones, Lauren; Regan, Christopher; Rodriguez, Veronica **Subject:** FW: Japan initiates emergency protocol after earthquake

FYI

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From: Breskovic, ClarenceSent: Friday, March 11, 2011 6:39 AMTo: Breskovic, ClarenceSubject: Japan initiates emergency protocol after earthquake

Japan initiates emergency protocol after earthquake

11 March 2011

Nuclear Engineering International

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

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

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

-A CO2 fire has broken out at Onagawa nuclear power station.

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

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

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

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

<u>9</u>2

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

A minister in its controlling organisation, the Ministry of Economy, Trade and Industry, notifies the prime minister's office. The central nuclear emergency response headquarters (NERHQ) of the national government issues a nuclear emergency declaration, which also includes instructions about preventative measures. It receives technical advice from the Nuclear Safety Commission. The NERHQ sends a specialist and the NSC sends a commissioner to the site.

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

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

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

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

From: Sent: To: Subject: Pannier, Stephen Friday, March 11, 2011 9:42 AM NRR_DIRS_IOEB Distribution; Brown, Frederick RE: FOX News is covering the Nuclear plant situation in Japan.

ANNUL

This is a recent news release from Tokyo Electric Power Co (TEPCO) It seems like their units are the most impacted:

http://www.tepco.co.jp/en/press/corp-com/release/11031106-e.html

Fukushima Daiichi Nuclear Power Station has six units. Units 1 - 3 were operating at the time of the earthquake. All scrammed as a result. The reported cooling water issue is with Unit 1, which is a 460 MWe BWR which commenced operation on March 26, 1971. I have read that this is a GE design.

Steve

From: Thorp, John >

Sent: Friday, March 11, 2011 9:27 AM To: NRR_DIRS_IOEB Distribution; Brown, Frederick Subject: FOX News is covering the Nuclear plant situation in Japan. Importance: High

Trying to keep up with all this. Looks like a station blackout situation at at least one plant, Some evacuations occurring near one of their plants.

John

Cartwright, William	with
From: Sent: To: Subject:	Thorp, John Friday, March 11, 2011 9:27 AM NRR_DIRS_IOEB Distribution; Brown, Frederick FOX News is covering the Nuclear plant situation in Japan.
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John

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From:
Sent:
To:
Cc:
Subject:

Hopkins, Jon Friday, March 11, 2011 9:13 AM Brown, Frederick Thomas, Eric; Regan, Christopher; Astwood, Heather; Cullingford, Michael; Quinones, Lauren Our Opns Center offered to Japan for their use

Fred,

OIP, Jack Ramsey, just called me. We have offered the use of our Ops Center to Japan (Mike Weber idea). And it appears that they have accepted.

Jul

We expect that Japan staff will arrive shortly.

Jon

r N

From: Sent: To: Subject: Wegner, Mary Friday, March 11, 2011 8:56 AM Thomas, Eric FW: Tsunami Warning

all

From: Wegner, Mary Sent: Friday, March 11, 2011 8:33 AM To: Breskovic, Clarence Subject: Tsunami Warning

http://www.weather.gov/ptwc/?region=1&id=pacific.2011.03.11.123017

From:Wegner, MarySent:Friday, March 11, 2011 11:19 AMTo:Thomas, EricSubject:Info on Tohoku Plants

Onagawa nuclear power plant

Unit 1: Online, reactor automatically scrammed

Unit 2: Reactor starting up from periodic inspection, reactor automatically scrammed

NR

Unit 3: Online, reactor automatically scrammed

Higashi Dori nuclear power plant

Unit 1 : Shut down in the midst of periodic inspection

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From: Sent: To: Subject: Hopkins, Jon Friday, March 11, 2011 8:45 AM Brown, Frederick; Thomas, Eric FW: Japan: Fukushima 1 & 2 cooling system problems

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From: Astwood, Heather

Sent: Friday, March 11, 2011 8:30 AM

To: Leeds, Éric; Boger, Bruce; McGinty, Tim; Valentine, Nicholee; Titus, Brett; Susco, Jeremy; Roquecruz, Carla; Nguyen, Quynh; Meighan, Sean; Heida, Bruce; Fields, Leslie; Cusumano, Victor; Cartwright, William; Azeem, Almas
Cc: Cullingford, Michael; Hopkins, Jon; Quinones, Lauren; Regan, Christopher; Rodriguez, Veronica
Subject: FW: Japan: Fukushima 1 & 2 cooling system problems

FYI

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

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

From:
Sent:
То:
Subject:

Hopkins, Jon Friday, March 11, 2011 8:44 AM Brown, Frederick; Thomas, Eric FW: INFORMATION Japan No radiation Leaks Or Abnormalities - 11 reactors shut down

More info from OIP.

From: Astwood, Heather
Sent: Friday, March 11, 2011 8:25 AM
To: Leeds, Eric; Boger, Bruce; McGinty, Tim; Valentine, Nicholee; Titus, Brett; Susco, Jeremy; Roquecruz, Carla; Nguyen,
Quynh; Meighan, Sean; Heida, Bruce; Fields, Leslie; Cusumano, Victor; Cartwright, William; Azeem, Almas

Cc: Cullingford, Michael; Hopkins, Jon; Quinones, Lauren; Regan, Christopher; Rodriguez, Veronica

NNN

Subject: INFORMATION Japan No radiation Leaks Or Abnormalities - 11 reactors shut down

E	v	/т
F	I	T

From: Breskovic, Clarence **Sent:** Friday, March 11, 2011 4:05 AM To: Breskovic, Clarence **Subject:** Japan: No Radiation Leaks Or Abnormalities - 11 reactors shut down

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No Radiation Leaks Or Abnormalities in Quake-hit Japan: Prime Minister Kan

Tokyo, March 11 Kyodo -- (EDS: RECASTING) Japan has detected no abnormalities such as radiation leakage at nuclear power plants in the country, Prime Minister Naoto Kan said Friday, following a powerful earthquake and aftershocks that hit a wide area on the Pacific coast of the northeastern region.

A total of 11 nuclear reactors were automatically shut down at the Onagawa plant, Fukushima No. 1 and No. 2 plants and Tokai No. 2 plant, the industry ministry said, adding there were no immediate reports from monitoring posts of fires or other abnormalities near the nuclear plants after the 2:46 p.m. quake.

Kan told a press conference, "Parts of nuclear plants were automatically shut down but we haven't confirmed any effects induced by radioactive materials outside the facilities." Tokyo Electric Power Co., which operates the Fukushima plants, said it kept operating the Kashiwazaki-Kariwa nuclear plant on the Sea of Japan coast in Niigata Prefecture, while Hokkaido Electric Power Co. reported no problems at its Tomari No. 1, No. 2 and No. 3 plants on the northernmost main island.

There were no immediate signs of any problems at the Hamaoka nuclear plant on the Pacific coast in Shizuoka Prefecture, southwest of Tokyo, the prefectural government said.

From: Sent: To: Subject: Pannier, Stephen Friday, March 11, 2011 8:41 AM Thomas, Eric IAEA Statement on the JP Earthquake

WW

http://www.jaea.org/newscenter/news/2011/tsunamiupdate.html

From: Sent: To: Subject: Brown, Frederick Friday, March 11, 2011 8:40 AM Thomas, Eric Fw: INFO: Japan Earthquake

5 ANIS

From: Tabatabai, Omid
To: Thorp, John; Tappert, John; Wegner, Mary; Brown, Frederick; Dudes, Laura; Frye, Timothy; Bergman, Thomas; Hawkins, Kimberly; Munson, Clifford; Sigmon, Rebecca; Karas, Rebecca; Copeland, Douglas; Craffey, Ryan; Harmon, David; Issa, Alfred; Patel, Jay
Sent: Fri Mar 11 07:35:49 2011
Subject: INFO: Japan Earthquake

ANA

Some info from our Japanese friends amid the massive earthquake...

Dear all,

Prime minister declared the state of emergency. 11 NPPs automatically shut down. 3 NPPs (Fukushima) have problems of DG and can't receive electric powers now. (Very serious situation...)

- Many people died
- All the trains service disruption in Tokyo
- Tsunami destroyed many cars, houses...
- Fires occurred at Oil station
- Wide areas blackout

NHA

From: Sent: To: Cc: Subject:

Bernardo, Robert Friday, March 11, 2011 7:05 AM Thomas, Eric Haskell, Russell Japan news articles

Eric,

It looks like the earthquake in Japan is having some affect on several nuclear plants. There is news all over the place, I'll try to make some sense out of it.

http://www.msnbc.msn.com/id/42025882/ns/world_news-asiapacific/

TOKYO --- Japan's top government spokesman and local administrators say emergencies have been issued at two nuclear power plants over cooling-system fears in the wake of Friday's giant earthquake.

Chief Cabinet Secretary Yukio Edano says the nuclear power plant in Fukushima developed a mechanical failure in the system needed to cool the reactor after it was shut down after the earthquake. He said there was no radiation leak.

Edano said the measure was a precaution and there was no radiation leak at the Fukushima No. 1 power plant. He said the facility was not in immediate danger.

- 1. Japan earthquake
 - 1. Live Blog: Latest updates on aftermath of Japan quake
 - 2. Updated 3 minutes ago Emergency declared at Japan nuke plants
 - 3. Updated 1 minutes ago Hawaii, U.S. West Coast prepare for tsunami
 - 4. Massive earthquake hits Japan

Meanwhile, an administrator at the Tohoku Electric Power Co's Onagawa facility said the process for the cooling reactor is "not going as planned," adding that "nuclear emergency situation" has been declared. The company asked people nearby to stay calm, the official TV news channel NHK reported.

A fire broke out at the plant following the quake, the Kyodo news agency said. Prior to the Kyodo report, the company had said it had not received information on whether there had been any problems at the plant after the disaster.

At the Fukushima facility, the site of a Tokyo Electric Power nuclear power plant, a spokesman on Friday that the plant's reactor cooling system was working, denying an earlier report that it was malfunctioning. Miyagi prefecture, where it is located, was one of the areas worst hit by the tsunami.

Kyodo also reported that an emergency core-cooling unit had been activated at the Fukushima nuclear plant, without giving further details.

The four Japanese nuclear power plants closest to the epicenter of the quake have been safely shut down, the United Nations atomic watchdog said Friday.

The quake struck just under 250 miles northeast of Tokyo, the U.S. Geological Survey said. It was followed by more than a dozen aftershocks, one as strong as 7.1.

Earlier, Prime Minister Naoto Kan said the quake caused "major damage" in northeastern Japan, but that nuclear power facilities in the area were not damaged and there was no radiation leakage.

Fire breaks out at Japanese nuclear plant: Kyodo

(AFP) – 1 hour ago

TOKYO — A fire broke out in the turbine building of Onagawa nuclear plant in Miyagi Prefecture on Friday, Kyodo News reported, after an 8.9-magnitude earthquake struck Japan and triggered a huge tsunami. It was not immediately clear if there was a risk of a radioactive leak as a result of the fire at the plant operated by Tohoku Electric Power. Miyagi prefecture was one of the areas worst hit by the tsunami.

Kyodo also reported that an emergency core-cooling unit had been activated at Fukushima nuclear plant, without giving further details.

Earlier Friday Prime Minister Naoto Kan had said no radiation leaks have been detected from Japan's nuclear power stations after the massive quake struck the country.

Four Japanese nuclear power plants closest to the epicentre of the quake have been safely shut down, the UN atomic watchdog said Friday.

The quake struck just under 400 kilometres (250 miles) northeast of Tokyo, the US Geological Survey said. It was followed by more than a dozen aftershocks, one as strong as 7.1.

http://www.thenational.ae/news/worldwide/asia-pacific/fire-break-out-at-nuclear-power-plant-after-japaneseguake

A fire has broken out at one of Japan's nuclear power plants after the 8.9 magnitude earthquake that struck the country today, according to news agency reports.

The fire is reported to be at Tohoku Electricity's Onagawa plant. The Japanese government has declared a nuclear power emergency situation, the news agency Jiji said, quoting the Japanese defence ministry

However, the UN nuclear watchdog in Vienna said the four Japanese nuclear power plants closest to the earthquake have been safely shut down. "The four Japanese nuclear power plants closest to the quake have been safely shut down," the agency said in a statement, adding it was liaising with the Japanese Ministry of Economy, Trade and Industry on further details of the situation.

All Japanese ports have closed close, with discharge operations halted, after the earthquake and the resultant tsunami, shippers say. A tsunami 10 metres high hit the port in Sendai, northern Japan, with Sendai airport subsequently flooded, according to television reports. The tsunami swept away everything in its path, including houses, ships and cars. Several other airports, including Tokyo's Narita, were closed and rail services halted.

Tokyo Electric Power said the power had been cut to 4 million homes. Among other reports of damage, Japanese media reported a fire at JFE Holdings' steel plant in Chiba. JFE, the world's fifth-largest steelmaker, said there was no major impact. Cosmo Oil said its Chiba refinery had been hit by a fire in storage tank, and it was still working to extinguish it. JX Nippon Oil, Japan's top refiner, halted operations at three refineries in Sendai, Kashima and Negishi, Jiji News said. Television showed black smoke pouring out of an industrial area in Yokohama's Isogo area.

By 2pm UAE time at least 22 people were reported killed in the earthquake, the biggest to hit Japan in 140 years.

Electronics giant Sony, one of the country's biggest exporters, shut six factories, while Toyota said it had halted production at a parts factory and two assembly plants in the area, and Nissan, the country's second-largest automaker, stopped operations at four factories, media reported.

Experts are predicting that the earthquake will have a serious effect on Japan's economy, which the Bank of Japan has been struggling to revive. With Japanese interest rates already near zero, analysts said the central bank and the government had few options but to inject more money into the economy, even if it risked swelling the already bloated deficit.

Tsutomu Yamada, a market analysts at Kabu.com Securities. said: "The extent of the damage is hard to tell but it seems devastating for the northern Japan economy. The government must act quickly to announce support packages and the central bank should pump more money into the economy,"

The earthquake in 1995 that devastated Kobe in Japan caused \$100 billion in damage.

A tsunami warning has been issued for the entire Pacific basin except the mainland United States and Canada following a huge earthquake that hit Japan on Friday, the U.S. Pacific Tsunami Warning Centre said.

The warning includes Hawaii and extends from Mexico down to South American countries on the Pacific, the centre said.

http://www.marketwatch.com/story/no-sign-of-radiation-leak-at-japan-nuclear-plants-2011-03-11

No sign of radiation leak at Japan nuclear plants

Related stories

- <u>Powerful earthquake shakes Japan</u> (5:10a)
- Asia stocks tumble on Japan quake, Mideast fears (4:53a)
- Yen rebound signals repatriation trends: analyst (4:57a)
- Major oil refinery on fire northeast of Tokyo (3:14a)

By V. Phani Kumar

HONG KONG (MarketWatch) -- Japan has not detected any abnormalities such as radiation leakage at the country's nuclear power plants after a massive 8.9 magnitude earthquake struck the country's northern coast, Kyodo News reported Friday, citing Prime Minister Naoto Kan. Eleven nuclear reactors in the country were automatically shut down, and there were no immediate reports of fires, the report added.

Bob Bernardo Reactor Systems Engineer US Nuclear Regulatory Commission NRR/DIRS/IOEB Mail Stop: O-7C02A 301-415-2621 Robert.Bernardo@nrc.gov

Weaver, Tonna

From:	Lu, Shanlai $1000000000000000000000000000000000000$
Sent:	Friday, March 11, 2011 9:20 AM
То:	Donoghue, Joseph; Ulses, Anthony; Mendiola, Anthony; Akstulewicz, Frank; Ader, Charles; Lombard, Mark; Ruland, William; Bahadur, Sher; Landry, Ralph; Clifford, Paul
Subject:	Japan nuclear site declares state of emergency after quake - plant experienced a mechanical failure in the system needed to cool the reactor

http://www.chicagotribune.com/news/nationworld/la-fgw-quake-nuclear-20110312,0,6862975.story

We are safe and lucky this time.

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A Tribune Newspaper website



Weaver, Tonna

From:	Casto, Greg
Sent:	Friday, March 11, 2011 9:28 AM
То:	Gardocki, Stanley; Purciarello, Gerard; Smith, Edward; Jones, Steve; Hopkins, Ogbonna; Armstrong, Garry; Davidson, Evan; Levine, Michael
Subject:	IMPORTANT: Do not respond to any press calls regarding the earthquake/tsunami in japan
Importance:	High

We may get calls from the press regarding the situation in Japan, and the impact on either their plants or ours along the CA coast. Please, do not answer any questions from any calls, even if they are friends or callers claiming to be with another agency or organization. Refer any callers to our public affairs office.

FYI, there are a lot of unconfirmed and conflicting reports regarding the situation at the Japan nuclear plants. We do not have a good understanding yet on what is going on. Regarding the California coastal plants:

Diablo Canyon, declared a NOUE early this morning after the State declared a tsunami warning for that section of the coast. The current expected wave surge is not that high, about 6 ft, but the plant is evaluating if a trough (amplitude) would be low enough to cause loss of circulation water supply. The State has closed the roads and evacuated the coastal area near Avilla Beach, so the site has only essential personnel on site and released non-essential personnel. The Region may involve us, dependent on input from the site. The wave is expected to reach the plant a little before 11am EST.

San Onofre, is not in the tsunami warning area at this time.

Humbolt Bay, has an ISFSI on site. Currently, it does not appear that the site will be affected, although it is in the warning area.

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tx greg

Greg Casto Balance of Plant Branch Division of Safety Systems Office of Nuclear Reactor Regulation US Nuclear Regulatory Commission Washington DC 20555 telephone: 301,415,0565

Cohen, Shari

From:	
Sent:	
To:	
Subject:	

Leeds, Eric Friday, March 11, 2011 12:29 PM Bubar, Patrice RE: Any impacts from earthquake?

AN

Did you get a response? It looks like our sites will be fine. We also received word from the US Navy that their assets are also fine. We have a 1 pm meeting in the Ops Center for the latest update.

1

N32

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

From: Bubar, Patrice / CCM Sent: Friday, March 11, 2011 8:19 AM To: Leeds, Eric; Virgilio, Martin; Brenner, Eliot Subject: Any impacts from earthquake?

Are any preparations ongoing on the west coast due to earthquake?

Patty Bubar Chief of Staff Office of Commissioner William D. Magwood U.S. Nuclear Regulatory Commission 301-415-1895

Arndt, Steven

NUN

From: Sent: To: Subject: ANS Broadcasts [broadcasts@ans.org] Friday, March 11, 2011 6:38 PM Arndt, Steven Go to ANSNUCLEARCAFE.ORG for Japan's Nuclear Plant Status

The ANS Nuclear Cafe blog is posting the latest links to information about the status of Japan's Nuclear Power Plants. Go to <u>http://ansnuclearcafe.org/</u> for a collection of sources covering Japan's earthquake and Tsunami.

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M-36

From: A	.dams, John 🖌 🔪
Sent: F	riday, March 11, 2011 9:19 AM
To: R	eed, Elizabeth; Ross-Lee, MaryJane; Quichocho, Jessie; Eads, Johnny; Adams, Alexander; saac, Patrick; Sloan, Scott
Cc: B	lount, Tom; McGinty, Tim
Subject: R	E: Tsunami Briefing ad follow up with California and Oregon RTRs

These are good questions to ask when we call the facilities.

From: Reed, Elizabeth
Sent: Friday, March 11, 2011 9:16 AM
To: Adams, John; Ross-Lee, MaryJane; Quichocho, Jessie; Eads, Johnny; Adams, Alexander; Isaac, Patrick; Sloan, Scott
Cc: Blount, Tom; McGinty, Tim
Subject: RE: Tsunami Briefing ad follow up with California and Oregon RTRs

Depending on the coastal damage, which right now seems minimal, some of these facilities may suffer loss of power. If that happens we need to be sure they have backup power for their security systems. Most facilities do have battery backup, but usually for only a few hours. Their security plans usually indicate if they lose power they will post a person at the facility. When the PMs calls all the possibly affected facilities they should discuss loss of power scenario.

Beth

From: Adams, John

Sent: Friday, March 11, 2011 9:10 AM

To: Ross-Lee, MaryJane; Quichocho, Jessie; Eads, Johnny; Adams, Alexander; Isaac, Patrick; Reed, Elizabeth; Sloan, Scott

Cc: Blount, Tom; McGinty, Tim

Subject: Tsunami Briefing ad follow up with California and Oregon RTRs

Tsunami affects on the continental US are expected to be minimal. As I stated in my previous e-mail, the Tsunami is unlikely to affect Pacific coast RTRs. RIV IRC is in monitoring mode. The HQ Ops Center is supporting the Japanese contingent that was here for the RIC with information and has augmented NRC staffing to support this effort. I told Tim that we would touch base with the California and Oregon RTRs to ensure we understand their status. It is highly likely that they are unaffected but we don't want any surprises either.

Valentine, Nicholee	, pro
From:	Adams John
Sent:	Friday, March 11, 2011 7:59 AM
То:	Sloan, Scott; Reed, Elizabeth
Cc:	Blount, Tom; McGinty, Tim
Subject:	FW: Tsunami Concern - Are there any RTRs in close proximity to the Pacific Coast
Importance:	High

Since it is Friday we need to determine if we have the PMs or Inspectors for the California and Oregon facilities available. Let's get a name each potentially affected facility. Tim will be attending a briefing at 8 am. We may get additional direction after.

From: Adams, John
Sent: Friday, March 11, 2011 7:44 AM
To: Eads, Johnny; Quichocho, Jessie; Isaac, Patrick; Adams, Alexander
Cc: Blount, Tom; McGinty, Tim
Subject: FW: Tsunami Concern - Are there any RTRs in close proximity to the Pacific Coast
Importance: High

After additional reading on the Tsunami, it appears the facility would need to be within 100 yards of the coast to be affected. I suspect this eliminates the RTRs from concern. I will continue to follow events.

From: Adams, John
Sent: Friday, March 11, 2011 7:21 AM
To: Eads, Johnny; Quichocho, Jessie; Isaac, Patrick; Adams, Alexander
Cc: Blount, Tom; McGinty, Tim
Subject: Tsunami Concern - Are there any RTRs in close proximity to the Pacific Coast
Importance: High

As you may or may not be aware of there was a magnitude 8.9 earthquake in Japan last night. This will result in a Tsunami on the US Pacific coast. I can't think of any RTRs on the coast but having not been to all of them I am not certain if there are any RTRs susceptible to a Tsunami. If there are we probably should contact the facility for details on their preparatory actions, if any.

Valentine, Nicholee	, M
From: Sent: To: Subject:	Adams, John Friday, March 11, 2011 7:42 AM McGinty, Tim RE: Tsunami Concern - Are there any RTRs in close proximity to the Pacific Coast
Can I sit in on the call?	
From: McGinty, Tim Sent: Friday, March 11, To: Adams, John; Eads, Cc: Blount, Tom; Quay, Subject: RE: Tsunami C Thanks John. There is conference room next	2011 7:41 AM Johnny; Quichocho, Jessie; Isaac, Patrick; Adams, Alexander Theodore oncern - Are there any RTRs in close proximity to the Pacific Coast a conference call with the Ops Center at 8 a.m., I will be on it from a 13 th floor to Leeds' office. Tim
- had a fill a	а дининија и се
From: Adams, John Sent: Friday, March 11, 1 To: Eads, Johnny; Quich Cc: Blount, Tom; McGint Subject: Tsunami Conce Importance: High	2011 7:21 AM 4 ocho, Jessie; Isaac, Patrick; Adams, Alexander y, Tim ern - Are there any RTRs in close proximity to the Pacific Coast
As you may or may no	t he aware of there was a magnitude 8.9 earthquake in Japan last night. This will result

As you may or may not be aware of there was a magnitude 8.9 earthquake in Japan last night. This will result in a Tsunami on the US Pacific coast. I can't think of any RTRs on the coast but having not been to all of them I am not certain if there are any RTRs susceptible to a Tsunami. If there are we probably should contact the facility for details on their preparatory actions, if any.

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From:	Adams, John
Sent:	Friday, March 11, 2011 9:42 AM
То:	Quichocho, Jessie
Subject:	RE: Tsunami Briefing ad follow up with California and Oregon RTRs

ديكن بيمار مامينه الاردام

Sounds as if Irvine is the bounding case. Good plan.

From: Quichocho, Jessie
Sent: Friday, March 11, 2011 9:39 AM
To: Adams, John; Ross-Lee, MaryJane; Eads, Johnny; Adams, Alexander; Isaac, Patrick; Reed, Elizabeth; Sloan, Scott
Cc: Blount, Tom; McGinty, Tim
Subject: RE: Tsunami Briefing ad follow up with California and Oregon RTRs

The facility that comes close to the coast line is Irvine and that's by about 4 miles or so...Irvine is also at a higher elevation.

All the facilities on the west coast are secured when folks leave for the evening. The facility staff will most likely not be aware of the tsunami warnings until later this morning or when they reach the facility at 8am or so since they are on PST.

Because Irvine is the closest facility to the coast and the others are all relatively inland, Linh will contact UC-Irvine at 11am EST to confirm the status of the facility and of possible scenarios that may affect the facility.

Jessie

From: Adams, John
Sent: Friday, March 11, 2011 9:10 AM
To: Ross-Lee, MaryJane; Quichocho, Jessie; Eads, Johnny; Adams, Alexander; Isaac, Patrick; Reed, Elizabeth; Sloan, Scott
Cc: Blount, Tom; McGinty, Tim

Subject: Tsunami Briefing ad follow up with California and Oregon RTRs

Tsunami affects on the continental US are expected to be minimal. As I stated in my previous e-mail, the Tsunami is unlikely to affect Pacific coast RTRs. RIV IRC is in monitoring mode. The HQ Ops Center is supporting the Japanese contingent that was here for the RIC with information and has augmented NRC staffing to support this effort. I told Tim that we would touch base with the California and Oregon RTRs to ensure we understand their status. It is highly likely that they are unaffected but we don't want any surprises either.

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From:McGinty, TimImplicit MediaSent:Friday, March 11, 2011 5:20 PMTo:LIA05 HocSubject:FW:Attachments:US Plant Design Safe Shutdown Earthquake.pdf

Follow Up Flag: Flag Status: Follow up Flagged

Nuclear Power Plant Design for Natural Phenomena

The NRC regulations require that nuclear power plants be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, and tsunami. Nuclear power plant design reflects consideration of the most severe natural phenomena that have been historically reported for the plant site and surrounding area. The design also provides sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated. Additionally, the design considers the appropriate combinations of the effects of the natural phenomena with the effects of normal and accident conditions at the plant.

Each nuclear power plant is, therefore, designed to a specific magnitude or strength of a natural phenomenon that is appropriate for the plant site and surrounding area. For example, a nuclear power plant in Texas or Florida (where earthquakes are of small magnitude and rarely occur) would not be designed for the same earthquake loading as a nuclear power plant in California (where earthquakes are more severe and common).

The attached table shows some examples of design basis earthquake intensity and magnitudes for U.S. plants.

If an earthquake of the magnitude recently experienced off the coast of Japan were to occur in close proximity to a plant in the United States, it would likely exceed the SSE earthquake for all U.S. plants with the possible exception of Diablo Canyon. The likelihood of an SSE earthquake occurring at a U.S. nuclear power plant is once in every 100,000 years.

The coastal plants in the United States are designed to withstand tsunami's based on credible flooding scenarios included in the General design criteria. The intake structures, in particular of the coastal facilities on the West Coast, are significantly robust and strengthened to be able to withstand a credible tsunami. Significant tsunami's, beyond the existing design bases flood considerations, are unlikely at facilities located on the Atlantic and Gulf Coasts.

DESIGN BASIS EARTHQUAKE INTENSITY AND MAGNITUDE

¢.

	MAX. POTENT	IAL EARTHQUAKE	AT SITE		
NUCLEAR PLANT	INTENSITY	MAGNITUDE	EPICENTRAL (3)	DESIGN SSE PEAK	SOIL
BY LOCATION STATE	MMI Scale (1)	Richter Scale	DISTANCE , miles	ACCLN, g (1,2)	CONDITION
NEW YORK					
Fitzpatrick	VI	4.9	0	0.15	Soil
Ginna 1	VIII, IX-X	6, 7	60, 90	0.2	Rock
Indian Point 2, 3	VII	5.5	0	0.15	Rock
Nine Mile Point 1	IX-X	7	50	0.11	Rock
Nine Mile Point 2	VI	4.9	0	0.15	Rock
DELAWARE (No Nuclear Plant)		· · · · ·			
Salem 1, 2 (NJ - nearest plant)	VII-VIII	5.8	0	0.2	Deep Soil
CONNECTICUT					
Millstone 1, 2, 3	VII	5.5	0	0.17	Rock
VERMONT					
Vermont Yankee	VI	4.9	0	0.14	Rock
ОНІО					
Davis Besse 1	VII	5.5	0	0.15	Rock
Perry 1	VII	5.5	0	0.15	Rock
GEORGIA					
Hatch 1, 2	VII	5.5	0	0.15	Deep Soll
Vogtle 1, 2	VII-VIII	5.8	0	0.2	Deep Soil
TENNESSEE			_		
Seqouyah 1,2	VIII	6.1	0	0.18	Rock
Watts Bar 1	VIII	6.1	0	0.18	Rock
CALIFORNIA		_	_		
San Onofre 2, 3	IX-X	7	5	0.67	Rock
Diabolo Canyon 1, 2	X-XI	7.5	3	0.75	Rock

(1) MMI - Modified Mercalli Intensity; SSE - Safe Shutdown Earthquake

(2) The design SSE peak accelerations shown are conservative for the site max. potential earthquake intensity

(3) '0' epicentral distance means the max. potential earthquake was assumed to occur adjacent to the site

From:	McGinty, Tim ~ U /U
Sent:	Friday, March 11, 2011 7:41 AM
To:	Adams, John; Eads, Johnny; Quichocho, Jessie; Isaac, Patrick; Adams, Alexander
Cc:	Blount, Tom; Quay, Theodore
Subject:	RE: Tsunami Concern - Are there any RTRs in close proximity to the Pacific Coast
Follow Up Flag:	Follow up
Flag Status:	Flagged

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Thanks John. There is a conference call with the Ops Center at 8 a.m., I will be on it from a 13th floor conference room next to Leeds' office. Tim

From: Adams, John
Sent: Friday, March 11, 2011 7:21 AM
To: Eads, Johnny; Quichocho, Jessie; Isaac, Patrick; Adams, Alexander
Cc: Blount, Tom; McGinty, Tim
Subject: Tsunami Concern - Are there any RTRs in close proximity to the Pacific Coast
Importance: High

As you may or may not be aware of there was a magnitude 8.9 earthquake in Japan last night. This will result in a Tsunami on the US Pacific coast. I can't think of any RTRs on the coast but having not been to all of them I am not certain if there are any RTRs susceptible to a Tsunami. If there are we probably should contact the facility for details on their preparatory actions, if any.

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

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

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

From:	Astwood, Heather
Sent:	Friday, March 11, 2011 8:32 AM
То:	Leeds, Eric; Boger, Bruce; McGinty, Tim; Valentine, Nicholee; Titus, Brett; Susco, Jeremy;
	Roquecruz, Carla; Nguyen, Quynh; Meighan, Sean; Heida, Bruce; Fields, Leslie; Cusumano,
	Victor; Cartwright, William; Azeem, Almas
Cc:	Cullingford, Michael; Hopkins, Jon; Quinones, Lauren; Regan, Christopher; Rodriguez,
	Veronica
Subject:	FW: Japan initiates emergency protocol after earthquake

FYI

From: Breskovic, Clarence
Sent: Friday, March 11, 2011 6:39 AM
To: Breskovic, Clarence
Subject: Japan initiates emergency protocol after earthquake

Japan initiates emergency protocol after earthquake

11 March 2011

Nuclear Engineering International

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

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

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

-A CO2 fire has broken out at Onagawa nuclear power station.

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

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

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

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

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

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A minister in its controlling organisation, the Ministry of Economy, Trade and Industry, notifies the prime minister's office. The central nuclear emergency response headquarters (NERHQ) of the national government issues a nuclear emergency declaration, which also includes instructions about preventative measures. It receives technical advice from the Nuclear Safety Commission. The NERHQ sends a specialist and the NSC sends a commissioner to the site.

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

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

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

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

From:	Astwood, Heather - NHA
Sent:	Friday, March 11, 2011 2:56 PM
То:	Boger, Bruce; Valentine, Nicholee; Titus, Brett; Susco, Jeremy; Roquecruz, Carla; Nguyen, Quynh; Meighan, Sean; Heida, Bruce; Fields, Leslie; Cusumano, Victor; Cartwright, William; Azeem, Almas
Cc:	Cullingford, Michael; Hopkins, Jon; Quinones, Lauren; Regan, Christopher; Rodriguez, Veronica
Subject:	INFO Japan: Radioactive Steam Could Be Released From Troubled Plant

FYI

From: Breskovic, Clarence
Sent: Friday, March 11, 2011 1:56 PM
To: Breskovic, Clarence
Subject: Japan: Radioactive Steam Could Be Released From Troubled Plant

Radioactive Steam Could Be Released From Troubled Plant

Tokyo Kyodo World Service 1819 GMT 11 Mar 11

Tokyo, March 12 Kyodo -- Japanese authorities are nearing a decision to release radioactive steam from a troubled nuclear reactor, industry minister Benri Kaieda said Saturday.

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



Astwood, Heather - N/UC
Friday, March 11, 2011 2:55 PM
Valentine, Nicholee; Titus, Brett; Susco, Jeremy; Roquecruz, Carla; Nguyen, Quynh; Meighan, Sean; Heida, Bruce; Fields, Leslie; Cusumano, Victor; Cartwright, William; Azeem, Almas
Cullingford, Michael; Hopkins, Jon; Quinones, Lauren; Regan, Christopher; Rodriguez, Veronica
FW: Radiation Level Rising in Fukushima Nuclear Plant Turbine Building - emergency generators dispatched

From: Breskovic, Clarence Sent: Friday, March 11, 2011 1:13 PM To: Breskovic, Clarence Subject: Radiation Level Rising in Fukushima Nuclear Plant Turbine Building - emergency generators dispatched

Radiation Level Rising in Fukushima Nuclear Plant Turbine Building

Fukushima, Japan, March 12 Kyodo -- The radiation level is rising in the building housing a turbine of the No. 1 reactor of the Fukushima No. 1 nuclear power plant following Friday's powerful earthquake, the operator Tokyo Electric Power Co. said Saturday.

The company also said monitoring data suggested the air pressure level has also soared inside the container of the reactor.

State of Emergency Declared at Fukushima Plant

Tokyo Asahi Shimbun Online 1733 GMT 11 Mar 11

Friday's devastating earthquake in the Tohoku region may have created a dangerous situation at two nuclear reactors in Fukushima Prefecture.

Officials of the Nuclear and Industrial Safety Agency were informed by Tokyo Electric Power Co. that the emergency core cooling system was not working at two reactors.

In addition, another mechanism that had been used to send water to the core also stopped at 8:30 p.m.

If the cores are not sufficiently cooled, there is a danger of a possible core meltdown.

At a news conference Friday night, Chief Cabinet Secretary Yukio Edano said a state of emergency at a nuclear facility was declared at 4:36 p.m.

It is the first time such a state of emergency has been declared.

According to NISA officials, although the reactor core stopped operations after the earthquake hit, water had to be inserted to the core to cool it because heat continued to be emitted from the nuclear fuel.

Although workers had to initiate emergency core cooling system procedures, the lack of an external power source and the failure of an emergency generator crippled the system that circulates water to the core to cool it.

TEPCO officials dispatched 51 generator vehicles to the reactors in an attempt to restore power. One vehicle reached one of the nuclear reactors late Friday and some of that reactor's power was restored.

At 9:23 p.m., the central government issued an evacuation instruction for residents living within a 3-kilometer radius of the No. 1 Fukushima nuclear power plant as well as an instruction to residents living within a radius of between 3 and 10 kilometers to remain indoors.

Edano said no radiation leakage had been detected.

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The company issued an emergency evacuation order for the two reactors at the No. 1 Fukushima nuclear power plant. Officials from local communities gathered at a special monitoring facility in Okuma to oversee the cooling of the cores.

There was also the possibility that seawater pumps for cooling purposes may have stopped at two reactors at the No. 2 Fukushima nuclear power plant.

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If those pumps remain inoperational, it could affect the emergency core cooling systems at those reactors as well.
Valentine, Nicholee

From:	Hopkins, Jon - H.W.
Sent:	Friday, March 11, 2011 2:15 PM
To:	Boger, Bruce
Cc:	Regan, Christopher; Cullingford, Michael; Astwood, Heather; Quinones, Lauren; McGinty, Tim; Blount, Tom; Foggie, Kirk; Ramsey, Jack; Schwartzman, Jennifer; Brown, Frederick; Thomas, Fric: Burnell, Scott
Subject:	INFO: UCS statement re Japan earthquake

Bruce,

FYI. Statement from UCS.

"...scientists said they needed to do more to ensure that future quakes don't risk the kind of reactor impact that Japan is now grappling with. We do not believe the safety standards for U.S. nuclear reactors are enough to protect the public today," Edwin Lyman, senior scientist, global security programs, at the Union of Concerned Scientists, told Reuters...."

http://www.comcast.net/articles/news-science/20110311/SCIENCE-US-JAPAN-QUAKE-USA-NUCLEAR/

Jon

Valentine, Nicholee

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From: Sent: To: Dusaniwskyj, Michael Friday, March 11, 2011 8:46 AM Dinitz, Ira; Simpson, JoAnn; Regan, Christopher; Harwell, Shawn; Simmons, Anneliese; Lois, Kosmas; Szabo, Aaron

UPDATE 1-Japan trying to fix nuclear plant cooling problem

- <u>Tweet</u>
- Share this
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- Odiggsdigg
- Email
- Print RELATED TOPICS
- Stocks »
- Global Markets »

STOCKS Tokyo Electric Power Co Inc 9501.T ¥2,121 -32.00-1.49% 1:00am EST Fri Mar 11, 2011 8:08am EST

(Adds details)

(Reuters) - A cooling system for a nuclear reactor was not working after a powerful earthquake in <u>Japan</u>, prompting the government to declare an emergency situation as a precaution although it said there was no radioactive leakage at present.

Residents that live within a 3 km radius of Tokyo Electric Power's Fukushima Daiichi nuclear plant have been told to evacuate, Japan's Chief Cabinet Secretary Yukio Edano told a news conference.

TEPCO confirmed that water levels inside the reactors at its Fukushima-Daiichi nuclear plant were on a falling trend, but added it was working to maintain water levels to avert the exposure of nuclear fuel rods.

The company has been trying to restore power to its emergency power system so that it can add water to the inside of the reactors, a TEPCO spokesman said. (Reporting by Osamu Tsukimori; Writing by Edwina Gibbs; Editing by Joseph Radford)

Michael A. Dusaniwskyj Economist NRC/NRR/DPR/PFIB

Weaver, Tonna

From: Sent: To: Subject: Davidson, Evan MML Friday, March 11, 2011 3:12 PM Robles, Jesse RE: opE morning

Yeah, that's what I was thinking might be the case. The reports today are REALLY awful in quality, generally. Been reading just about everything out there.

From: Robles, Jesse Wy C Sent: Friday, March 11, 2011 3:10 PM To: Davidson, Evan Subject: RE: opE morning

I really don't think that is true. Look at this article (and I'm not saying that it is 100% accurate, just wanted to show that it's way too early to actually rely on the news articles):

http://blogs.abcnews.com/politicalpunch/2011/03/on-japans-nuclear-reactor-and-the-treatment-of-privatebradley-manning-todays-qs-for-o-3112011.html

it says:

Please note: Secretary of State Hillary Clinton said coolant was being sent to Japan, but it now seems the U.S. actually sent diesel generators to get the water pumps running

From: Davidson, Evan Sent: Friday, March 11, 2011 2:25 PM To: Robles, Jesse Subject: RE: opE morning

Cool. You got any insight on the Secretary of State's statement that we mobilized Air Force assets to airlift additional coolant to the plant? That's been the most confusing news item so far.

From: Robles, Jesse Sent: Friday, March 11, 2011 9:57 AM To: Davidson, Evan Subject: RE: opE morning

Yeah, we're getting some info, mostly from news coverage. We had one of our guys go down to the Ops Center to see if they have any more info. It's still early, but we'll pass the info once we receive it and screen it.

From: Davidson, Evan Sent: Friday, March 11, 2011 9:24 AM To: Robles, Jesse Subject: opE morning

Hey, are you getting any info on the Japanese reactors via OpE? I've seen that four are shutdown, one may have lost cooling, and another has reported a fire. There's also a report of evacuations near the plant that supposedly lost cooling.

Valentine, Nicholee - NW

From:	Astwood, Heather
Sent:	Friday, March 11, 2011 8:30 AM
То:	Leeds, Eric; Boger, Bruce; McGinty, Tim; Valentine, Nicholee; Titus, Brett; Susco, Jeremy;
	Roquecruz, Carla; Nguyen, Quynh; Meighan, Sean; Heida, Bruce; Fields, Leslie; Cusumano,
·	Victor; Cartwright, William; Azeem, Almas
Cc:	Cullingford, Michael; Hopkins, Jon; Quinones, Lauren; Regan, Christopher; Rodriguez, Veronica
Subject:	FW: Japan: Fukushima 1 & 2 cooling system problems

FYI

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

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

N.

Weaver, Tonna

From: Sent: To: Subject: Kaizer, Joshua MMA Friday, March 11, 2011 8:15 PM Mendiola, Anthony hey

Not that I know what I could do, but let me know if we should come in ... josh

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Joshua Kaizer, Reactor Systems Engineer Nuclear Performance and Code Review Office of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission

 Phone:
 301-415-1532

 Fax:
 301-415-3577

 Mail Stop:
 O10-B03

Weaver, Tonna

	Hannah Takitha INNR
From:	Howard, Tabitha UUU
Sent:	Friday, March 11, 2011 10:25 PM
To: .	Morris, Scott; McDermott, Brian; Ross-Lee, MaryJane; Correia, Richard; Grant, Jeffery; Joseph.Himes@nrc.gov; Campbell, Stephen; McMurtray, Anthony; Gott, William; Marshall, Jane; Waig, Gerald; Jolicoeur, John; Bower, Anthony; Zahira.Cruz-Perez@nrc.gov; Reed, Wendy; Schrader, Eric; DiFrancesco, Nicholas; Carlson, Donald; Rubin, Stuart; Arndt, Steven; Jackson, Karen; Stransky, Robert; Khan, Omar; Figueroa, Roberto; Hickman, John; Karas, Rebecca; Kratchman, Jessica; Scarbrough, Thomas; Salus, Amy; Williamson, Linda; Crutchley, Mary Glenn; Manahan, Michelle; Larson, Emily; Howard, Tabitha; Wimbush, Andrea; Meyer, Karen; Levine, Michael; Guzzetta, Ashley; Darrel.Burrell@nrc.gov; Fiske, Jonathan; Anderson, James; Perin, Vanice; Mroz (Sahm), Sara; Chen, Yen-Ju; Pope, Tia;
	Christine.Merritt@nrc.gov; Stang, Annette; Hurd, Sapna
Subject:	Incident Response: Japan Earthquake and Tsunami Drill

Good evening,

If you have participated in the "Japan Earthquake and Tsunami Drill" that began today (Friday March 11, 2011), please be sure to apply your time spent on this activity to the TAC Number listed below:

D92374 - Incident Response: Japan Earthquake and Tsunami Drill

If your time has already been approved please see myself or acting T&L Coordinator Bridget Curran in order to do a corrected card

Thanks, Tabitha

5

Cartwright, William

Cartwright, William	
From:	Wegner, Mary
Sent:	Saturday, March 12, 2011 4:05 PM
То:	Beasley, Benjamin; Criscione, Lawrence; King, Mark; Thomas, Eric; Breskovic, Clarence;
	Bernardo, Robert: Sigmon, Rebecca: Sigmon, Rebecca: Tabatabai, Omid
Subject:	NISA in English

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

17 18

Cartwright, William

From: Sent: To:

Subject:

Wegner, Mary Saturday, March 12, 2011 3:58 PM Beasley, Benjamin; Criscione, Lawrence; King, Mark; Thomas, Eric; Breskovic, Clarence; Bernardo, Robert; Sigmon, Rebecca; Sigmon, Rebecca Address for info directly from TEPCO

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

Lee, Richard

From: Sent: To: Cc: Subject:

مرد المر مر**حد**

Voglewede, John Saturday, March 12, 2011 7:05 AM Flanagan, Michelle Lee, Richard; Scott, Harold; Raynaud, Patrick FW: Press Release: NRC Continues to Track Earthquake and Tsunami Issues

Michelle,

It appears that this event at Fukushima has become serious enough that it may impact other activities of the Japanese nuclear authorities are able to handle in the near future (e.g., the OECD/JAEA meeting) in May. You should prepare for possible changes.

You should also be aware that a number of people have died from earthquake-related events having nothing to do with the Fukushima nuclear facility. This power plant is on the coast of Japan, northeast of Tokyo. The JAEA Research Center at Tokai is on the way from Tokyo to Fukushima, so I would expect that some employees at JAEA have friends and relatives in the Fukushima area that may have been affected by the earthquake.

If fuel cladding has been damaged, as Richard's message suggests, then we all should be anticipating long-term impact on world nuclear power programs.

John

-----Original Message-----From: Lee, Richard Sent: Friday, March 11, 2011 5:49 PM To: Gibson, Kathy Cc: Voglewede, John Subject: RE: Press Release: NRC Continues to Track Earthquake and Tsunami Issues

Kathy:

Dr. Akihide Hidaka (the Japanese researcher who is participating in our peer review of the revised NUREG-1465 for HBU and MOX fuel) told me that at the Fukushima No. 1 NPP, the fuel could have been broken because iodine concentration in air began to be increased at the site boundary. Containment Venting is imminent.

I am not sure what he meant by "broken." I asked him whether the dose at the site boundaries are within regulatory limits. I have not received any answers yet.

Akihide is on loan to the Japanese Nuclear Safety Commission (NSC) from JAEA. Last night, all NSC staff slept in the office because all transportation in Toyko was shutdown.

Richard

From: Gibson, Kathy Sent: Friday, March 11, 2011 4:29 PM To: RES_DSA Subject: Fw: Press Release: NRC Continues to Track Earthquake and Tsunami Issues

From: Sheron, Brian To: Bonaccorso, Amy; Calvo, Antony; Case, Michael; Coe, Doug; Correia, Richard; Dion, Jeanne; Gibson, Kathy; Lui, Christiana; Richards, Stuart; Rini, Brett; Sangimino, Donna-Marie; Uhle, Jennifer; Valentin, Andrea Sent: Fri Mar 11 16:27:08 2011 Subject: FW: Press Release: NRC Continues to Track Earthquake and Tsunami Issues

From: OPA Resource Sent: Friday, March 11, 2011 4:26 PM To: Ash, Darren; Barkley, Richard; Batkin, Joshua; Bell, Hubert; Belmore, Nancy; Bergman, Thomas; Bollwerk, Paul; Bonaccorso, Amy; Borchardt, Bill; Bozin, Sunny; Brenner, Eliot; Brock, Terry; Brown, Boris; Bubar, Patrice; Burnell, Scott; Burns, Stephen; Carpenter, Cynthia; Chandrathil, Prema; Clark, Theresa; Collins, Elmo; Couret, Ivonne; Crawford, Carrie; Cutler, Iris; Dacus, Eugene; Dapas, Marc; Davis, Roger; Dean, Bill; Decker, David; Dricks, Victor; Droggitis, Spiros; Flory, Shirley; Franovich, Mike; Gibbs, Catina; Haney, Catherine; Hannah, Roger; Harbuck, Craig; Harrington, Holly; Hasan, Nasreen; Hayden, Elizabeth; Holahan, Gary; Holahan, Patricia; Holian, Brian; Jacobssen, Patricia; Jaczko, Gregory; Jasinski, Robert; Jenkins, Verlyn; Johnson, Michael; Jones, Andrea; Kock, Andrea; Kotzalas, Margie; Ledford, Joey; Lee, Samson; Leeds, Eric; Lepre, Janet; Lew, David; Lewis, Antoinette; Loyd, Susan; Magwood, William; McCrary, Cheryl; McGrady-Finneran, Patricia; McIntyre, David; Mensah, Tanya; Mitlyng, Viktoria; Monninger, John; Montes, David; Nieh, Ho; Ordaz, Vonna; Ostendorff, William; Owen, Lucy; Powell, Amy; Ouesenberry, Jeannette; Reddick, Darani; Regan, Christopher; Reyes, Luis; Riddick, Nicole; RidsSecyMailCenter Resource; Riley (OCA), Timothy; Rohrer, Shirley; Samuel, Olive; Satorius, Mark; Schaaf, Robert; Schmidt, Rebecca; Scott, Catherine; Screnci, Diane; Shaffer, Vered; Shane, Raeann; Sharkey, Jeffry; Sheehan, Neil; Sheron, Brian; Siurano-Perez, Osiris; Steger (Tucci), Christine; Svinicki, Kristine; Tabatabai, Omid; Tannenbaum, Anita; Taylor, Renee; Temp, WDM; Thomas, Ann; Uhle, Jennifer; Uselding, Lara; Vietti-Cook, Annette; Virgilio, Martin; Virgilio, Rosetta; Walker-Smith, Antoinette; Weaver, Doug; Weber, Michael; Weil, Jenny; Werner, Greg; Wiggins, Jim; Williams, Evelyn; Zimmerman, Roy; Zorn, Jason Subject: Press Release: NRC Continues to Track Earthquake and Tsunami Issues

The attached to be issued and posted in approximately 15 minutes.

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

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Sydnor, Russell

From:Sydnor, RussellSent:Saturday, March 12, 2011 10:42 AMTo:Hardin, LeroySubject:RE: IEC

Plan on returning Friday, but it seems likely there will be another 2 or 3 week CR to extend funding, so check in next thursday.

re: Japan

There has been some brief announcements and the Op Center was manned. Detailed info is sparse. The TV news is all more sensational than factual. Disturbing report this morning about an explosion that was caught on video. Some of the JNES delegation were still here Friday from the RIC.

Russ

From: Hardin, Leroy Sent: Friday, March 11, 2011 5:58 PM To: Sydnor, Russell Subject: IEC

Hi,

I just wanted to check with you. It does looks like it may be a good idea for me to try and stay Friday (leaving Saturday) if the budget situation allows. I don't even know if I can arrange things here (flight and hotel) though. But I just want to try to be at as much of the FPGA meeting as I can.

By the way, has there been any discussion about the Japanese earthquake and the NPP issues at the office?

Thanks,

Roy

Ross, Robin

From: Sent: To: Cc: Subject: Attachments: Grobe, Jack / NVV Saturday, March 12, 2011 10:19 PM Brenner, Eliot / OVA Jaczko, Gregory; Borchardt, Bill; Virgilio, Martin; Weber, Michael; Leeds, Eric Fw: Update on Japan Situation ANS Japan Backgrounder.pdf

Eliot,

Not sure if you have seen this. Thought you would be interested in what the ANS is saying.

Jack Jack Grobe, Deputy Director, NRR

From: Joe Colvin <<u>president@ans.org</u> To: Grobe, Jack Sent: Sat Mar 12 19:31:59 2011 Subject: Update on Japan Situation

Dear ANS Members:

I'm sure you are aware of the rapidly developing situation in Japan. The ANS is working on multiple fronts to collect credible information on the incident, and distribute that information through mainstream and social media outlets.

We have communicated with our counterparts at the Atomic Energy Society of Japan to offer any technical or other assistance which may be of help.

We have set up a special page on the ANS blog (<u>http://ansnuclearcafe.org</u>) to aggregate media reports and provide additional information when we consider it to be credible.

We are also working to organize television appearances and other media availabilities for our members so that some of the misinformation that has been presented by anti-nuclear groups can be rebutted with facts. Our goal is not necessarily to be the first on the air, but to be the most credible.

Attached you will find some talking points, along with our current analysis of the sequence of events at Fukushima I-1. I encourage you to talk to your social networks to ensure that people have the right facts and the proper perspective on this incident.

Let me know what other actions our Society should be taking during this nuclear incident.

My thoughts and prayers go out to the people of Japan.

Respectfully,

Joe Colvin

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

3/12/2011 5:22 PM EST

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

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

What happened?

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

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

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

Can it happen here in the US?

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

Is a nuclear reactor "meltdown" a catastrophic event?

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

What is the ANS doing?

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

ANS has established an incident communications response team.

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

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

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

Thadani, Mohan

From: Sent: To: Subject: Attachments: Beltz, Terry WW Sunday, March 13, 2011 11:36 AM NRR_DORL Distribution Update on Japan Situation ANS Japan Backgrounder.pdf

fyi

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Backgrounder provided by ANS - best unofficial summary of the event that I've heard. The sequence of events appears to make sense.

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

3/12/2011 5:22 PM EST

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

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

4.

Beltz, Terry

From: Sent: To: Subject: Attachments: Beltz, Terry \ \ \\U Sunday, March 13, 2011 10:50 AM RidsNrrDorlLpl3-1 Resource FW: Update on Japan Situation ANS Japan Backgrounder.pdf

fyi

-----Original Message-----From: Joe Colvin [mailto:president@ans.org] Sent: Saturday, March 12, 2011 6:48 PM To: Beltz, Terry Subject: Update on Japan Situation

Dear ANS Members:

I'm sure you are aware of the rapidly developing situation in Japan. The ANS is working on multiple fronts to collect credible information on the incident, and distribute that information through mainstream and social media outlets.

We have communicated with our counterparts at the Atomic Energy Society of Japan to offer any technical or other assistance which may be of help.

We have set up a special page on the ANS blog (<u>http://ansnuclearcafe.org</u>) to aggregate media reports and provide additional information when we consider it to be credible.

We are also working to organize television appearances and other media availabilities for our members so that some of the misinformation that has been presented by anti-nuclear groups can be rebutted with facts. Our goal is not necessarily to be the first on the air, but to be the most credible.

Attached you will find some talking points, along with our current analysis of the sequence of events at Fukushima I-1. I encourage you to talk to your social networks to ensure that people have the right facts and the proper perspective on this incident.

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Let me know what other actions our Society should be taking during this nuclear incident.

My thoughts and prayers go out to the people of Japan.

Respectfully,

Joe Colvin

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

3/12/2011 5:22 PM EST

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

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

What happened?

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

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

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

Can it happen here in the US?

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

Is a nuclear reactor "meltdown" a catastrophic event?

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

What is the ANS doing?

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

ANS has established an incident communications response team.

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

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

Arndt, Steven - NIW

From: Sent: To: Subject: Attachments: Joe Colvin [president@ans.org] Sunday, March 13, 2011 11:30 PM Arndt, Steven Talking Points on Implications of Fukushima Accident to U.S. Nuclear Plants ANS Talking Points - 2011-03-13 R1_2.pdf

Dear ANS Members:

Over the last two days, the ANS Crisis Communications team has been very proactive and has handled a multitude of media and press calls. ANS spokespersons have participated in national television, radio and press interviews providing the views of the nuclear science and technology experts within the Society. We are particularly grateful to Dr. Dale Klein who has given tremendous support to the Society and the public in response to the events at Fukushima.

We have begun fielding media inquiries about the implications of the problems at Fukushima on the US program. We have prepared the attached talking points to assist responders to this line of questions. The talking points are consistent with the talking points prepared by the Nuclear Energy Institute (NEI) on the same subject.

Thank you all for your strong support!

Joe

The predominance of ANS members reside in the U.S. As we interact with our family, neighbors and citizens in our communities many questions will come based on news coverage of the nuclear power plant situation in Japan. These talking points key on the theme 'could it happen in the U.S.?' *

ANS Member Talking Points Implications to U.S. nuclear energy program from the Japanese earthquake

It is premature for the technical community to draw conclusions from the earthquake and tsunami tragedy in Japan with regard to the U.S. nuclear energy program. Many opposed to nuclear power will try to use this event to call for changes in the U.S. Japan is facing beyond a "worst case" disaster since we, the technical community, did not hypotheses an event of this magnitude. Thus far, even the most seriously damaged of Japan's 54 reactors have not released radiation at levels that would harm the public. That is testament to the way professionals in our profession operate: our philosophy of defense in-depth, excellent designs, high standards of construction, conduct of operations, and most important the effectiveness of employees in following emergency preparedness planning.

The Nuclear Science and Technology (NS&T) community takes very seriously our commitment to safe operation of any nuclear facility and will incorporate lessons learned based on this experience into our safety and operating procedures. The ANS will facilitate the sharing of technical information so that these lessons receive wide distribution and be archived for future stewards of this technology. Some points to remember from this week:

- Nuclear power plants have proven their value to society in Japan, the United States and elsewhere. They provide large amounts of base load electricity on an around-the-clock basis, and they do so cost-effectively with the lowest electricity production costs of any large energy source. Both Japan and the United States have benefited greatly from nuclear energy; it has been instrumental in the nations' economic success over the past half century and their high standard of living.
- Our hallmark as a NS&T organization is to incorporate operating experience and lessons learned. When we fully understand the facts surrounding the event in Japan, we will share, document and use those insights to make NS&T even safer.
- Nuclear energy has been and will continue to be a key element in meeting America's energy needs. The nuclear industry sets the highest standards for safety and, through our focus on continuous learning; we will incorporate lessons learned from the events in Japan. The dominant factors determining technology used for new generation will be demand for new generation, the competitiveness of nuclear energy in comparison with other sources of electricity generation, and the continued safe operation of U.S. nuclear power plants.

• There has not been a rush to judgment on the part of U.S. policymakers during the first few days of this situation. We believe that is due in part to the recognition on their part that nuclear energy must continue to play a key role in a diversified energy portfolio that strengthens U.S. energy security and fuels economic growth.

* The genesis of this document is the NEI "Talking Points - Implications to U.S. nuclear energy program of the Japanese earthquake" dated March 13, 2011

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Caponiti, Kathleen

	Towlor Robert INVL
FIOR.	Taylor, Robert 14100
Sent:	Sunday, March 13, 2011 2:55 PM
To:	Brenner, Eliot, of A
Subject:	RE: Media Request - FW: Safe radiation levels following meltdown or rdd

Proposed response:

The NRC has regulatory limits on the radiation limits for the public during severe accidents such as a full core meltdown. The NRC requires licensees to have two "boundaries" around nuclear power plants: the exclusion area boundary and the low population zone. NRC's regulations require that the dose to a member of the public at these locations will not exceed 25 rem for a given period of time following the accident. The NRC periodically verifies through our safety activities that the limits will not be exceeded during an accident. Most licensees maintain the calculated doses at these boundaries to values lower than required by the regulations.

-----Original Message-----From: Brenner, Eliot, OFA Sent: Sunday, March 13, 2011 2:46 PM To: Taylor, Robert Subject: FW: Media Request - FW: Safe radiation levels following meltdown or rdd

-----Original Message-----From: Couret, Ivonne, 0 Sent: Sunday, March 13, 2011 2:38 PM To: McIntyre, David; Brenner, Eliot Subject: Media Request - FW: Safe radiation levels following meltdown or rdd

Reporter looking for email response if possible within on hour (UK based,) Ivonne -----Original Message-----From: Eben Harrell [mailto:eben harrell@timemagazine.com] Sent: Sunday, March 13, 2011 2:11 PM To: OPA Resource Subject: Safe radiation levels following meltdown or rdd

Hi, as discussed,

I know that the NRC has guidelines on safe limits of radiation around nuclear power plants.

But are those limits raised for extraordinary circumstances such as a meltdown?

Similarly, is there a higher limit for what would be considered "safe" exposure following a radiological attack.

The context is Japan but I understand they will have their own guideliness.

PLEASE NOTE: DEADLINE IS VERY TIGHT. PLEASE REPLY ASAP. NO NEED FOR QUOTE OR INTERVIEW--JUST BACKGROUND INFO!

Thanks,

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Been Harrell TIME Magazine + 44 (0) 203 148 3200

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Cartwright, William

Wegner, Mary Sunday, March 13, 2011 9:30 AM Thomas, Eric Japan
Japan

I suppose you get everything I do and more, but if you want any information from TEPCO or Tohoku or NISA, I am tracking all of them.

NUL

n'o'

Cartwright, William

From: Sent: To: Cc: Subject: Brown, Frederick Sunday, March 13, 2011 7:44 PM Thorp, John; Thomas, Eric Skeen, David; Hiland, Patrick; Westreich, Barry Re: Lessons Learned from Japan

NUN

They are. EDG fuel tanks swept away by waves.

-NWA

----- Original Message From: Thorp, John To: Brown, Frederick; Thomas, Eric Cc: Skeen, David; Hiland, Patrick; Westreich, Barry Sent: Fri Mar 11 18:24:53 2011 Subject: RE: Lessons Learned from Japan

One minor comment; I recall a number of years ago representing my company at the time at a plant managers' conference in New Orleans, during which we visited the Waterford nuclear station. Our site tour included a plant walkdown in which we observed the constructed design for their EDG's. These are provided with elevated air intake and exhaust piping, watertight door access to the EDG room(s), and if I recall correctly, the EDG's were located in seismic class structures.

For other sites that are subject to tsunami risk, I would think they likely took similar measures in their design and construction, but that would need to be verified by staff.

John

From: Brown, Frederick ~ Sent: Friday, March 11, 2011 2:57 PM To: Thomas, Eric; Thorp, John Cc: Skeen, David; Hiland, Patrick; Westreich, Barry Subject: Re: Lessons Learned from Japan

Sounds good, thanks.

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

- wh

----- Original Message ----From: Thomas, Eric To: Brown, Frederick; Thorp, John Cc: Skeen, David; Hiland, Patrick; Westreich, Barry Sent: Fri Mar 11 14:45:32 2011 Subject: RE: Lessons Learned from Japan

Fred.

We discussed whether to go ahead and screen this in today at the clearinghouse meeting. I am sure we will screen the event in shortly, but the consensus today was to hold off on an IFR or OpE COMM until we know more factual information.

Weaver, Tonna

From: Sent: To: Subject: Gibson, Kathy WW Sunday, March 13, 2011 3:53 PM Ulses, Anthony Godspeed!

Tony,

I heard you are one of the NRC experts going to Japan for assistance. I want to wish you well and safe journey.

Best wishes, Kathy Basu, Sudhamay

From: Sent: To: Subject: Michael Corradini [corradin@cae.wisc.edu] Sunday, March 13, 2011 12:44 PM Lee, Richard; Basu, Sudhamay; Tinkler, Charles UPDATE from NEI and WNN

CHIEF CABINET SECRETARY EDANO As I announced this morning, I will now give a report on the situation in the Unit 3 reactor at the Fukushima Dai-Ichi No. 1 nuclear power plant.

This morning, I reported that water supply functions had been lost in the Unit 3 reactor of the Tokyo Electric Power Fukushima Dai-Ichi No. 1 nuclear power plant. As a result of this, water levels dropped inside the pressure vessel, where the fuel rods are immersed, and it is believed that the top of the fuel rods was exposed above the surface of the water. Because of this, at 9:05am a safety valve on the innermost reactor vessel inside the nuclear reactor was opened, lowering the pressure inside the reactor. At 9:08am, injection began not of sea water but pure water, and at 9:25 the step was taken of mixing boric acid with the water in order to increase safety further. Following this, venting began in the containment vessel at 9:20, and as a result it is believed that cooling is now underway in the containment vessel in the reactor. Since venting began at 9:20, and continuing from yesterday, a small amount of radioactive material is thought to have been released from the exhaust duct.

Monitoring of radiation levels on the spot is ongoing. At point MP4, where a reading of $1,015\mu$ Sv was detected yesterday, a radiation level of 44.6 μ Sv was recorded at 00:30 this morning, and a level of 36.7 μ Sv at 6:00am. After the start of venting around 9:20, a reading of 76.9 μ Sv was recorded at 9:20 and of 70.3 μ Sv at 9:30.

We are continuing to monitor the situation on an ongoing basis. At present the situation is that as a result of the venting, gas is being released that includes small, controlled amounts of radioactive material within the expected levels. These steps are being carried out in accordance with the procedures for dealing with a situation of this kind. Please be assured that the level of radiation being released is not sufficient to have any effect on human health.

However, I understand that concern is high about the risk of exposure among evacuees. We are considering taking the following measures, while confirming the desires of Fukushima Prefecture.

We are compiling a list of all evacuees in Fukushima Prefecture. As a matter of national responsibility, the government is liaising with Fukushima Prefecture in establishing first aid stations staffed by specialists in each emergency evacuation area. Multiple specialist teams will be assigned to monitor all evacuees and other concerned persons for radiation exposure, as well as providing follow-up evaluations and liaisons with medical response services where necessary. I will be asking all the prefectures concerned for their cooperation in this matter; we are currently in the process of making arrangements along those lines.

This ends my report on the latest situation at the nuclear power plant.

That is all from me for now.

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Please wait a moment.

I have some additional information to give you.

Regarding data from the MP4 monitoring point I mentioned earlier: At 8:33 a reading of $1,204.2\mu$ Sv was recorded. This was not the direct effect of the venting. If you look at the overall picture presented by these figures, you will see that although there are large fluctuations in radiation levels, there have been no sudden rises as a result of the venting.

http://www.kantei.go.jp/foreign/topics/2011/110313 1100.html

Basu, Sudhamay

From: Sent: To: Subject: Michael Corradini [corradin@cae.wisc.edu] Monday, March 14, 2011 8:08 AM Lee, Richard; Basu, Sudhamay; Tinkler, Charles SPECULATION FROM LAKE BARRETT

Of course, just after I sent you my last update, reports just came in that there was a large explosion at the Fukushima Unit 3 reactor building. As I wrote earlier, the ongoing hydrogen venting on the Unit 3 could well lead to an explosion, but I thought they might have been through the riskiest period. Although that was probably true risk wise, it seems hydrogen gas being vented from the earlier core oxidation accumulated to >4% in the building and it apparently exploded somewhat like Unit 1 did. The government is saying that the explosion did not breach the primary containment, which is what I would expect. I don't have any information on the status of the spent fuel pool on the Unit 3 refueling floor.

So Unit 3 seems to be following in Unit 1's footsteps. Let's hope that the Unit 2 RCIC continues to operate OK and that they can bring on decay heat removal heat exchangers to start to cool the wet wells at all 6 reactors that are in trouble at both Daiichi and Daini sites.

200,000 people have been evacuated out to 20 KM. Soon there will be a

raft of press reports of offsite contamination and radiation levels.

Since most of the primary containment releases are scrubbed in the wet wells, offsite releases should not be biologically significant, but I

am sure they are orders of magnitude greater than three Mile Island.

Not Chernobyl, but high enough to be tracked via noble gases and iodine everywhere in Japan and across the Pacific. There will also be measurable Cs and Sr, but actual levels will depend upon unknown internal factors. Also depending upon the wind and weather, plumes

internal factors. Also depending upon the wind and weather, plumes

will be traceable an measurable virtually everywhere in Asia. This will be a huge psychological issue.

For you information I have attached a TEPCO paper on all the spent fuel that is stored at both the Daiichi and Daini sites. Not much more than what I described in earlier emails.

Esmaili, Hossein

From:Scott, MichaelSent:Monday, March 14, 2011 8:08 AMTo:RES_DSASubject:FW: FYI - Japan SituationAttachments:ANS Japan Backgrounder.pdf

More info courtesy of Stu Rubin.

From: Rubin, Stuart Sent: Sunday, March 13, 2011 11:23 PM To: Gibson, Kathy; Scott, Michael Subject: FW: FYI - Japan Situation

FYI

From: Inn Seock Kim [mailto:isk@issatechinc.com] Sent: Saturday, March 12, 2011 11:35 PM Subject: FYI - Japan Situation

FYI -

(1) Most Likely Accident Scenario at Fukushima Dai-ichi Unit 1 (as of noon 3/13, Korea time)

See attached (from Joe Colvin of ANS).

(2) Fukushima Dai-ichi Unit 1 reactor schematic

http://www.beyondnuclear.org/home/2011/3/12/fukushima-dai-ichi-unit-1-reactor-schematic.html

(3) BWR Info

http://holbert.faculty.asu.edu/eee463/NUCLEAR.HTML

http://www.iaea.org/NuclearPower/Downloads/Simulators/Conventional.BWR.Manual.2009-10-05.pdf

(4) Latest Updated Info on All Japanese NPPs

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

http://ansnuclearcafe.org

http://www.google.com/crisisresponse/japanguake2011.html

Best regards,

ISK

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Inn Seock Kim, PhD, President ISSA Technology, Inc. Maryland, USA

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

3/12/2011 5:22 PM EST

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- DC power from batteries was consumed after approximately 8 hours.
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- While there are risks associated with operating nuclear plants and other industrial facilities, the chances of an adverse event similar to what happened in Japan occurring in the US is small.
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Not necessarily. Nuclear reactors are built with redundant safety systems. Even if the fuel in the
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Finally, the ANS is collecting information from publicly available sources, our sources in government agencies, and our sources on the ground in Japan, to better understand the extent and impact of the incident.

Yarsky, Peter

From: Sent: To: Subject: Elkins, Scott Monday, March 14, 2011 2:12 PM RES_DSA_RSAB Japan Nuclear Incident

We have been advised to stress the importance of not commenting on the Japanese nuclear incidents underway right now. Certainly everyone has seen the e-mail traffic on not speaking out about the incidents. It is most important to remain silent about what we may or may not know about the nuclear incidents there. As the e-mail has advised us all we are to direct all inquiries to the Office of Public Affairs. As an employee of the NRC it is important to realize that others outside the agency will take your comments as though they represent the agency. We are even cautioned about making conjectures about what may be happening. We simply do not have that much information about the incidents to be able to comment one way or the other.

Thanks, Scott

n'u'

Lee, Richard

From: Sent: To: Subject: Scott, Michael Monday, March 14, 2011 4:51 PM RES_DSA FW: Japanese update

FYI - good news

From: Uhle, Jennifer
Sent: Monday, March 14, 2011 4:50 PM
To: Case, Michael; Coe, Doug; Coyne, Kevin; Gibson, Kathy; Scott, Michael; Richards, Stuart
Cc: Sheron, Brian
Subject: Japanese update

Based on a recent call at 3:30, sea water injection has been restored to each of the 3 Diachii units and containments are in tact. I will update you as I hear more. Jennifer

N.108

From: Sent: Subject: Inn Seock Kim [isk@issatechinc.com] Monday, March 14, 2011 7:21 PM Further INFO - Japan Situation

Detailed Plant Information:

http://en.wikipedia.org/wiki/Fukushima I Nuclear Power Plant

Mark 1 BWR containment design of the Fukyshima Dai-ichi units -- Weakness in the containment design used to be recognized by many long time ago.

For example, see

http://www.nirs.org/factsheets/bwrfact.htm

Also note that those plants have cross-connect valves so that sea water (or raw water) can be used for injection into the reactor vessel in case of emergency. After the TMI accident, such an emergency measure was apparently included in the severe accident emergency procedures.

Another very useful website:

http://www.world-nuclear-news.org/RS_Venting_at_Fukushima_Daiichi 3_1303111.html

Best regards, ISK

--

Inn Seock Kim, PhD, President ISSA Technology, Inc. Maryland, USA

Ostendorff, William

From: Sent: To: Subject: Ostendorff, William Monday, March 14, 2011 10:57 AM 'shizuyo kusumi@cao.go.jp' Thinking of you

Commissioner Kusumi- I just wanted to send a short note to let you know that we are thinking about you and the people of Japan in the aftermath of last week's tragedy. If I can be of any assistance, please do not hesitate to contact me. Please extend my greetings to your colleagues at the Nuclear Safety Commission. Very respectfully, Bill

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Commissioner William C. Ostendorff U.S. Nuclear Regulatory Commission 11555 Rockville Pike Rockville, MD 20852 301-415-1759

Weaver, Tonna

From: Sent: To: Subject:

Second and S

Kaizer, Joshua 1 MVA Monday, March 14, 2011 7:48 AM Mendiola, Anthony wsj

http://online.wsj.com/article/SB10001424052748704893604576199884191526312.html?mod=WSJ hp LEFTT opStories

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Joshua Kaizer, Reactor Systems Engineer Nuclear Performance and Code Review Office of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission

 Phone:
 301-415-1532

 Fax:
 301-415-3577

 Mail Stop:
 O10-B03



out, had been damaged.

Prime Minister Naoto Kan gave a brief

address to the nation saying, "The level [of

radiation] seems very high, and there is still a

very high risk of more radiation coming out."

Oncologist-in-Chief Clifford Chao helps explain the health risks and symptoms that could result from a meltdown of the Fukushima Dalichi nuclear plant in Northern Japan.

Journal Community

http://online.wsj.com/article/SB10001424052748704893604576199884191526312.html?mod=WSJ hp L... 5/6/2011

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Reactor Monitor



Ttack reactor incidents at the Fukushima Daiichi nuclear plant.

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Compare satellite images before and after the quake and isunami



See a map of post-earthquake events in Japan. Hawaii and the U.S. West Coast.

Shaky Ground



Colliding plates under earth's surface make Asia Pacific one of the most tectonically active region on earth.

Disastrous Japan Earthquakes

"We will do our utmost to prevent further spreading of radiation leaks," he said. "I sincerely urge everyone in the nation to act calmly."

Mr. Kan, wearing the blue jumpsuit uniform for emergency workers, added that "the risk of further increases in radiation leaks to surrounding areas is rising." He said that anyone within 18 miles of the plant should stay indoors. Previously the government had said people living within 12 miles should evacuate.

Tokyo shares plummeted Tuesday. By midafternoon, the Nikkei Stock Average was down 14%. Shares had fallen 6.5% in the morning session; they fell further after the comments from Prime Minister Kan on the radiation risks

Chief Cabinet Secretary Yukio Edano said the radiation levels at the nuclear plant have surged to levels that will "clearly have impact on the human body." The levels monitored at the plant as of early Tuesday morning ranged between 30 to 400 millisieverts per hour. Localities including Tokyo and nearby Saitama and Ibaraki prefectures were reporting elevated levels of radiation Tuesday morning, though too low to cause injury.

Exposure at the upper end of the range, at 400 millisievert is equivalent to 40 rem. A single dose of 25 rem can cause temporary sterility in men. One hundred rems can cause radiation sickness and 500 rems likely will cause death. The U.S. Nuclear Regulatory Commission limits the exposure of U.S. nuclear workers to no more than 5 rem per year.

Mr. Edano said another reactor in the same complex, one that was not operating at the time of the quake, was on fire Tuesday morning. "It is likely that the level of radiation increased sharply due to a fire at Unit 4," Edano said. Tepco officials later said the fire was extinguished.

The No. 4 unit doesn't have live fuel in its reactor, but still holds waste fuel from earlier generation operations.

Mr. Edano's warnings to the public were stark. "Please do not do outside. Please stav indoors. Please close windows and make your homes airtight. Don't turn on ventilators. Please hang on your laundry indoors," he said.

The telltale sign of trouble at reactor No. 2, Tokyo Electric Power Co. officials said, was that pressure had dropped in the "suppression pool"----the part of the reactor that converts

Page 2 of 7

- 1. Nudists Seek Out the Young and Naked
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steam to water at the bottom of the container. Meanwhile, radiation levels outside the reactor building rose sharply.

Tepco evacuated some of the workers from the unit as a precaution.

Concern rippled around the world, fueled by a seemingly slow initial response by Japanese authorities. Executives from Tepco, which operates the complex, looked visibly shaken as they acknowledged in a press conference that they still weren't sure how severe the damage was, or how much radiation could leak out. Japan's government only established a task force to oversee the problem shortly before 6 a.m. Tuesday morning. At least one airline, Skymark Airlines, said it was considering diverting flights over Fukushima, depending on developments.

Japan's meteorological agency said the wind Tuesday morning was blowing south, toward metropolitan centers. Measurements at another nuclear-power complex in the prefecture of Ibaraki, halfway between Fukushima and Tokyo, showed elevated radiation readings, officials said.

The explosion at the Daiichi No. 2 reactor is the latest setback in a long battle to keep reactor cores from overheating in the wake of Friday's massive earthquake, which knocked out cooling systems and backup generators. Authorities had been pumping in water to cool the reactors. When those pumps failed, they switched to seawater in a last-ditch attempt to keep temperatures down.

The No. 2 explosion followed explosions in recent days at the No. 1 and No. 3 reactors. In the case of the previous two events, the reactor vessels themselves weren't damaged, and officials said only limited radiation leaked out. The explosions were apparently the result of gases that are produced when nuclear fuel reaches extremely hot temperatures and begins to break down.

Even before the reported explosion, officials were becoming increasingly worried about No. 2 reactor, due to a problem in the cooling system that hasn't occurred in the others. Now all three appear to be experiencing a degree of melting of the fuel rods in their cores—a condition that, if it worsens, could lead to dangerous radiation leaks.

In a surprise turn of events, Monday saw a sharp deterioration in the condition of the No. 2 reactor, which had previously been stable. By late Monday night, No. 2 had become the most problematic of the three reactors, with all its fuel rods fully exposed, making them highly vulnerable to significant damage. Tepco had been pumping water to raise the level in the No. 2 reactor.

Read More

Radiation From Japan Not a Threat to Hong Kong, Officials Say

The problem is in the suppression pool, a concrete container of water that is part of the reactor cooling system. It sits below the reactor, is an emergency source of coolant, and also is designed to be a barrier if molten

fuel burns through the steel and concrete above it.

Mr. Kan said Tuesday that the government and Tepco will set up a joint task force to exchange real time information on the Fukushima Daiichi nuclear complex in northeastern Japan, which was damaged by Friday's massive earthquake and tsunami.

"We are taking every possible step to prevent the spread of damages, but worrying conditions are continuing," Mr. Kan said. "I want to spearhead the efforts to overcome this crisis."

The Japanese government also stressed they still had matters under control.

At a news conference late Monday, Mr. Edano said "Even in the worst-case scenario, we won't have a repeat of Chernobyl." He added, "At this point, we can say we are moving in the direction of stabilizing the situation in a certain managed manner." The reactor at Chernobyl plant in the former Soviet Union exploded in 1986, resulting in widespread radioactive contamination.

Tests performed on local residents who have been asked to evacuate found slight exposure to radiation on over 20 people. So far, roughly 70,000 to 80,000 people living within in a radius of about 12 miles of the two plants have been asked to leave the area; the 500 or so who remained were evacuated following the latest explosion.

Japan had some earlier warning that its nuclear plants might not withstand a mammoth earthquake and its after-effects.

In July 2007 Tepco avoided disaster when an earthquake rattled its Kashiwazaki-Kariwa Nuclear Plant in western Japan. A team of International Atomic Energy Agency inspectors found that 6.6 magnitude earthquake "significantly exceeded the level of the seismic input taken into account in the design of the plant," according to an IAEA assessment of damage to the plant.

A spokesman for the IAEA declined to comment on the details of the 2007 report.

Already, comparisons are being made to the 1979 accident at the Three Mile Island power plant in Pennsylvania and the 1986 accident at the Chernobyl power plant in the Ukraine. But both reactors were very different from the units in Japan.



Experts say the key to preventing the current crisis from turning into a full-blow disaster is to protect the reactors' containment structure, so radiation is kept inside, even after significant nuclear fission occurs due to damage to the fuels. In the 1979 Three Mile Island incident in Pennsylvania, the containment structure remained intact, minimizing health effects on local residents.

"If you can continue to cool the reactor, and if

the containment vessel is not broken, we will be able to eventually put this under control," said Masashi Goto, a former plant engineer for Toshiba Corp., part of a team that designed the containment structure for the Fukushima Daiichi reactors. "But the current situation is still very unstable," he added.

In a worst-case scenario, fuel pellets from the damaged fuel rods settle to the bottom of a reactor pressure vessel, fuse into a molten, radioactive mass and begin to burn their way through the essential steel encasement.

If they burn through the reactor pressure vessel—akin to a giant, suspended steel thermos container—they are released into the containment structure, like a thermos inside a steel lunch pail. If the integrity of that structure is violated, radiation can escape to the outside in large amounts.

Thus, the containment structure, which is built of steel and concrete, is the last line of defense in terms of isolating radioactive material.

No nuclear plant of this design has ever reached that worst-case scenario, but the problems at Fukushima Daiichi bring the industry closer to that pass than most engineers thought likely.

"It's been designed to contain almost anything," said James F. Stubbins, head of the nuclear engineering department at the University of Illinois. He said so far the containment structure appears to be working.

Murray Jennex, a nuclear power expert at San Diego State University, agreed.

"This is not a Chernobyl. The difference is Chernobyl did not have a containment structure, which these plants do," Mr. Jennex said.

But Edwin Lyman, a physicist at the Union for Concerned Scientists, an environmental group that has been critical of nuclear power in the past, said containment vessels such as the one at

Daiichi are known to be vulnerable to failure if melted nuclear fuel reaches the bottom of the reactor.

"That would essentially mean a large radiological release to the environment," he said.

---Mari lwata, Takashi Nakamichi, Juro Osawa and James Simms contributed to this article.

Write to Yuka Hayashi at yuka.hayashi@wsj.com and Phred Dvorak at phred.dvorak@wsj.com

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Weaver, Tonna

From:	Purciarello, Gerard INVUC
Sent:	Monday, March 14, 2011 9:57 AM
То:	Casto, Greg; Gardocki, Stanley; Smith, Edward; Jones, Steve; Davidson, Evan; Hopkins,
	Ogbonna; Armstrong, Garry; Levine, Michael; Vveaver, Tonna
Subject:	RĒ: Acting BC - SBPB

For dissemination of information, the SBPB branch meeting will be held today at normal time. _---jerry

0
From: Casto, Greg 1 MU
Sent: Monday, March 14, 2011 9:33 AM
To: Purciarello, Gerard; Gardocki, Stanley; Smith, Edward; Jones, Steve; Davidson, Evan; Hopkins, Ogbonna; Armstrong,
Garry; Levine, Michael; Weaver, Tonna
Cc: Ruland, William; Bahadur, Sher
Subject: Acting BC - SBPB

While I am in the incidence response mode for the Japan reactor events, Jerry Purciarello will be acting BC for SBPB.

Tonna, please do a memo to designate Jerry as acting BC through this week. There are past letters that you can use as a template.

I spoke to Jerry, and the SBPB branch meeting for today is cancelled. I think the DSS weekly meeting may happen, and Jerry will check with Bill.

tx greg

 $\hat{\mathbf{n}}$

Wilson, George

From: Sent: To: Subject: Wilson, George | MCK Monday, March 14, 2011 9:42 AM Hiland, Patrick japan bullets

I was a Reactor Operator in the NAVY. I also was an instructor at the moored training ship at Charleston and taught students how to operate the plant and actions necessary to be performed during events and transients.

I worked at the Watts Bar Nuclear Plant and performed several emergency response drills as a Technical Advisor, which focused on mitigation of the issues associated with the plant, in the Emergency Operating Facilities. I was also a Shift Technical Advisor on shift and have addressed events and causalities both on the plant and in simulator training. Specifically, I focused on the evaluation of normal and alternate methods on how to mitigate problems at the plant.

I was the Resident Inspector at the LaSalle Nuclear Plant and evaluated and participated in emergency drills and scenario's while there. I also lead inspections as the overall lead evaluator.

I was the Senior Resident Inspector at the Duane Arnold Energy Center and evaluated emergency drills and scenarios while there. I was the overall lead evaluator on several event follow-ups such as the Quad Cities stuck open relief valves. I also participated in the RATTI inspections for DC COOK and Davis Besse.

I helped evaluate the Forsmark event in Sweden for the NRC.

George Wilson USNRC EICB Branch Chief, Division of Engineering Mail Stop O12H2 301-415-1711

Hiland, Patrick

From:	Hiland, Patrick WKK
Sent:	Monday, March 14, 2011 9:51 AM
To:	Nguyen, Quynh
Cc:	Leeds, Eric; Boger, Bruce
Subject:	Japanese Support Names from DE

- (1) George Wilson Chief, I&C Branch (20011) BS Nuclear/Electrical Engineering
 - Navy ET/Reactor Operator
 - TVA I&C Supervisor
 - STA at Watts Bar
 - NRC License Examiner
 - RI/SRI at BWR 4/5 Mark 2s
 - Electrical Branch Chief 2005-2011
 - Evaluated Forsmark event in Sweden

(2) Martin Murphy (no BWR experience)

- Navy Nuke program GE / Knolls Atomic Power Laboratory employee 6 years operating prototype
- Calvert Cliffs nuclear power plant 12 years system engineering (ECCS & containment spray), senior material engineer
- US NRC materials engineer licensing experience project engineering

project engineering - special projects

(3) Roy Mathews - Electrical Engineer

- thirty years nuclear power plant experience in the areas of design, maintenance and operation
- Expert in power plant electrical engineering design and operation
- Participated in the NRC, IIT, AITs and Team Inspections and a qualified NRC inspector
- Participated in international electrical design standards

Khanna, Meena

From: Sent: To: Subject: Hiland, Patrick Monday, March 14, 2011 12:31 PM NRR_DE Distribution FW: TAC # for Japan Earthquake and Tsunami Drill

If you are asked to review questions concerning the Japan earthquake, below is the appropriate TAC. You should only work on answers at direction of your supervisor.

NW

If you have participated in the "Japan Earthquake and Tsunami Drill" that began today (Friday March 11, 2011), please be sure to apply your time spent on this activity to the TAC Number listed below:

D92374 - Incident Response: Japan Earthquake and Tsunami Drill

Mis

Valentine, Nicholee

From:
Sent:
To:
Subject:
Attachments:

Regan, Christopher - HVU Monday, March 14, 2011 9:58 AM Purdie, Michael FW: Status of Nuclear Power Stations in Japan Summary of the News Releases on the earthquake No22.docx

FYI, Chris

From: Cullingford, Michael
Sent: Monday, March 14, 2011 7:57 AM
To: Leeds, Eric; Boger, Bruce; Grobe, Jack; McGinty, Tim; Regan, Christopher; Hopkins, Jon; Astwood, Heather
Cc: Quinones, Lauren; Brown, Frederick; Giitter, Joseph; Cheok, Michael; Hiland, Patrick; Blount, Tom; Ruland, William; Holian, Brian; Lubinski, John
Subject: FW: Status of Nuclear Power Stations in Japan

Subject: FW: Status of Nuclear Power Stations in Japan

Latest information received.....mc

From: Hidehiko Yamachika [mailto:yamachika-hidehiko@jnes-usa.org]
Sent: Monday, March 14, 2011 7:32 AM
To: Emche, Danielle; Foggie, Kirk; Cullingford, Michael
Cc: Michael W. Chinworth; <u>aono-kenjiro@jnes-usa.org</u>
Subject: Status of Nuclear Power Stations in Japan

FYI Latest Press Release of NISA.

NYA



March 14, 2011 Nuclear and Industrial Safety Agency

Seismic Damage Information(the 22th Release) (As of 07:30 March 14, 2011)

Nuclear and Industrial Safety Agency (NISA) confirmed the current situation of Onagawa NPS, Tohoku Electric Power Co., Inc; Fukushima Dai-ichi and Fukushima Dai-ni NPSs, Tokyo Electric Power Co., Inc. as follows:

1. The status of operation at Power Stations (Number of automatic shutdown units: 10)

OFukushima Dai-ichi Nuclear Power Station, Tokyo Electric Power Co., Inc. (TEPCO)

(Okuma-machi and Futaba-machi, Futaba-gun, Fukushima Prefecture)

(1) The status of operation

Unit 1 (460MWe): automatic shutdown Unit 2 (784MWe): automatic shutdown Unit 3 (784MWe): automatic shutdown Unit 4 (784MWe): in periodic inspection outage Unit 5 (784MWe): in periodic inspection outage Unit 6 (1,100MWe): in periodic inspection outage

(2) Readings at monitoring posts

The measurement of radioactive materials in the environmental monitoring area near the site boundary by a monitoring car confirmed the increase in the radioactivity compared to the radioactivity at 19:00, March 13.

MP1 (Monitoring at North End of Site Boundary) : 26 microSv/h(18:30 March 13)

 \rightarrow (Move to MP2)



MP2 (Monitoring at north- northwest of Unit1 and northwest of the 'End of Site Boundary for Unit 1): 450 microSv/h(20:10 March 13) →680 microSv/h(3:50 March 14) MP4 (Monitoring Car at North West Site Boundary for Unit 1) 44.0 microSv/h(19:33 March 13) →56.4 microSv/h(04:08 March 14) (Surveyed by MP2 as MP1 is in the top of the cliff) MP6 (Monitoring at the Main Gate) 5.2microSv/h(19:00 March 13) →66.3 microSv/h(02:50 March 14)

(3) Wind direction/wind speed (as of 00:01, March 14)
 Wind direction: North North West
 Wind Speed: 0.3 m/s

(4) Report concerning other malfunction

No fire report notified to NISA

- TEPCO reported to NISA in accordance with Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi, Units 1,2 and 3. (15:42 March 11)
- TEPCO report to NISA the event in accordance with Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi, Units 1 and 2.(notified to NISA at 16:36 March 11)
- For Unit 1: Sea water is being injected to the Primary Containment Vessel (PCV) via the Fire Extinguishing System Line (Start up 11:55 March 13)

 \rightarrow Interruption of injection (01:10 March 14)

- For Unit 2: Water Injection Function has been sustained. (14:00 March 13)
- For Unit 3: Fresh water is being injected to the PCV via Fire Extinguishing System Line (FESL) (11:55 March 13)
- For Unit 3: Sea water is being injected to the PCV via FESL(13:12 March 13)
- For Unit 1 and Unit 3: Injection of Sea water injection into PCV is



i . T	nterrupted because of the lack of sea water in pit. (01:10 March 14)
· ī	or Unit 3. Injection of Sea water into PCV is restarted (03.20 March 14)
⊖ Fu	kushima Dai-ni Nuclear Power Station (TEPCO)
(N	araha-machi/Tomioka-machi, Futaba-gun, Fukushima pref.)
(1) Th	e status of operation
U	nit1 (1,100MWe): automatic shutdown
U	nit2 (1,100MWe): automatic shutdown
U	nit3 (1,100MWe): automatic shutdown, cold shut down at 12:15, March 12
U	nit4 (1,100MWe): automatic shutdown
(2) Re	adings at monitoring post etc.
	MP1 (Monitoring at the North End of Site Boundary)
	0.036 microSv/h(19:00 March 13)
	→0.038 microSv/h(05:00 March 14)
	MP3 (Monitoring at the North/West End of site boundary)
	0.038microSv/h(19:00 March 13)
	→0.037 microSv/h(05:00 March 14)
	MP4 (Monitoring at the North/West End of Site Boundary)
	0.036microSv/h(19:00 March 13)
	→0.038 microSv/h(05:00 March 14)
	MP5 (Monitoring at the West End of Site Boundary)
	0.04 microSv/h(19:00 March 13)
	\rightarrow 0.042 microSv/h(05:00 March 14)
(3) Di	rection and velocity of wind (As of 05:00, 14 March)
-	Direction: South-southwest
•	Velocity: 0.9 m /s
(4) Re	port concerning other malfunction
• 1	None of fire report notified to NISA
۰j	TEPCO reported to NISA in accordance with Article 10 of the Act on
S	Special Measures Concerning Nuclear Emergency Preparedness

- regarding Fukushima Dai ni, Units 1. (18:08 March 11)
- As same as above, TEPCO reported to NISA Fukushima Dai ni Units 2 and 4.(18:33 March 11)



 For Unit 1: Due to Recovery of Residual Heat Removal System(RHR), water in suppression pool is started to cool for cold shut down.(01:24 March 14)

c. Onagawa Nuclear Power Station (Onagawa-cho, Oga-gun and Ishinomaki-shi, Miyagi Prefecture)

(1) The status of operation
Unit 1 (524MWe): automatic shutdown, cold shut down at 0.58, March 12
Unit 2 (825MWe): automatic shutdown
Unit 3 (825MWe): automatic shutdown, cold shut down at 1:17, March 12

(2) Readings of monitoring post

Reading of monitoring post : Changed

MP2 (Monitoring at the North End of Site Boundary) Approx. 10,000 nGy/h (as of 13:09 March13) →7,200 nGy/h (07:20 March 14)

(3) Report concerning other malfunction

- Fire Smoke on the first basement of the Turbine Building was confirmed extinguished at 22:55 on March 11th.
- Article 10* of Act on Special Measures Concerning Nuclear Emergency Preparedness (Unit No. not identified) (13:09 March 13)

2. Action taken by NISA

(March 11)

- 14:46 Set up of the NISA Emergency Preparedness Headquarters (Tokyo) immediately after the earthquake
- 15:42: TEPCO reported to NISA in accordance with Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi.
- 16:36: TEPCO judged the event in accordance with Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi, Units 1 and 2.(notified to NISA at 16:45)
- 18:08: Unit 1 of Fukushima Dai-ni notified NISA of the situation of the



Article 10 of Act on Special Measures Concerning Nuclear Emergency Preparedness.

- 18:33: Units 1,2 and 4 of Fukushima Dai⁻ni notified NISA of the situation of the Article 10 of Act on Special Measures Concerning Nuclear Emergency Preparedness.
- 19:03 : Government declared the state of nuclear emergency (Establishment of Government Nuclear Emergency Response Headquarters and Local Emergency Response Headquarters)
- 20:50: Fukushima Prefecture's Emergency Response Headquarters issued a direction regarding the accident occurred at Fukushima-Dai-ichi Nuclear Power Station, TEPCO, that the residents living in the area of 2km radius from Unit 1 of the Nuclear Power Station must evacuate.(The population of this area is 1,864)
- 21:23: Directives from Prime Minister to the Governor of Fukushima, Mayor of Ookuma and Mayor of Futaba were issued regarding the accident occurred at Fukushima-Dai-ichi Nuclear Power Station, TEPCO, pursuant to Paragraph 3, Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness as follows:

-Residents living in the area of 3km radius from Unit 1 of the Nuclear Power Station must evacuate.

-Residents living in the area of 10km radius from the Unit 1 must take sheltering.

24:00: Mr. Ikeda, Vice Minister of METI, arrived at the Local Emergency Response Headquarters

(March12)

- 05:22 Unit 1 of Fukushima Dai-ni notified NISA of the situation of the Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness.
- 05:32 Unit 2 of Fukushima Dai-ni notified NISA of the situation of the Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness.
- 05:44 Residents living in the area of 10km radius from unit 1 of the Nuclear Power Station must evacuate by the Prime Minister Direction.
- 06:07 Regarding of Fukushima Dai-ni NPS, TEPCO reported NISA in accordance with Article 15 of Act for Special Measures Concerning



Nuclear Emergency Preparedness.

06:50 According to the article 64, 3 of the Nuclear Regulation Act, government order to control the internal pressure in Fukushima-dai-ichi Units 1 and 2

07:45 Directives from Prime Minister to Governor of Fukushima, Mayors of Hirono, Naraha, Tomioka, Ookuma and Futaba were issued regarding the accident occurred at Fukushima-Dai-ni Nuclear Power Station, TEPCO, pursuant to Paragraph 3, Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness as follows:
Residents living in the area of 3km radius from Fukushima Dai-ni Nuclear Power Station (NPS) must evacuate.

-Residents living in the area of 10km radius from Fukushima Dai-ni NPS must take sheltering

- 17:00 Notification pursuant to Article 15 of the Act for Special Measure Concerning Nuclear Emergency Preparedness since the radiation level exceeded the acceptable level of Fukushima Dai-ichi NPS.
- 17:39 Prime Minister directed evacuation of the residents living within the 10 km radius from the Fukushima-Dai-ni NPS
- 18:25 Prime Minister directed evacuation of the residents living within the 20km radius from the Fukushima Dai-ichi NPS
- 19:55 Directives from Prime Minister was issued regarding sea water injection to Unit No.1 of Fukushima Dai-ichi NPS.
- 20:05 Based on the directives form Prime Minister and pursuant to Paragragh 3, Article 64 of the Nuclear Regulation Act, the Government issued an order to inject sea water Unit 1 of Fukushima Dai-ichi NPS.
- 20:20 Fukushima Dai-chi NPS, Unit1 started sea water injection.

(March 13)

- 05:38 TEPCO notified NISA of the situation pursuant to the Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness that Unit 3 of Fukushima Dai-ichi NPS is in a loss of all coolant injection function. Recovering efforts of the power source and coolant injection function and work on venting are underway.
- 09:08 Pressure suppression in the Containment Vessel and fresh water injection started at Unit 3 of Fukushima Daii-chi NPS.



09:20 Opening of Pressure vent valve of Unit 3 of Fukushima Dai-ichi NPS.

- 09:30 NISA directed the Governor of Fukushima Prefecture, the Mayers of Ookuma-machi, Futaba-machi, Tomioka-machi and Namie-machi based on the Act for Special Measures Concerning Nuclear Emergency Preparedness on radioactivity decontamination screening.
- 09:38 TEPCO notified NISA that Unit 1 of Fukushima Dai-ichi NPS reached a situation specified in Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness.
- 13:09 Tohoku Electric notified NISA that Onagawa NPS reached a situation specified in Article 10 of the Act for Special Measures Concerning Nuclear Emergency Preparedness.
- 13:12 Fresh water injection was switched to sea water injection at Unit 3 of Fukushima Dai-ichi NPS.
- 14:25 TEPCO notified NISA that Fukushima Dai-ichi NPS reached a situation specified in Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness.

(March 14)

- 01:10 Sea water injection at unit 1 and unit 3 of Fukushima Dai-ichi NPS were temporary stopped due to decreasing sea water in pool
- 03:20 Sea water injection at unit 3 of Fukushima Dai-ichi NPS was restarted.
- 04:24 TEPCO notified NISA that Fukushima Dai-ichi NPS reached a situation specified in Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness.

 $\mathbf{7}$



<Possible Exposure to Residents>

- (1) Case for Travel from Futaba Public Welfare Hospital to Nihonmatsu Man and Woman Symbiosis Center, Fukushima Prefecture
 - i) No. of persons to be measured: About 60 persons
 - ii) Measured Result: Not yet
 - iii) Passage: Exposure could have happened while waiting to be picked
 - up by helicopter at the Futaba high school ground
 - iv) Other

Prefectural Response Headquarters judged that there were no exposure to 35 persons who traveled from Futaba Public Welfare Hospital to Kawamata Saiseikai Hospital, Kawamata machi by the private bus provided by Fukushima Prefecture.

(2) Case for Futaba-machi Residents Evacuated by Buses

i) No. of Persons: About 100 persons

ii) Measured Result: 9 persons out of 100 persons

No. of Counts	No. of Persons
18,000cpm	1
30,000-36000cpm	1
40,000cpm	1
little less than	1
40,000cpm*	
very small counts	5

*(This results was measured without shoes, though the first measurement exceeded 100.000cpm)

iii) Passage: Under investigation

iV) Other

Though persons evacuated in different location outside of the Prefecture (Miyagi Prefecture), all destinations are under confirmation.

<Status of Evacuation (As of 04:30 March 14)>

Ookuma-machi: Evacuation of subject evacuees (about 11,000 persons) completed. (Area of Refuge: Tamura Comprehensive Gymnasium, etc.)



(Contact Person) Mr. Toshihiro Bannai Director, International Affairs Office, NISA/METI Phone:+81-(0)3-3501-1087

NUL

Cohen, Shari

From: Sent: To: Cc: Subject: Leeds, Eric Monday, March 14, 2011 2:37 PM McDermott, Brian; Virgilio, Martin Evans, Michele; Thaggard, Mark Add this name to List of folks going to Japan

William Cook form Rgn 1. That completes the list for this first wave. The names again are Tony Nakanishi, Tim Kolb, Jack Foster, Bill Cook, Chuck Casto and Richard DeVercelly. They will join Jim Trapp and Tony Ulsis, who are already there.

1

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

Cohen, Shari

From: Sent: To: Subject: Leeds, Eric / Monday, March 14, 2011 5:06 PM Haney, Catherine; Dorman, Dan Need NMSS help!

Cathy/Dan -

I need your help. The Op Center watch bill has Tom Blount and Tim McGinty, along with Mark Lombard, running the Liaison Team. Both Tom and Tim are the management for the same division in NRR – it's a bad situation compounded by the 2.206 petitions we're receiving to shutdown all the plants due to the Japanese experience, which their division is responsible for handling. Mike Tschlitz is also qualified to stand that watch. Can I get him to replace either McGinty or Blount for the rest of the week? Any help will be greatly appreciated.

Thanks!

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



Ross, Robin

From: Sent: To: Cc: Subject: Nguyen, Quynh / Monday, March 14, 2011 10:53 AM 'MARION, Alex' Schwarz, Sherry; Cohen, Shari; Grobe, Jack; Leeds, Eric NEI Meetings with Eric Leeds and Jack Grobe

Alex,

I just called and left you a message. Given the recent events in Japan, I recommend that we postpone your status periodic with Eric Leeds and Jack Grobe (both occurring on March 16).

I believe you are scheduled to meet with Jack on March 30th.

Can you confirm receipt of cancellations? Meeting on 30th?

Thanks, Quynh

Not

Ross, Robin

From: Sent: To: Subject: Nguyen, Quynh Monday, March 14, 2011 9:17 AM Guzzetta, Ashley; Ray, Sheila; Dickson, Elijah Japan

Tony Ulses (Ashley's boss) and Jim Trapp (Region I) were sent to Japan.

We are sending another 6 people. Japan doesn't normally ask for help so things are really bad.



Ross, Robin

From:
Sent:
То:
Subject:
Attachments:

Nguyen, Quynh Monday, March 14, 2011 11:13 AM Hiland, Patrick FW: Japan Earthquake - ERO Staffing Schedule - March 11 to 15 (2).xlsx Japan Earthquake - ERO Staffing Schedule - March 11 to 15 (2).xlsx

Pat,

Yeah, I just got the Master List... I need to cull it down for Eric.

From: Stone, Rebecca Sent: Monday, March 14, 2011 11:00 AM To: Nguyen, Quynh Subject: FW: Japan Earthquake - ERO Staffing Schedule - March 11 to 15 (2).xlsx

Let me know if you need anything else. I'll be periodically checking my email.

-Rebecca

Rebecca Stone Response Program Office of Nuclear Security and Incident Response U.S. Nuclear Regulatory Commission 301-415-5634 (Office) e-mail: <u>Rebecca.Stone@nrc.gov</u>

From: OST02 HOC Sent: Monday, March 14, 2011 10:58 AM To: Stone, Rebecca Subject: Japan Earthquake - ERO Staffing Schedule - March 11 to 15 (2).xlsx

JAPAN EARTHQUAKE - ERO STAFFING SCHEDULE

MARCH 11-18

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Master Staffing Through March 18

Position	Date	Time	Staff	
and the second state of the state of the		Executive Tea	m	
ET Director	3/11-3/12	11pm - 7am	Dan Dorman	
	12-Mar	7am - 3pm	Marty Virgilio	
	12-Mar	3pm - 11pm	Bill Borchardt	
	3/12-3/13	11pm - 7am	Mike Weber	
	13-Mar	7am - 3pm	Marty Virgilio	
	13-Mar	3pm - 11pm	Bill Borchardt	
	3/13-3/14	11pm - 7am	Mike Weber	
	14-Mar	7am - 3pm	Marty Virgilio	
n al mannar annan martair. Is "airean na an teann an teann an ta	14-Mar	3pm - 11pm	Jack Grobe	
	3/14-3/15	11pm - 7am	Dan Dorman	
	15-Mar	7am - 3pm	Mike Weber	
	15-Mar	3pm - 11pm	Jack Grobe	
	3/15-3/16	11pm - 7am	Dan Dorman	
	16-Mar	7am - 3pm	Mike Weber	
	16-Mar	3pm - 11pm	Jack Grobe	
	3/16-3/17	11pm - 7am	Dan Dorman	
	17-Mar	7am - 3pm	Mike Weber	
	17-Mar	3pm - 11pm	Jack Grobe	
	3/17-3/18	11pm - 7am	Dan Dorman	
	18-Mar	7am - 3pm	Mike Weber	
	18-Mar	3pm - 11pm	Jack Grobe	-
		•		
ET Response Advisor	3/11-3/12	7pm - 7am	Scott Morris	
	12-Mar	7am - 3pm	Brian McDermott	
	12-Mar	3pm - 11pm	Chris Miller	
	3/12-3/13	11pm - 7am	Scott Morris	e.
	13-Mar	7am - 3pm	Brian McDermott	
	13-Mar	3pm - 11pm	Mary Jane Ross-Lee	
 A statistic transmission in the statistical equipment of the statistical statisti Statistical statistical statist	3/13-3/14	11pm - 7am	Chris Miller	
	14-Mar	7am - 3pm	Brian McDermott	
	14-Mar	3pm - 11pm	Mary Jane Ross-Lee	
	3/14-3/15	11pm - 7am	Chris Miller	
	15-Mar	7am - 3pm	Brian McDermott	
	15-Mar	3pm - 11pm		
	3/15-3/16	11pm - 7am	Chris Miller	
	16-Mar	7am - 3pm	Brian McDermott	
	16-Mar	3pm - 11pm		
	3/16-3/17	11pm - 7am		
	17-Mar	7am - 3pm	Brian McDermott	
	17-Mar	3pm - 11pm		
and a second	3/17-3/18	11pm - 7am		
	18-Mar	7am - 3pm	Brian McDermott	
	18-Mar	3pm - 11pm		
		Executive Briefing	Team	6.1.41
EBT Admin. Assistant	3/11-3/12	11pm - 11am	Sapna Hurd	
	12-Mar	11am - 11pm	Annette Stang	
	3/12-3/13	11pm - 11am	Sapna Hurd	
	13-Mar	11am - 11pm	Annette Stang	
	3/13-3/14	11pm - 11am	Christina Merritt	

	JAPAN EART	HQUAKE - ERO	STAFFING SCHEDULE	
	بيدان ويد الأحصار ورايين برايا الالعا	MARCH 11	-18	
	14-Mar	11am - 11pm	Kelly Riner	
	3/14-3/15	11pm - 7am	Tia Pope	
	15-Mar	7am - 3nm	Sappa Hurd	
	15-Mar	3pm - 11pm	Annette Stang	
	3/15-3/16	11pm - 7am	Christina Merritt	
	16-Mar	7am - 3pm		
	16-Mar	3pm - 11pm	Annette Stang	
	3/16-3/17	11pm - 7am		
	17-Mar	7am - 3pm	Sapna Hurd	
	17-Mar	3pm - 11pm		
	3/17-3/18	11pm - 7am		
	18-Mar	7am - 3pm		
	18-Mar	3pm - 11pm		
		ziene wege instructione die schladen		
EBT Coordinator	3/11-3/12	11pm - 11am	Vanice Perin	
	12-Mar	11am - 7pm	Sara Mroz	
	3/12-3/13	7pm - 7am	Eric Schrader	
	13-Mar	7am - 7pm	Sara Mroz	
	3/13-3/14	7pm - 7am	Jim Anderson	
	14-Mar	7am - 7pm	Yen-Ju Chen	
	3/14-3/15	7pm - 7am	Eric Schrader	
	15-Mar	7am - 3pm	Jim Anderson	
···	15-Mar	3pm - 11pm	Sara Mroz	
	3/15-3/16	11pm - 7am		
	16-Mar	7am - 3pm	Jim Anderson	
	16-Mar	3pm - 11pm	Sara Mroz	
	3/16-3/17	11pm - 7am		
	17-Mar	7am - 3pm	Jim Anderson	1
	17-Mar	3pm - 11pm	Sara Mroz	
	3/17-3/18	11pm - 7am		
	18-Mar	7am - 3pm	Jim Anderson	8,
	18-Mar	3pm - 11pm	Sara Mroz	
	and the second second	Executive Support	: Team	
EST Status Officer	3/11-3/12	11pm - 7am	Jeff Grant	
	12-Mar	7am - 3pm	Jane Marshall	
	12-Mar	3pm - 11pm	Bill Gott	
	3/12-3/13	11pm - 7am	Jeff Grant	
	13-Mar	7am - 3pm	Jane Marshall	
	13-Mar	3pm - 11pm	Bill Gott	
	3/13-3/14	11pm - 7am	Jeff Grant	
	14-Mar	7am - 3pm	Jane Marshall	
	14-Mar	3pm - 11pm	Bill Gott	
	3/14-3/15	11pm - 7am	Jeff Grant	
	15-Mar	7am - 3pm	Jane Marshall	

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3pm - 11pm

11pm - 7am

7am - 3pm

3pm - 11pm

11pm - 7am

7am - 3pm

3pm - 11pm

11pm - 7am

15-Mar

3/15-3/16

16-Mar

16-Mar

3/16-3/17

17-Mar

17-Mar

3/17-3/18

Bill Gott

Bill Gott

Bill Gott

Jeff Grant

Jeff Grant

Jane Marshall

Jeff Grant Jane Marshall
MARCH 11-18

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	18-Mar	7am - 3pm	Jane Marshall
	18-Mar	3pm - 11pm	Bill Gott
			an a
EST Coordinator	3/11-3/12	11pm - 11am	Jeff Grant
	12-Mar	11am - 11pm	Tony Bowers
	3/12-3/13	11pm - 11am	Jeff Grant
	13-Mar	11am - 11pm	Tony Bowers
	3/13-3/14	11pm - 11am	Jeff Grant
	14-Mar	7am - 3pm	Tony Bowers
		3pm - 11pm	
i 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	3/14-3/15	11pm - 7am	Jeff Grant
	15-Mar	7am - 3pm	Tony Bowers
		3pm - 11pm	
	3/15-3/16	11pm - 7am	Jeff Grant
	16-Mar	7am - 3pm	Tony Bowers
	tin in the start of the start o	3pm - 11pm	
	3/16-3/17	11pm - 7am	Jeff Grant
	17-Mar	7am - 3pm	Tony Bowers
		3pm - 11pm	
n e serve de le contra de la desta de la contra de la contr C	3/17-3/18	11pm - 7am	Jeff Grant
EST Chronology Officer	3/11-3/12	11pm - 11am	Margie Kotzalas
and and the state of	12-Mar	11am - 11pm	Alan Frasier
	3/12-3/13	11pm - 11am	Greg Bowman
	13-Mar	11am - 11pm	Alan Frasier
	3/13-3/14	11pm - 7am	Greg Bowman
	14-Mar	7am - 3pm	Jessica Kratchman
	14-Mar	3pm - 11pm	Rebecca Karas
ti v	3/14-3/15	11pm - 7am	Scarbrough, Thomas
	15-Mar	7am - 3pm	Jessica Kratchman
	15-Mar	3pm - 11pm	Rebecca Karas
	3/15-3/16	11pm - 7am	Scarbrough, Thomas
	16-Mar	7am - 3pm	Jessica Kratchman
า การการการการการการการการการการการการการก	16-Mar	3pm - 11pm	Rebecca Karas
	3/16-3/17	11pm - 7am	Scarbrough, Thomas
	17-Mar	7am - 3pm	Jessica Kratchman
	17-Mar	3pm - 11pm	Rebecca Karas
	3/17-3/18	11pm - 7am	
	18-Mar	7am - 3pm	Jessica Kratchman
	18-Mar	3pm - 11pm	Rebecca Karas
EST Response Ops Mgr	3/11-3/12	7pm-7am	Karen Jackson
	12-Mar	7am-10pm	Omar Khan
	3/12-3/13	10pm - 7am	Karen Jackson
rechning for the activity in the second constraints of the second constraints of	13-Mar	7am - 7pm	Roberto Figueroa
	3/13-3/14	7pm - 7am	Omar Khan
	14-Mar	7am - 3pm	Karen Jackson
	14-Mar	3pm - 11pm	Roberto Figueroa
	3/14-3/15	11pm - 7am	Omar Khan
	15-Mar	7am - 3pm	Karen Jackson
	15-Mar	3pm - 11pm	Roberto Figueroa
	3/15-3/16	11pm - 7am	Omar Khan

MARCH 11-18

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	16-Mar	7am - 3pm	Karen Jackson
	16-Mar	3pm - 11pm	Roberto Figueroa
	3/16-3/17	11pm - 7am	Omar Khan
	17-Mar	7am - 3pm	Karen Jackson
	17-Mar	3pm - 11pm	Roberto Figueroa
······································	3/17-3/18	11pm - 7am	Omar Khan
EST Admin. Assistant	3/11-3/12	3pm - 11am	Linda Williamson /Andrea Wimbush
	12-Mar	11am - 11pm	Emily Larson
	3/12-3/13	11pm - 7am	Amy Salus
	13-Mar	7am - 3pm	Mary Glenn Crutchley
	13-Mar	3pm - 11pm	Emily Larson
	3/13-3/14	11pm - 7am	Linda Williamson
	14-Mar	7am - 3pm	Tabitha Howard
	14-Mar	3pm - 11pm	Mary Glenn Crutchley
	3/14-3/15	11pm - 7am	Amy Salus
	15-Mar	7am - 3nm	Linda Williamson
	15-Mar	3nm - 11nm	Michelle Manahan
	2/15_2/16	11nm - 7am	Andrea Wimbush
		72m - 3nm	Emily Larson
	16-Mar	3nm - 11nm	Mary Glenn Crutchley
y	3/16-3/17	11nm - 72m	Andrea Wimbush
· · · · · · · · · · · · · · · · · · ·	17-Mor	72m - 30m	
	17 Mar	2nm 11nm	Many Glenn Crutchley
	2/17 2/19	11nm - 72m	Linda Williamson
N	10-ividi	7am - Spm	
	To-Mar	3pm - 11pm	Interview Content Cruteriley
		liesen Teen	· · · · · · · · · · · · · · · · · · ·
IT Disector	2/11 2/12		Tom Blount
	3/11-3/12	7pm - Zam	Nike Techita
	12-IVId1	Zdm - /dm	
	12-IVIar	7am - 11am	I'm Wegney
	12-IVIar	11am - 11pm	Tem Disunt
· · · · · · · · · · · · · · · · · · ·	3/12-3/13	11pm - 7am	
	13-iviar	7am - 3pm	
	13-iviar	3pm-11pm	
	3/13-3/14	11pm - 7am	
	14-Mar	7am - 3pm	Mark Inaggard
	14-Mar	3pm-11pm	
	3/14-3/15	11pm - 7am	
	15-Mar	7am - 3pm	Mark Thaggard
	15-Mar	3pm - 11pm	Tim McGinty
· · · ·	3/15-3/16	11pm - 7am	Tom Blount
	16-Mar	7am - 3pm	Mark Thaggard
	16-Mar	3pm - 11pm	Tim McGinty
	3/16-3/17	11pm - 7am	Tom Blount
	17-Mar	7am - 3pm	Mark Thaggard
	17-Mar	3pm - 11pm	Tim McGinty
	3/17-3/18	11pm - 7am	Tom Blount
	18-Mar	7am - 3pm	Mark Thaggard
	18-Mar	3pm - 11pm	Tim McGinty
	•.		
LT Coordinator	3/11-3/12	7pm - 7am	Nathan Sanfilippo

JAPAN EARTHQUAKE - ERO STAFFING SCHEDULE MARCH 11-18

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	12-Mar	2am - 7am	Rani Franovich
	12-Mar	7am - 7pm	Jeff Temple/Milt Murray
	3/12-3/13	7pm - 7am	Janelle Jesse
	13-Mar	7am - 7pm	Jeff Temple/Milt Murray
	3/13-3/14	7pm - 7am	Nathan Sanfilippo
	14-Mar	7am - 3pm	Rani Franovich
	14-Mar	3pm - 11pm	Milt Murray
	3/14-3/15	11pm - 7am	
	15-Mar	7am - 3pm	Milt Murray
	15-Mar	3pm - 11pm	Nathan Sanfilippo
	3/15-3/16	11pm - 7am	
	16-Mar	7am-3pm	Milt Murray
	16-Mar	3pm - 11pm	Nathan Sanfilippo
	3/16-3/17	11pm - 7am	
	17-Mar	7am - 3pm	Milt Murray
	17-Mar	3pm - 11pm	Rani Franovich
	3/17-3/18	11pm - 7am	
	18-Mar	7am - 3pm	Milt Murray
	18-Mar	3pm - 11pm	Rani Franovich
	10 101	Spin Tipin	India i ranovici
IT State Liason	13-Mar	7am-3nm	Rich Turtil
	10 110	, an opin	
LT Federal Liason (2)	3/11-3/12	1am - 7am	Ted Smith
	12-Mar	7am - 7pm	Russ Chazell / Beth Reed
	3/12-3/13	7pm - 7am	Susan Salter / Jason Lising
	13-Mar	7am - 3nm	Russ Chazell
	13-Mar	3nm - 11 nm	Beth Reed
e A destruction of the contraction of the state of the contraction of the providence of the state of the state of	3/13-3/14	11nm - 7am	Ted Smith/ Bethany Cecare
	14-Mar	72m - 3nm	Beth Reed
	14-Mar	3pm - 11pm	leffrey lynch
	3/14-3/15	11pm - 7am	leff Temple
	15-Mar	7am - 3pm	Ted Smith
	15-Mar	3pm - 11pm	leffrey lynch
	3/15-3/16	11nm - 7am	
	16-Mar	7am - 3nm	Beth Reed
	16-Mar	3nm - 11nm	
	3/16-3/17	11nm - 7am	
	17-Mar	7am - 3nm	Beth Reed
	17-Mar	3nm - 11nm	Dearraced
	3/17-3/18	11nm - 7am	
	18-Mar	7am - 3nm	Beth Reed
	18-Mar	3nm - 11nm	
	10-14191	1 Shin-Tibu	
LT Congressional Liason (2)	3/11-3/12	10pm - 7am	Raeann Shane/Gene Dacus
	12-Mar	7am - 2pm	Becky Schmidt
	12-Mar	2pm - 9pm	Spiros Drogettis
	3/12-3/13	9nm -7am	David Decker
a an a constant a the constant of a manufacture of the constant of	13-Mar	7am - 2nm	Amy Powell
	13-Mar	2pm - 9pm	Tim Riley
in the second	3/13-3/14	9pm -7am	Gene Dacus
	14-Mar	7am - 2nm	Raeann Shane
	14-Mar	2nm - 9nm	Amy Powell
	3/14-3/15	9pm -7am	Tim Riley
	-, - , -,		

JAPAN EARTHQUAKE - ERO STAFFING SCHEDULE MARCH 11-18

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	15-Mar	7am - 2pm	Spiros Drogettis
	15-Mar	2pm - 9pm	
n III	3/15-3/16	9pm -7am	
	16-Mar	7am-2pm	
	16-Mar	2pm - 9pm	
	3/16-3/17	9pm -7am	
	17-Mar	7am-2pm	
	17-Mar	2pm - 9pm	
	3/17-3/18	9pm -7am	
	18-Mar	7am-2pm	
	18-Mar	2pm - 9pm	
LT International Liason (2)	3/11-3/12	11pm - 7am	Eric Stahl
	12-Mar	7am - 3pm	Kirk Foggie
	12-Mar	3pm - 11pm	Jack Ramsey/Danielle Emche
	3/12-3/13	11pm - 7am	Charlotte Abrams/Jen Schwartzman
	13-Mar	7am - 3pm	Nader Mamish/Brooke Smith/Janice Owens
	13-Mar	3pm - 11pm	Kirk Foggie/Karen Henderson
	3/13-3/14	11pm - 7am	Nancy Fragoyanis/Eric Stahl
	14-Mar	7am - 3pm	Nader Mamish/Brooke Smith
	14-Mar	3pm - 11pm	Kirk Foggie
	3/14-3/15	11pm - 7am	Margaret Doane
	15-Mar	7am - 3pm	
	15-Mar	3pm - 11pm	
	3/15-3/16	11pm - 7am	
	16-Mar	7am - 3pm	
	16-Mar	3pm - 11pm	
	3/16-3/17	11pm - 7am	
	17-Mar	7am - 3pm	
	17-Mar	3pm - 11pm	
	3/17-3/18	11pm - 7am	
	18-Mar	7am - 3pm	
	18-Mar	3pm - 11pm	
		Drotoctive Measures	Toos
PMTP Director	14-Mar	8:30am -5:30nm	Christiana Lui
FINITE DIFECTOR	14-Mar	8.30am-5.30pm	
	2/11.2/15		
PMTP Coordinator	2/11 2/12	11nm 72m	Lou Brandon
	12 Mar	7am 11am	Prosanta Chowdhury
	12-Mar	7am-7pm	Nima Ashkeboussi
	3/12-3/13	7 nm - 7 am	
an a	13-Mar	7am-3pm	lack Foster
	13-Mar	3pm-11pm	Nima Ashkeboussi
	3/13-3/14	11pm - 7am	lohn Lubinski
	14-Mar	7am-3pm	Prosanta Chowdhury
	14-Mar	3pm-11pm	Nima Ashkeboussi
	3/14-3/15	11pm - 7am	Lou Brandon
	15-Mar	7am-3pm	Prosanta Chowdhury
	15-Mar	3pm - 11pm	
	3/15-3/16	11pm - 8am	Lou Brandon
	16-Mar	8am - 3pm	Prosanta Chowdhury
	16-Mar	3pm - 11pm	Nima Ashkeboussi

MARCH 11-18

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	3/16-3/17	11pm - 8am	Lou Brandon
	17-Mar	8am - 3pm	Prosanta Chowdhury
	17-Mar	3pm - 11pm	
	3/17-3/18	11pm - 7am	Lou Brandon
	18-Mar	7am - 3pm	
a na	18-Mar	3pm - 11pm	
PMTR Prot Actions Asst Dir	3/11-3/12	11pm - 7am	Kathryn Brock
	12-Mar	7am - 7pm	Stacey Rosenberg
ann annananan 1991, ao amin' ao amin' ao amin' amin	3/12-3/13	7pm - 7am	Greg Casto
ann ann an ann an ann ann ann ann an ann an a	13-Mar	7am-3pm	Kathryn Brock
	13-Mar	3pm-11pm	John Tappert
	3/13-3/14	11pm - 7am	Greg Casto
	14-Mar	7am-3pm	Kathryn Brock
	14-Mar	3pm-11pm	Vince Holahan
	3/14-3/15	11pm-7am	Greg Casto
	15-Mar	7am-3pm	Stacev Rosenberg
	15-Mar	3pm - 11pm	Kathryn Brock
	3/15-3/16	11pm - 7am	Greg Casto
	16-Mar	7am - 3pm	Kathryn Brock
	16-Mar	3pm - 11pm	
	3/16-3/17	11pm - 7am	Greg Casto
n an ann ann ann ann ann ann ann ann a' ann ann	17-Mar	7am - 3pm	Kathryn Brock
	17-Mar	3pm - 11pm	John Tappert
	3/17-3/18	11pm - 7am	Greg Casto
	18-Mar	7am - 3pm	Kathryn Brock
	18-Mar	3pm - 11pm	
PMTR RAAD	3/11-3/12	11pm-7am	Steve LaVie
	12-Mar	7am-7pm	Bruce Watson
	3/12-3/13	7pm-7am	Michelle Hart
ander "Wilfer Stationering and and and and and state state and state of the	13-Mar	7am-3pm	Bruce Watson
a Anna airean ann ann ann an Mannair ann ann an Airean grainn an Airean ann an Aireanna. Ann	13-Mar	3pm-11pm	Steve LaVie
ne and an	3/13-3/14	11pm-7am	Randy Sullivan
	14-Mar	7am-3pm	Bruce Watson
	14-Mar	3pm-11pm	Michelle Hart
	3/14-3/15	11pm-7am	Randy Sullivan / Patricia Milligan
	15-Mar	7am-3pm	Bruce Watson
and a second	15-Mar	3pm-11pm	Steve LaVie
and a second	3/15-3/16	11pm - 7am	Patricia Milligan
	16-Mar	7am - 2pm	Bruce Watson
and the statistical statistical constants and the second statistical statistical statistical statistical statis	16-Mar	2pm - 11pm	Steve LaVie
na para da senta senta a la constructiva de la construcción de la construcción de la construcción de la constru Alterna	3/16-3/17	11pm - 7am	Randy Sullivan
	17-Mar	7am - 3pm	Bruce Watson
	17-Mar	3pm - 11pm	
n a falanna de este aveces anna states anna state a name sever kas estadan. E	3/17-3/18	11pm - 7am	Randy Sullivan
	18-Mar	7am - 3pm	Bruce Watson
	18-Mar	3pm - 11pm	
PMTR Dose Assessment	3/11-3/12	7pm-7am	Kimberly (Ropon) Gambone
(RASCAL)	12-Mar	7am-11am	Prosanta Chowdhury
	12-Mar	11am-11pm	Gary Purdy
	13-Mar	7am-3pm	Duane Schmidt

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		WARCHIT	-10
	13-Mar	7am-3pm	Kimberly Ropon (arrive 11am)
	13-Mar	3pm-11pm	Richard Clement (2pm-7pm)/Casper Sun
аналан талан талар та Та	3/13-3/14	11pm-7am	Patricia Milligan
	14-Mar	7am-3pm	Tony Huffert/Fritz Sturz
	14-Mar	3pm-11pm	Kimberly Gambone / Rich Clement (3pm - 8pm)
	3/14-3/15	11pm-7am	
	15-Mar	7am-3pm	Casper Sun / John Parillo
	15-Mar	3pm - 11pm	Fritz Sturz
	3/15-3/16	11pm - 7am	
	16-Mar	7am - 3pm	Kimberly Gambone
1	16-Mar	3pm - 11pm	
	3/16-3/17	11pm - 7am	Fritz Sturz
	17-Mar	7am - 3pm	
	17-Mar	3pm - 11pm	Casper Sun
	3/17-3/18	11pm - 7am	Kimberly Gambone
	18-Mar	7am - 3pm	
	18-Mar	3pm - 11pm	
RASCAL Developer	15-Mar	1pm-7pm	George Athey (contractor)
PMTR GIS Analyst	13-Mar	10:30 am-5pm	Yong Li
	14-Mar	3pm - 11pm	Yong Li (leaving
	3/14-3/15	11pm - 7am	
	15-Mar	7am - 3pm	
	15-Mar	3pm - 11pm	
nan an	3/15-3/16	11pm - 7am	
	16-Mar	7am - 3pm	
	16-Mar	3pm - 11pm	
	3/16-3/17	11pm - 7am	
	17-Mar	7am - 3pm	
	17-Mar	3pm - 11pm	
	3/17-3/18	11pm - 7am	
	18-Mar	7am - 3pm	
	18-Mar	3pm - 11pm	
	3/18-3/19	11pm - 7am	
		Reactor Safety To	eam
RST Director	3/11-3/12	11pm - 7am	Mike Case
	12-Mar	7am - 3pm	Dave Skeen
	12-Mar	3pm - 11pm	Bill Ruland
	3/12-3/13	11pm - 7am	Mike Case
	13-Mar	7am - 3pm	Pat Hiland
	13-Mar	3pm - 11pm	Fred Brown
	3/13-3/14	11pm - 7am	Dave Skeen
	14-Mar	7am - 3pm	Laura Dudes
	14-Mar	3pm - 11pm	Bill Ruland
	3/14-3/15	11pm - 7am	Mike Case
	15-Mar	7am - 3pm	Dave Skeen
	15-Mar	3pm - 11pm	Fred Brown
	3/15-3/16	11pm - 7am	Pat Hiland
	16-Mar	7am - 3pm	N/A
	16-Mar	3pm - 11pm	Bill Ruland
	3/16-3/17	11pm - 7am	Mike Case
	17-Mar	7am - 3pm	Dave Skeen

MARCH 11-18

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	17-Mar	3pm - 11pm	Fred Brown
	3/17-3/18	11pm - 7am	Pat Hiland
	18-Mar	7am - 3pm	Laura Dudes
	18-Mar	3pm - 11pm	Bill Ruland
		•	· · · · · · · · · · · · · · · · · · ·
RST Coordinator	3/11-3/12	11pm - 7am	Brett Rini
	12-Mar	7am - 3pm	Peter Alter
	12-Mar	3pm - 11pm	Rick Hasselberg
	3/12-3/13	11pm - 7am	Mike Morlang
	13-Mar	7am - 3pm 🐋	Peter Alter
	13-Mar	3pm - 11pm	Rick Hasselberg
	3/13-3/14	11pm - 7am	Brett Rini
	14-Mar	7am - 3pm	Peter Alter
	14-Mar	3pm - 11pm	Rick Hasselberg
	3/14-3/15	11pm - 7am	Brett Rini
	15-Mar	7am - 3pm	Peter Alter
	15-Mar	3pm - 11pm	Frank Collins
	3/15-3/16	11pm - 7am	Mike Morlang
	16-Mar	7am - 3pm	Rick Hasselberg
	16-Mar	3pm - 11pm	Eric Thomas
	3/16-3/17	11pm - 7am	Greg Schoenbeck (?)
	17-Mar	7am - 3pm	Frank Collins
	17-Mar	3pm - 11pm	Mike Morlang
	3/17-3/18	11pm - 7am	Eric Thomas
	18-Mar	7am - 3pm	Peter Alter
	18-Mar	3pm - 11pm	Greg Schoenbeck (?)
		•	
Severe Accident/PRA	3/11-3/12	11pm - 7am	Mike Cheok
	12-Mar	7am - 3pm	Jeff Circle
	12-Mar	3pm - 11pm	Don Dube
	3/12-3/13	11pm - 7am	Eva Brown
	13-Mar	7am - 3pm	Jeff Circle
	13-Mar	3pm - 11pm	Hossein Esmaili
	3/13-3/14	11pm - 7am	Mike Cheok
	14-Mar	7am - 3pm	Jeff Circle
· · · · · ·	14-Mar	3pm - 11pm	Don Dube
	3/14-3/15	11pm - 7am	Mike Cheok
	15-Mar	7am - 3pm	Jeff Circle
	15-Mar	3pm - 11pm	Hossein Esmaili
	3/15-3/16	11pm - 7am	J. Schaperow
	16-Mar	7am - 3pm	Ed Fuller
	16-Mar	3pm - 11pm	Mike Cheok
	3/16-3/17	11pm - 7am	Mike Salay (?)
	17-Mar	7am - 3pm	Jeff Circle
	17-Mar	3pm - 11pm	Steve Laur
	3/17-3/18	11pm - 7am	N/A
	18-Mar	7am - 3pm	Hossein Esmaili
	18-Mar	3pm - 11pm	J. Schaperow
BWR Expertise	3/11-3/12	11pm - 7am	Eva Brown
	12-Mar	7am - 3pm	Tim Kolb
	12-Mar	3pm - 11pm	Chuck Norton
	3/12-3/13	11pm - 7am	Eva Brown
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JAPAN EARTHQUAKE - ERO STAFFING SCHEDULE MARCH 11-18

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	13-Mar	7am - 3pm	Tim Kolb	
and the second	13-Mar	3pm - 11pm	Chuck Norton	
arii Arii	3/13-3/14	11pm - 7am	Eva Brown	
	14-Mar	7am - 3pm	Tim Kolb	
	14-Mar	3pm - 11pm	Chuck Norton	
	3/14-3/15	11pm - 7am	Eva Brown	
	15-Mar	7am - 3pm	Tim Kolb	
	15-Mar	3pm - 11pm	C. Norton	
	3/15-3/16	11pm - 7am	Eva Brown	1
	16-Mar	7am - 3pm	Tim Kolb	
	16-Mar	3pm - 11pm	C. Norton	-
	3/16-3/17	11pm - 7am	Eva Brown	
	17-Mar	7am - 3pm	Jim Shea	
	17-Mar	3pm - 11pm	C. Norton	
	3/17-3/18	11pm - 7am	Eva Brown	
	18-Mar	7am - 3pm	Jim Shea (?)	
	18-Mar	3pm - 11pm	C. Norton	1
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RST Comm/ERDS Operator	3/11-3/12	11pm - 7am	Jim Isom	
	12-Mar	7am - 7pm	Steve Bloom	
	12-Mar	3pm - 11pm	Mark Padovan (arrive at 5:00pm)	
	13-Mar	7am-3pm	Joseph Williams	
	13-Mar	3pm-11pm	Ken Hart	
	14-Mar	7am-3pm	Steve Bloom	
	14-Mar	3pm-11pm	Mark Padovan	
E .	3/14-3/15	11pm - 7am	Jerry Dozier	
	15-Mar	7am-3pm	Donna Williams	
	15-Mar	3pm - 11pm	Jim Isom	
	3/15-3/16	11pm - 7am	Ken Hart	
. "	16-Mar	7am - 3pm	Joseph Williams	
	16-Mar	3pm - 11pm	Steve Bloom	
	3/16-3/17	11pm - 7am	Mark Padovan	
	17-Mar	7am - 3pm	Donna Williams	
ii - aanaanka daanaa da	17-Mar	3pm - 11pm	Jerry Dozier	
	3/17-3/18	11pm - 7am	Ken Hart	
	18-Mar	7am - 3pm	Jim Isom	
	18-Mar	3pm - 11pm	Steve Bloom	

AWR

Ross, Robin

From:	Nguyen, Quynh
Sent:	Monday, March 14, 2011 10:43 AM
То:	Rini, Brett
Cc:	Cruz, Holly; Meighan, Sean; Schwarz, Sherry
Subject:	RES-NRR Periodic - CANCELLED

Importance:

High

Brett,

Hey, the EDO was down here with Eric. Given the Japan events, we are going to cancel and reschedule for next month or so (ACTION: Sherry, thanks).

Sherry should have contacted Shirley.

Thanks, Quynh

C.SV

Giitter, Joseph

ES.U

From: Sent: To: Subject: Giitter, Joseph Monday, March 14, 2011 2:44 PM Brown, Frederick RE:

NH

Understand.

From: Brown, Frederick Sent: Monday, March 14, 2011 2:37 PM To: Giitter, Joseph Subject: RE:

They have started doing that, but I didn't want to put in a road block coming this way so the last sentence is intended to address.

From: Giitter, Joseph Sent: Monday, March 14, 2011 1:13 PM To: Brown, Frederick Subject: RE:

Looks fine to me. Presumably requests from the Op Center for NRR support will go through Eric?

From: Brown, Frederick
Sent: Monday, March 14, 2011 1:11 PM
To: Hiland, Patrick; Ruland, William; McGinty, Tim; Skeen, David; Thomas, Eric; Thorp, John; Giitter, Joseph Cc: Boger, Bruce
Subject:
Importance: High

Drafted the message below for Eric to send to all NRR staff. Does this look like a reasonable scope?

As you are all aware from the Agency wide e-mails, the NRC Operations Center is being manned 24 hours a day to support monitoring of the situation in Japan. Many of your NRR colleagues are involved with this effort.

Here in NRR, we can look forward in the coming days and months to many questions about the situation in Japan and the relevance to domestic nuclear facilities. The staff in the Operations Center has already been working on these types of questions and answers. It will be important to maintain effective communication and coordination between the work done in the Office, and the work done in the Operations Center.

Bill—For some reason I didn't get called to the Op Center this weekend. Just want to let you know that I'm available to help. I'm sure Allen and Nelson would be willing as well.

From: Ruland, William Sent: Monday, March 14, 2011 10:04 AM To: Giitter, Joseph Subject: RE:	
Norton based on what?	
From: Giitter, Joseph Sent: Monday, March 14, 2011 9:47 AM To: Ruland, William Subject:	

Recommend Chuck Norton to support Japan. I would be willing to go as well (source term, incident response, but not a BWR expert--other than the TTC series many years ago).

Joseph G. Giitter Director Division of Operating Reactor Licensing Office of Nuclear Reactor Regulation

Caponiti, Kathleen

From: Sent: To: Subject: Taylor, Robert WMM Monday, March 14, 2011 4:20 PM Harrington, Holly; Burnell, Scott RE: blog comment reply

I don't understand the comment. Is there any more context? Do you want me to search for someone who might know what this individual is talking about?

From: Harrington, Holly 10√10∕ Sent: Monday, March 14, 2011 4:14 PM To: Burnell, Scott; Taylor, Robert Subject: blog comment reply

Any thoughts on how to reply to this comment:

I was reading about Diablo Canyon today and how the seismic supports were built in the mirror image of their proper positions. Does this pose any sort of threat or problem?

From: Sent: To: Cc: Subject: Baker, Stephen (OU Monday, March 14, 2011 1:57 PM Smith, Brooke; Foggie, Kirk Ulses, Anthony Tony's clothes

Brooke/Kirk:

I will be meeting Tony's wife this evening @ the West Falls Church Metro station after 8:00 pm to get Tony's clothes. It will be a knapsack inside of a siitcase. If you don't need the suitcase, leave it here; if you need it, take it.

How soon do you need the luggage to be at HQ for you to get them into your luggage for the trip to Japan? Tonight, or is 8:00 am Tuesday soon enough? I can bring them back here tonight if it helps.

Let me know.

Steve Baker

From: Sent: To: Subject: Nakanishi, Tony I N. I. I. Monday, March 14, 2011 1:53 PM Ulses, Anthony I am headed your way...do you need anything?

Tony,

I am headed to Japan either tonight or tomorrow with 5 others from NRC. Do you need me to bring anything? Blackberry charger, anything in your office, etc.?

Tony N.

From:	Kaizer, Joshua MRR
Sent:	Monday, March 14, 2011 12:22 PM
То:	Mendiola, Anthony
Subject:	Drawing of Reactor
Attachments:	BoilingWaterReactorDesign_3.jpg

Follow Up Flag: Flag Status: Follow up Completed

Tony,

· 12 14

I left this schematic of a BWR with a mark 1 containment from the NEI website on your chair ... josh

From: Hayden, Gwen ()) Sent: Monday, March 14, 2011 12:20 PM To: Kaizer, Joshua Subject: RE: NEI Site

Is this the one? I was able to get it.

From: Kaizer, Joshua MCK Sent: Monday, March 14, 2011 12:13 PM To: Hayden, Gwen Subject: NEI Site

Here is the site:

http://www.nei.org/newsandevents/information-on-the-japanese-earthquake-and-reactors-in-that-region/

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The pic is linked on the right hand side and is the "Schematic of Reactor Design at Fukushima Daiichi 1"

Thanks ... josh

Joshua Kaizer, Reactor Systems Engineer Nuclear Performance and Code Review Office of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission

 Phone:
 301-415-1532

 Fax:
 301-415-3577

 Mail Stop:
 O10-B03



Boiling Water Reactor Design

From: Sent: To: Subject: Smith, Stephen M. Monday, March 14, 2011 12:14 PM Lehning, John; Klein, Paul; Bailey, Stewart RE: Link to Japan Nuke Plant Status Table

One more potentially good link.

http://www.iaea.org/

Steve

From: Lehning, John M Sent: Monday, March 14, 2011 12:04 PM To: Smith, Stephen; Bailey, Stewart Cc: Klein, Paul Subject: RE: Link to Japan Nuke Plant Status Table

Oh, here is an updated version – current as of 7:30 this morning: <u>http://www.jaif.or.jp/english/news/2011/110314fukushima_event-status-2.pdf</u>

This is the mother site that may have updates: http://www.jaif.or.jp/english/

From: Smith, Stephen Mul-Sent: Monday, March 14, 2011 11:36 AM To: Lehning, John; Bailey, Stewart Subject: RE: Link to Japan Nuke Plant Status Table

John and Stew,

Here is the source. The chart is on the main web page along with some news about the Japanese reactors. If you click on the top story there is a link on the next page that sends you to a readable copy of the chart. It hasn't been updated since the one that John sent out.

http://www.neimagazine.com/

Steve

From: Lehning, John MR Sent: Monday, March 14, 2011 11:23 AM To: Smith, Stephen Subject: FW: Link to Japan Nuke Plant Status Table

Some info on plant status.

From: Lehning, John Sent: Monday, March 14, 2011 9:34 AM

To: Klein, Paul **Subject:** Link to Japan Nuke Plant Status Table

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http://www.neimagazine.com/journals/Power/NEI/April_2011/attachments/110314fukushima_event-status-1.pdf

From: Sent: To: Subject: Smith, Stephen M KK Monday, March 14, 2011 11:53 AM Lehning, John; Klein, Paul RE: Update

I had heard that the rods were uncovered for some time period. I have not heard anything about a reactor or containment leak at either plant. Not sure where the quoted physicist got the info.

a car citratement consider a community of a start of the

Steve

From: Lehning, John MM Sent: Monday, March 14, 2011 11:44 AM To: Klein, Paul; Smith, Stephen Subject: Update

Now, reading from abc news that Unit 3 has a leak in the bottom (not sure of what)...? Don't know if credible, but the explosion appeared stronger than the first one based on the plume.

http://abcnews.go.com/International/japan-earthquake-fukushima-nuclear-reactors-deteriorate-explosions-fuel/story?id=13131123

A few stories also mention the rods were uncovered to a great extent at units 2 and 3 – maybe when they were blowing down with the SRVs to prepare to inject seawater via the fire trucks...?

- John L.

From:
Sent:
To:

Subject:

Bettle, Jerome) WKCV Monday, March 14, 2011 11:44 AM Dennig, Robert; Karipineni, Nageswara; Lee, Brian; Lobel, Richard; Raval, Janak; Sallman, Ahsan; Torres, Roberto; Walker, Harold RE: Japan

Some information that looks like a reasonable summary. http://www.world-nuclear-news.org/RS_Venting_at_Fukushima_Daiichi_3_1303111.html

From: Dennig, Robert MW Sent: Monday, March 14, 2011 8:24 AM To: Bettle, Jerome; Karipineni, Nageswara; Lee, Brian; Lobel, Richard; Raval, Janak; Sallman, Ahsan; Torres, Roberto; Walker, Harold Subject: Japan Importance: High

Please get up to speed on the unfolding situation in Japan re: explosions, alleged containment failure. Thanks.



REGULATION AND SAFETY

13 March 2011

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FIRST PUBLISHED: 4.03am GMT UPDATE 1: 9.35am GMT. Information on seawater injection UPDATE 2: 1.30pm GMT. Issues related to seawater injection, Change of headline from Venting Fukushima Daiichi 3 UPDATE 3: 8.24pm GMT. Status information supplied by JAIF. UPDATE 4: 8.34pm GTM. Additional information on units 1 and 2

Efforts to manage Fukushima Daiichi 3

Operations to relieve pressure in the containment of Fukushima Daiichi 3 have taken place after the failure of a core coolant system. Seawater is being injected to make certain of core cooling. Malfunctions have hampered efforts but there are strong indications of stability.

The intense focus on unit 3 comes one day after the plant's first reactor was effectively written off as a result of a hydrogen explosion and the move to inject seawater to make certain of cooling the reactor core. Two days ago were the earthquake and tsunami that have proven Japan's worst ever natural disaster.

Tepco reported it had not been able to restart unit 3's high pressure injection system after an automatic stop. This left the reactor without sufficient coolant and obligated Tepco to notify government of an emergency situation.

Preparations for potential pressure relief had already been underway for many hours and Tepco manually vented the containment between 8.41am and 9.20am on March 13.

Noriyuki Shikata, director of global communications in the prime minister's office, said the venting operation was expected to cool the containment, noting that "minute quantities of radioactive materials are released." When this occurred at unit 1, the International Atomic Energy Agency said the emission would be filtered to retain radioactive materials within the containment.

Mixed signals, but much relief

Injection of fresh water mixed with boron to inhibit nuclear reactions was started as soon as venting had been completed. However, water levels continued to fall and Tepco began an operation to inject seawater into the reactor vessel.

In a media briefing at 8.00pm, chief cabinet secretary Yukio Edano stated that while initially the water level had risen, a

Unit 1

Seawater injection continues and it is thought the reactor core is now sufficiently cool. Safety regulators consider reactor pressure of 353 kPa an indication of a stable

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gauge indicated that this had leveled off, despite ongoing seawater injection. condition. Unit 2

The normal reactor core isolation cooling system is in use. Fuel rods

are covered by about 3.8 metres of

The Japan Atomic Industry Forum (JAIF) reported back from a press conference

of fuel damage.

from a press conference given by the Nuclear and Industrial Safety Agency (NISA) at 11.30pm. The trade body said that a malfunctioning guage means that water levels cannot be confirmed. The gauge in question reads that water levels are around two metres below the top of the nuclear fuel assemblies, which would represent a very serious situation with the risk

water.

"It is unknown whether [the reading] is real or not," said JAIF. Other readings from the reactor system do not indicate that the reading - and the associated potential damage to fuel - are the true situation. Pressure levels stand at around 250 kPa, compared to reference levels of 400 kPa - and a high of 840 kPa recorded at unit 1 yesterday. Radiation levels have dropped during the seawater injection, said NISA.

Tepco was able to overcome difficulty with an air-driven pressure relief valve by connecting a compressor.

Measurements around the unit had not detected increased radiation levels. A twenty kilometer evacuation order is in effect and some 200,000 people have been moved from their homes so far.

Earthquake impact on Fukushima Daiichi

Reactors 1, 2 and 3 were in operation at Tokyo Electric Power Company's (Tepco's) east coast Fukushima Daiichi nuclear power plant when the magnitude 9.0 earthquake struck. Three other reactors were already shut for inspection but all three operating units underwent automatic shutdown as expected. Because plant power and grid power were unavailable during the earthquake, diesel generators started automatically to supply power for decay heat removal.

This situation continued for one hour until the plant was hit by the tsunami wave, which stopped the generators and left the plant in black-out conditions.

The tsunami wave that hit the plant measured at least 7 metres in height, compared to the maximum 6.5 metre case the plant was designed to cope with.

The loss of power meant inevitable rises in temperature within the reactor system as well increases in pressure. Engineers fought for many hours to install mobile power units to replace the diesels and managed to stabilise conditions at units 2 and 3.

However, there was not enough power to provide sufficient coolant to unit 1, which came under greater and greater strain from falling water levels and steady pressure rises. Tepco found it necessary yesterday to vent steam from the reactor containment. Next, the world saw a sharp hydrogen explosion destroy a portion of the reactor building roof. The government ordered the situation brought under control by the injection of seawater to the reactor vessel. by World Nuclear News

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From:	Dennig, Robert) MCC
Sent:	Monday, March 14, 2011 4:26 PM
To:	Mendiola, Anthony
Subject:	Emailing: Nuclear Experts Explain Worst-Case Scenario at Fukushima Power Plant Scientific American.htm
Attachments:	image001.jpg; image002.gif; image003.jpg; image004.jpg; image005.jpg; image006.gif; image007.gif; image008.png; image009.jpg; image010.gif; image011.jpg; image012.jpg; image013.gif; image014.gif; image015.gif
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News | Energy & Sustainability

Nuclear Experts Explain Worst-Case Scenario at Fukushima Power Plant

The type of accident occurring now in Japan derives from a loss of off-site AC power and then a subsequent failure of emergency power on-site. Engineers there are racing to restore AC power to prevent a core meltdown

By Steve Mirsky | March 12, 2011 | 70

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The Japan Earthquake and Tsunami On March 11, a powerful, magnitude 8.9 quake hit northeastern Japan, triggering a tsunami with 10-meter-high waves that reached the U.S. west coast. Here's the science behind the disaster » March 11, 2011

"So there's some advantages to the BWR in terms of severe accidents. But one of the disadvantages is that the containment structure is a lightbulb-shaped steel shell that's only about 30 or 40 feet [nine to 12 meters] across—thick steel, but relatively small compared to large, dry containments like TMI. And it doesn't provide as much of an extra layer of defense from reactor accidents as containments like TMI [do]. So there is a great deal of concern that if the core does melt, the containment will not be able to survive. And if the containment doesn't survive, we have a worst-case situation."

And just what is that worst-case scenario? "They're venting in order to keep the containment vessel from failing. But if a core melts, it will slump to the bottom of the reactor vessel, probably melt

through the reactor vessel onto the containment floor. It's likely to spread as a molten pool—like lava—to the edge of the steel shell and melt through. That would result in a containment failure in a matter of less than a day. It's good that it's got a better containment system than Chernobyl, but it's not as strong as most of the reactors in this country."

Finally, Bergeron summed up the events so far: "Based on what we understand, the reactor has been shut down, in the sense that all of the control rods have been inserted—which means there's no longer a nuclear reaction. But what you have to worry about is the decay heat that's still in the core—that will last for many days.

"And to keep that decay heat of the uranium from melting the core, you have to keep <u>water</u> on it. And the conventional sources of water, the electricity that provides the power for pumps, have failed. So they are using some very unusual methods of getting water into the core, they're using steam-driven turbines—they're operating off of the steam generated by the reactor itself.

"But even that system requires electricity in the form of batteries. And the batteries aren't designed to last this long, so they have failed by now. So we don't know exactly how they're getting water to the core or if they're getting enough water to the core. We believe, because of the release of cesium, that the core has been exposed above the water level, at least for a portion of time, and has overheated. What we really need to know is how long can they keep that water flowing. And it needs to be days to keep the core from melting.

"The containment, I believe, is still intact. But if the core does melt, that insult will probably not be sustained and the containment vessel will fail. All this, if it were to occur, would take a matter of days. What's crucial is restoring AC power. They've got to get AC power back to the plant to be able to control it. And I'm sure they're working on it."

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Reply | Report Abuse | Link to this 49. pshaffer 09:57 PM 3/13/11 Reply | Report Abuse | Link to this 50. monitor 11:19 PM 3/13/11 Reply | Report Abuse | Link to this 51. mnomura2001@yahoo.com 12:48 AM 3/14/11 Reply | Report Abuse | Link to this 52. SMSterbenz 02:26 AM 3/14/11 Reply | Report Abuse | Link to this 53. tomkovic in reply to pshaffer 02:47 AM 3/14/11 Reply | Report Abuse | Link to this 54. tomkovic 03:01 AM 3/14/11 Reply | Report Abuse | Link to this 55. mushinronsha 03:51 AM 3/14/11 Reply | Report Abuse | Link to this 56. RodAdams in reply to tomkovic 05:46 AM 3/14/11 Reply | Report Abuse | Link to this 57. RodAdams in reply to tomkovic 06:45 AM 3/14/11 Reply | Report Abuse | Link to this 58. pshaffer 07:01 AM 3/14/11 Reply | Report Abuse | Link to this 59. Vendicar Decarian 10:13 AM 3/14/11 Reply | Report Abuse | Link to this 60. Vendicar Decarian 10:13 AM 3/14/11 Reply | Report Abuse | Link to this 61. Vendicar Decarian 10:24 AM 3/14/11 Reply | Report Abuse | Link to this 62. Vendicar Decarian in reply to RodAdams 10:34 AM 3/14/11 Reply | Report Abuse | Link to this 63. Vendicar Decarian 10:39 AM 3/14/11 Reply | Report Abuse | Link to this 64. Robby777 11:19 AM 3/14/11 Reply | Report Abuse | Link to this 65. f-stop 12:06 PM 3/14/11 Reply | Report Abuse | Link to this 66. sethdayal in reply to Vendicar Decarian 12:29 PM 3/14/11 Reply | Report Abuse | Link to this 67. ejackson in reply to Vendicar Decarian 12:44 PM 3/14/11 Reply | Report Abuse | Link to this 68. brixter1961 12:50 PM 3/14/11 Reply | Report Abuse | Link to this 69. jameshardy in reply to RodAdams 03:57 PM 3/14/11 Reply | Report Abuse | Link to this 70. RodAdams in reply to jameshardy 04:21 PM 3/14/11 Reply | Report Abuse | Link to this | Jump To: 1-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 |

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From: Sent: To: Subject: Kaizer, Joshua MU Monday, March 14, 2011 9:19 PM Mendiola, Anthony Question for ya

I am sitting here and following the news about a potential evacuation which may be about to happen at the site and I am wondering if there is anything we could drop on top of the containment to minimize any potential explosions or release. It's not a question I have heard people ask before, but we have never really been in this situation before (where an event is progressing very slowly).

I know that we are doing our best to monitor the situation and take action with what we have to cool the core, but it seems like there is more that we could do. Do you know if anyone at the NRC is thinking along the lines of "Lets assume things go from bad to worse and containment fails in X hours. Is there anything we can do now to make that failure not as bad?" For example, could you dump a liquid on the top of Reactor 2 (the one which looks to have the most trouble) that would react with the Strontium or Cesium if there was a rupture?

Maybe I am just frustrated at not being able to do anything, but I think that given the one thing we have is every resource available to the US and (hopefully) a little time, we should be able to come up with something to make the situation a bit better ... just thinking ... josh

1

From:
Sent:
To:
Subject:

Panicker, Mathew 1000 Monday, March 14, 2011 11:53 PM Mendiola, Anthony FW: WNN Daily: Loss of coolant at Fukushima Daiichi 2

Follow Up Flag: Flag Status: Follow up Completed

News from WNN.

An unimaginable, catastrophic (much more than severe) nuclear nightmare. Needs new design for injection of coolant under these circumstances for plants near the oceans where a tsunami is possible

Mathew

From: World Nuclear News [wnn=world-nuclear-news.org@mail22.us2.mcsv.net] On Behalf Of World Nuclear News [wnn@world-nuclear-news.org]
Sent: Monday, March 14, 2011 1:59 PM
To: Panicker, Mathew
Subject: WNN Daily: Loss of coolant at Fukushima Dailchi 2

View the WNN Daily in your browser.



Today's top stories

To ease heavy website congestion, all these stories are available on WNN's Facebook page in the Notes section

14 March 2011

REGULATION & SAFETY: Loss of coolant at Fukushima Daiichi 2 Serious damage to the reactor core of Fukushima Daiichi 2 seems likely after all coolant was lost for a period.

REGULATION & SAFETY: Explosion rocks third Fukushima reactor Another hydrogen explosion has rocked the Fukushima Daiichi nuclear power plant, this time at the third reactor unit. Analysis shows the containment structure remains intact.

REGULATION & SAFETY: Cold shutdowns at Fukushima Daini Two more reactors at Fukushima Daini have now achieved cold shutdown with full operation of cooling systems. Engineers are working for the same at the last unit.

REGULATION & SAFETY: Rolling blackouts as Japanese efforts continue Japanese utilities are introducing rolling blackouts in the face of energy shortages following the natural disasters of the last few days. Meanwhile, the country is relying more than ever on the continued operation of its other nuclear reactors.

13 March 2011

REGULATION & SAFETY: Efforts to manage Fukushima Daiichi 3 Operations to relieve pressure in the containment of Fukushima Daiichi 3 have taken place after the failure of a core coolant system. Seawater is being injected to make certain of core cooling. Malfunctions have hampered efforts but there are strong indications of stability.

REGULATION & SAFETY: Contamination check on evacuated residents Potential contamination of the public is being studied by Japanese authorities as over 170,000 residents are evacuated from within 20 kilometres of Fukushima Daini and Daiichi nuclear power plants. Nine people's results have shown some degree of contamination.

12 March 2011

REGULATION & SAFETY: Battle to stabilise earthquake reactors Attention remains focused on the Fukushima Daiichi and Daini nuclear power plants as Japan struggles to cope in the aftermath of its worst earthquake in recorded history. A dramatic explosion did not damage containment and sea water injection continues through the night.

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Sent:	
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NRR_HIGNFY Resource 1/1/1/ Monday, March 14, 2011 6:01 PM NRR Distribution Special Edition HIGNFY - Response to Recent Events in Japan - Maintain Effective Communication and Coordination

- March 14, 2011 -

* SPECIAL EDITION * Have I Got News For You!

Office of Nuclear Reactor Regulation Mission Statement

NRR supports the NRC mission to protect public health, safety, and the environment by developing and implementing rulemaking, licensing, oversight, and incident response programs for reactors. We conduct these activities in a manner that develops trust and is consistent with the NRC organizational values.

Response to Recent Events in Japan Maintain Effective Communication and Coordination

As you are all aware from the Agency wide e-mails, the NRC Operations Center is being manned 24 hours a day to support monitoring of the situation in Japan. Many of your NRR colleagues are involved with this effort.

Here in NRR, we can look forward in the coming days and months to many questions about the situation in Japan and the relevance to domestic nuclear facilities. The staff in the Operations Center has already been working on these types of questions and answers. It will be important to maintain effective communication and coordination between the work done in the Office, and the work done in the Operations Center.

In an effort to minimize disruption of Operations Center activities, NRR has designated Eric Thomas (<u>eric.thomas@nrc.gov</u>) in NRR's Operating Experience Branch to be the focused single point of contact for information requests that NRR staff may have for the Reactor Safety and Preventative Measures Teams in the Operations Center.

If you are assigned a task involving event questions and answers, please let Eric know so that he can coordinate with the Operations Center to ensure that we are providing consistent responses. If you are contacted directly by staff in the Operations Center, please respond to the request promptly, and provide an electronic copy of your response to Eric so that he can maintain the response for future use by others.

Thanks for your cooperation and assistance!

Miller, Eric

From: Sent: Subject: King, Mark Monday, March 14, 2011 2:57 PM IOEB Clearinghouse Screening Summary for Monday, March 14, 2011

NOTE: THIS SUMMARY IS OFFICIAL USE ONLY ***MAY CONTAIN SENSITIVE/ PROPRIETARY OR NRC INTERNAL USE ONLY INFORMATION*** DO NOT FORWARD ANY PORTIONS OUTSIDE OF NRC WITHOUT FIRST OBTAINING PERMISSION FROM ORIGINATOR

Issues for Resolution (IFR): One (1)

1) ISSUE FOR RESOLUTION (IFR): LESSONS LEARNED FROM JAPANESE EARTHQUAKE AND TSUNAMI EVENT - (WHICH BEGAN ON MARCH 11, 2011)

Issue for resolution (IFR) screened-in based on the following LIC-401 Criteria: 1. potential safety significance based on risk or other quantitative factors

1.a risk factor—conditional core damage probability (CCDP) = 1E-6 or greater an increase in core damage probability (delta CDP) = 1E-6, or a change in large early release frequency (delta ERF) = 1E-7/yr - [this Japanese event appears to have resulted in some core damage]

1.b other quantitative significance—Reactor Oversight Process Significance Determination Process finding of white or higher (i.e., yellow, red) or **INES rating of 1 or higher**. - [this event was preliminarily rated as an **INES level 4 event** on the <u>INES 7-point rating (user guide)</u> and this may be revised upward].

Issue For Resolution and IFR Screen-in Document assigned to Dave Garmon.

OpE Forum Postings (COMMS): One (1)

1) POST COMM ON JAPANESE NUCLEAR PLLANT EVENTS RESULTING FROM EARTHQUAKE AND TSUNAMI EVENT (THAT BEGAN ON MARCH 11, 2011)

Post OpE COMM to the following COMM groups: ALL COMMS, AFW, CHEM/CHEM ENG, CONTAINMENT, CR HABITABILITY, DOSE, ECCS. EDG, ELECTRICAL PWR, EP, FIRE PROTECTION, FLOODING/MISSILES, FUELS, HEALTH PHYSICS, HUMAN PERF, HVAC, I&C, INSP PROGRAMS, MAT'LS/AGING, NAT. PHENOMENA, NRO, PHYS SECURITY, PUMP & VALVE, RCPB LEAKAGE, RX VESSEL/PZR, SAFETY CULTURE, SERVICE WATER/UHS, SHUTDOWN RISK, SPENT FUEL HANDL., STRUCTURAL and WORKER FATIQUE. Comm assigned to Dave Garmon.

See a <u>preliminary</u> **OpE COMM** that has been posted, and will be formally issued and updated as more information becomes available.

Management Requests: None

Follow-up/Other Tasks: Two (2)

[Note - The information in this part of the Summary is often preliminary in nature and is provided to help IOEB staff communicate and track noteworthy items being followed up by either the Regions or HQ staff.]

1) INES LEVEL 4 EVENT - MIYAGIKEN-OKI EARTHQUAKE – and Tsuanmi - (JAPAN)

See preliminary INES event report for further information. This item already screened in as an IFR.
2) PNO-IV-11-001 EN 46668 - DIABLO CANYON 1, 2 - NOTICE OF UNUSUAL EVENT AS A RESULT OF A TSUNAMI WARNING IN THE AREA - UPDATED

(Updated) See PNO text: <u>PNO-IV-11-011A</u>; <u>Update Diablo Canyon Power Plant Notification of Unusual</u> <u>Event.</u> - ML110730377 and (the initial PNO text: <u>ML110700503</u>). NRC was <u>monitoring</u> event. See EN text: <u>Forward to TRG Lead for Emergency Preparedness (Eric</u> <u>Schrader</u>) and to TS Branch BC (Rob Elliot); assigned to Russ Haskell.

3) NRC news release links related to the Japanese earthquake and Tsunami issues:

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				1996

Date	Document Number	Description		
03/14/2011	<u>11-047</u>	Japanese Government Asks for Assistance with Reactor Events; U.S. Government and NRC Preparing Response		
03/13/2011	11-046	(Revised)NRC Sees No Radiation at Harmful Levels Reaching U.S. From Damaged Japanese Nuclear Power Plants		
03/12/2011	11-045	NRC Experts Deploy to Japan as Part of U.S. Government Response		
03/12/2011	11-044	NRC in Communication with Japanese Regulators		
03/11/2011	11-043	NRC Continues to Track Earthquake and Tsunami Issues		
03/11/2011	11-042	NRC Monitors Notice of Unusual Event at Diablo Canyon Power Plant, Tsunami Issues		

Info Only.

New Reactors Items: None

Research (RES) Items: None

Items Screened Out*: Three (1) - one (1) Event Notification (EN) and two (2) Preliminary Notifications (PN)

1) PNO-IV-11-001 EN 46668 - DIABLO CANYON 1, 2 - NOTICE OF UNUSUAL EVENT AS A RESULT OF A TSUNAMI WARNING IN THE AREA – UPDATED

2) PNO-IV-11-011A; Update Diablo Canyon Power Plant Notification of Unusual Event. - ML110730377

3) PNO-IV-11-011; Update Diablo Canyon Power Plant Notification of Unusual Event - ML110700503

*(i.e., Screened /reviewed against LIC-401 criteria for initiating an "Issue for Resolution" (IFR), which is IOEB's process for conducting further evaluation of an issue to determine what, if any, additional actions should be taken to communicate and organizationally learn from OpE.)

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Attendees at Screening Meeting:

Bob Bernardo – by phone Russ Haskell Dave Garmon Eric Thomas – by phone Mary Wegner (RES) – by phone Mark King – by phone

Esmaili, Hossein

From: Sent: To: Subject: Lee, Richard Tuesday, March 15, 2011 7:36 AM Esmaili, Hossein; Notafrancesco, Allen; Salay, Michael FW: OpsCenter

Do you who the SA expert is?

-----Original Message-----From: Gibson, Kathy Sent: Monday, March 14, 2011 8:31 PM To: Lee, Richard; Elkins, Scott; Hoxie, Chris; Santiago, Patricia; Bush-Goddard, Stephanie; Zaki, Tarek Cc: Scott, Michael Subject: Re: OpsCenter

No not at this point.

As I understand it, Tony Ulses and Jim Trapp from Region 1 have gone to Japan and Chuck Casto, John Monninger, Tony Nakanishi, Tim Kolb, Jack Foster and Richard Devercelly are going.

Besides Hossein and Mike, Tony Huffert, Casper Sun and Jason Schaperow have been on shifts at the Ops Center. Anybody else from DSA?

Thanks!

----- Original Message -----From: Lee, Richard To: Gibson, Kathy Sent: Mon Mar 14 20:13:07 2011 Subject: RE: OpsCenter

Kathy:

Thanks, I will let them know. Do you whether Charlie or Jason is heading to Japan?

Richard

From: Gibson, Kathy Sent: Monday, March 14, 2011 7:31 PM To: Lee, Richard Cc: Elkins, Scott; Hoxie, Chris; Scott, Michael; Zaki, Tarek; Uhle, Jennifer Subject: Re: OpsCenter

Thanks Richard! And Mike and Hossein too!

----- Original Message -----From: Lee, Richard To: Gibson, Kathy Cc: Elkins, Scott; Hoxie, Chris; Scott, Michael; Zaki, Tarek Sent: Mon Mar 14 18:17:34 2011 Subject: RE: OpsCenter

Mika Salay and Hossein Esmaili have already been assigned to staff the Ops Center since this weekend,

-----Original Message-----From: Gibson, Kathy Sent: Monday, March 14, 2011 5:56 PM To: Lee, Richard; Elkins, Scott; Hoxie, Chris; Scott, Michael; Zaki, Tarek Subject: OpsCenter Importance: High

Who do we have that can perform the duties of BWR severe accident analyst for the Ops Center?

Pulvirenti, April

From: Sent: To: Subject: Pulvirenti, April Tuesday, March 15, 2011 8:42 AM Stevens, Gary RE: Some sense....

Yes, it does make much more sense, but what would expose the fuel in the storage pool? All the residual heat should have been gone before they offloaded the core. Did they lose all the water and it went critical again? But how would it go critical without water to moderate neutrons?

The previous report NEI said there was a hole in the reactor at #2 – but they may be referring to the torus. I don't think we'll know anything solid for months.

From: Stevens, Gary Sent: Tuesday, March 15, 2011 8:31 AM To: Pulvirenti, April Subject: RE: Some sense....

NOT the spent fuel pool, but the fuel storage pool. They were in an outage and all fuel had been off-loaded from the RPV. Now, it makes sense.

Gary L. Stevens Senior Materials Engineer NRC/RES/DE/CIB Gary Stevens@nrc.gov 301-251-7569

From: Stevens, Gary Sent: Tuesday, March 15, 2011 8:17 AM To: Pulvirenti, April Subject: Some sense....

http://www.nei.org/newsandevents/information-on-the-japanese-earthquake-and-reactors-in-that-region/

Gary L. Stevens Senior Materials Engineer NRC/RES/DE/CIB Gary.Stevens@nrc.gov 301-251-7569

Pulvirenti, April

From:Pulvirenti, ApSent:Tuesday, MarTo:Stevens, GarSubject:New NEI upd

Pulvirenti, April Tuesday, March 15, 2011 9:55 AM Stevens, Gary New NEI update

The fire at FK 4 was a lube oil fire. Not sure how this impacts the spent fuel...

Betancourt, Luis

From:	Betancourt, Luis
Sent:	Tuesday, March 15, 2011 11:08 AM
To:	Jimenez, Jose; Hernandez, Raul; Diaz-Castillo, Yamir; Jimenez, Juan; Candelario, Luissette; Berrios, Ilka; Muniz, Adrian; Gonzalez, Felix; Gonzalez, Sergio; Gonzalez, Michelle; Roche, Robert; Rivera-Lugo, Richard; Rivera-Varona, Aida; Rodriguez, Veronica; Cruz, Zahira; Malaye, Yanely: Rodriguez-Luccioni, Hector
Subject:	Links de Japon

Japan Earthquake: Before and after: http://www.abc.net.au/news/events/japan-quake-2011/beforeafter.htm

Para que esten al dia lo que esta pasando en los reactores: <u>http://www.nei.org/newsandevents/information-on-the-japanese-earthquake-and-reactors-in-that-region/</u>

Luis D. Betancourt, EIT

99 M _ 99



Recipient

Jimenez, Jose Hernandez, Raul Diaz-Castillo, Yamir Jimenez, Juan Candelario, Luissette Berrios, Ilka Muniz, Adrian Gonzalez, Felix Gonzalez, Sergio Gonzalez, Michelle Roche, Robert Rivera-Lugo, Richard Rivera-Varona, Aida Rodriguez, Veronica Cruz, Zahira Malave, Yanely Rodriguez-Luccioni, Hector

Read

Read: 3/15/2011 11:19 AM

Read: 3/15/2011 11:09 AM

Read: 3/15/2011 2:13 PM

Read: 3/16/2011 6:56 PM

Read: 3/15/2011 11:15 AM

Sydnor, Russell

From: Sent: To: Subject: Sydnor, Russell Tuesday, March 15, 2011 12:46 PM 'Mauricio Gutierrez' RE: Japan

Thanks for the offer, but no major impact on NRC/RES resources yet. Some technical consulting provided and some staff for manning the NRC Operations Center (our boss Mike Case)

You may have seen that the Commission Chairman Jazcko got called to the White House press briefing yesterday and I think he is testifying before Congress Wednesday. The NRC has now sent about 9 people over to Japan. This is going to be another world changing Nuclear event.

Russell Sydnor Branch Chief NRC/RES/DE/DICB 301-251-7405 Russell.Sydnor@nrc.gov

-----Original Message-----From: Mauricio Gutierrez [mailto:mgutierr@MIT.EDU] Sent: Tuesday, March 15, 2011 11:48 AM To: Sydnor, Russell Subject: Japan

Hi Russ,

I hope that you are well. I'm not sure if our Branch has been asked to do anything or will be asked to do something for what's going on in Japan. But please let me know if you need an extra hand to do anything that can ease up the shared branch workload. I have Citrix here and will be in Maryland on Friday afternoon.

I hope you are well.

-Mauricio

Basu, Sudhamay

From:Prokofiev, louriSent:Tuesday, March 15, 2011 3:20 PMTo:Hull, Amy; Dozier, Tamsen; Malik, Shah; Srinivasan, Makuteswara; Voglewede, John; Basu, Sudhamay; Dozier, JerryCc:Farmer, Mitchell T.Subject:RE: Talking Points on Implications of Fukushima Accident to U.S. Nuclear Plants

Mitch Farmer also, read Re: Melt down comments 03/15/2011...

-----Original Message-----From: Hull, Amy Sent: Tuesday, March 15, 2011 9:00 AM To: Dozier, Tamsen; Malik, Shah; Prokofiev, Iouri; Srinivasan, Makuteswara Subject: FW: Talking Points on Implications of Fukushima Accident to U.S. Nuclear Plants

Also see what Andy Kadak wrote about new rx. <u>http://www.technologyreview.com/energy/35100/page1/?a=f</u>Passive cooling systems and other advanced designs could be more resilient to natural disasters.... -----Original Message-----From: Joe Colvin [mailto:president@ans.org] Sent: Monday, March 14, 2011 12:49 AM To: Hull, Amy Subject: Talking Points on Implications of Fukushima Accident to U.S. Nuclear Plants

Dear ANS Members:

Over the last two days, the ANS Crisis Communications team has been very proactive and has handled a multitude of media and press calls. ANS spokespersons have participated in national television, radio and press interviews providing the views of the nuclear science and technology experts within the Society. We are particularly grateful to Dr. Dale Klein who has given tremendous support to the Society and the public in response to the events at Fukushima.

We have begun fielding media inquiries about the implications of the problems at Fukushima on the US program. We have prepared the attached talking points to assist responders to this line of questions. The talking points are consistent with the talking points prepared by the Nuclear Energy Institute (NEI) on the same subject.

Thank you all for your strong support!

Joe

July

Ross, Robin

From: Sent: To: Subject: Nguyen, Quynh Tuesday, March 15, 2011 11:04 AM Meighan, Sean RE: Capturing time for supporting Japan

We shold help PMDA with an email.

From: Meighan, Sean Sent: Tuesday, March 15, 2011 11:04 AM To: Gorham, Tajuan; Nguyen, Quynh Subject: RE: Capturing time for supporting Japan

OK. I am standing down on TAC and e-mail efforts.

5

From: Gorham, Tajuan
Sent: Tuesday, March 15, 2011 10:59 AM
To: Nguyen, Quynh; Meighan, Sean
Subject: FW: Capturing time for supporting Japan

Hi,

See email below - it looks like there is a TAC...

JaJuan C. Gorham, Chief Infrastructure Services Branch Program Management, Policy Development and Analysis Staff Office of Nuclear Reactor Regulation 301-415-0549 Jajuan.Gorham@nrc.gov

From: Givvines, Mary
Sent: Tuesday, March 15, 2011 10:33 AM
To: Wall, Scott; Gorham, Tajuan
Subject: FW: Capturing time for supporting Japan

From: Muessle, Mary
Sent: Tuesday, March 15, 2011 10:27 AM
To: Givvines, Mary; Virgilio, Martin
Cc: Dyer, Jim; Grobe, Jack; Leeds, Eric; Boger, Bruce
Subject: RE: Capturing time for supporting Japan

Here is the TAC

ZG0061 PA code of 9A1A - Japan Earthquake and Tsunami Drill

1,10x

NHA

,
Astwood, Heather
Hopkins, Jon; Quinones, Lauren; Regan, Christopher
Cullingford, Michael
FW: Action Request - Potential Temporary Assignees to OIP
Tuesday, March 15, 2011 12:02:00 PM
High

See the call from OIP below.

What do you guys think? Since I am working at home can one of you talk to Bruce to get his opinion on this? Considering this is for OIP support, I do not think they are asking necessarily for BWR technical people. And NRR should probably be sending the technical BWR people to Japan and not to OIP. I can call Jack and ask what he is expecting.

I think the International Team members would be perfect for this type of rotation if needed.

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

From: Ramsey, Jack

Sent: Tuesday, March 15, 2011 11:26 AM

To: Holahan, Gary; Evans, Michele; Boger, Bruce; Grobe, Jack; Uhle, Jennifer; Dorman, Dan; Moore, Scott

Cc: Johnson, Michael; Rosales-Cooper, Cindy; Wiggins, Jim; Diec, David; Leeds, Eric; Cullingford, Michael; Astwood, Heather; Sheron, Brian; Sangimino, Donna-Marie; Dehn, Jeff; Haney, Catherine; Smith, Shawn; Miller, Charles; Cool, Donald; Tracy, Glenn; Doane, Margaret; Mamish, Nader; Dembek, Stephen; Abrams, Charlotte; Owens, Janice; McDevitt, Joan; Virgilio, Martin; Williams, Shawn; Weber, Michael

Subject: Action Request - Potential Temporary Assignees to OIP Importance: High

All,

Activities involving the evolving situation in Japan are having, and are projected to continue to have, a significant impact upon OIP resources. With this, OIP would like to ask if each of the program offices could identify whether they have staff (preferably staff with international experience) that could be detailed to OIP for a period of, at least initially, 3 to 6 months. Any staff considered for possible rotation to OIP should be aware that they could potentially travel to Japan and be exposed to ionizing radiation. Please note that such identified staff may, or may not, actually be needed. Instead, OIP is hoping to have a list of individuals, with program office blessing, that could be utilized (including with very little or no notice).

If possible, feedback by late this week (Friday morning) would be extremely helpful. Within OIP, Joan McDevitt will be the principal point of contact for this.

Thanks in advance to everyone for their understanding during this challenging time.

Jack

Hughey, John

From: Sent: To: Subject: Chernoff, Harold Tuesday, March 15, 2011 1:14 PM NRR_DORL_LPL1-2 Distribution FW: TAC for Japan support

From: Meighan, Sean
Sent: Tuesday, March 15, 2011 1:13 PM
To: Markley, Michael; Pickett, Douglas; Chernoff, Harold; Kulesa, Gloria; Broaddus, Doug; Pascarelli, Robert; Carlson, Robert; Campbell, Stephen
Cc: Giitter, Joseph; Nelson, Robert; Howe, Allen
Subject: TAC for Japan support

APT

Good question on TAC.

Stand by for official word from PMDA,,, but the TAC will be

From: Muessle, Mary
Sent: Tuesday, March 15, 2011 10:27 AM
To: Givvines, Mary; Virgilio, Martin
Cc: Dyer, Jim; Grobe, Jack; Leeds, Eric; Boger, Bruce
Subject: RE: Capturing time for supporting Japan

Here is the TAC

ZG0061 PA code of 9A1A - Japan Earthquake and Tsunami Drill

Mary Muessle Assistant for Operations - Acting Office of the Executive Director for Operations U.S. Nuclear Regulatory Commission 301-415-1703 office 301-415-2700 fax

From: Givvines, Mary
Sent: Tuesday, March 15, 2011 10:08 AM
To: Virgilio, Martin
Cc: Dyer, Jim; Muessle, Mary; Grobe, Jack; Leeds, Eric; Boger, Bruce
Subject: Capturing time for supporting Japan

Good morning Marty,

I know many of us are busy supporting the Japan situation; however, do you think it would be a good ψ idea for staff across the agency to start capturing the time spent supporting this effort since it will be significant? As you know, most international activities fall under the 10% appropriation.

1

Giitter, Joseph

From:Giitter, JosephSent:Tuesday, March 15, 2011 9:32 AMTo:Storch, JaclynSubject:RE: OIG request for interview

Jaclyn- The situation in Japan is getting very bad, Now is not a good time. Could you contact me again in a couple of weeks? Thanks for understanding.

501 W

From: Storch, Jaclyn 1616 Sent: Tuesday, March 15, 2011 7:44 AM To: Giitter, Joseph Cc: Ferkile, Andrea Subject: OIG request for interview

March 15, 2011

Greetings Mr. Giitter,

I hope this e-mail finds you well and enjoying the warmer weather.

The OIG commitment audit team is interested in speaking with you in order to obtain your insight and experience with NRC's oversight of licensee commitments. To that end, I would like to schedule an interview with you at a time that is mutually convenient. Therefore, if you could please contact me to schedule an interview, it would be appreciated. I can be reached at 415-6062.

Information regarding this audit, can be found on page A5 in the FY 11 OIG Annual Plan, which is attached to this e-mail. *Please note*: the objective of this audit has been revised to read, "To assess the extent to which NRC appropriately and consistently utilizes and manages regulatory commitments."

1

Thank you,

Jacki

MAN

Cowdrey, Christian

From:Wertz, GeoffreySent:Tuesday, March 15, 2011 9:39 AMTo:Adams, Alexander; Cowdrey, Christian; Creedon, MeghFont, Ossy; Golubski, Adam; Hardesty, Duane; Hylton,
Lappert, Glenna: Lichatz, Taylor; Lising, Jason; Meyer,

Adams, Alexander; Cowdrey, Christian; Creedon, Meghan; DiMeglio, Francis; Doyle, Paul; Font, Ossy; Golubski, Adam; Hardesty, Duane; Hylton, Etoy; Kea, Ashley; Kennedy, William; Lappert, Glenna; Lichatz, Taylor; Lising, Jason; Meyer, Walter; Montgomery, Cindy; Quichocho, Jessie; Reed, Elizabeth; Sloan, Scott; Torres, Paulette; Traiforos, Spyros; Tran, Linh; Valentine, Nicholee; Voth, Marcus; Watford, Margaret; Wertz, Geoffrey; Yin, Xiaosong Japan Nuclear Info

Subject:

Try the ANS Nuclear Café for links on the accident status.

http://ansnuclearcafe.org/

Thanks

Geoffrey A. Wertz, P.E. Project Manager Research and Test Reactors U.S. Nuclear Regulatory Commission Work (301) 415-0893 Fax (434) 384-0726 geoffrey.wertz@nrc.gov



AND

Cartwright, William

From:	Thorp, John
Sent:	Tuesday, March 15, 2011 11:10 PM
То:	Broman, Kenneth
Cc:	Sigmon, Rebecca; King, Mark; Thomas, Eric
Subject:	RE: Japan event

Dear Kenneth,

I'm very sorry that I don't have access/authority to provide information to you on my own. I've requested the staff in the Incident Response Center to try to provide information to our international nuclear regulatory counterparts. I've also copied your questions to my staff who are trying to coordinate requests for information from the IRC.

I am currently out of the office on other business, and will be stationed in the IRC on Thursday night, to try to assist the Reactor Safety Team. I will repeat my request and questions regarding communication and interface with our international counterparts.

On a personal note, I'm trying to pay as much attention as I can to the news, but I know that conflicting reports can be a real source of confusion.

Public

Best wishes to you,

John Thorp

From: Broman, Kenneth [Kenneth.Broman@ssm.se] Sent: Tuesday, March 15, 2011 7:44 PM To: Thorp, John Cc: Sandwall, Johanna Subject: SV: Japan event

Dear John,

We still have problems with fast and reliable information.

Our task is to serve our government and public with relevant information.

We share our understanding of the situation with Finland to get a second opinion. But it would be of great help if you have information to share with us.

Do you have any information about the fire in Daichi-4. What is burning hydrogen or something else? Was the pool refilled after the fire yesterday? Is the fire extinguished? Do you have any radiological data?

Daichi-2

We have unconfirmed reports that the core has been uncovered during 6 hours yesterday? Do you have any estimates of core damages?

Best regards Kenneth Broman

Cartwright, William

From: Sent: To: Subject: Thomas, Eric Tuesday, March 15, 2011 6:34 PM 'Nielsen, Rick M (INPO)' RE: Industry Efforts

-MYCh

Thanks Rick.

We'll get it from Bill Borchardt.

Eric

-----Original Message-----From: Nielsen, Rick M (INPO) [mailto:NielsenFM@INPO.org] Sent: Tuesday, March 15, 2011 6:11 PM To: Thomas, Eric Subject: Re: Industry Efforts

Btw, the IER L1 was sent to EDO by Bill Webster about an hour ago.

Rick

Sent from my iPhone

On Mar 15, 2011, at 5:18 PM, "Thomas, Eric" < Eric.Thomas@nrc.gov<mailto:Eric.Thomas@nrc.gov>> wrote:

Hi Rick,

Please see below. Is there a new POC for me to contact so I can get a hold of the SOER when it becomes available?

Thanks, Eric

NA

From: Boger, Bruce Sent: Tuesday, March 15, 2011 5:04 PM To: Leeds, Eric; Grobe, Jack; Ruland, William Cc: Dean, Bill; Lew, David; McCree, Victor; Wert, Leonard; Satorius, Mark; Pederson, Cynthia; Collins, Elmo; Howell, Art; Virgilio, Martin; Thomas, Eric; Brown, Frederick Subject: Industry Efforts

I spoke with Randy Edington (CNO Palo Verde) and later with Steve Nichols (INPO) regarding industry actions as a result of the situation in Japan. The CNOs teleconferenced over the weekend and agreed to a series of near-term actions. INPO issued a Level 1 Event Report (highest level) to its members this afternoon. It identifies 4 actions, with due dates, and requires a written response. In general, the actions include walkdowns and verifications of aspects of facility capabilities to address B.5.b equipment and procedures, SAMGs, mitigation of SBO conditions, mitigation of internal and external flooding, and fire and flooding events that could be impacted by a concurrent seismic event. This should help shape the generic communication we've been discussing. INPO is figuring out how quickly they will be able to share the report with us. The report won't be available to the public, but we can share it internally.

.DISCLAIMER:

Cartwright, William

- NYLA

From: Sent: To: Cc: Subject: Thomas, Eric Tuesday, March 15, 2011 6:33 PM Boger, Bruce Rihm, Roger; Pannier, Stephen; Brown, Frederick INPO IER L1 Report

Bruce,

Looks like Bill Borchardt has the INPO Doc. If we can get it electronically I will post it to our website.

Roger, please let me know if you can provide an electronic copy. I will get the INPO warning on it and load it to the Operating Experience Gateway.

Thanks, Eric

-----Original Message-----From: Nielsen, Rick M (INPO) [mailto:NielsenFM@INPO.org] Sent: Tuesday, March 15, 2011 6:11 PM To: Thomas, Eric Subject: Re: Industry Efforts

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Sent from my iPhone

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Cartwright, William

From: Sent: To: Subject: Cullingford, Michael Tuesday, March 15, 2011 8:39 AM Thomas, Eric FW: WNN Weekly 8-14 March 2010

fyi

From: World Nuclear News [mailto:wnn=world-nuclear-news.org@mcsv8.net] On Behalf Of World Nuclear News Sent: Tuesday, March 15, 2011 8:00 AM To: Cullingford, Michael Subject: WNN Weekly 8-14 March 2010

NR

View WNN Weekly in your browser.



The week's top stories

8-14 March 2011

REGULATION & SAFETY:

Dramatic escalation in Japan 15 March 2011 Loud noises were heard at Fukushima Daiichi 2 at 6.10am this morning. A major component beneath the reactor is confirmed to be damaged. Evacuation to 20 kilometres is being completed, while a fire on site was put out. Tepco have said containment shows 'no change'.

Loss of coolant at Fukushima Daiichi 2 14 March 2011 Serious damage to the reactor core of Fukushima Daiichi 2 seems likely after all coolant was lost for a period.

Explosion rocks third Fukushima reactor 14 March 2011 Another hydrogen explosion has rocked the Fukushima Daiichi nuclear power plant, this time at the third reactor unit. Analysis shows the containment structure remains intact.

Cold shutdowns at Fukushima Daini 14 March 2011 Two more reactors at Fukushima Daini have now achieved cold shutdown with full operation of cooling systems. Engineers are working for the same at the last unit.

Rolling blackouts as Japanese efforts continue 14 March 2011 Japanese utilities are introducing rolling blackouts in the face of energy shortages following the natural disasters of the last few days. Meanwhile, the country is relying more than ever on the continued operation of its other nuclear reactors.

Efforts to manage Fukushima Daiichi 3 13 March 2011

From: Sent: To: Cc: Subject: Miranda, Samuel A RC Tuesday, March 15, 2011 7:27 AM Mendiola, Anthony; Ruland, William Lyon, Warren Crisis Revives Doubts on Regulation

Follow Up Flag: Flag Status: Follow up Completed

THE WALL STREET JOURNAL.

WSJ.com

- ASIA NEWS
- MARCH 15, 2011

Crisis Revives Doubts on Regulation

By NORIHIKO SHIROUZU in Tokyo and ALISON TUDOR in Hong Kong

Japan's nuclear-power crisis is reviving long-held doubts about the strength of the nation's nuclear regulatory system and its independence from government efforts to sell nuclear technology abroad.

There aren't indications that any government regulatory failures contributed to the problems at the Fukushima Daiichi complex in northeastern Japan, where government and industry officials are battling to keep three of the six nuclear reactors from overheating and releasing dangerous levels of radioactivity.



The health of the badly damaged nuclear plant in Japan is deteriorating by the hour. Video courtesy of Reuters

More

- Nuclear Risk Rising in Japan
- Germany Rethinks Atomic Power
- French Firms Face New Fears Over Reactors
- <u>Obama Stands By Nuclear Power</u>

However, the woes there put a spotlight on Japan's Nuclear and Industrial Safety Agency, which oversees design and regulation of Japan's nuclear plants.

1

It also highlights past problems with falsified safety records at the Fukushima Daiichi plant and with its parent company, <u>Tokyo Electric Power</u> Co., or Tepco, though there is no evidence those prior problems are adding to the current problems.

The Japanese nuclear safety agency, known as NISA, is part of Japan's Ministry of Economy, Trade and Industry. The larger ministry, known as METI, has in recent months revved up a push to help Japanese power companies, including Tepco, win deals to build nuclear reactors abroad.

A METI statement issued by ministry spokesman Tatsuji Narita says Japan maintains a healthy regulatory environment through a redundant, second agency attached to the Cabinet named the National Safety Commission. That agency reviews METI's nuclear-regulation efforts with a focus on safety.

"Japan maintains the independence of its nuclear regulatory agencies through this redundant 'double-check' system," the statement said.

In August, Masayuki Naoshima, then Japan's Minister of Economy, Trade and Industry, led a delegation to Vietnam to promote the sale of nuclear power plants to the Southeast Asian country for the second phase of its atomic power project. The delegation included Tepco Chairman Tsunehisa Katsumata, as part of a group of Japanese power companies that banded together to win contracts in the face of rising competition from companies in South Korea and Russia, among other places.

Japan will likely win a contract to build Vietnam's second nuclear power plant, following a joint statement late last year by Vietnamese Prime Minister Nguyen Tan Dung and Japan's Prime Minister Naoto Kan saying that "Vietnam confirms that the Vietnamese government chooses Japan as a cooperation partner to build two nuclear reactors."

Tepco couldn't be reached to comment.

In the U.S., the previous nuclear-energy regulator, the U.S. Atomic Energy Commission, came under attack in the 1970s, accused by members of Congress of being unwilling to stand up to the commercial nuclear industry because it was supposed to promote the nuclear industry even as it assured public safety.



Confusion and panic levels are rising across Japan following another blast and fire in Fukushima. WSJ's Mariko Sanchanta and Yumiko Ono separate fact from fiction in the latest nuclear reports.

In 1975, a new independent agency was created, the U.S. Nuclear Regulatory Commission, which was charged with overseeing safety issues. A newly formed Department of Energy was to guide research and grant monetary support to the sector.

The Fukushima Daiichi plant has a black mark on its record from earlier in the last decade, when a scandal involving falsified safety records led to parent company Tepco briefly shutting down its entire nuclear fleet in

Japan. In 2002, Tepco admitted to the Nuclear and Industrial Safety Agency that it had falsified the results of safety tests on the containment vessel of the No. 1 reactor, which is now one of three reactors that workers are struggling to keep from overheating. The test took place in 1991-1992.

The scandal was the latest in a string of nuclear safety records cover-ups by Tepco, including the revelation that the company's doctoring of safety records concerning reactor shrouds, a part of the reactors themselves, in the 1980s through the early 1990s. Five top executives resigned after the company admitted to having falsified safety.

In 2003, Tepco shut down all of its nuclear reactors for inspections, acknowledging the systematic cover-up of inspection data showing cracks in reactors.

Japanese regulators already have some credibility issues after previous episodes in which the strength of the response was called into question.

In Japan in 1999, an uncontrolled nuclear chain reaction at a uranium-reprocessing plant killed two employees and spewed radioactive neutrons over the countryside. Government officials later said safety equipment at the plant was missing and the people involved lacked training, adding that their assessment of the accident's seriousness was "inadequate."

In 2007, an earthquake heavily damaged Tepco's Kashiwazaki-Kariwa plant. The company initially said there was no release of radiation, but admitted later that the quake released radiation and spilled radioactive water into the Sea of Japan.

"The Japanese government is saying that the containment's OK, but that belies belief when you see the violence of the explosion," said John Large, a nuclear consultant, referring to the current troubles at the plant. He added, "Understandably, they do not want to panic their population."

The recent problems have prompted new rounds of warnings from anti-nuclear groups. "A nuclear disaster which the promoters of nuclear power in Japan said wouldn't happen is in progress," the Tokyo-based Citizens' Nuclear Information Center said in a statement on its website. "It is occurring as a result of an earthquake that they said would not happen."

—Alison Tudor

. .

and Dionne Searcey contributed to this article.

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From: Sent: To: Subject: Smith, Stephen (NCC) Tuesday, March 15, 2011 7:34 AM Lehning, John; Klein, Paul RE: Satellite Site Photos - Before and After

I am surprised that the turbine buildings held up. I couldn't see where the diesels are installed. I was looking for exhaust stacks. Maybe on the water side of the turbine buildings, but it would make more sense from a layout perspective if they were on the Rx Bldg side. The smoking reactor bldg doesn't look too good.

ny promoduled synapping fair anticestary financy year and receive a constraint galaxies and institution providence and an experiment

Steve

From: Lehning, John WWW Sent: Monday, March 14, 2011 5:40 PM To: Klein, Paul; Smith, Stephen Subject: Satellite Site Photos - Before and After

Actually, a fair amount of stuff survived at the site considering the total destruction in some other areas. I was trying to look for the diesels – perhaps they are housed on the sheltered side of the reactor/turbine building? Couldn't tell due to lack of expertise / difficulty in seeing given the resolution and damage.

- John L.

From: Sent: To: Subject: Miranda, Samuel) N N N Tuesday, March 15, 2011 7:41 AM Lyon, Warren RE: Our follow-up to the Japanese accident

I don't know if it's a GL; but it would be useful to track the developments and try to learn from them.

I can't authorize this on my own. We should discuss it with Sher.

From: Lyon, Warren WW Sent: Tuesday, March 15, 2011 5:47 AM To: Miranda, Samuel Cc: Parks, Benjamin Subject: Our follow-up to the Japanese accident Importance: High

I think we should immediately start preparing a short-term GL that we update as we learn more facts. I suggest that Ben should lead for DSS and provide coordination with other areas in NRC including NRO and the generic communication and projects parts or our organization. I can prepare a broad range of technical considerations, a number of which are already in my head. To be useful, we shouldn't follow the usual GL process that requires several dozen concurrences and takes more than a year. I'd also propose we coordinate closely with NEI following the approach that was so successful with the GL 2008-01 and tell them what we're up to immediately. Higher levels of our management can get on board as we go. I'd anticipate a draft based on facts within a month or two followed by a public meeting with NEI and the owners groups to discuss both the draft and their work in the same area.

Any work I put into this area will delay work on NEI 09-10 support and we'll probably slip schedules accordingly. Of course Ben also has nothing to do that will be impacted – he will need to provide his impacts.

Should we get started?

From: Sent: To: Subject: NRC Announcement [nrc.announcement@nrc.gov] Tuesday, March 15, 2011 9:36 AM NRC Announcement From the Chairman: Events in Japan



From the Chairman: Events in Japan

By now I am sure that most of you are aware of the tragic earthquake and tsunami that struck Japan last week, killing thousands of people, destroying cities and infrastructure, and knocking out large portions of the electricity grid.

I am so proud of our staff and the dedication and tenacity they have shown during the tragic events of the past several days. NRC employees have been willingly working around the clock, and their energy, experience and expertise have been invaluable to our response. Those of you who have not directly been involved in this effort are playing just as valuable a role in making sure that the facilities we license are safe and secure.

The natural disasters in Japan—and the resulting situations at the Fukushima nuclear power plant—are sobering in their size and scope. It's easy to become distracted by the stories and images of devastation and destruction. The best thing we can do in this situation is to make sure we remain mindful of our responsibilities for the safety and security of our existing nuclear plants and materials, and to keep our focus where it must always be—on our mission. I continue to appreciate your dedication to ensure the safety and security of the American people.

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 (2011-03-15 00:00:00)
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 The latest Announcements are always on the NRC@WORK Home Page.

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Search Announcements: term term [Go]. Frequently Asked Questions About the NRC Daily Announcements Email

From: Sent: To: Subject: EDO Update [nrc.announcement@nrc.gov] Tuesday, March 15, 2011 10:15 AM Taylor, Renee EDO Update



EDO Update

Tuesday, March 15, 2011



We are all saddened about the tragic events in Japan. Our thoughts and prayers go out to all of those affected by the earthquake and tsunami. The serious nuclear power plant issues have obviously been a special focus of the NRC. Rest assured, we are closely monitoring the situation and providing requested assistance. Senior managers and staff have been manning the Operations Center in rotations 24 hours a day since the earthquake. Over the weekend, we sent two staff members to Japan who are boiling-water reactor experts (the technology used at the Fukushima site). At the Japanese government's request, we have also sent nine additional NRC staff to help the American embassy in Tokyo and to support the Japanese regulators. Not surprisingly, the Congressional hearing scheduled for this Wednesday, which was originally to focus on our Fiscal Year 2012 budget, will now be primarily focused on the events in Japan.

It is not for the NRC to speak for the Japanese or United States governments, so I won't comment on the situation in any greater detail. Additional information can be obtained from the International Atomic Energy Agency and the U.S. Agency for International Development, a part of the State Department that is coordinating the U.S. response and assistance efforts.

It is possible that some of you will be requested by colleagues in another country to provide technical advice and assistance during this emergency. It is essential that all such communications be handled through the NRC Operations Center. If you receive such a request, contact the NRC Operations Officer (301-816-5100 or via the NRC Operator) immediately. All media calls should be forwarded to the Office of Public Affairs (301-415-8200).

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

Notwithstanding the significance of what is occurring in Japan, we still have our domestic mission to carry out, and with the exception of the small number of people who have been directly called upon to respond to this situation we should all proceed with previously planned activities. We will continue to process licensing actions, conduct inspections, and fulfill our regulatory responsibilities.

In accordance with NRC regulations, every American nuclear power plant is designed with multiple, redundant safety systems to be robust enough to withstand the seismic and natural event risks associated with its specific location. In other words, the NRC analyzes every reactor site for own specific features and potential hazards, and requires the plant to be designed and operated accordingly. But in calculating risks, a certain level of uncertainty is always present. To compensate for these uncertainties, the NRC utilizes the concept of "defense in depth"—an approach to safety where multiple, diverse, and redundant layers of protection are used to prevent accidents and mitigate consequences. While it is inappropriate to speculate on what would happen to an American nuclear power plant under similar circumstances to the Japan event, we do know that U.S. nuclear facilities are among the most robust and well-protected civilian structures in the country.

Let me express my thanks to the NRC staff that have served in or supported the Operations Center since the earthquake hit. I'd also like to thank those who have had to compensate for their colleagues who have been called away from their regular duties.

I will keep you informed of ongoing developments.

Bill Borchardt, EDO

Weave<u>r, Tonna</u>

From:	Lu, Shanlai W KK
Sent:	Tuesday, March 15, 2011 10:59 AM
To:	Ulses, Anthony
Cc:	Donoghue, Joseph; Mendiola, Anthony; Ader, Charles; Lombard, Mark; Ruland, William;
	Bahadur, Sher
Subject:	Japan Nuclear Power Plant Spent Fuel Pool Heat Up Mitigation Strategy

Tony,

Hope you can see this e-mail from Japan.

Based on CNN and news from internet, the spent fuel pools of Unit 1, 2 and 3 started to boil without cooling. The following are my own thoughts about what needs to be done before the situation becomes even worse.

1. Need to establish cooling with whatever means to prevent the dry out of stored fuel. This include, if not limited to,

using fire hydrants to directly spray Boric Acid water on top of all three spent fuel pools. If the radiation level is too high to establish continuous water supply, use helicopters to dump boric acid water from the air as frequently as possible.

- For Unit 4, if the spent fuel pool cooling is lost, we need to have an access to allow fire hydrant reaching the pool. It may be feasible to open the top of the reactor building right above the pool. In this way, if the operator can not introduce water supply from the ground, helicopters can still dump Boric Acid water from the air.
- 3. It would be nice that similar measures like these be established before the spent fuel dry out occurs. If the water is dumped on top of the pool with fuel dry out already occurred and the fuel surface temperature is already high enough, sever Zr-Water reaction will happen and cause fire and explosion. Before this happens, dump sand mixed with dry Boric acid right on top of the pools from the air. This will prevent the wide spread fire and explosion and provide the heat conduction to transfer the decay heat to the ground.

Hope these can be of help it they have not been considered.

We heard that radiation level has gone up even in Tokyo. We pray for your safety and safe return.

Take care.

Shanlai

From:	Davidson, Evan W YUYU
Sent:	Tuesday, March 15, 2011 11:15 AM
То:	Widrevitz, Dan; Mitchell, Matthew; Purtscher, Patrick; Johnson, Andrew
Cc:	Wagner, Brian; Nosek, Andrew; Gall, Jennifer; Audrain, Margaret; DiFrancesco, Nicholas;
	Crane, Samantha
Subject:	RE: Very nice graphical discussion of incident

1.0

Yeah, I sent that to my parents yesterday. Considering the crap quality of most of the reporting this week, this explanation is technically sound and free of exaggerations or undefined 'numbers' like "1000 times higher than normal!"

From: Widrevitz, Dan MYCL
Sent: Tuesday, March 15, 2011 11:12 AM
To: Mitchell, Matthew; Purtscher, Patrick; Johnson, Andrew
Cc: Davidson, Evan; Wagner, Brian; Nosek, Andrew; Gall, Jennifer; Audrain, Margaret; DiFrancesco, Nicholas; Crane, Samantha
Subject: Very nice graphical discussion of incident

I'm impressed how quickly this content went up (some of it over the weekend). Methinks some of it was preprepared.

http://www.nytimes.com/interactive/2011/03/12/world/asia/the-explosion-at-the-japanese-reactor.html?ref=asia

Dan Widrevitz Materials Engineer NRR/DCI/CVIB 301-415-2620

From:
Sent:
To:
Subject:

Panicker, Mathew | MCH Tuesday, March 15, 2011 2:01 PM Mendiola, Anthony FW: WNN Daily: Radiation decreasing, fuel ponds warming

fyi

From: World Nuclear News [mailto:wnn=world-nuclear-news.org@mail5.us2.mcsv.net] On Behalf Of World Nuclear News

Sent: Tuesday, March 15, 2011 1:49 PM To: Panicker, Mathew

Subject: WNN Daily: Radiation decreasing, fuel ponds warming

View the WNN Daily in your browser.



Today's top stories

15 March 2011

REGULATION & SAFETY: Radiation decreasing, fuel ponds warming Loud noises were heard at Fukushima Daiichi 2 this morning and a major component beneath the reactor may be damaged. Evacuation to 20 kilometres is being completed, while radiation levels decrease from a high in the morning. Concern is growing over the status of fuel cooling ponds at units 4, 5 and 6.

INDUSTRY TALK: All Fukushima Daini units in cold shutdown All four units at the Fukushima Daini nuclear power plant have now achieved cold shutdown - where coolant water is at less than 100°C - with full operation of cooling systems, Tepco reported.

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From: Sent: To: Cc: Subject: Lyon, Warren MMA Tuesday, March 15, 2011 4:01 PM Miranda, Samuel; Parks, Benjamin Wood, Kent Our response to the Japanese situation

I understand the EDO's office is pursuing an overall NRC response to lessons learned from the Japanese accident. Kent and I proposed a DSS response to Shur who touched base with Bill. They think we're premature but that our proposal is a good idea. In part I agree because we need to have any response based on facts which may be in short supply just now.

We essentially proposed a GL with Ben coordinating and Kent and I providing technical support. One consideration will be the impact on ongoing activities – which may be preventative in participating in our proposal. To be evaluated.

In the meantime I'll have the beginnings of a draft GL so that we can hit the ground running.

Ben – no need to call. I just wanted you to be aware that I've tried to get you something to do since you're not busy.

From: Sent: To: Subject:

2 s '0

Nuclear Plant Journal [anu@goinfo.com] Tuesday, March 15, 2011 5:47 PM Purciarello, Gerard E-News from Nuclear Plant Journal

Having trouble viewing this email? Click here



Nuclear Plant Journal E-News

Japan Update March 15, 2011

Dear GERARD,

Nuclear Plant Journal brings you a special E-edition of the Journal with the latest information from events related to the Miyagiken-Oki Earthquake and ensuing tsunami on March 11, 2011, in northern Japan.

All Fukushima Daiichi Nuclear Power Plants have an INES Radiation Alert Level 4. Please see this IAEA link for an explanation of the levels.

The following two links provides updates as of March 15, 2011:

- On the JAIF website, there is a <u>complete summary PDF</u> that includes status updates of all units at the Fukushima plant.
- The Prime Minister's office update.

Organizations which are currently providing the current status of the Japanese affected nuclear power stations are listed below.

TEPCO News Releases

Tokyo Electric Power Company provides the <u>latest updates</u> from the utility that owns the Fukushima Daiichi Nuclear Power Station.

TOKYO ELECTRIC POWER COMPANY

Japan Atomic Industrial Forum

Please see this link for the most current from the Japan Atomic Industrial Forum.

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Nuclear and Industrial Safety Agency (NISA)

Please see this link for the most current from NISA.

NISA Nuclear and Industrial Safety Agency

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Marksberry, Don

From: Sent: To:	RST01 Hoc – OPS CENTER Tuesday, March 15, 2011 9:29 PM Hiland, Patrick; Brown, Frederick; Skeen, David; Dudes, Laura; Ruland, William; Case, Michael; Alter, Peter; Hasselberg, Rick; Rini, Brett; Berry, Rollie; Collins, Frank; Morlang, Gary; Schoenebeck, Greg; Kowalczik, Jeffrey; Sloan, Scott; Circle, Jeff; Esmaili, Hossein; Cheok, Michael; Ward, Leonard; Laur, Steven; Salay, Michael; Schaperow, Jason; Fuller, Edward; Marksberry, Don; Kolb, Timothy; Norton, Charles; Brown, Eva; Shea, James; Vick, Lawrence; Brown, Michael; Williams, Joseph; Hart, Ken; Bloom, Steven; Padovan, Mark; Williams, Donna: Isom, James: Dozier, Jerry: Thorp, John; Kugler, Andrew
Subject:	Protracted Event Staffing for Reactor Safety Team Staffing for Japanese Earthquake.doc
Attachments:	Protracted Event Staffing for Reactor Safety Team Staffing for Japanese Earthquake.doc

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Please see attached RST staffing schedule thru 3/19 swing shift

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Reactor Safety Team Protracted Event Staffing for Japanese Earthquake Response

Team	RST	RST	Accident Analyst	BWR	RST Communicator
Position	Director	Coordinator		Expert	
03/13/11 Day 0700 - 1500	Pat Hiland	Peter Alter	Jeff Circle	Tim Kolb	Joe Williams
03/13/11 Swing 1500 - 2300	Fred Brown	R. Hasselberg	Hossein Esmaili	Chuck Norton	Ken Hart
03/13/11 Mid 2300 - 0700	Dave Skeen	Brett Rini (C)	Mike Cheok (C)	Eva Brown (C)	none
03/14/11 Day 0700 - 1500	Laura Dudes	Peter Alter	Jeff Circle	Tim Kolb	Steve Bloom
03/14/11 Swing 1500 - 2300	Bill Ruland (C)	R. Berry (C)	Len Ward (C)	Chuck Norton (C)	Mark Padovan
03/14/11 Mid 2300 - 0700	Mike Case (C)	R. Berry (C)	Steve Laur (C)	Eva Brown (C)	Ken Hart (C)
03/15/11 Day 0700 - 1500	Dave Skeen (C)	R. Hasselberg (C)	Jeff Circle (C)	Jim Shea Peter Alter (C) –	Donna Williams ©
03/15/11 Swing 1500 - 2300	Fred Brown ©	Frank Collins (C)	Michael Salay (C)	Chuck Norton (C)	Jim Isom
03/15/11 Mid 2300 - 0700	Pat Hiland	Mike Morlang (C)	J. Schaperow N/A (Move)	Eva Brown (C)	Ken Hart ©
03/16/11 Day 0700 - 1500	Dave Skeen (C)	R. Hasselberg ©	Ed Fuller (C)	Larry Vick ©	Joe Williams ©
03/16/11 Swing 1500 - 2300	Bill Ruland	Mike Morlang (C)	Hossein Esmaili ©	Chuck Norton (C)	Steve Bloom ©
03/16/11 Mid 2300 - 0700	Mike Case	Rollie Berry (C)	<u>Mike Salay?</u>	Eva Brown (C)	Mark Padovan
03/17/11 Day 0700 - 1500	Laura Dudes (?)	Frank Collins (C)	Jeff Circle (C)	Jim Shea (Peter Alter?)	Donna Williams
03/17/11 Swing 1500 - 2300	Fred Brown	Schoenebeck (C)	Steve Laur	C. Norton (C)	Jerry Dozier
03/17/11 Mid 2300 - 0700	Pat Hiland	Rollie Berry (C)	TBD	Eva Brown (C)	John Thorp (C)
03/18/11 Day 0700 - 1500	Laura Dudes	Peter Alter	Hossein Esmaili	Tim Kolb <u>(N/A)</u> Jim Shea?	Jim Isom
03/18/11 Swing 1500 - 2300	Bill Ruland	<u>G.Schoenebeck</u> ©	J. Schaperow	C. Norton	
03/18/11 Mid 2300 - 0700		Rollie Berry (C)	Don Marksberry?	Mike Brown, Frank Collins,	Andy Kugler
03/19/11 Day 0700 - 1500	<u></u>	Jeff Kowalczik, Scott Sloan, Greg			
	Schoenebeck				
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03/19/11 Swing 1500 - 2300					

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Cartwright, William

From: Sent: To: Cc: Subject: Mitchell, Matthew Wednesday, March 16, 2011 2:25 PM Thomas, Eric Jolicoeur, John FW: **Update 1:15pm March 16** Information on the Japanese Earthquake and Reactors in that Region

Eric,

I'm forwarding this to you as our point of contact for such issues. I know that others in the NRC received this e-mail from NEI as well. I will also make NRR's NEI Project Manager aware that this message has been received.

Matthew Mitchell, Chief NRR/DCI/CVIB

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From: NEIGA@nei.org [mailto:NEIGA@nei.org]
Sent: Wednesday, March 16, 2011 2:01 PM
To: Mitchell, Matthew
Subject: **Update 1:15pm March 16** Information on the Japanese Earthquake and Reactors in that Region



UPDATE AS OF 1:15 P.M. EDT, WEDNESDAY, MARCH 16:

NEI has posted an updated version of the fact sheet <u>Used Nuclear Fuel Storage at the Fukushima</u> <u>Daiichi Nuclear Power Plant</u>. Also available is a new fact sheet called <u>Industry Taking Action to</u> <u>Ensure Continued Safety at U.S. Nuclear Energy Plants</u>.

As always, please go to http://resources.nei.org/japan for the latest updates.

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From: Sent: To: Cc: Subject: HRMSBulletin Resource Wednesday, March 16, 2011 9:52 AM HRMSBulletin Resource HRMSBulletin Resource New Agency Wide TAC Number

All Employees,

Due to the most current event in Japan, the Agency has decided to establish a new Agency wide Activity Code. It is: ZG0061 - Japan Earthquake and Tsunami. The PA will be: 111180 – Response Program-Event/Response - Operating RX. Please be reminded that if you charged hours to D92374 in PP6, you will need to submit a corrected time card and use the new TAC number ZG0061 under PA 111180. Also please contact your T & L Coordinator to have that TAC established in your profile.

Thank you for your cooperation.

Time, Labor and Payroll Services

m-18-3

From: Sent: To: Cc: Subject: Miranda, Samuel M. M. Wednesday, March 16, 2011 1:16 PM Mendiola, Anthony; Ruland, William Martin, Robert Fukushima Daiichi reactor status reports

You can obtain the status of the six Fukushima Daiichi reactors, updated several times per day, by going to

<u>http://www.jaif.or.jp/english/</u> and clicking on the reactor status link at the top of the list. Prior status reports appear below it on the list.

(Thanks to Bob Martin for this source.)

Samuel Miranda, Sr Reactor Sys Engr U.S. Nuclear Regulatory Commission NRR/DSS/SRXB - (301) 415-2303

~124

From:	Mendiola, Anthony 1 M KK
Sent:	Wednesday, March 16, 2011 1:59 PM
То:	Attard, Anthony; Heller, Kevin; Kaizer, Joshua; Lehning, John; Orechwa, Yuri; Panicker, Mathew; Proffitt, Andrew: 'Tony Attard (HOME)'; Ward, Leonard; Wu, Shih-Liang
Cc:	Collins, Timothy
Subject:	Commission Meeting on Japan
Importance:	High

There will be a commission meeting to discuss the events in Japan next Tuesday.

One of the elements of the staff's presentation is a discussion of the long term regulatory response to these events.

I know that you all have considered the events in Japan and have given considerations and thoughts on what we can expect in our future work for years to come. At this point, to support Tim Collins, who is the point man for this topic for DSS, consider what the short term and long term regulatory response may be needed to assure that US Nuclear power plants and fuel facilities are as safe as they need to be. This is a pretty broad request I know, but we need to consider all items then narrow them to something manageable.

See me if you have any questions or comments. Please forward anything you want to get considered to me first.

Thanks,

Anthony Mendiola Chief, Nuclear Performance and Code Review Branch SNPB/DSS/NRR/NRC (301) 415-1054

From: Sent: To: Subject: Kaizer, Joshua IN RK Wednesday, March 16, 2011 2:20 PM Mendiola, Anthony RE: Commission Meeting on Japan

One cool little tidbit I picked up watching the CSPAN thingy today, one congressman from California said the nuke plants in California have barrier walls (the things that protect against the Tsunami) 3 to 4 times higher than Fukushima. That would defiantly be a key to at least answering the tsunami question (depending on what the expected tsunami size is there). He also said that the fault line is not in the ocean but inland, so it seems a Tsunami would be much less likely ... unless we can have an earth Tsunami (but I am guessing that's what an earth quake is anyway) ... josh

Sent: Wednesday, March 16, 2011 1:58 PM

To: Attard, Anthony; Heller, Kevin; Kaizer, Joshua; Lehning, John; Orechwa, Yuri; Panicker, Mathew; Proffitt, Andrew; Tony Attard (HOME); Ward, Leonard; Wu, Shih-Liang Cc: Collins, Timothy Subject: Commission Meeting on Japan

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Thanks,

Anthony Mendiola Chief, Nuclear Performance and Code Review Branch SNPB/DSS/NRR/NRC (301) 415-1054

From: Sent: To: Subject: Schwarz, Sherry on behalf of Leeds, Eric Wednesday, March 16, 2011 5:05 PM NRR Distribution Appreciation and Continued Mission Focus

During this period of heightened activity in response to the events in Japan, I want to take the time to let you know how much I value the work that all of you do in NRR. Some of you are providing key support in emergency response, while others are performing the equally vital day-to-day regulatory duties. Throughout these distracting times abroad, it is so important to keep our focus on the safe operation of nuclear power plants here in the United States. Whether you are involved with licensing actions, technical analysis, budget preparations, or administrative functions to help us execute our essential regulatory work, your continued dedication and commitment are vital for us to maintain our mission of protecting the American public's health and safety.

I know that there can be anxiety and stress as events unfold; take time to take good care of yourself. To keep informed, there will be periodic updates from the EDO, and I encourage you to stay abreast of the agency's public announcements and blog at <u>www.nrc.gov</u>. As regulators, we excel at our steadiness in protecting people and the environment. Again, thanks for all you do.

Eric

Valentine, Nicholee

From: Sent: To: Subject: Beaulieu, David (MAC) Wednesday, March 16, 2011 10:34 AM Rosenberg, Stacey Japan - I Volunteer

Stacey,

I understand the NRC is sending 10 NRC people to Japan and plans to rotate in new people every 2 weeks. I really would like to go. My technical knowledge and my experience as a resident inspector at TMI 1 and 2 makes me a good candidate. I would be willing to stay longer than 2 weeks.

Do you know who I could contact to be considered as a potential candidate?

DAVID BEAULIEU PROJECT MANAGER, NRR/DPR/PGCB (bowl-yer) 301-415-3243 | 012H17 | David.Beaulieu@nrc.gov

U.S. Nuclear Regulatory Commission

Heida, Bruce	raida, Bruc	S.
From:	Cartwright, William MUC	- 4464
Sent:	Wednesday, March 16, 2011 2:42 PM	
То:	Azeem, Almas; Cusumano, Victor; Fields, Leslie; Heida, Bruce; Meighan, Sean; Nguyen, Quynh; Roquecruz, Carla; Susco, Jeremy; Titus, Brett; Valentine, Nicholee	
Subject:	FW: **Update 1:15pm March 16** Information on the Japanese Earthquake and Reactors in that Region	

FYI – some actions that US licensees are taking proactively in light of the Japanese experience.

This is a publically available list of the actions spelled out in detail in the INPO notice.

From: <u>NEIGA@nei.org</u> [mailto:NEIGA@nei.org]
Sent: Wednesday, March 16, 2011 2:01 PM
To: Cartwright, William
Subject: **Update 1:15pm March 16** Information on the Japanese Earthquake and Reactors in that Region



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NEI has posted an updated version of the fact sheet <u>Used Nuclear Fuel Storage at the Fukushima</u> <u>Daiichi Nuclear Power Plant</u>. Also available is a new fact sheet called <u>Industry Taking Action to</u> <u>Ensure Continued Safety at U.S. Nuclear Energy Plants</u>.

As always, please go to <u>http://resources.nei.org/japan</u> for the latest updates.

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Heida, Bruce

Pro Helde Ende official a substance and a

From: Sent: To: Subiect:	ASCE SmartBrief [asce@smartbrief.com] Wednesday, March 16, 2011 11:00 AM Ferrante, Fernando, NCC Obama: U.S. nuclear facilities are safe
Subject.	Obdinia. 0.0. nuclear facilities are sale

Follow Up Flag: Flag Status: Follow up Flagged

ASCE SmartBrief March 16, 2011 http://r.smartbrief.com/resp/cPrLBWmrlwBYvmoHCiceoqCicNIUqj

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TOP STORY

* Japan faces more challenges at quake-damaged nuclear complex INFRASTRUCTURE WATCH

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- * DOT announces \$44.7 billion in ARRA funds obligated
- * Wyden to introduce a trimmed-down version of the BAB program
- * Spending bill is approved by the House TRENDS & TECHNOLOGY
- * lowa opts for faster precast concrete bridge construction
- * Dampers improve buildings' resistance to quakes
- * Simulator gives motorists a virtual spin on S.F.'s Doyle Drive
- * N.C. engineers put bridge columns to quake test SUSTAINABLE DEVELOPMENT
- * Costly lessons in building sustainability
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Brown, Eva

From: Sent: To: Subject: RMTPACTSU_ELNRC [RMTPACTSU_ELNRC@ofda.gov] , FDA Wednesday, March 16, 2011 1:17 AM Brown, Eva , N R P email for NRC rep at USAID

7

M-13-1

Could you please forward the most up to date status of the fukushima plants. Thank you!

Jeff Kowalczik , NSIF

	LIM.
From:	Astwood, Heather
To:	Nguyen, Quynh
Subject:	RE: Request for staff that can support OIP Additional Staff requirements outside Ops Center Long Term Staffing
Date:	Wednesday, March 16, 2011 1:43:00 PM

I think you have a better idea of who has the right experience and who might be interested. I have not been here long enough to know the staff in that detail.

Heather Astwood

International Team Leader Office of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission 301-415-1075

From: Nguyen, Quynh **Sent:** Wednesday, March 16, 2011 1:41 PM **To:** Astwood, Heather **Subject:** RE: Request for staff that can support OIP Additional Staff requirements outside Ops Center Long Term Staffing

Heather,

Probably be better if you had some people in mind so they can see if it's feasible?

From: Astwood, Heather
Sent: Wednesday, March 16, 2011 1:39 PM
To: Azeem, Almas; Cartwright, William; Cusumano, Victor; Fields, Leslie; Heida, Bruce; Meighan, Sean; Nguyen, Quynh; Roquecruz, Carla; Susco, Jeremy; Titus, Brett; Valentine, Nicholee
Cc: Boger, Bruce
Subject: FW: Request for staff that can support OIP Additional Staff requirements outside Ops Center Long Term Staffing
Importance: High

Dear NRR TAs

Please see the request below. EDO is asking that we support OIP. OIP is asking for names of people who would be interested in helping them with the Japan crisis. They are not sure exactly what the work would entail at this point. It could be doing shifts for OIP in the Ops Center, it could be fielding calls and questions from regulators from other countries or it could be helping with OIP's normal case load.

Eric Leeds would like to support this request. He specifically does not want us to hurt any of NRR's increasing workload but we should help if we can. The time spent assisting OIP could be broken down in a variety of ways. It is unlikely that anyone would be detailed to OIP for a long period of time (i.e. 2 months straight). More likely it would one day a week, or two weeks of one person, then two weeks of a different person. Whatever fits their needs and NRR's need to do our normal case work. The timing is negotiable.

OIP is specifically looking for people who have some international experience. Several



Valentine, Nicholee

From:
Sent:
To:
Subject:

McGinty, Tim Wednesday, March 16, 2011 6:33 PM NRR_DPR Distribution RE: Appreciation and Continued Mission Focus

Not

DPR Staff -

Regarding Eric's message to all of NRR, I wanted to touch base with you.

Last Friday morning I was asked to check in with the Ops Center for the Liaison Team. As you probably know, my Incident Response roots in the NRC are pretty strong ... my first job with the Agency was as a Headquarters Operations Officer (HOO), and my first management position was also in NSIR Incident Response, right after 9/11.

The Liaison Team has a variety of roles (kind of like DPR, actually) in our Agency response, including interactions with the States, other Federal Agencies, Congressional Affairs and International. Both Tom and I are Liaison Team "Directors", and we have both been on watch and in response mode and on shift since there was a tsunami warning for our West Coast. We have been busy. We all know what has transpired since, regarding the scale of the tragedy that the Japanese citizens are still enduring, and of course, the ongoing issues at some of their nuclear power plants.

So, thank you Ted for running the Division while Tom and I have been on shift. I have seen a number of DPR staff also standing watch in the Operations Center, and just as importantly, all of DPR continues to remain appropriately focused on the safety and security of the commercial operating and test reactor fleet, rulemaking, decommissioning funding, international activities ... all those things that you do so well, every day.

I came off of Operations shiftwork, temporarily, today. Moving forward, we have recruited additional SES/SLS to serve in the LT Director capacity, and Tom and I are going to try and both not be on shift in the Ops Center at the same time. We now have 11 NRC staff embedded in Japan to help, and we are already making plans to send in a group to relieve them in a few weeks. The NRC is making plans to have its Operations Center staffed appropriately to support our staff in Japan, and thus, we are planning all the way through mid-April at the moment.

Again, I just wanted to touch base to let you know I am back on dayshift and working in DPR until next weekend. Tom should also be able to come back to DPR on Monday. Tim

From: Schwarz, Sherry On Behalf Of Leeds, Eric Sent: Wednesday, March 16, 2011 5:05 PM To: NRR Distribution Subject: Appreciation and Continued Mission Focus

During this period of heightened activity in response to the events in Japan, I want to take the time to let you know how much I value the work that all of you do in NRR. Some of you are providing key support in emergency response, while others are performing the equally vital day-to-day regulatory duties. Throughout these distracting times abroad, it is so important to keep our focus on the safe operation of nuclear power plants here in the United States. Whether you are involved with licensing actions, technical analysis, budget preparations, or administrative functions to help us execute our essential regulatory work, your continued dedication and commitment are vital for us to maintain our mission of protecting the American public's health and safety.

Howe, Allen

From: Sent: To: Subject: Howe, Allen Wednesday, March 16, 2011 4:02 PM Carlson, Robert RE: RESPONSE BY COB! Support for Commission meeting on Japan event

HKR

Ok

understand

From: Carlson, Robert MUAC **Sent:** Wednesday, March 16, 2011 3:50 PM **To:** Howe, Allen **Subject:** RE: RESPONSE BY COB! Support for Commission meeting on Japan event

Allen ... I have no one at this time to provide. Chuck & Eva are tied up in the Opns Center, Mike is Acting TA, Araceli is at training, which leaves me only Nick.

Bob

Robert D. Carlson, Chief

Plant Licensing Branch III-2 Division of Operating Reactor Licensing Office of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission

(O) 301-415-1995

From: Howe, Allen
Sent: Wednesday, March 16, 2011 3:44 PM
To: Broaddus, Doug; Campbell, Stephen; Carlson, Robert; Chernoff, Harold; Kulesa, Gloria; Markley, Michael; Pascarelli, Robert; Salgado, Nancy; Simms, Sophonia
Cc: Nelson, Robert; Giitter, Joseph; Meighan, Sean; Nguyen, Quynh
Subject: RESPONSE BY COB! Support for Commission meeting on Japan event

BCs – the preps for the Commission meeting are moving quickly. I need help in the form of 2 Sr. PMs to support this.

PLEASE RESPOND BY COB!!

Thanks - Allen

Valentine, Nicholee

From:	Regan, Christopher – UU
Sent:	Wednesday, March 16, 2011 2:38 PM
То:	Astwood, Heather; Craig, Jocelyn; Dinitz, Ira; Dusaniwskyj, Michael; Harwell, Shawn; Hopkins, Jon; Lois, Kosmas; Pittiglio, Clayton; Purdie, Michael; Quinones, Lauren; Richter, Brian; Rodriguez, Veronica; Simmons, Anneliese; Simpson, JoAnn; Szabo, Aaron
Subject:	FW: **Update 1:15pm March 16** Information on the Japanese Earthquake and Reactors in that Region

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FYI. I'd take the fact sheet about the spent fuel pools with a LARGE pinch of salt. Based on the events of today they are somewhat...inaccurate. Chris



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As always, please go to http://resources.nei.org/japan for the latest updates.

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Valentine, Nicholee

From: Sent: To: Subject: Harwell, Shawn - WW Wednesday, March 16, 2011 2:31 PM Lois, Kosmas RE:

Cspan.org

http://www.cspan.org/Events/Congress-looks-at-Nuclear-Safety-and-Crisis-in-Japan/10737420229-3/

Shawn W. Harwell Financial Analyst Office of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission Telephone: 301-415-1309

From: Lois, Kosmas Sent: Wednesday, March 16, 2011 2:30 PM To: Harwell, Shawn Subject: RE:

Can u send me the link? I am interested in listening in.

Thanks

From: Harwell, Shawn Sent: Wednesday, March 16, 2011 2:29 PM To: Lois, Kosmas Subject: RE:

Im watching it on cspan

Shawn W. Harwell Financial Analyst Office of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission Telephone: 301-415-1309

From: Lois, Kosmas Sent: Wednesday, March 16, 2011 2:29 PM To: Harwell, Shawn Subject: RE:

Where did you read/hear this?

From: Harwell, Shawn Sent: Wednesday, March 16, 2011 2:28 PM To: Lois, Kosmas Subject:



Dude, some rep from Illinois just gave it to the Chairman over Yucca and basically said he is broke the law by pulling the application and continues to break it by not letting the review ride.

Shawn W. Harwell Financial Analyst Office of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission Telephone: 301-415-1309

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Zeleznock, Karen

18

From:Nelson, RobertSent:Wednesday, March 16, 2011 4:26 PMTo:Linnerooth, SarahSubject:Action: Contact with Employee FamiliesAttachments:Family Contact Script docx

Please see attached. Am I on the right track? If so, can you fill in the blanks re: EAP?

NELSON

WISJ

Recipient Linnerooth, Sarah

L

Read Read: 3/16/2011 4:37 PM

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Good morning/afternoon/evening. My name is XXX. I'm calling from the U.S. Nuclear Regulatory Commission. Have I reached the home of [INSERT EMPLOYEE'S NAME]? If so, to whom am I speaking?

Please be assured that this not an emergency. I'm calling because [INSERT EMPLOYEE'S NAME] is working in Japan in support of the NRC's assistance to Japan in responding to the earthquake and resulting tsunami. We are very grateful for his/her support and the impact his/her absence may have on your family. In his/her absence, we want you to be aware of our Employee Assistance Program and its availability to you in the event you may want to use its services. ADD brief description of EAP. Do you have any questions?

In addition, we need some additional information concerning [NAME] and because of the time delay we are calling you directly. Again this is not an emergency.

Explain the nature of the info request.

Are there any questions that you have concerning his/her assignment.

Valentine, Nicholee

From:	McGinty, Tim - MUU
Sent:	Wednesday, March 16, 2011 1:45 PM
To:	Akstulewicz, Frank; Bergman, Thomas; Madden, Patrick; Richards, Stuart; Gibson, Kathy; Correia, Richard; Delligatti, Mark; Webber, Robert; Persinko, Andrew; Davis, Jack; Bailey, Marissa: Weaver, Doug: Adams, John
Cc:	Evans, Michele; OST02 HOC; Thaggard, Mark; Tschiltz, Michael; Blount, Tom; Lombard, Mark; Jones, Cynthia; Giitter, Joseph; Temple, Jeffrey; LIA06 Hoc; LIA08 Hoc; McDermott, Brian: Morris, Scott: Bower, Anthony
Subject:	Query: Willing/Able to Serve on the Liaison Team in the Operations Center
Importance:	High
Follow Up Flag: Flag Status:	Follow up Flagged

A A

Colleagues - I am reaching out to you directly to see if you can, and would be interested, in joining the Liaison Team (LT) in the Operations Center as a Director and/or Deputy Director.

If you already have a defined incident response roll, please disregard this query.

To get to the point: The LT currently only has a handful of "Directors". Since we need to staff the Ops Center 24/7, perhaps for an extended period of time (see below from the NSIR Acting Deputy Director), I am "recruiting" among colleagues who may able and interested in helping. Since this is an ongoing event on foreign soil, the LT has actually been actively involved. We need additional help to staff the LT leadership position for the next month.

If you are interested and able to help, please email the LT Coordinator (Jeff Temple), Anthony Bower and myself. There is no need to "reply to all", or to reply at all, as the Incident Response activity continues to be on a voluntary basis.

I think the LT only needs 2 or 3 additional volunteers to establish enough capability to allow for a rotating shiftwork watchbill that will also give us some flexibility to do our normal jobs part time as well. If you can do it, I would expect the process to be to "shadow" one of the LT Directors at shift change and perhaps for a couple hours to observe team activities, a half-hour brief by the Coordinator, and to review the LT Directors procedure.

Thanks for your consideration - Tim

From: OST02 HOC Sent: Tuesday, March 15, 2011 6:28 PM To: Thaggard, Mark; Blount, Tom; McGinty, Tim; Tschiltz, Michael Cc: Evans, Michele Subject: Staffing Ops Center 24/7 Importance: High

Liaison Team Directors:

Per EDO direction we plan to staff the Ops Center 24/7 while we have staff dispatched in Japan. And we are currently planning to identify a second team to send to Japan in about 2 weeks, with the idea N-138 that they may stay there for an additional two weeks. That would take us out to April 10 or so.

Staffing in the IRC will remain at the current levels for potentially another week. Possibly we will be able to scale back somewhat at that point. The intent is to develop a schedule through April 10 at this point. The immediate focus is to staff for the first week, starting Saturday March 19.

We'd like to have a little more consistency in the staffing of most positions. So we'd like to staff the Liaison Team Director in 4 day blocks, three shifts each day, starting March 19.

Tim McGinty has offered to take the lead to coordinate among the potential Liaison Team Directors to fill the schedule. Please work with him and provide at least the schedule for the first four day block by COB Wednesday March 16.

Michele

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Valentine, Nicholee

From:	McGinty, Tim
Sent:	Wednesday, March 16, 2011 12:10 PM
То:	OST02 HOC; Rosenberg, Stacey
Cc:	McDermott, Brian; Evans, Michele; Boger, Bruce; Blount, Tom
Subject:	RE: Request: Remove Stacey Rosenberg from PMT Deputy Director Watchbill to oversee development of Time Sensitive Generic Communications
Follow Up Flag:	Follow up
Flag Status:	Flagged

Thanks. Tim

From: OST02 HOC
Sent: Wednesday, March 16, 2011 12:10 PM
To: McGinty, Tim; Rosenberg, Stacey
Cc: McDermott, Brian; Evans, Michele; Boger, Bruce; Blount, Tom
Subject: RE: Request: Remove Stacey Rosenberg from PMT Deputy Director Watchbill to oversee development of Time Sensitive Generic Communications

Stacy has been moved off the watch schedule for the time requested below.

Tony McMurtray EST Coordinator

From: McDermott, Brian
Sent: Wednesday, March 16, 2011 10:51 AM
To: OST02 HOC
Cc: Leeds, Eric; Boger, Bruce; Rosenberg, Stacey; Quay, Theodore; Blount, Tom; Bowman, Eric; Ruland, William; Bower, Anthony; McGinty, Tim; Evans, Michele
Subject: RE: Request: Remove Stacey Rosenberg from PMT Deputy Director Watchbill to oversee development of Time Sensitive Generic Communications

Please address request from NRR.

Thanks, Brian

From: McGinty, Tim
Sent: Wednesday, March 16, 2011 10:48 AM
To: Evans, Michele; McDermott, Brian
Cc: Leeds, Eric; Boger, Bruce; Rosenberg, Stacey; Quay, Theodore; Blount, Tom; Bowman, Eric; Ruland, William; Bower, Anthony
Subject: Request: Remove Stacey Rosenberg from PMT Deputy Director Watchbill to oversee development of Time Sensitive Generic Communications

Michele/Brian – NRR/DPR has a high priority near term assignment to prepare parallel generic communications (IN, RIS, Bulletin) based on the INPO Level 1 Event Report that was issued to licensees.

Stacey Rosenberg is the Branch Chief for Generic Communications. She is currently scheduled to be on shift (3-11) in the Ops Center on Friday as PMT Deputy Director. I am requesting that she be allowed to focus on overseeing the development of the Generic Communications (also an event related responsibility) while we rely on other elements of the NRC Organization and our Response Team depth to perform the Deputy Director Q function, as necessary.

Please advise at your earliest convenience. I estimate that I would need her off the watchbill for about a week or so to directly support this activity. Thanks, Tim

Valentine, Nicholee

From:	McGinty, Tim 🧹
Sent:	Wednesday, March 16, 2011 10:48 AM
То:	Evans, Michele; McDermott, Brian
Cc:	Leeds, Eric; Boger, Bruce; Rosenberg, Stacey; Quay, Theodore; Blount, Tom; Bowman, Eric;
	Ruland, William; Bower, Anthony
Subject:	Request: Remove Stacey Rosenberg from PMT Deputy Director Watchbill to oversee development of Time Sensitive Generic Communications
Follow Up Flag:	Follow up

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Follow Up Flag:Follow upFlag Status:Flagged

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Please advise at your earliest convenience. I estimate that I would need her off the watchbill for about a week or so to directly support this activity. Thanks, Tim

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Valentine, Nicholee

From:	Bowman, Eric - NUL
Sent:	Wednesday, March 16, 2011 7:00 AM
То:	Mensah, Tanya
Subject:	FW: Recommendation for proactive action by NRC in light of Japan events

Tanya,

FYI. It strikes me that the appropriate vehicle would be a RIS. I'm working at home this morning, but will probably wind up coming in this afternoon for the DPR Management Meeting. I would expect that I'd be lead for at least part of it on the technical side since the focus will be on 50.54(hh)(2) reinforcement. This might be one that is also worth bringing up in the LATF tomorrow morning; I'll discuss that with the 3Ts when I'm in this afternoon.

Thanks!

Eric

From: Rosenberg, Stacey
Sent: Tuesday, March 15, 2011 5:38 PM
To: Bowman, Eric
Subject: FW: Recommendation for proactive action by NRC in light of Japan events

Hi Eric,

Please see e-mail string below and consider appropriate actions. You may want to vet this with a couple of senior managers (get their thoughts). This should be a high priority for the branch.

Thanks, Stacey

From: Boger, Bruce
Sent: Tuesday, March 15, 2011 7:58 AM
To: Quay, Theodore; Rosenberg, Stacey
Cc: McGinty, Tim; Blount, Tom
Subject: FW: Recommendation for proactive action by NRC in light of Japan events

Please take a look at the email string below. It appears that Eric is in support of a GC that could serve as a reminder to reactor licensees on their obligations for preparedness. Let me know what vehicle we should use—RIS, IN, ...? Thanks.

From: Leeds, Eric
Sent: Monday, March 14, 2011 5:53 PM
To: Johnson, Michael
Cc: Holahan, Gary; Grobe, Jack; Boger, Bruce; Ruland, William
Subject: RE: Recommendation for proactive action by NRC in light of Japan events

I like Gary's thought also. Now's the time. NRR's lead.

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

From:	Ward, Leonard
Sent:	Wednesday, March 16, 2011 2:45 PM
То:	Ruland, William; Mendiola, Anthony
Cc:	Bahadur, Sher
Subject:	Possible Staff Activities as aResult of the Quake in Japan
Attachments:	RESPONSE TO THE QUAKE DAMAGE IN JAPAN.docx
Follow Up Flag:	Follow up

Flag Status:

Completed

Bill and Tony:

After leaving the response center Monday morning, I had some thoughts that I wanted to share with you about what the staff could possibly do to improve plant capabilities against such catastrophes as the recent one in Japan. It is a brainstorm as such, but gives examples of what we might want to think about and possible take a proactive approach in response to the damage to the plants in Japan. It may be prudent to think about putting together a team to document what could be done to further elevate improve safety of our units located along oceans cites. See the attachment; FYI. What do you think? Len

Dr. Leonard W. Ward, PhD US Nuclear Regulatory Commission NRR/DSS/SNPB MS 010-B3 Washington DC 20555-001 Work (301) 415-2866 Fax (301) 415-3577

RESPONSE TO THE QUAKE DAMAGE IN JAPAN

As a result of the earthquake and tsunamis that recently damaged several nuclear plants in Japan, this document identifies examples of NRC Staff activities that could be undertaken to improve the protect US plants against such catastrophes. This action could consist of evaluating and reviewing the short term and long term actions that may be recommended or implemented to further improve protection and safety of US nuclear power plants. They include the following example thoughts, brainstorming and recommendations.

- 1.0 It may be prudent for the staff at this time to assemble an assessment team to investigate and identify what can be done at ocean shore based plants to better protect these units from tsunamis. This could include constructing larger walls/barriers to better protect the site. Placing emergency diesels/generators along with fuel supplies in underground protected locations. Better protect emergency busses and all vital electrical equipment/components
- 2.0 Cites in the US could be set-up as an emergency storage cite that contains for example, diesel generators, fuel, batteries, chargers, condensate supplies, cabling and other vital equipment, etc. that could be easily flown into any site needing emergency assistance. Tanks of condensate that can also be flown into sites.
- 3.0 Development of portable high and low pressure pumps, auxiliary/emergency feedwater pumps etc., that could be easily flown into cites and connected to the RCS and secondary systems to provide cooling capabilities.
- 4.0 Development of a portable decay heat removal system that can be taken to any site to remove decay heat. Possible decay heat removal systems that can operate at high pressures such as secondary side relief valve set pressures (1000 1400 psia).
- 5.0 Modifying ocean plant cites to easily allow connection of portable HPSI, LPSI, and emergency feed pumps in the event of a major catastrophe.

It may be prudent for the staff to take a pro-active stance at this time to brainstorm and think about what we can do to further improve site protection against catastrophes such as the one in Japan recently. Public confidence in nuclear power needs to be elevated in view of the recent quake in Japan.

At a minimum, a multidisciplinary committee or team could be put together to summarize the causes and consequences of the quake in Japan, and suggest/recommend what can be done at US cites to further improve plant capabilities to withstand such catastrophes or event more extreme circumstances. These actions could not only result in better protecting US plants against such catastrophes, but also further capabilities against terrorist threats/attacks.

From: Sent: To: Cc: Subject: Baker, Stephen LOLY Wednesday, March 16, 2011 2:40 PM Dyer, Jim Matheson, Mary; Ulses, Anthony; Jones, Andrea Anthony's luggage to Japan

Mr. Dyer:

When we last spoke about how best to ship Andy's belongings to Japan, we obtained your verbal approval to reimburse Andy for up to about \$800 to cover the shipping costs, based on Mrs. Ulses' price quotes obtained from Fedex. After this was approved, Mrs. Ulses learned that neither UPS nor Fedex were accepting freight to ship to Japan, meaning your offer was never capitalized upon.

Instead, I put Mrs. Ulses in touch with Kirk Foggie who was the other person leaving for Japan on Monday evening along with Brooke Smith. Later that same evening, I learned that Mrs. Ulses and Kirk connected at Dulles airport and that Kirk brought Andy's luggage with him to Japan.

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Stephen Baker U.S. Nuclear Regulatory Commission Office of International Programs (301) 415-3329

Sydnor, Russell

From:	Sydnor, Russell
Sent:	Wednesday, March 16, 2011 7:44 AM
To:	Betancourt, Luis; Birla, Sushil; Burton, Thomas; Concepcion, Milton; Dion, Jeanne; Halverson, Derek; Hardin, Leroy; Rebstock, Paul; Sturzebecher, Karl; Waterman, Michael; Yang, Yaguang
Subject:	FW: IRC Staffing

Importance:

High

The agency is looking for some more staff to help relieve the burden on the folks supporting the NRC's response to the incidents in Japan. I am not sure they are looking for our discipline, but if any of you think you could support this **let me know today by noon.**

Russell Sydnor Branch Chief NRC/RES/DE/DICB 301-251-7405 Russell.Sydnor@nrc.gov

From: Case, Michael
Sent: Wednesday, March 16, 2011 7:16 AM
To: Graves, Herman; Hogan, Rosemary; Csontos, Aladar; Koshy, Thomas; Lin, Bruce; Boyce, Tom (RES); Ali, Syed; Murphy, Andrew; Tregoning, Robert; Gavrilas, Mirela; Sydnor, Russell; Lorette, Phillip
Cc: Richards, Stuart
Subject: FW: IRC Staffing

Can you all start to think about this and let me know of any potential names by around noon?

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

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

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

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

However, I am assuming they will be looking for staff with expertise in such areas as systems analysis, severe accidents, radiological dose assessment, etc. In anticipation that these are the technical disciplines of interest,

can you please start identifying your staff that you believe have some of the requisite skills needed for the IRC, and start asking if they would be available to work shifts in the IRC if asked to. HR said they would be eligible for normal overtime compensation.

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

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

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

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Recipient

Betancourt, Luis Birla, Sushil Burton, Thomas Concepcion, Milton Dion, Jeanne Halverson, Derek Hardin, Leroy Rebstock, Paul Sturzebecher, Karl Waterman, Michael Yang, Yaguang

Read

Read: 3/16/2011 7:58 AM Read: 3/16/2011 1:40 PM

Read: 3/16/2011 7:49 AM Read: 3/16/2011 11:43 AM Read: 3/16/2011 8:17 AM Read: 3/16/2011 8:26 AM Read: 3/16/2011 7:52 AM

Esmaili, Hossein

From: Esmaili, Hossein Wednesday, March 16, 2011 9:34 AM Sent: Armstrong, Kenneth To: Lee. Richard Cc: Subject: FW: Request for info

Importance:

High

Ken,

OpCenter: RST team member and I am currently taking shifts since last weekend. Japan: No (my experience is in code development and calculations - and they need operational and system expereince at this point).

Expertise: Code development and applications for thermal hydraulics and severe accident analysis

hossein

From: Gibson, Kathy Sent: Wednesday, March 16, 2011 8:58 AM To: RES DSA Subject: Request for info

It seems I need to clarify my information request.

Please let Ken know 3 things:

Are you willing to work in the Ops Center (if asked)? If so what shifts?

Are you willing to go to Japan (if asked)?

We need this by noon. What is your area of expertise?

Sturzebecher, Karl

From:	Dion, Jeanne
Sent:	Wednesday, March 16, 2011 9:38 AM
То:	Sydnor, Russell; Betancourt, Luis; Birla, Sushil; Burton, Thomas; Concepcion, Milton; Halverson, Derek; Hardin, Leroy; Rebstock, Paul; Sturzebecher, Karl; Waterman, Michael;
Subject:	Yang, Yaguang RE: IRC Staffing

DICB,

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F

I'm acting as FO TA this week and have some info on the expertise they need in the IRC.

Liaisons Team LT director LT coordinator LT federal liaison LT congressional Liaison LT international liaison Protective measure teams PMT director PMT coordinator PMT protective actions assistant director Radiological assessment assistant Director Dos Assessment (RASCAL) RASCAL developer

PMTR Geographical information systems PMTR meteorologist

Reactor Safety Team **RST** director RST coordinator Severe accident/ PRA **BWR** expert RST comm./ ERDS operator RST support (seismology Q&A)

From: Sydnor, Russell Sent: Wednesday, March 16, 2011 7:44 AM To: Betancourt, Luis; Birla, Sushil; Burton, Thomas; Concepcion, Milton; Dion, Jeanne; Halverson, Derek; Hardin, Leroy; Rebstock, Paul; Sturzebecher, Karl; Waterman, Michael; Yang, Yaguang Subject: FW: IRC Staffing Importance: High

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Russell Sydnor Branch Chief NRC/RES/DE/DICB 301-251-7405 Russell.Sydnor@nrc.gov

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

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

From: Sent: To: Cc: Subject: Wagner, Katie Wednesday, March 16, 2011 11:58 AM Armstrong, Kenneth Lee, Richard FW: Request for info

Importance:

High

Ken,

I just got into the office and saw this email. I have not read through the entire email yet, but will send a basic response now since info. is needed before noon and I have a meeting at noon.

1) Yes willing to work in the Ops Center. Day or night shifts are fine. I operate well at night.

2) No, at this point in time.

3) Area of expertise:

- written and oral communications (i.e. general support)

- have completed the PWR series in Chattanooga

Thanks, Katie

-----Original Message-----From: Gibson, Kathy Sent: Wednesday, March 16, 2011 8:59 AM To: RES_DSA Subject: Request for info Importance: High

It seems I need to clarify my information request.

Please let Ken know 3 things:

Are you willing to work in the Ops Center (if asked)? If so what shifts?

Are you willing to go to Japan (if asked)?

We need this by noon. What is your area of expertise?

riui

Yarsky, Peter

From: Sent: To: Subject: Yarsky, Peter Wednesday, March 16, 2011 11:03 AM Armstrong, Kenneth FW: Request for info

Importance:

Ken,

In response to Kathy's email,

(1) are you willing to work in the ops center (if asked)? If so what shifts?

I would be willing to do this, I would prefer the 3pm to 11pm shift

High

(2) are you willing to go to Japan (if asked)?

Yes

(3) What is your area of expertise?

I am well versed in BWR plant and containment systems, transients, and accidents.

-Pete

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m-148

Sydnor, Russell

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Sent:	Wednesday, March 16, 2011 11:59 AM
То:	Case, Michael; Graves, Herman; Hogan, Rosemary; Csontos, Aladar; Koshy, Thomas; Lin, Bruce; Boyce, Tom (RES); Ali, Syed; Murphy, Andrew; Tregoning, Robert; Gavrilas, Mirela; Lorette, Phillip
Cc:	Richards, Stuart
Subject:	RE: IRC Staffing

Mike, I do not think DICB has the primary areas of expertise needed, but the following people expressed a desire to help out;

Milton Concepcion Leroy Hardin Karl Sturzebecher Luis Betancourt Paul Rebstock Yaguang Yang

Russell Sydnor Branch Chief NRC/RES/DE/DICB 301-251-7405 Russell.Sydnor@nrc.gov

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2

Sturzebecher, Karl

From: Sent: To: Subject:	Sturzebecher, Karl Wednesday, March 16, 2011 3:01 PM 'Fernandez, Maria T.' RE: U.S. supercomputer experts assess radiation risks amid crisis at Japanese nuclear facility - Nextgov
Yes it is back from a	meeting with Eric.
Tired	
Original Message From: Fernandez, Maria Sent: Wednesday, March To: Sturzebecher, Karl Subject: RE: U.S. superc Nextgov liquid diet that's toug	T. [<u>mailto:Maria.T.Fernandez@ssa.gov]</u> 16, 2011 1:38 PM omputer experts assess radiation risks amid crisis at Japanese nuclear facility - gh.

-----Original Message-----From: Sturzebecher, Karl [mailto:Karl.Sturzebecher@nrc.gov] Sent: Wednesday, March 16, 2011 12:45 PM To: Fernandez, Maria T. Subject: RE: U.S. supercomputer experts assess radiation risks amid crisis at Japanese nuclear facility -Nextgov

Bought a sandwich... hungry...

-----Original Message-----From: Fernandez, Maria T. [mailto:Maria.T.Fernandez@ssa.gov] Sent: Wednesday, March 16, 2011 7:48 AM To: Sturzebecher, Karl Subject: U.S. supercomputer experts assess radiation risks amid crisis at Japanese nuclear facility - Nextgov

Interesting article ...

http://www.nextgov.com/nextgov/ng_20110314_3634.php?oref=rss?zone=NGtoday#

Heida, Bruce	
From:	Mitman, Jeffrey WWW
Sent:	Wednesday, March 16, 2011 9:39 PM
To:	Riggs, Eric; Ferrante, Fernando
Subject:	RE: Jocassee TIA for correction and submission - WWØ SRI
Follow Up Flag:	Follow up
Flag Status:	Flagged

Eric, I have incomplete knowledge on Jocassee/Oconee but here is what I know. When DRA decided not to concur on the JCO, management decided not to issue the JCO. Subsequent to this, NRR wrote a letter to Duke accepting Duke's the proposed breach/inundation parameters and the 2-D inundation results which were derived from these inputs. Prior to sending the letter, I non-concurred on it. It is my understanding that management is planning to turn over the "project" to Region II as an inspection project to ensure that Duke meets its commitments. I'm probably using the wrong terminology. The tsunami should give management pause as the results of it sure look like what I would expect to happen to Oconee with the exception that probably more water would cross over the Keowee and intake canal dikes that what I suspect crossed over the Fukushima site.

C. C. ALLESUICE

To your statement that a flood at Oconee would be more limited: That's probably true to some extent. However, Duke and the state would be dealing with multiple dam failures effecting a non-trivial population.

As to Melanie Galloway's perspective, you would have to ask her.

Jeff

From: Riggs, Eric Sent: Wednesday, March 16, 2011 12:22 PM To: Ferrante, Fernando Cc: Mitman, Jeffrey Subject: RE: Jocassee TIA for correction and submission - QNO SRI

Gentlemen,

I hope that you are well.

When we last spoke, DE was attempting to push an extension to the Oconee JCO through and DRA was not going to concur. In light of the recent developments in Japan, is anyone having second thoughts about the JCO, Oconee's path forward, the entire issue, etc? Oconee in general (six 95002s, three or four 95001s, HELB, Tornado, Non-Seismic Pipe Break,....)?

Does Melanie Galloway have any thoughts on these issues? I know that she is no longer the Deputy Director of Risk in NRR, but she certainly had some strong feelings about these issues and their resolutions.

Although the scope of such a disaster might be more limited at Oconee than in Japan – that is, the Japanese have other problems on their hands than a nuclear crisis, which is slowing them down to a degree, the Oconee disaster would be no less severe on the units. Everything on site would be destroyed or useless.

Keep in touch and have a great day. Eric Heida, Bruce

Yarsky, Peter

From:Kammerer, AnnieSent:Wednesday, March 16, 2011 5:29 PMTo:RES DistributionSubject:sharepoint site where latest and greatest seismic Q&As can be found moving forward

Please see the file that contains the latest document at...

http://portal.nrc.gov/edo/nrr/NRR%20TA/FAQ%20Related%20to%20Events%20Occuring%20in%20Japan/Forms/AllItems.aspx

We will be updating this daily or almost daily in the foreseeable future. So please go to this site if you'd like to see the latest.

The site gives RES the credit since we're the lead and started it; but there is a big team supporting this that includes staff from RES, NRO, NRR and the regions.

Annie

M-158

Marke- HI

From:	Coyne, Kevin
Sent:	Wednesday, March 16, 2011 11:23 AM
То:	Marksberry, Don
Subject:	FW: NBC deadline question for NRC on seismic hazard estimates

Categories:

Follow up

From: Beasley, Benjamin Sent: Wednesday, March 16, 2011 11:19 AM To: Laur, Steven; Burnell, Scott; Manoly, Kamal; Hiland, Patrick; Skeen, David; Stutzke, Martin Cc: Ferrante, Fernando; Chokshi, Nilesh; Coyne, Kevin; Coe, Doug Subject: RE: NBC deadline question for NRC on seismic hazard estimates

Of course. Scott Burnell has been involved and we are only talking to him, not any reporters.

Ben

From: Laur, Steven NRP Sent: Wednesday, March 16, 2011 10:54 AM To: Burnell, Scott; Beasley, Benjamin; Manoly, Kamal; Hiland, Patrick; Skeen, David; Stutzke, Martin Cc: Ferrante, Fernando; Chokshi, Nilesh; Coyne, Kevin; Coe, Doug Subject: RE: NBC deadline question for NRC on seismic hazard estimates

I have not looked at the article, but would recommend you get OPA involved at once (and not talk to this reporter without OPA involvement).

Note the timing of this article about seismic risk vis-à-vis the Japanese experience at Fukushima Daiichi and also our Ops Center e-mail saying we will NOT provide information on the Japanese event. While GI-199 is not the Japanese event, we should tread carefully!

Steven A. Laur NRR Division of Risk Assessment **OWFN 10-C15** (301) 415-2889 steven.laur@nrc.gov

From: Burnell, Scott OGC Sent: Wednesday, March 16, 2011 9:59 AM To: Beasley, Benjamin; Manoly, Kamal; Hiland, Patrick; Skeen, David; Stutzke, Martin Cc: Ferrante, Fernando; Laur, Steven; Chokshi, Nilesh; Coyne, Kevin; Coe, Doug Subject: RE: NBC deadline question for NRC on seismic hazard estimates

I'm waiting for a technical critique - may hand this off to other OPA once I see it. Thx.

From: Beasley, Benjamin Sent: Wednesday, March 16, 2011 9:58 AM

To: Burnell, Scott; Manoly, Kamal; Hiland, Patrick; Skeen, David; Stutzke, Martin Cc: Ferrante, Fernando; Laur, Steven; Chokshi, Nilesh; Coyne, Kevin; Coe, Doug Subject: RE: NBC deadline question for NRC on seismic hazard estimates

Te will will the numbers. If you are working on a review on checking it, please let me know. I will the second coordinate our efforts to prevent duplication and assure we cover all the bases.

Ben

From: Burnell, Scott Ca C
Sent: Wednesday, March 16, 2011 9:55 AM
To: Manoly, Kamal; Hiland, Patrick; Skeen, David; Stutzke, Martin; Beasley, Benjamin
Cc: Ferrante, Fernando; Laur, Steven; Chokshi, Nilesh
Subject: RE: NBC deadline question for NRC on seismic hazard estimates

Very probably so – but we can only provide factual corrections. We need to point to specific documents whenever possible to avoid a "that's just your opinion" sort of response.

From: Manoly, Kamal
Sent: Wednesday, March 16, 2011 9:53 AM
To: Hiland, Patrick; Skeen, David; Stutzke, Martin; Beasley, Benjamin; Burnell, Scott
Cc: Ferrante, Fernando; Laur, Steven; Chokshi, Nilesh
Subject: FW: NBC deadline question for NRC on seismic hazard estimates

It seems that he spun the information provided to support a biased point of view he already has and to make the story sensational!

From: Bill Dedman [mailto:Bill.Dedman@msnbc.com]
Sent: Wednesday, March 16, 2011 6:44 AM
To: Manoly, Kamal; Sheron, Brian; Hiland, Patrick; OPA Resource
Subject: RE: NBC deadline question for NRC on seismic hazard estimates

This story is online now. If you see any error, please let me know right away.

Thanks,

Bill

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

From: Bill Dedman
Sent: Tuesday, March 15, 2011 9:06 AM
To: 'Kamal.Manoly@nrc.gov'; 'brian.sheron@nrc.gov'; 'patrick.hiland@nrc.gov'; 'OPA.Resource@nrc.gov'
Subject: NBC deadline question for NRC on seismic hazard estimates

Good morning,

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

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

I reached out to NRC Public Affairs yesterday but have not heard back, and my deadline is end-of-day today. I'm hoping to get on the phone today with someone from NRC to make sure I'm conveying this information accurately to the public. The area in the problem of the technical people can help clarify the points below. My telephone number is 203-451-9995.

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

I have these questions:

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

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

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

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

Thank you for your help.

Regards,

Bill Dedman

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Yarsky, Peter

From: Sent: To: Subject: CDMC [newsletter@chinadecisionmakers.com] Thursday, March 17, 2011 5:24 AM Yarsky, Peter Praying for Japanese Disaster-China Nuclear Energy Congress 2011



Current Status of Fukushima Daiichi NPPs

Unit	Status
1	Reactor cold shutdown, stable water level, offsite power is available o refrigerant is leaked in the reactor contaminant vessel Maintain average water temperature at 100°Cin the pressure restraint
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4	Reactor cold shutdown, stable water level, offsite power is available No refrigerant is leaked in the reactor contaminant vessel Maintain average water temperature at 100°Cin the pressure restraint

From TEPCO Press Release 13:00 PM Mar. 15

All units at the Fukushima II Daini, Onagawa, and Tokai nuclear power plants are in a safe and stable condition. Japan's top government spokesperson says the radiation level at the quake-hit nuclear power plant in Fukushima Prefecture, north of Tokyo, rose briefly on Wednesday morning.

The fuel rod exposure at Fukushima Daiichi number 2 reactor is potentially the most serious event so far at the plant. At this moment, what we can do is just praying for Japanese disaster.

<u>Given the apparent severity of the events at Fukushima,</u> the organizing committee decides to set up some sort of special session(s) at Beijing to help share the initial lessons learned.

Related Speakers:

LIU Hua, Director, National Nuclear Safety Administration(NNSA)

Chris Lanzit, Senior Advisor on China, American Society of Mechanical Engineers (ASME)

IAEA's speakers are invited by the organizing committee to give our audience a full scene of what happened in FUKUSHIMA.

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Agenda at a glance:

	Day one (May 12)	Day two (May 13)
Morning	S1. Outlook of Nuclear Market S2. Reactor Debate	S4. Bottleneck: Safety and Uranium Uranium Mining Companies focus
Afternoon	S3. Dialogue Between Operators Equipment supplies highly suggested	S5. Reviewing Other Asia Nuclear Energy Users

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China Nuclear Troika Domestic EPC Contractor

Chinese Uranium Traders

Large equipment providers

Utilities

If you are interested in sponsorship, exhibit & speaking opportunities, please contact us at cnec@cdmc.org.cn

Please, do not hesitate to contact us 'with any questions that you may have, and we look forward to welcoming you at the event!

Sincerely,

o'

<u>Michael LIU</u> Porject Director China Nuclear Energy Congress 2011 T: +8621-6840-7631 E:<u>michaell@cdmc.org.cn</u>

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«. "

Mr

Pedersen, Roger

From:
Sent:
To:
Cc:
Subject:

Conatser, Richard / Thursday, March 17, 2011 10:41 AM Pedersen, Roger; Shoop, Undine Garry, Steven; Jimenez, Manuel; Clemons-Webb, Candace RE: Fukushima and Radiological Environmental Monitoring Programs

Roger,

That is exactly the point. I don't expect we will see anything (based on what I know today). Zeros speak loudly. There are some opportunities with Sr-89 and Sr-90 (which were removed from most REMPs years ago). We will get questions from licensees and the public. I just think we want to be ahead of the game.

From: Pedersen, Roger < Set
Sent: Thursday, March 17, 2011 10:35 AM
To: Conatser, Richard; Shoop, Undine
Cc: Garry, Steven; Jimenez, Manuel; Clemons-Webb, Candace
Subject: RE: Fukushima and Radiological Environmental Monitoring Programs

Richard,

Do you really expect significant measurable airborne in the US? From what I can glean from the media, it seems that part of the basis for the Chairman's statement is that any release from Fukushima would be ground level or low level-elevated releases that would disperse well before reaching the US. This is totally different than Chernobyl where the intense carbon fire produced a chimney effect ejecting activity high into the atmosphere such that upper level winds transported the plumb basically all the way around the world.

I'm not saying we shouldn't be vigilant. But we do not want to over react to the situation either. During the Chernobyl event, I believed the NRC issued a generic communication and requested that licensee report any elevated activity.

From: Conatser, Richard
Sent: Thursday, March 17, 2011 9:39 AM
To: Shoop, Undine
Cc: Pedersen, Roger; Garry, Steven; Jimenez, Manuel; Clemons-Webb, Candace
Subject: Fukushima and Radiological Environmental Monitoring Programs

Undine,

The Chairman has indicated the plume from the Fukushima event is not expected to have any health consequences to the US population. There are already many questions about the impact of the Japanese event on the US public. We can expect these questions to increase over the next few months. There are some potential opportunities here for the NRC relative to our mission.

As a result of NRCs regulations, the US nuclear power industry has significant capability for radiological environmental monitoring. The monitoring stations are very sensitive. See the attached graph for the Chernobyl after effects in the US. We should consider our options and decide what the NRCs position will be regarding the US Radiological Environmental Monitoring Programs (REMPs), because these environmental monitoring stations will begin to indicate analysis results (either positive or negative) within 30 days.

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Kolb, Timothy

NUN

From: Sent: To: Subject: Nakanishi, Tony Thursday, March 17, 2011 12:01 AM Devercelly, Richard; Cook, William; Kolb, Timothy Fw: Getting water in the Spent Fuel Pools

From: Cranston, Gregory To: Nakanishi, Tony; Ulses, Anthony; Trapp, James Sent: Wed Mar 16 22:55:06 2011 Subject: Getting water in the Spent Fuel Pools

The helicopter dropping water doesn't seem to be working. Why not put a few inches of lead under the pilots seat and feet (probably weighs less than the water they were carrying) which will reduce the radiation levels (assuming it is shine and not an airborne cloud) by a factor of 10 or more. Then tie a cable to the nozzle end a few hundred feet of hose. Have the helicopter haul the nozzle end of the hose on a cable so the copter can stay a safe distance. Then lower the nozzle end of the hose into the spent fuel pool and drop the cable which is attached to the nozzle which will act as a weight to hold the nozzle in the pool. The helicopter can leave. You may need to tie a line on the other end of the hose to pull it to the pump after the helicopter drops the nozzle end. Then start pumping water into the pool.

Maybe this is not workable but maybe it will trigger some other thoughts in case the water cannon trucks don't work.

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Thorp, John

From:
Sent:
To:
Cc:
Subject:

King, Mark Thursday, March 17, 2011 4:42 PM Kobetz, Timothy; Thomas, Eric Thorp, John RE: TI to Follow-up to Fukushima Daiichi Nuclear Station Fuel Damage Event.docx

Tim/ Eric One more thought for your consideration – on the TI

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NA

If we are reproducing it in part (or significant sections) we could have issues here. Plus we don't won't to spoil our entire good working relationship with INPO ---over one Temporary Instruction. Especially if the issue could be inspected by following up through an agency directive for all inspectors to review it under our IP-71152 Corrective Action Program - which exists already.

Just some thoughts for your consideration. That being said if we feel there is an <u>overriding safety concern</u> then we have a right and obligation to act in the interest of public health and safety. This TI and/or NRC follow-up inspection activities could help with public confidence in the US nuclear industry...and that is how it should be <u>sold to INPO</u> to get their <u>prior agreement</u> on this course of action, if possible (Eric). Mark

From: Kobetz, Timothy Sent: Thursday, March 17, 2011 8:21 AM To: King, Mark Subject: TI to Follow-up to Fukushima Daiichi Nuclear Station Fuel Damage Event.docx

Thorp, John

From: Sent: To: Subject: Attachments: Garmon-Candelaria, David Thursday, March 17, 2011 11:26 AM NRR_DIRS_IOEB Distribution FW: Picture Fukushimapict.docx

HNN

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FYI

From: Wegner, Mary **Sent:** Thursday, March 17, 2011 10:47 AM **To:** Garmon-Candelaria, David **Subject:** Picture

M



Jul

Thorp, John

From: Sent: To: Franovich, Rani Thursday, March 17, 2011 1:23 PM Brown, Frederick; Westreich, Barry; Kobetz, Timothy; Thorp, John; Shoop, Undine; Elliott, Robert; McHale, John Latest report from UCS

Subject:

FYI...

I just received a call from Tom Houghton... he indicated there was a press release at 11:00 this morning on a report UCS issued either yesterday or today. I have not yet read the report or the press release, but wanted to get the link out to you guys...

http://www.ucsusa.org/nuclear_power/nuclear_power_risk/safety/nrc-and-nuclear-power-2010.html

Thorp, John

From: Sent: To: Subject: ANS Broadcasts [broadcasts@ans.org] Thursday, March 17, 2011 11:14 PM Thorp, John Letter to President Obama



AMERICAN NUCLEAR SOCIETY

555 North Kensington Avenue La Grange Park, Illinois 60526-5592 USA Tel: 708/352-6611 E-Mail: NUCLEUS@ans.org http://www.ans.org Fax: 708/352-0499

March 16, 2011

The Honorable Barack Obama President of the United States 1600 Pennsylvania Avenue NW Washington, DC 20500

Dear Mr. President:

On behalf of the more than 11,000 men and women of the American Nuclear Society (ANS), I extend our deepest sympathies to the people of Japan as they begin to recover from a natural disaster of unprecedented proportions. We also salute the heroic efforts of the TEPCO/Fukushima plant operators as they work to facilitate a safe shutdown of the impacted reactors.

ANS has offered technical assistance to the Atomic Energy Society of Japan (AESJ) and is prepared to help the U.S. government in any way possible to provide needed assistance to the Japanese government and people.

We also thank you for your administration's measured political response to the current situation.

Clearly, events at the Fukushima Daiichi reactor site continue to evolve rapidly and our understanding of them has been clouded by conflicting information, and in some cases misleading media reports.

We are urging policymakers in the administration and Congress to withhold judgments on U.S. nuclear policy until the current situation has been resolved and the incident has been fully understood.

We recognize that the events in Japan will trigger a broader public discussion over the benefits and risks of nuclear energy. We welcome that discussion, but only after a complete technical understanding of its causes, progression, and impact has been established and fully evaluated.

Please let me know if I can be of any assistance to you on this or any other matter.

Sincerely

Joe Colvin President, American Nuclear Society

CC: The Honorable Steven Chu, Secretary of Energy

m-160

Valentine, Nicholee

From:	Beaulieu, David
Sent:	Thursday, March 17, 2011 2:54 PM
То:	Rosenberg, Stacey; Alexion, Thomas; Purnell, Blake; Banic, Merrilee; Mensah, Tanya;
	Russell, Andrea; Saah, Lauren; Hawes, Cathy
Subject:	[JAIF] Japan Atomic Industrial Forum, Inc.

I as mentioned during the branch meeting, this site provides a good summary of current conditions in Japan.

http://www.jaif.or.jp/english/

ANA

Pedersen, Roger

From:
Sent:
То:
Cc:
Subject:
Attachments:

Conatser, Richard Thursday, March 17, 2011 9:39 AM Shoop, Undine Pedersen, Roger; Garry, Steven; Jimenez, Manuel; Clemons-Webb, Candace Fukushima and Radiological Environmental Monitoring Programs 110317_RLC_Gross Beta.pdf

Undine,

The Chairman has indicated the plume from the Fukushima event is not expected to have any health consequences to the US population. There are already many questions about the impact of the Japanese event on the US public. We can expect these questions to increase over the next few months. There are some potential opportunities here for the NRC relative to our mission.

As a result of NRCs regulations, the US nuclear power industry has significant capability for radiological environmental monitoring. The monitoring stations are very sensitive. See the attached graph for the Chernobyl after effects in the US. We should consider our options and decide what the NRCs position will be regarding the US Radiological Environmental Monitoring Programs (REMPs), because these environmental monitoring stations will begin to indicate analysis results (either positive or negative) within 30 days.

We obviously don't intend to impose any new requirements, but there are still actions we could take if we were so inclined. We may elect to do nothing. We may elect to do something. Whatever we do, we should think about it in advance to ensure we are positioned well.

If you would like to discuss this further, I'd propose we meet to discuss some options.

Richard L. Conatser

Health Physicist Nuclear Regulatory Commission 301-415-4039 Richard.Conatser@NRC.gov



Weaver, Tonna

From:
Sent:
To:
Subject:

." i

CDMC [newsletter@chinadecisionmakers.com] Thursday, March 17, 2011 6:00 AM Ruland, William Praying for Japanese Disaster-China Nuclear Energy Congress 2011

If you cannot see this email, please click here



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Current Status of Fukushima Daiichi NPPs

Unit	Status
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From TEPCO Press Release 13:00 PM Mar. 15

All units at the Fukushima II Daini, Onagawa, and Tokai nuclear power plants are in a safe and stable condition. Japan's top government spokesperson says the radiation level at the quake-hit nuclear power plant in Fukushima Prefecture n-16-

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north of Tokyo, rose briefly on Wednesday morning.

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Related Speakers:

LIU Hua, Director, National Nuclear Safety Administration(NNSA)

Chris Lanzit, Senior Advisor on China, American Society of Mechanical Engineers (ASME)

IAEA's speakers are invited by the organizing committee to give our audience a full scene of what happened in FUKUSHIMA.

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uraniumone RioTinto Herbert Smith investing in our energy RioTinto 史密夫律师事务所

Agenda at a glance:

Day one (May 12)Day two (May 13)MorningS1. Outlook of Nuclear MarketS4. Bottleneck: Safety and UraniumS2. Reactor DebateUranium Mining Companies focusAfternoonS3. Dialogue Between Operators EquipmentS5. Reviewing Other Asia Nuclear Energy Users
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Chinese Uranium Traders

Large equipment providers

Utilities

If you are interested in sponsorship, exhibit & speaking opportunities, please contact us at cnec@cdmc.org.cn

Please, do not hesitate to contact us with any questions that you may have, and we look forward to welcoming you at the event!

Sincerely,

Michael LIU Porject Director China Nuclear Energy Congress 2011 T: +8621-6840-7631 E:michaell@cdmc.org.cn

Nuclear Energy Congress 2011	Nuclear Energy Cong	
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Weaver, Tonna

From:	Hopkins, Ogbonna MUL
Sent:	Thursday, March 17, 2011 8:51 AM
То:	Purciarello, Gerard; Jones, Steve; Smith, Edward; Gardocki, Stanley; Levine, Michael; Armstrong, Garry
Cc:	Casto, Greg
Subject:	RE: Request for staff that can support OIP Additional Staff requirements outside Ops Center Long Term Staffing

I would be interested.

From: Purciarello, Gerard
Sent: Wednesday, March 16, 2011 5:57 PM
To: Jones, Steve; Smith, Edward; Gardocki, Stanley; Hopkins, Ogbonna; Levine, Michael; Armstrong, Garry
Cc: Casto, Greg
Subject: FW: Request for staff that can support OIP Additional Staff requirements outside Ops Center Long Term Staffing
Importance: High

Gentlemen,

See below. If interested and if work load allows, let me know by 9 AM tomorrow. Thanks.

Jerry

From: Titus, Brett WW Sent: Wednesday, March 16, 2011 1:43 PM To: Miranda, Samuel; Purciarello, Gerard; Bailey, Stewart; Casto, Greg; Clifford, Paul; Collins, Timothy; Dennig, Robert; Mendiola, Anthony; Ulses, Anthony Cc: Bahadur, Sher; Ruland, William Subject: FW: Request for staff that can support OIP Additional Staff requirements outside Ops Center Long Term Staffing Importance: High

For your consideration...please see the request below and let me know if there are people on your staff who fit the criteria. Also, please send a negative response if there are none.

Thanks,

Brett Titus 301-415-3075

From: Astwood, Heather \\\\\/\/
Sent: Wednesday, March 16, 2011 1:39 PM
To: Azeem, Almas; Cartwright, William; Cusumano, Victor; Fields, Leslie; Heida, Bruce; Meighan, Sean; Nguyen, Quynh; Roquecruz, Carla; Susco, Jeremy; Titus, Brett; Valentine, Nicholee
Cc: Boger, Bruce
Subject: FW: Request for staff that can support OIP Additional Staff requirements outside Ops Center Long Term Staffing
Importance: High

Dear NRR TAs

m-164

Please see the request below. EDO is asking that we support OIP. OIP is asking for names of people who would be interested in helping them with the Japan crisis. They are not sure exactly what the work would entail at this point. It could be doing shifts for OIP in the Ops Center, it could be fielding calls and questions from regulators from other countries or it could be helping with OIP's normal case load.

Eric Leeds would like to support this request. He specifically does not want us to hurt any of NRR's increasing workload but we should help if we can. The time spent assisting OIP could be broken down in a variety of ways. It is unlikely that anyone would be detailed to OIP for a long period of time (i.e. 2 months straight). More likely it would one day a week, or two weeks of one person, then two weeks of a different person. Whatever fits their needs and NRR's need to do our normal case work. The timing is negotiable.

OIP is specifically looking for people who have some international experience. Several members of the international team have already volunteered. Please let me know if there is anyone in your division that would also like to add their names to the list. Note they are asking for the names by COB today. However, I think tomorrow morning would also work.

Heather Astwood

International Team Leader Office of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission 301-415-1075

From: Muessle, Mary

Sent: Wednesday, March 16, 2011 9:32 AM

To: Evans, Michele; Hackett, Edwin; Brenner, Eliot; Schmidt, Rebecca; Powell, Amy; Droggitis, Spiros; Doane, Margaret; Mamish, Nader; Dyer, Jim; Brown, Milton; Greene, Kathryn; Stewart, Sharon; Howard, Patrick; Miller, Charles; Moore, Scott; Cohen, Miriam; Tracy, Glenn; Haney, Catherine; Dorman, Dan; Johnson, Michael; Holahan, Gary; Leeds, Eric; Boger, Bruce; Grobe, Jack; Zimmerman, Roy; Campbell, Andy; Sheron, Brian; Uhle, Jennifer; Dean, Bill; Lew, David; McCree, Victor; Wert, Leonard; Casto, Chuck; Satorius, Mark; Pederson, Cynthia; Collins, Elmo; Howell, Art; Andersen, James; Akstulewicz, Brenda; Belmore, Nancy; Quesenberry, Jeannette; Kreuter, Jane; Armstrong, Janine; Hudson, Sharon; Ellis, Marv; Hasan, Nasreen; Ronewicz, Lynn; Schumann, Stacy; Daniels, Stanley; Casby, Marcia; Thomas, Loretta; Walker, Dwight; Sprogeris, Patricia; Schwarz, Sherry; Ross, Robin; Cohen, Shari; Riddick, Nicole; Flory, Shirley; Veltri, Debra; Matakas, Gina; ODaniell, Cynthia; Miles, Patricia; Lee, Pamela; Dubose, Sheila; Buckley, Patricia; Tomczak, Tammy; Owen, Lucy; Tannenbaum, Anita; Gusack, Barbara; Harrington, Holly; Ricketts, Paul; Howell, Linda; Higginbotham, Tina; Ross, Brenda; Boyce, Thomas (OIS); Schaeffer, James; Jackson, Donald **Cc:** Williams, Shawn; Andersen, James; Ramsey, Jack

Subject: Additional Staff requirements outside Ops Center Long Term Staffing **Importance:** High

OPA and OIP expect large call volumes today and in the next few weeks given expected news from Japan. OIP is looking for names of people who have desk officer or other OIP or international experience to assist them in the event that current staff cannot meet the work demands for call inquiries as well as ongoing international work. Please provide Shawn Williams and I a list of names that could serve to help OIP in this capacity and their general availability over the next week and month. It is difficult to determine the need level at this time, but as in the Op Center, it is anticipated OIP will have for an additional month. We would like the list of names by COB today. Thanks

Mary

Mary Muessle Assistant for Operations - Acting Office of the Executive Director for Operations U.S. Nuclear Regulatory Commission 301-415-1703 office 301-415-2700 fax

2

From: Evans, Michele 17577 Sent: Tuesday, March 15, 2011 5:53 PM

To: Hackett, Edwin; Brenner, Eliot; Schmidt, Rebecca; Powell, Amy; Droggitis, Spiros; Doane, Margaret; Mamish, Nader; Dyer, Jim; Brown, Milton; Greene, Kathryn; Stewart, Sharon; Howard, Patrick; Miller, Charles; Moore, Scott; Cohen, Miriam; Tracy, Glenn; Haney, Catherine; Dorman, Dan; Johnson, Michael; Holahan, Gary; Leeds, Eric; Boger, Bruce; Grobe, Jack; Zimmerman, Roy; Campbell, Andy; Sheron, Brian; Uhle, Jennifer; Dean, Bill; Lew, David; McCree, Victor; Wert, Leonard; Casto, Chuck; Satorius, Mark; Pederson, Cynthia; Collins, Elmo; Howell, Art; Muessle, Mary; Andersen, James; Akstulewicz, Brenda; Belmore, Nancy; Quesenberry, Jeannette; Kreuter, Jane; Armstrong, Janine; Hudson, Sharon; Ellis, Marv; Hasan, Nasreen; Ronewicz, Lynn; Schumann, Stacy; Daniels, Stanley; Casby, Marcia; Thomas, Loretta; Walker, Dwight; Sprogeris, Patricia; Schwarz, Sherry; Ross, Robin; Cohen, Shari; Riddick, Nicole; Flory, Shirley; Veltri, Debra; Matakas, Gina; ODaniell, Cynthia; Miles, Patricia; Lee, Pamela; Dubose, Sheila; Buckley, Patricia; Tomczak, Tammy; Owen, Lucy; Tannenbaum, Anita; Gusack, Barbara; Harrington, Holly; Ricketts, Paul; Howell, Linda; Higginbotham, Tina; Ross, Brenda; Boyce, Thomas (OIS); Schaeffer, James; Jackson, Donald **Subject:** Follow-up from 4 pm teleconference on Ops Center Long Term Staffing

Everyone,

Please find attached 1) a list of current positions being staffed in the Ops Center and 2) the staff identified as available to support in Japan.

Regarding additional staff available to support in the ops center, the primary needs are for the specialized positions on the PMT and anyone with previous international experience in OIP.

Regarding support in Japan, please provide any updates/changes to the list by COB March 17. The target time frame for sending these staff members is March 27-April 9, so please consider that when considering staff to put on the list.

Thanks for your support.

Michele

Weaver, Tonna

From: Sent: To: Subject: Case, Michael WH Thursday, March 17, 2011 8:51 AM Ruland, William Midnight update

At our 7:00 call, Bechtel had found all the pumps and parts for 4 systems in Australia. We're trying to move them to Yokota. Sent from Blackberry Michael Case.

Weaver, Tonna

From:	Astwood, Heather 1 11 10 10
Sent:	Thursday, March 17, 2011 9:14 AM
То:	Azeem, Almas; Cartwright, William; Cusumano, Victor; Fields, Leslie; Heida, Bruce; Meighan,
Subject:	FW: Volunteers for assistance to OIP (NRO and NRR will provide additional names shortly)

Here is the list of volunteers that the other offices have put forward. As you can see they are fairly short lists. Please send me any one you would like to add to our list this morning. I plan to send our list to EDO by 11:00 am.

If you do not have anyone - that is fine. NRR currently has four names and that appears to be enough.

Heather Astwood

International Team Leader Office of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission 301-415-1075

From: Williams, Shawn J G V **Sent:** Thursday, March 17, 2011 8:49 AM **To:** Ramsey, Jack; Mamish, Nader **Cc:** Andersen, James; Muessle, Mary; Rosales-Cooper, Cindy; Johnson, Michael; Astwood, Heather **Subject:** Volunteers for assistance to OIP (NRO and NRR will provide additional names shortly)

Jack, Nader,

Below is a consolidated list for volunteers to help out in OIP received thus far (NRO and NRR will provide their input shortly). It is understood that no paperwork will be required.

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Donna- Marie Sangimino Jeff Dehn (recognizing only one can be provided)

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NMSS:

Brittain Hill, HLWRS SL PhD Jim Rubenstone, HLWRS Branch Chief, PhD Bret Leslie, HLWRS PhD

NSIR:John TomlinsonConsultant - DSPOleg BukharinSr. Security SpecialistAlbert TardiffSr. Security SpecialistClyde RaglandSecurity Project

n-166

ManagerStella OparaCyber Security Spec.Amanda NerretSecurity SpecialistMark ResnerSr. Security SpecialistPerry PedersonCyber Security Spec

OEDO:

Shawn Williams Brian Wittick Leigh Trocine (After Ops. Center tour with USAID)

Region III: None

Other volunteers for Ops Center support and/or travel Japan, that may be the same volunteers as above:

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- (1) Protective Measures Team; Assuming a four week window, we would can provide trained health physicists qualified in dose assessments to cover one position. Mike Reichard and Jack McFadden can alternate weeks.
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Mary Muessle **Assistant for Operations - Acting** Office of the Executive Director for Operations **U.S. Nuclear Regulatory Commission** 301-415-1703 office 301-415-2700 fax

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Thanks for your support.

Michele

Weaver, Tonna

From: Sent: To: Cc: Subject: HRMSBulletin Resource Thursday, March 17, 2011 9:25 AM HRMSBulletin Resource HRMSBulletin Resource Clarification for use of the Tac ZG0061

Clarification for use of the TAC (ZG0061) that was established for the events in JAPAN

This TAC (ZG0061) was established to track activity related to staff that are supporting the recent events in Japan. Managers that are performing managerial functions relating to the events in Japan should continue to use the TAC (ZM0000). In the situation where a manager is required to perform duties which would be considered <u>different</u> than managerial responsibilities should record their time under the new TAC ZG0061. Support staff that are performing Japan events should use TAC's that relate to their normal responsibilities. In the situation where administrative support staff is required to perform duties that would be considered <u>different</u> than routine administrative support responsibilities should record their time under the new TAC ZG0061.

If you have any additional questions please e-mail Jackie Jones <u>Jackie.Jones@NRC.GOV</u> or Mary Matheson at <u>Mary.Matheson@NRC.GOV</u>.

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Weaver, Tonna

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From:	Gray, Kathy MRR
Sent:	Thursday, March 17, 2011 10:46 AM
То: .	Brown, Frederick; Uhle, Jennifer; Skeen, David; Dudes, Laura; Hiland, Patrick; Case, Michael; Ruland, William; Holian, Brian
Cc:	Evans, Michele; Thorp, John; Thomas, Eric; Collins, Frank; Hasselberg, Rick; Holahan, Gary; OST02 HOC; McGinty, Tim; Lubinski, John; Gray, Kathy
Subject:	(Resending) RST Director Schedule for March 19-April 10 (Resending)
Attachments:	RST Director Schedule_1.docx

Importance:

High

I thought it might be best to resend the RST Director Schedule for March 19 – April 10 since we were experiencing slow service yesterday.

If you have any questions or conflicts with the proposed schedule please let me know ASAP w/cc to Eric Thomas. Thanks!

From: Gray, Kathy

Sent: Wednesday, March 16, 2011 4:48 PM

To: Brown, Frederick; Uhle, Jennifer; Skeen, David; Dudes, Laura; Hiland, Patrick; Case, Michael; Ruland, William; Holian, Brian

Cc: Evans, Michele; Thorp, John; Thomas, Eric; Collins, Frank; Hasselberg, Rick; Holahan, Gary; OST02 HOC; McGinty, Tim; Lubinski, John

Subject: RE: Staffing the Ops Center 24/7

RST Directors:

Attached you will find the RST Director schedule for March 19-April 10. If you have any questions or conflicts, please let me know. Thanks!

From: Brown, Frederick WK
Sent: Tuesday, March 15, 2011 9:28 PM
To: Uhle, Jennifer; Skeen, David; Dudes, Laura; Hiland, Patrick; Monninger, John; Case, Michael; Holahan, Gary; Ruland, William; Giitter, Joseph
Cc: Evans, Michele; Thorp, John; Thomas, Eric; Gray, Kathy; Collins, Frank; Hasselberg, Rick
Subject: Re: Staffing the Ops Center 24/7

I'm going to ask John Thorp to have Kathy Gray coordinate the RST director position for us.

From: OST02 HOC
To: Uhle, Jennifer; Skeen, David; Dudes, Laura; Hiland, Patrick; Monninger, John; Case, Michael; Holahan, Gary; Ruland, William; Brown, Frederick
Cc: Evans, Michele
Sent: Tue Mar 15 18:20:18 2011
Subject: Staffing the Ops Center 24/7

RST Directors:

N-168
Per EDO direction we plan to staff the Ops Center 24/7 while we have staff dispatched in Japan. And we are currently planning to identify a second team to send to Japan in about 2 weeks, with the idea that they may stay there for an additional two weeks. That would take us out to April 10 or so.

Staffing in the IRC will remain at the current levels for potentially another week. Possibly we will be able to scale back somewhat at that point. The intent is to develop a schedule through April 10 at this point. The immediate focus is to staff for the first week, starting Saturday March 19.

We'd like to have a little more consistency in the staffing of most positions. So we'd like to staff the RST director in 4 day blocks, three shifts each day, starting March 19.

Fred Brown/Tim McGinty/John Lubinski has offered to take the lead to coordinate among the potential RST Directors to fill the schedule. Please work with him and provide at least the schedule for the first four day block by COB Wednesday March 16.

Michele

3/16/2011 4:30pm

Reactor Safety Team (RST) Director Schedule

*

	3/18	3/19	3/20	3/21	3/22	3/23	3/24	3/25
Shift	(Fri)	(Sat)	(Sun)	(Mon)	(Tues)	(Wed)	(Thur)	(Fri)
7am–3pm	(Laura Dudes)	Laura Dudes	Laura Dudes	Fred Brown	Fred Brown	Fred Brown	Fred Brown	Pat Hiland
3pm–11pm	(Bill Ruland)	Dave Skeen	Dave Skeen	Dave Skeen	Dave Skeen	Bill Ruland	Bill Ruland	Bill Ruland
11pm–7am	Jennifer Uhle	Jennifer Uhle	Jennifer Uhle	Jennifer Uhle	Brian Holian	Brian Holian	Brian Holian	Brian Holian

March 18 – March 25, 2011

March 26 – April 2, 2011

	3/26	3/27	3/28	3/29	3/30	3/31	4/1	. 4/2
Shift	(Sat)	(Sun)	(Mon)	(Tues)	(Wed)	(Thur)	(Fri)	(Sat)
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7am–3pm	Pat Hiland	Pat Hiland	Pat Hiland	Jennifer Uhle	Jennifer Uhle	Jennifer Uhle	Jennifer Uhle	Brian Holian
3pm–11pm	Bill Ruland	Fred Brown	Fred Brown	Fred Brown	Fred Brown	Bill Ruland	Bill Ruland	Bill Ruland
11pm–7am	Mike Case	Mike Case	Mike Case	Mike Case	Dave Skeen	Dave Skeen	Dave Skeen	Dave Skeen

April 3 – April 10, 2011

	4/3	4/4	4/5	4/6	4/7	4/8	4/9	4/10
Shift	(Sun)	(Mon)	(Tues)	(Wed)	(Thur)	(Fri)	(Sat)	(Sun)
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7am–3pm	Brian Holian	Brian Holian	Brian Holian	Mike Case	Mike Case	Mike Case	Mike Case	Dave Skeen
3pm–11pm	Bill Ruland	Jennifer Uhle	Jennifer Uhle	Jennifer Uhle	Jennifer Uhle	Pat Hiland	Pat Hiland	Pat Hiland
11pm–7am	Laura Dudes	Laura Dudes	Laura Dudes	Laura Dudes	Fred Brown	Fred Brown	Fred Brown	Fred Brown

From:	Astwood Heather INVIC
Sent:	Thursday, March 17, 2011 11:17 AM
To:	Williams, Shawn
Cc:	Regan, Christopher; McGinty, Tim; Boger, Bruce; Leeds, Eric; Cullingford, Michael; Hopkins, Jon; Quinones, Lauren; Rodriguez, Veronica; Azeem, Almas; Cartwright, William; Cusumano, Victor; Fields, Leslie; Heida, Bruce; Meighan, Sean; Nguyen, Quynh; Roguecruz, Carla;
	Susco, Jeremy, Titus, Brett, Valentine, Nicholee
Subject:	RE: Volunteers for assistance to OIP (NRO and NRR will provide additional names shortly)

Shawn - As requested, here is the list for NRR staff available to support OIP.

Jim Vail - Div of Risk Assessment

Jeremy Susco – Div of License Renewal - available after the 28th Sean Meighan - industry radiological protection / RP emergency planning experience. Masters in Health Physics.

In addition, all of the NRR International team has volunteered. However, only one International team member could be used at a time. Would request part time shifts rotated between members if needed. Jon Hopkins is the primary.

Jon Hopkins – International Team Heather Astwood – International team Lauren Quinones – international team – would not be able to start until after April 18th.

Travel to Japan

Mike Cullingford – International Liaison Jon Hopkins – International team

thanks

Heather Astwood

International Team Leader Office of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission 301-415-1075

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n-169

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NSIR:

John Tomlinson	Consultant - DSP
Oleg Bukharin	Sr. Security Specialist
Albert Tardiff	Sr. Security Specialist
	Security Project
Clyde Ragland	Manager
Stella Opara	Cyber Security Spec.
Amanda Nerret	Security Specialist
Mark Resner	Sr. Security Specialist
Perry Pederson	Cyber Security Spec

<u>OEDO:</u> Shawn Williams Brian Wittick Leigh Trocine (After Ops. Center tour with USAID)

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Other volunteers for Ops Center support and/or travel Japan, that may be the same volunteers as above:

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Thanks for your support.

Michele

From:
Sent:
To:
Subject:

Ruland, William (MU Thursday, March 17, 2011 11:22 AM Matheson, Mary question

Mary,

So if I'm a Reactor Safety Team Director, which is a managerial role, but not my normal, one, how should I charge my time?

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m 170

Thanks.

Bill

From: Sent: To: Subject: Lu, Shanlai 1000 Thursday, March 17, 2011 12:03 PM Ulses, Anthony; Nakanishi, Tony Re-establish reactor cooling when offsite AC power is available - Do not rush to inject water quickly

Tony,

Hope that you see this e-mail as well.

Again, they are just my thoughts for your consideration.

With offsite AC power becoming available in the near future, there may be an urge for the plant operator to start the cooling immediately. A sudden injection of large amount of cold water into reactors with a molten core will cause devastating explosion and hydrogen fire because of violent steaming and Zr-water reaction. At this stage, any further explosion or fire will cause further damage on the reactor vessel and containment, and, more release of radiation. We need to minimize the risk of having this situation. Therefore, my recommendation is the following,

Once the AC power is available, pump the cold water into the reactor in a pulsing mode.

- 1. First pulse 50 to 100 gallons. Then, stop the pump, wait to see the steam coming out from the containment and watch the vessel internal pressure for 20 minutes or more if instrumentation is still available. By then, these water should have been vaporized and hydrogen will be generated.
- 2. After 20 minutes, start another pulse of injection, repeat step one.
- 3. Repeat these steps for 4 hours.
- 4. Then, shorten the 20 minutes wait time to 10 minutes for another 3 hours.
- 5. Then, evaluate the situation and make the decision regarding continuous injection of water into the reactor.

Be safe.

Shanlai

From: Lu, Shanlai WC Sent: Tuesday, March 15, 2011 10:59 AM To: Ulses, Anthony Cc: Donoghue, Joseph; Mendiola, Anthony; Ader, Charles; Lombard, Mark; Ruland, William; Bahadur, Sher Subject: Japan Nuclear Power Plant Spent Fuel Pool Heat Up Mitigation Strategy

Tony,

Hope you can see this e-mail from Japan.

Based on CNN and news from internet, the spent fuel pools of Unit 1, 2 and 3 started to boil without cooling. The following are my own thoughts about what needs to be done before the situation becomes even worse.

1. Need to establish cooling with whatever means to prevent the dry out of stored fuel. This include, if not limited to,

using fire hydrants to directly spray Boric Acid water on top of all three spent fuel pools. If the radiation level is too high to establish continuous water supply, use helicopters to dump boric acid water from the air as frequently as possible.

- 2. For Unit 4, if the spent fuel pool cooling is lost, we need to have an access to allow fire hydrant reaching the pool. It may be feasible to open the top of the reactor building right above the pool. In this way, if the operator can not introduce water supply from the ground, helicopters can still dump Boric Acid water from the air.
- 3. It would be nice that similar measures like these be established before the spent fuel dry out occurs. If the water is dumped on top of the pool with fuel dry out already occurred and the fuel surface temperature is already high enough, sever Zr-Water reaction will happen and cause fire and explosion. Before this happens, dump sand mixed with dry Boric acid right on top of the pools from the air. This will prevent the wide spread fire and explosion and provide the heat conduction to transfer the decay heat to the ground.

Hope these can be of help it they have not been considered.

We heard that radiation level has gone up even in Tokyo. We pray for your safety and safe return.

Take care.

Shanlai

From:
Sent:
To:
Cc:
Subject:

Boger, Bruce | /\/(// Thursday, March 17, 2011 12:03 PM McGinty, Tim; Sloan, Scott Ross-Lee, MaryJane; Quay, Theodore; Blount, Tom; Ruland, William; Leeds, Eric RE: Incident Response Performance Feedback Regarding Scott Sloan, Federal Liaison

Scott, I too applaud your efforts. You directly contributed to the agency's top priority by not allowing bureaucratic impediments to stall this important activity. Way to go—and thanks. Bruce

From: McGinty, Tim MU Sent: Thursday, March 17, 2011 10:46 AM To: Sloan, Scott Cc: Ross-Lee, MaryJane; Quay, Theodore; Blount, Tom; Ruland, William; Boger, Bruce; Leeds, Eric Subject: Incident Response Performance Feedback Regarding Scott Sloan, Federal Liaison

Scott – the purpose of this email is for you to hand to your future supervision regarding your performance in the Operations Center regarding the events in Japan.

As a member of the Liaison Team, in the role of Federal Liaison, your performance has been outstanding. Your initiative, out-of-the-box thinking, can-do attitude, dedication and commitment to safety and security are truly remarkable. I have personal knowledge of your performance in this regard, having served on the same shift with you as the LT Director. Thank You.

This morning, however, it was brought to my attention that your performance last night was especially noteworthy. Bill Ruland informed the entire Executive Team and Leadership Team about your actions yesterday to drive the development of systems to help mitigate the conditions existing in Japan, and to coordinate with other stakeholders for the purposes of positioning the U.S. in a way where we could provide this highly critical technical assistance.

Mr. Ruland conveyed to me that your actions were "heroic".

Scott – speaking for the NRR ET and LT: Thank You.

Sincerely, Tim McGinty, Director, NRR/DPR

From:	Ruland, William 1/1/1/
Sent:	Thursday, March 17, 2011 12:05 PM
To:	McGinty, Tim
Subject:	RE: Incident Response Performance Feedback Regarding Scott Sloan, Federal Liaison

Thanks for doing this.

From: McGinty, Tim WWW
Sent: Thursday, March 17, 2011 10:46 AM
To: Sloan, Scott
Cc: Ross-Lee, MaryJane; Quay, Theodore; Blount, Tom; Ruland, William; Boger, Bruce; Leeds, Eric
Subject: Incident Response Performance Feedback Regarding Scott Sloan, Federal Liaison

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Sincerely, Tim McGinty, Director, NRR/DPR

Weaver, Tonn	a
From: Sent: To: Subject:	Ruland, William ()))) Thursday, March 17, 2011 12:26 PM 'rst01' FW: Link to "Boggs Box" (spray nozzle) sent from Oconee to Japan
fyi	
From: Boger, Bru Sent: Thursday, I To: Ruland, Willia Subject: FW: Lin	nce NW March 17, 2011 11:51 AM m k to "Boggs Box" (spray nozzle) sent from Oconee to Japan
Bill, Here's a vio don't know how	deo of the nozzle that Oconee is providing to Japan. The RST may be interested, although I it could be placed into service, given the radiation fields as I understand them. Bruce $a \sqrt{3}$
From: Meighan, S Sent: Thursday, I To: Boger, Bruce Subject: Link to	Sean March 17, 2011 11:42 AM "Boggs Box" (spray nozzle) sent from Oconee to Japan
Bruce:	
As per your requ	uest.
http://portal.nrc.	gov/edo/nrr/dorl/japan/Shared%20Documents/Forms/AllItems.aspx
Very Respectful Sean	ly

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miny

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From:	
Sent:	Thursday, March 17, 2011 12:36 PM
То:	Dennig, Robert
Cc:	Lobel, Richard; Bettle, Jerome; Sallman, Ahsan; Torres, Roberto; Raval, Janak; Walker, Harold; Lee, Brian
Subject:	Raector Status from Japan Atomic Industrial Forum, inc.

ΔV

http://www.jaif.or.jp/english/news_images/pdf/ENGNEWS01_1300350525P.pdf

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Status of nuclear power plants in Fukushima as of 16:00 March 17 (Estimated by JAIF)

Power Station			Fukushima Daiichi	ni Nuclear Power Station					
Unit	1	2	3	4	5	6			
Electric / Thermal Power output (MW)	460 / 1380	784 / 2381							
Type of Reactor	BWR-3	BWR-4	BWR-4	BWR-4	BWR-4	BWR-5			
Operation Status at the earthquake occurred	和学家和教育, 化合理	In Service -> Automatic Shutdowr		Outage	Cutage 🖓 🕷	Outage Deve			
Core and Fuel Integrity	Damaged	Damaged	Damaged 🖓	No fuel rods	Not Damaged	Not Damaged			
Reactor Pressure Vessel Integrity	Unknown	Unknown	Unknown	A Month of the State of the Sta	Sector Contraction				
Containment Vessel Integrity	Not Damaged	Damage Suspected	Damage Suspected	Not Damaged	Not Damaged	Not Damaged			
Core cooling requiring AC power	Not Functional	Not Functional	Not Functional	Not necessary	Not necessary 34 1	Not necessary			
Core cooling not requiring AC power	Not Functional	Not Functional	Not Functional	Not necessary	Not necessary	Not necessary			
Building Integrity	Severely Damaged	Slightly Damaged	Severely Damaged	Severely Damaged	Not Damaged	Not Damaged			
Water Level of the Rector Pressure Vessel	Around half of the Fuel	Higher than half of the Fuel	Around half of the Fuel	Safe	Safe	Safe			
Pressure of the Reactor Pressure Vessel	Stable	Unknown (run out of battery)	Stable	Safe 👘 👘	Safe	Safe Safe			
Containment Vessel Pressure	Unknown	D/W: Unknown, S/P: Atmosphere	Stable	Safe	Safe 🔅 🦓	Safe- 2. Safe-			
Water injection to core (Accident Management)	Continuing (Seawater)	Continuing(Seawater)	Continuing(Seawater)	Not necessary	Not necessary	Not necessary			
Water injection to Containment Vessel (AM)	Continuing(Seawater)	to be decided(Seawater)	Continuing(Seawater)	Not necessary	Not necessary	Not necessary			
Containment venting (AM)	Continuing	Preparing	Continuing	Not necessary	Not necessary	Not necessary			
Fuel Integrity in the spent fuel pool	(No info)	(No info)	Level Low, Preparing Water Injection	Level Low, Preparing Water Injection Damage to Fuel Rods Suspected	Pool Temp. Increasing	Pool Temp. Increasing			
Environmental effect			NPS border: 646.2	<u>u Sv/h at 11:10, Mar. 17</u>					
Evacuation	20km from NPS * People who live between 20km to 30km from the Fukushima #1NPS are to stay indoors.								
	Immediate threat is damage of the fuels in the fuel pool outside the containment vessel at uni-3 and unit-4. To improve the situation of lack of water in the spent fuel								
Remarks	pools at uni-3 and unit-	the self defense force started or	peration for filling the poo	ol with water in 09:48 of March 17. This	operation is to drop a hu	ige bucket of seawater			
	from a helicopter. In addition, watering from the ground by high pressure pump is to be prepared.								

Power Station	Fukushima Daini Nuclear Power Station							
Unit	1	2	3	4				
Electric / Thermal Power output (MW)			1100 / 3293					
Type of Reactor	BWR-5	BWR-5	BWR-5	BWR-5				
Operation Status at the earthquake occurred	2. 「「「「「「」」		-> Automatic Shutdown	「「「「「「」」」という。「「「」」「「「」」」「「「」」」」				
Status		All the un	its are in cold shutdown.					
Remarks	Unit-1, 2, 3 & 4, which w External power supply w up water, system, TEPC Latest Monitor Indication Evacuation Area: 10km f	ere in full operation when the as available after the quake. D recovered the core cooling 1: 15.9 μ Sv/h at 12:00, Mar. rom NRS	e earthquake occurred, all shut While injecting water into the function and made the unit in 17 at NPS border	down automatically. reactor pressure vessel using make- o cold shutdown state one by one				

Power Station		Onagawa Nuclear Power Statio	on
Unit	1	2	3
Operation Status at the earthquake occurred	- 秋秋心のなけれる…本	In Service -> Automatic Shutdo	wn state i the
Status		All the units are in cold shutdow	wn.
Remarks	Unit-1, 2 & 3 all shutd Unit-2 & 3 were then I operation after planned	own automatically when the earth ed into cold shutdown state. Unit d outage, got into cold shutdown i	quake occurred. 1-2, which had just started mmediately.

Power Station	Tokai Daini
Operation Status at the earthquake occurred	In Service -> Automatic Shutdown
Status	In cold shutdown.
Remarks	Tokai Daini NPP, which was in full operation when the earthquake occurred; shutdown automatically. Core cooling function was gotten into service after external power supply was recovered on Mar. 13

[Source]

Governmental Emergency Headquarters: News Release (3/17 13:00), Press conference (3/14 11:45, 16:15, 3/15 8:00, 11:00, 16:25, 3/16 11:15, 3/17 11:31) NISA: News Release (3/14 7:30, 3/16 14:00, 20:08), Press conference (3/16 12:00) TEPCO: Press Release (3/14 16:00, 17:35, 3/15 6:00, 12:00, 16:30, 23:35, 3/16 0:00, 3/17 11:30, 12:00),

.

Press Conference (3/14 12:10, 20:00, 3/15 8:00, 8:30, 3/16 early morning)

[Abbreviations]

INES: International Nuclear Event Scale NISA: Nuclear and Industrial Safety Agency SFP: spent fuel pool TEPCO: Tokyo Electric Power Company, Inc.

[Significance judged by JAIF] : low

: high

: severe

Weaver, Tonna	0
From:	
Sent:	Thursday, March 17, 2011 3:48 PM
То:	Gray, Kathy; Dudes, Laura; Skeen, David; Uhle, Jennifer; Brown, Frederick; Ruland, William
Cc:	Holian, Brian; Thorp, John; Thomas, Eric; Cunningham, Liza; Flory, Shirley
Subject:	RE: Confirmation is requested for RST Director Schedule - 3/18-3/25

I'm good as indicated.

From: Gray, Kathy ()
Sent: Thursday, March 17, 2011 3:30 PM
To: Dudes, Laura; Skeen, David; Uhle, Jennifer; Brown, Frederick; Ruland, William
Cc: Holian, Brian; Hiland, Patrick; Thorp, John; Thomas, Eric; Cunningham, Liza; Flory, Shirley; Gray, Kathy
Subject: Confirmation is requested for RST Director Schedule - 3/18-3/25
Importance: High

Please confirm that you are able to provide coverage in the Ops Center, as the RST Director, as follows:

Shift	3/18 (Fri)	3/19 (Sat)	3/20 (Sun)	3/21 (Mon)	3/22 (Tues)	3/23 (Wed)	3/24 (Thur)	3/25 (Fri)
7am–3pm	(Laura	Laura	Laura	Fred Brown	Fred	Fred	Fred	Pat Hiland
	Dudes)	Dudes	Dudes		Brown	Brown	Brown	
3pm–	(Bill Ruland)	Dave Skeen	Dave	Dave	Dave	Bill	Bill	Bill
11pm			Skeen	Skeen	Skeen	Ruland	Ruland	Ruland
11pm–	Jennifer	Jennifer	Jennifer	Jennifer	Brian	Brian	Brian	Brian
7am	Uhle	Uhle	Uhle	Uhle	Holian	Holian	Holian	Holian

March 18 – March 25, 2011

Pat Hiland and Brian Holian - already confirmed - no response needed.

Thanks very much.

Kathy A. Gray

Information Management Asst. Operating Experience Branch, DIRS/NRR Rm. O-7F04, Phone: 301-415-1166 <u>Kathy.Gray@nrc.gov</u>

m-16

From: Sent: To: Subject: EDO Update [nrc.announcement@nrc.gov] Thursday, March 17, 2011 4:08 PM Taylor, Renee EDO Update



EDO Update

Thursday, March 17, 2011



The situation at the Fukushima reactor site in Japan continues to be very serious and dynamic. The NRC has responded quickly and effectively to an incredibly challenging situation. We have staffed the Operations Center 24/7 since last Friday and we have a team of 11 individuals who are in Japan to 1) provide support to the U.S. ambassador and the embassy, 2) interface with the Japanese regulator and licensee, and 3) help to facilitate coordination of the U.S. Government response. The Chairman was on Capitol Hill yesterday to brief committees of both the House and Senate on what is happening and how the NRC is responding. The quality of the work done by the NRC staff is clearly recognized and appreciated by all of our stakeholders.

Given the available information, we continue to be very concerned about the condition of three reactor cores and two spent fuel pools. Based on calculations performed by NRC experts for the situation as a whole, we now believe that it is appropriate for U.S. residents within 50 miles of the Fukushima reactors to evacuate. Our recommendation is based on NRC guidelines for public safety that would be used in the U.S. under similar circumstances. At the same time, however, we do not expect any part of the U.S. or its territories to experience any harmful levels of radioactivity, given the great distances involved. We continue to do analyses to verify our understanding of this issue. The NRC is working closely with our federal partners to monitor radiation releases from the Japanese nuclear power plants.

We will continue to place emphasis on communication activities. The agency is being flooded with phone calls from the media, stakeholders, and the general public. Once again, thank you to everyone who is pitching in to help deal with this volume of activity.

Given the dynamic situation, there will be an All-Hands meeting tomorrow at 2:00 p.m. in the One White Flint auditorium, with VTC to the regions, Technical Training Center, and headquarters satellite offices. Overflow seating will be available in the TWFN Exhibit Area as

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well as the Commission Hearing Room. (There will also be a bridge line: 888-820-8960; pass code: 8690842.) I will give you an update on what we know, and answer any questions to the best of my ability. In addition, we are expecting to have a Commission meeting early next week. We will provide a link to the briefing materials as soon as possible. Finally, you may find these documents prepared by the Office of Nuclear Reactor Regulation to be of interest: <u>http://portal.nrc.gov/edo/nrr/default.aspx</u>.

Bill Bill Borchardt, EDO

From:	Evans Michele MSIR
Sent:	Thursday, March 17, 2011 4:46 PM
To:	Givvines, Mary; Muessle, Mary
Cc:	Grobe, Jack; Ruland, William; Leeds, Eric
Subject:	RE: UPDATE- Additional Staff Requirements Outside Ops Center Long Term Staffing

Thank you.

From: Givvines, Mary March 17, 2011 4:45 PM Sent: Thursday, March 17, 2011 4:45 PM To: Givvines, Mary; Muessle, Mary Cc: Evans, Michele; Grobe, Jack; Ruland, William; Leeds, Eric Subject: UPDATE- Additional Staff Requirements Outside Ops Center Long Term Staffing

Mary/Michele

Here is what we have so far from NRR. I sent another reminder this afternoon and hope to have more names tomorrow in the am.

- **Dave Beaulieu** has Resident Inspector experience, including being the resident for Three Mile Island Unit 2
- Laura Gerke 15 years of Op Center Liaison experience from when I was in Congressional Affairs
- Karen Zeleznock bachelor's degree in International Relations from Johns Hopkins University and completed a rotation to OIP about a year ago where she filled in for desk officers for Japan, Lithuania, and Vietnam
- Jeremy Susco starting next week.
- Jim Vail
- Matthew Mitchell already listed as Technical Experts on call to Ops Center
- Kenneth Karwoski already listed as Technical Experts on call to Ops Center

PMDA staff willing to provide general-type support with no specialized experience:

- Cynthia Dorsey- nights; and weekends
- Caroline Nguyen weekdays between 8pm to midnight; anytime on weekends
- Gary Tharpe evenings; and weekends
- Sylvia Valencia weekends (prefer AM shifts)
- Hong Le weekends (anytime)
- Ilyne Miller

Thanks Mary

From:	Gray, Kathy MU
Sent:	Thursday, March 17, 2011 5:03 PM
То:	Ruland, William
Cc:	Thorp, John
Subject:	RE: Confirmation is requested for RST Director Schedule - 3/18-3/25

Thanks. Also, what about swing shifts on March 23-26?

From: Ruland, William MW Sent: Thursday, March 17, 2011 5:02 PM To: Gray, Kathy Subject: Re: Confirmation is requested for RST Director Schedule - 3/18-3/25

I confirm that I have the swing shift tomorrow. Bill Ruland, from USNRC Blackberry

From: Gray, Kathy 1000 To: Dudes, Laura; Skeen, David; Uhle, Jennifer; Brown, Frederick; Ruland, William Cc: Holian, Brian; Hiland, Patrick; Thorp, John; Thomas, Eric; Cunningham, Liza; Flory, Shirley; Gray, Kathy Sent: Thu Mar 17 15:29:41 2011 Subject: Confirmation is requested for RST Director Schedule - 3/18-3/25

Please confirm that you are able to provide coverage in the Ops Center, as the RST Director, as follows:

Shift	3/18 (Fri)	3/19 (Sat)	3/20 (Sun)	3/21 (Mon)	3/22 (Tues)	3/23 (Wed)	3/24 (Thur)	3/25 (Fri)
and the second second		the state of the s	Lauran Marcular			No. of Concession, Name		NACTO PROCESSION
7am–3pm	(Laura	Laura	Laura	Fred Brown	Fred	Fred	Fred	Pat Hiland
	Dudes)	Dudes	Dudes		Brown	Brown	Brown	
3pm–	(Bill Ruland)	Dave Skeen	Dave	Dave	Dave	Bill	Bill	Bill
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March 18 – March 25, 2011

Pat Hiland and Brian Holian - already confirmed - no response needed.

Thanks very much.

Kathy A. Gray

Information Management Asst. Operating Experience Branch, DIRS/NRR Rm. O-7F04, Phone: 301-415-1166 <u>Kathy.Gray@nrc.gov</u>

MII

From:	Scott, Michael 1 100
Sent:	Thursday, March 17, 2011 5:23 PM
То:	Gratton, Christopher; Howe, Allen
Cc:	Ghosh, Tina; Santiago, Patricia; Ruland, William; Harrison, Donnie; Tate, Travis; Boska, John
Subject:	FW: Help with Commission brief
Attachments:	Staff Slides for March 21 Meeting (Japanese Event).pptx

Chris/Allen:

My folks tell me that SAMG, as a licensing activity, is best addressed in NRR. Specifically, that Donnie Harrison or Travis Tate are good sources. If they are unable to provide, Tina Ghosh of the RES staff is knowledgeable and can provide the talking points tomorrow morning. But I would ask that you check with Donnie/Travis first (copied this note).

Mike

From: Gratton, Christopher MU Sent: Thursday, March 17, 2011 4:28 PM To: Howe, Allen; Collins, Timothy; Tinkler, Charles; Scott, Michael Cc: Bahadur, Sher; Boska, John; Ruland, William Subject: RE: Help with Commission brief

What we are looking for is talking points. High level points to support the slide bullet. If you need a copy of the current version of the slides (they are evolving), let me know. The current version as of 4 pm is attached

1999 - 199

CG

From: Howe, Allen W Sent: Thursday, March 17, 2011 4:23 PM To: Collins, Timothy; Tinkler, Charles; Scott, Michael Cc: Bahadur, Sher; Gratton, Christopher; Boska, John; Ruland, William Subject: RE: Help with Commission brief

Tim - first of all thanks. Can you get with Chris to talk specifics?

Mike/Scott – can you help with the SAMGs? We are on a very tight timeline here, so high level bullets is what is needed and someone to respond to Qs Monday. Note that this meeting will have media coverage.

Thanks - Allen

From: Collins, Timothy MCK Sent: Thursday, March 17, 2011 4:19 PM To: Howe, Allen; Ruland, William Cc: Bahadur, Sher Subject: RE: Help with Commission brief

m~180

I can help with Mark I containments improvements ... we probably need some help from RES (Charlie Tinkler most likely) for SAMGs

From: Howe, Allen philosoft Sent: Thursday, March 17, 2011 4:05 PM To: Ruland, William; Collins, Timothy Cc: Bahadur, Sher Subject: Help with Commission brief Importance: High

Bill – need someone who can work with Chris Gratton/John Boska on one line talking points for Bill Borchardt. Topic areas are SAMGs and Mark 1 containment improvements.

Thanks - Allen

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Briefing on NRC Response to Recent Nuclear Events in Japan

Bill Borchardt Executive Director for Operations March 21, 2011

Agenda

- Event Overview
- Immediate NRC Response
- Continuing NRC Response
- Assessment of Domestic Reactor Safety
- Planned NRC Activities
- Impact on Current NRC Activities

Event Overview

- Discuss initiating events
- Current status of reactors
- Current status of spent fuel pools
- Potential Consequences

Immediate NRC Response

- Operations Center activation
- Dispatched 2 NRC experts to Japan on March 11th and 14th (USAID)
- Established support for U.S. Embassy
- Opened dialog with Japanese Ministry of Defense
- Active outreach to stakeholders

Continuing NRC Response

- Keep Operations Center manned 24/7
- Support NRC personnel in Japan, rotate as necessary
- Evaluate generic communication needs
- Provide assistance as requested

Potential Consequences

- Release estimates from Japanese event
- Plume tracking
- Consequences for the U.S.

Assessment of Domestic Reactor Safety

- Design basis incorporate natural disasters expected for their locale
- All reactors must be able to cope with a loss of all AC power for a designated time period
- Plans exist to cope with Beyond-Design-Basis events

Assessment of Domestic Reactor Safety (Cont.)

- INPO and industry will respond to assist a licensee
- Improvements have been made since initial licensing
- {EP Bullet}
- U.S. plants continue to be safe

Planned NRC Activities – Near Term

- Consider how to evaluate lessons learned
- Review panels may be a joint Federal effort

Planned NRC Activities – Longer Term

- Lessons learned and recommendations will be developed
- Regulatory actions will be considered

Impact on Current NRC Activities

- Communication activities have increased
- Certain licensing actions will be reviewed
- Routine meetings will continue as scheduled
- License renewals will continue as scheduled



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- Routine meetings will continue as scheduled
- License renewals will continue as scheduled

Weaver, Tonna

From:
Sent:
To:
Subject:

Ulses, Anthony INRC Thursday, March 17, 2011 10:02 PM RST07 Hoc RE: Position paper for spraying water on fuel pools

Chuck,

Thanks. One thing I would like to know is the ignition temperature of Zr. Any ideas?

Thanks,

Tony

From: RST07 Hoc Sent: Thursday, March 17, 2011 9:59 PM To: Ulses, Anthony Subject: Position paper for spraying water on fuel pools

Position paper attached

M-181



Zeleznock, Karen

Subject: Location:	FW: Role of Eric Thomas in the NRR Response to the Japan Earthquake Nelson's Office
Start: End: Show Time As:	Thu 3/17/2011 9:00 AM Thu 3/17/2011 10:00 AM Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	NRR_DIRS_IOEB Resource

-----Original Appointment----- **From:** NRR_DIRS_IOEB Resource **Sent:** Wednesday, March 16, 2011 4:27 PM **To:** NRR_DIRS_IOEB Resource; Nelson, Robert; Thomas, Eric; Pannier, Stephen **Subject:** Role of Eric Thomas in the NRR Response to the Japan Earthquake **When:** Thursday, March 17, 2011 9:00 AM-10:00 AM (GMT-05:00) Eastern Time (US & Canada). **Where:** Nelson's Office

When: Thursday, March 17, 2011 9:00 AM-10:00 AM (GMT-05:00) Eastern Time (US & Canada). Where: Nelson's Office

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

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Meeting to discuss role of Eric in the Japan Earthquake response.

M-182

Khanna, Meena



From:Khanna, MeenaSent:Thursday, March 17, 2011 6:58 PMTo:Uribe, JuanSubject:RE: Comprehensive references on Flood protection

Thanks again, Juan, this is extremely helpful!

From: Uribe, Juan
Sent: Thursday, March 17, 2011 1:32 PM
To: Khanna, Meena
Cc: Uribe, Juan
Subject: Comprehensive references on Flood protection

SRP NUREG-0800 2.4.2-Floods

http://adamswebsearch2.nrc.gov/idmws/DocContent.dll?library=PU_ADAMS^pbntad01&LogonID=e7be3b67e27a603e3 f09bef65e0fbd5a&id=070870014

SRP NUREG-0800 2.4.3-FPMF on Streams and Rivers

http://adamswebsearch2.nrc.gov/idmws/DocContent.dll?library=PU_ADAMS^pbntad01&LogonID=74dc97ad6d18ca7cb 1095eb4b87a0688&id=070870065

SRP NUREG-0800 2.4.4 Potential Dam Failures http://www.internal.nrc.gov/RES/projects/RASP/documents/Hurricane%20and%20Flooding/NUREG-0800_2.4.4.pdf

SRP NUREG-0800 2.4.6 Probable Maximum Tsunami Hazards

http://adamswebsearch2.nrc.gov/idmws/DocContent.dll?library=PU_ADAMS^pbntad01&LogonID=4a6144be767a31023 107242bc5b6cb3e&id=070870016

SRP NUREG-0800 2.4.10 Flooding Protection Requirements

http://adamswebsearch2.nrc.gov/idmws/DocContent.dll?library=PU_ADAMS^pbntad01&LogonID=44d544194bac12fe6 3a4bdf991bfa973&id=070870070

RG 1.29-Seismic Design Classification http://www.nrc.gov/reading-rm/doc-collections/reg-guides/power-reactors/rg/01-029/01-029.pdf

RG1.59-Design Basis Floods for NPPs http://pbadupws.nrc.gov/docs/ML0037/ML003740388.pdf

RG 1.102-Flood Protection for Nuclear Power Plants http://adamswebsearch2.nrc.gov/idmws/DocContent.dll?library=PU_ADAMS^pbntad01&LogonID=4191e78fc85354179 7e87e85e7fbd55e&id=003957331

JUAN F. URIBE CIVIL ENGINEER (EIT) NRR/DE/EMCB| 301-415-3809 | O9F10 | <u>Juan.Uribe@nrc.gov</u>

N-183

Galloway, Melanie		
From: Sent: To: Cc: Subject:	Galloway, Melanie Thursday, March 17, 2011 4:02 PM Susco, Jeremy Holian, Brian FW: Additional Staff requirements outside Ops Center Long Term Staffing	
Importance:	High	
Jeremy, I forwarded	d your name for starting next week if needed.	
From: Givvines, Ma Sent: Thursday, Ma To: Givvines, Mary; Galloway, Melanie; McGinty, Tim; Nelsc Cc: Leeds, Eric; Gro Subject: RE: Addit Importance: High	arch 17, 2011 3:48 PM Bahadur, Sher; Blount, Tom; Brown, Frederick; Cheok, Michael; Cunningham, Mark; Evans, Michele; Giitter, Joseph; Hiland, Patrick; Holian, Brian; Howe, Allen; Lee, Samson; Lubinski, John; Lund, Louise; on, Robert; Quay, Theodore; Ruland, William; Skeen, David obe, Jack; Boger, Bruce ional Staff requirements outside Ops Center Long Term Staffing	
All,		
I only received 1 r	name from DPR and the rest are from PMDA. Any others as I need to respond today.	
s a la la garagent		

...

From: Givvines, Mary

Sent: Wednesday, March 16, 2011 12:57 PM

To: Bahadur, Sher; Blount, Tom; Brown, Frederick; Cheok, Michael; 'Cunningham, Mark'; Evans, Michele; Galloway, Melanie; Giitter, Joseph; Givvines, Mary; Hiland, Patrick; Holian, Brian; Howe, Allen; Lee, Samson; Lubinski, John; Lund, Louise; McGinty, Tim; Nelson, Robert; Quay, Theodore; Ruland, William; Skeen, David
Cc: Leeds, Eric; Grobe, Jack; Boger, Bruce
Subject: FW: Additional Staff requirements outside Ops Center Long Term Staffing
Importance: High

All,

, · . - · `

I will go ahead and lead this effort to obtain a list of potential staff. I know that Bill is super busy – can you provide me with names and I will forward to the EDO office? I would appreciate sending me names by noon tomorrow.

Thanks

From: Grobe, Jack
Sent: Wednesday, March 16, 2011 11:18 AM
To: Givvines, Mary; Ruland, William
Cc: Leeds, Eric; Boger, Bruce
Subject: Fw: Additional Staff requirements outside Ops Center Long Term Staffing
Importance: High

Mary and Bill.

Please take the lead and respond directly. Jack Grobe, Deputy Director, NRR

m-184

Hopkins, Jon

From:Hopkins, JonSent:Thursday, March 17, 2011 10:19 AMTo:Rodriguez, VeronicaSubject:Today's Nuclear News Flashes

Veronica, In today's Nuclear News Flashes are the following tidbits. Jon

The European Nuclear Safety Regulators Group will meet in April to work out standards and criteria for the planned "stress tests" of European nuclear power plants, French Environment Minister Nathalie Kosciusko-Morizet said March 16.

NEI said in a March 16 statement that the industry agreed to "verify each company's capability to mitigate conditions that result from severe adverse events, including the loss of significant operational and safety systems due to natural events, fires, aircraft impact and explosions. Specific actions include testing and inspecting equipment required to mitigate these events and verifying that qualifications of operators and support staff required to implement them are current."

Operators will "verify that the capability to mitigate a total loss of electric power to a nuclear power plant is proper and functional. This will require inspections verifying that all required materials are adequate and properly staged and that procedures are implemented," NEI said.

M-185

Hopkins, Jon

From:	Hopkins, Jon 🧭 🔪
Sent:	Thursday, March 17, 2011 10:01 AM
То:	Rodriguez, Veronica
Cc:	Quinones, Lauren; Cullingford, Michael; Astwo
Subject:	FW: NRR Actions re Japan events: near-term
-	

Veronica,

FYI. See thread below for NRC (NRR/DIRS) initial thoughts on reviewing U.S. plant safety relative to Japan events.

Astwood, Heather

Jon

From: Boger, Bruce Sent: Thursday, March 17, 2011 9:51 AM To: Regan, Christopher; Hopkins, Jon Subject: FW: NRR Actions: near-term

FYI—nice catch by Marty.

From: Virgilio, Martin
Sent: Thursday, March 17, 2011 6:08 AM
To: Leeds, Eric; Weber, Michael; Brown, Frederick
Cc: Borchardt, Bill; Boger, Bruce; Grobe, Jack; Ruland, William; Johnson, Michael; Sheron, Brian; Evans, Michele
Subject: RE: NRR Actions: near-term

Eric

I recall we have 2 suggestions in the IRRS report related to severe accident management that should be considered in formulating our actions (see items S5 and S10). This could be an opportunity to address and close on the issue related to confirming the adequacy of operating training on severe management mitigation.

Marty

From: Leeds, Eric
Sent: Wednesday, March 16, 2011 1:14 PM
To: Virgilio, Martin; Weber, Michael
Cc: Borchardt, Bill; Boger, Bruce; Grobe, Jack; Ruland, William; Johnson, Michael; Sheron, Brian; Evans, Michele
Subject: NRR Actions: near-term
Importance: High

Please see below. NRR has assembled a team, led by an SES manager to evaluate near term actions for the agency's response to the Japanese event. At this time, we are considering inspection as well as a generic communication and a review of "sensitive" licensing actions". I will keep you informed as we go forward I have discussed the current situation in Japan with the RAs and our preliminary thoughts for regulatory actions going forward.

We have also prepared a scheduling note for the commission meeting for next week. We will send it to you.

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

m-186

Valentine, Nicholee

Fro	n:
Sen	t:
To:	
Sub	ject:
Atta	chments

Bowman, Eric Thursday, March 17, 2011 3:05 PM Wilson, George ACTION REQUESTED IN 11-xx B5b Earthquake.docx

George,

The latest version of the IN is attached. I'm trying to put together a final version for Ops Center ET review tonight.

1

M-187

Thanks!

Eric

UNITED STATES NUCLEAR REGULATORY COMMISSION OFFICE OF NUCLEAR REACTOR REGULATION WASHINGTON, D.C. 20555-0001

NRC INFORMATION NOTICE 2011-05:

TOHOKU-TAIHEIYOU-OKI EARTHQUAKE EFFECTS ON JAPANESE NUCLEAR POWER PLANTS

ADDRESSEES

All holders of operating licensees for nuclear power reactors under the provision of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

PURPOSE

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice (IN) to inform addressees of effects of the Tohoku-Taiheiyou-Oki Earthquake on nuclear power plants in Japan. The NRC expects that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. Suggestions contained in this IN are not NRC requirements; therefore, no specific action or written response is required.

DESCRIPTION OF CIRCUMSTANCES

On March 11, 2011, the Tohoku-Taiheiyou-Oki Earthquake occurred near the east coast of Honshu, Japan. This magnitude 9.0 earthquake and the subsequent tsunami caused significant damage to at least four of the six units of the Fukushima Daiichi nuclear power station, including damage to the cooling water systems, a sustained loss of both the off-site and on-site power systems, and a loss of spent fuel pooling (SFP) cooling. Efforts to restore power to emergency equipment have been impacted by damage to the surrounding areas due to the tsunami and earthquake.

Tokyo Electric Power Company, the operator of the plant, resorted to injecting sea water and boric acid into the reactor vessels Units One through Three, which had been operating at the time of the earthquake and subsequently scrammed, in an effort to cool the fuel and ensure they remained shutdown. Hydrogen explosions from overheated fuel-water reaction damaged the secondary containment, apparently leaving the primary containment functional in all three units. In addition, all three units suffered from decreasing SFP levels.

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Units Four through Six had been shutdown for refueling outages at the time of the earthquake, with the core for Unit Four offloaded to the SFP, which suffered a total loss of water along with an inability to retain water. The SFPs for Units Five and Six appeared intact, but heating up.

The areas surrounding Fukushima Daiichi were evacuated under the instructions of the Government of Japan.

The damage to Fukushima Daiichi nuclear power station appears to have been caused by initiating events outside of the design basis for the facilities.

BACKGROUND

Appendix A to 10 CFR Part 50, General design criteria (GDC) 2, "Design Bases for Protection against Natural Phenomena," or, as appropriate, similar requirements in the licensing basis for a reactor facility requires that structures, systems, and components (SSCs) important to safety be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions. The design bases for these SSCs reflects: (1) appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, (2) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena, and (3) the importance of the safety functions to be performed.

As a result of the events of September 11, 2001, the NRC issued EA-02-026, "Order for Interim Safeguards and Security Compensatory Measures" (the ICM Order) dated February 25, 2002, (designated safeguards information (SGI)), which modified then-operating licenses for commercial power reactor facilities to require compliance with specified interim safeguards and security compensatory measures. Section B.5.b of the ICM Order requires licensees to adopt mitigation strategies using readily available resources to maintain or restore core cooling, containment, and SFP cooling capabilities to cope with the loss of large areas of the facility due to large fires and explosions from any cause, including beyond-design-basis aircraft impacts. By letter dated February 25, 2005 the NRC staff provided guidance for implementing Section B.5.b of the ICM Order. This guidance is designated SGI and is commonly referred to as the B.5.b Phase 1 Guidance.

Following issuance of the B.5.b Phase 1 Guidance, the NRC staff conducted inspections at operating reactor sites using Temporary Instruction (TI) 2515/164 (SGI) to gather information on actions taken in response to the February 25, 2005, guidance. The NRC staff then convened assessment panels to evaluate the adequacy of licensee actions taken to date. These assessment panels developed acceptance criteria to determine the adequacy of licensee responses to each of the 34 expectations identified in Attachment B to the B.5.b Phase 1 Guidance. On January 18 and 26, 2006, the NRC staff met with industry representatives and provided further clarifying information, including staff acceptance criteria on how licensees could meet Section B.5.b of the ICM Order. The NRC clarifying information for acceptance of each expectation was disseminated in Section 05.02.c and 05.02.d of TI 2515/168 (SGI). This

clarifying information represents acceptable methods, along with staff acceptance criteria, for satisfying the expectations. The staff used this clarifying information in developing its safety evaluation and inspection of current reactor licensee's compliance with Section B.5.b of the ICM Order.

In December 2006, Nuclear Energy Institute (NEI) issued NEI 06-12, Revision 2, "B.5.b Phase 2 & 3 Submittal Guideline." NEI 06-12 is designated for Official Use Only – Security Related Information (OUO-SRI). The NRC endorsed NEI 06-12, Revision 2, by letter dated December 22, 2006, also designated OUO-SRI, as an acceptable means for developing and implementing the mitigation strategies requirement in Section B.5.b of the ICM Order. NEI 06-12, Revision 2 provides guidance for implementing a set of strategies intended to maintain or restore core cooling, containment, and SFP cooling capabilities under the circumstances associated with the loss of a large area of the plant due to explosions or fire, in the following areas:

- Adding make-up water to the SFP,
- Spraying water on the spent fuel,
- Enhanced initial command and control activities for challenges to core cooling and containment, and
- Enhanced response strategies for challenges to core cooling and containment.

The specific strategies covered in NEI 06-12, Revision 2, were developed based on the results of assessments conducted at currently licensed power reactor facilities for the purpose of enhancing plant specific mitigation capability for damage conditions caused by a large explosion or fire. These assessments identified a wide spectrum of potential plant specific strategies. NEI 06-12, Revision 2 specifies one set of strategies applicable to all pressurized-water reactors and another set applicable to all boiling-water reactors. Both sets are derived from the results of the plant specific assessments.

The B.5.b Phase 1 Guidance and NEI 06-12, Revision 2, were used by each licensee in preparing information submitted to the NRC that describes a plant specific approach to implementing mitigating strategies and supports each plant specific license condition. The NRC staff has completed its review of the information submitted by each licensee, as well as information obtained during prior NRC inspections, and has issued an OUO-SRI safety evaluation (SE) that documents the bases for its approval of the license condition for each facility. The SE issued for each licensee includes regulatory guidance in Section 3.0 of Appendix A, "Phase 1 Assessment," that recites the generic B.5.b Phase 1 Guidance of Reference 3, as clarified in TI 2515/168, in a form that is designated OUO-SRI rather than SGI.

On March 27, 2009, the NRC amended 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," Part 52, "Licenses, Certifications, and Approvals for Nuclear Power . Plants," and Part 73, "Physical Protection of Plants and Materials," with new requirements published in the *Federal Register* dated March 27, 2009 (74 FR 13926). This rulemaking added paragraph (i) to 10 CFR 50.34, "Contents of applications; technical information," to require submittal of a "description and plans for implementation of the guidance and strategies intended to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities under the circumstances associated with the loss of large areas of the plant due to explosions or fire as required by § 50.54(hh)(2) of this chapter." This rulemaking also added 10 CFR 50.54(hh)(2) in order to impose the same mitigating strategies requirements on new reactor applicants and licensees as those imposed by the ICM Order and associated license conditions. The Statement of Considerations for this rulemaking specifically noted that the requirements described in Section 50.54(hh) are for addressing certain events that are the cause of large fires and explosions that affect a substantial portion of the nuclear power plant and are not limited or directly linked to an aircraft impact. In addition, the rule contemplates that the initiating event for such large fires and explosions could be any number of beyond-design basis events, including natural phenomena such as those described in GDC 2 (i.e., earthquakes, tornadoes, floods, tsunami, and seiches), without regard to the GDC 2 limitation in magnitude of the design bases for the natural phenomena.

NRC regulations at 10 CFR 50.63 require that light-water-cooled nuclear power plants be capable of withstanding for a specified duration and recovering from a station blackout.

DISCUSSION

The nuclear power industry has taken the actions listed below at each licensed reactor site. Additional information is available in the NEI Fact Sheet, "Industry Taking Action to Ensure Continued Safety at U.S. Nuclear Energy Plants," dated March 16, 2011, available at www.nei.org.

- 1. Verification of the capability to mitigate conditions that result from sever adverse events, including the loss of significant operational and safety systems due to natural events, fires, aircraft impact and explosions.
- 2. Verification of the capability to mitigate a total loss of electric power to a nuclear power plant.
- 3. Verification of the capability to mitigate flooding and the impact of floods on systems inside and outside the plant.
- 4. Identification of the potential for loss of equipment's functions during seismic events appropriate for the site and development of mitigating strategies of potential vulnerabilities.

Assessment of the implications of beyond design-basis natural phenomena, including earthquakes, is continuing as more information becomes available. In the near term, the NRC is considering additional generic communications and additional action that requests operating plants to provide specific information relating to their facilities to enable the NRC staff to complete the Regulatory Assessment. The NRC staff is currently developing a TI in order to perform independent assessment of nuclear power plant readiness to address beyond design-basis natural phenomena under the Reactor Oversight Process.

PAPERWORK REDUCTION ACT STATEMENT

This Information Notice does not contain any information collections and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.).

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid Office of Management and Budget control number.

CONTACTS

This information notice requires no specific action or written response. Please direct any questions about this matter to the technical contact listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

Timothy J. McGinty, Director Division of Policy and Rulemaking Office of Nuclear Reactor Regulation

Technical Contact: Eric E. Bowman, NRR 301-415-2963 e-mail: Eric.Bowman@nrc.gov

Note: NRC generic communications may be found on the NRC public Web site, <u>http://www.nrc.gov</u>, under Electronic Reading Room/Document Collections.

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Valentine, Nicholee

Bowman, Eric
Thursday, March 17, 2011 5:02 PM
McDermott, Brian
LIA08 Hoc; Rosenberg, Stacey; McGinty, Tim; Burnell, Scott; Williamson, Edward; Morris,
Scott; Lew, David; Wert, Leonard; Pederson, Cynthia; Howell, Art; Westreich, Barry
ACTION REQUESTED: Japanese Earthquake-related Information Notice
IN 11-xx B5b Earthquake.docx

Brian,

The current version of the IN is attached. We chose to use an IN for this as the fastest generic communications vehicle available in light of our desire to issue it prior to the Commission meeting on the subject scheduled for Monday.

V/R Eric

From: McDermott, Brian
Sent: Thursday, March 17, 2011 2:38 PM
To: McGinty, Tim; Burnell, Scott; Williamson, Edward; Morris, Scott
Cc: LIA08 Hoc; Rosenberg, Stacey; Bowman, Eric
Subject: RE: ACTION REQUESTED: Japanese Earthquake-related Information Notice

Tim,

We've tasked the item for review this evening. With comments due to NRR\Tim McGinty by 0700 on 3/18.

Brian

From: McGinty, Tim
Sent: Thursday, March 17, 2011 12:57 PM
To: Burnell, Scott; Williamson, Edward; McDermott, Brian; Morris, Scott
Cc: LIA08 Hoc; Rosenberg, Stacey; Bowman, Eric
Subject: FW: ACTION REQUESTED: Japanese Earthquake-related Information Notice

We are fast tracking this proposed IN. I will want the ET in the Ops Center to review it. Attached is an early draft. Feedback welcomed. Tim

From: McGinty, Tim
Sent: Thursday, March 17, 2011 12:42 PM
To: Bowman, Eric; Thomas, Eric; Correia, Richard; Mathew, Roy
Cc: Rosenberg, Stacey; Hiland, Patrick; Westreich, Barry; Boger, Bruce; Leeds, Eric; Quay, Theodore; Blount, Tom; Skeen, David
Subject: RE: ACTION REQUESTED: Japanese Earthquake-related Information Notice

My apologies. We have now been tasked to issue the IN tomorrow. Need your comments and concurrence by mid-afternoon today, COB at the latest. Tim

From: Bowman, Eric
Sent: Thursday, March 17, 2011 11:37 AM
To: Thomas, Eric; Correia, Richard; Mathew, Roy
Cc: Rosenberg, Stacey; McGinty, Tim; Hiland, Patrick; Westreich, Barry

M-188

Subject: ACTION REQUESTED: Japanese Earthquake-related Information Notice **Importance:** High

All,

We plan to issue the attached Information Notice early next week on the implications of the recent Japanese Earthquake. In support of that effort, your comments and Divisional concurrence are requested by tomorrow afternoon.

Very many thanks in advance for your efforts.

V/R; R/ Eric

Eric E. Bowman Sr. Project Manager Generic Communications & Power Uprate Branch Division of Policy and Rulemaking Office of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission 301-415-2963 Eric.Bowman@nrc.gov

UNITED STATES NUCLEAR REGULATORY COMMISSION OFFICE OF NUCLEAR REACTOR REGULATION WASHINGTON, D.C. 20555-0001

NRC INFORMATION NOTICE 2011-05:

TOHOKU-TAIHEIYOU-OKI EARTHQUAKE EFFECTS ON JAPANESE NUCLEAR POWER PLANTS

ADDRESSEES

All holders of operating licensees for nuclear power reactors under the provision of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

PURPOSE

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice (IN) to inform addressees of effects of the Tohoku-Taiheiyou-Oki Earthquake on nuclear power plants in Japan. The NRC expects that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. Suggestions contained in this IN are not NRC requirements; therefore, no specific action or written response is required.

DESCRIPTION OF CIRCUMSTANCES

On March 11, 2011, the Tohoku-Taiheiyou-Oki Earthquake occurred near the east coast of Honshu, Japan. This magnitude 9.0 earthquake and the subsequent tsunami caused significant damage to at least four of the six units of the Fukushima Daiichi nuclear power station, including damage to the cooling water systems, a sustained loss of both the off-site and on-site power systems, and a loss of spent fuel pooling (SFP) cooling. Efforts to restore power to emergency equipment have been impacted by damage to the surrounding areas due to the tsunami and earthquake.

Units One through Three, which had been operating at the time of the earthquake, scrammed automatically, inserting their neutron absorbing control rods to ensure immediate shutdown of the fission process. With the loss of electric power to normal and emergency core cooling systems and subsequent failure of back-up decay heat removal systems, Tokyo Electric Power Company (TEPCO), the operator of the plant, resorted to injecting sea water and boric acid into the reactor vessels of these three units, in an effort to cool the fuel and ensure they remained shutdown. During this process, the fuel became partially uncovered. Hydrogen gas built up in

ML110760432

units 1 and 3 as a result of overheated fuel reacting with water. When the gas pressure was vented from the primary containment, hydrogen explosions occurred in both units and damaged the secondary containments. It appears that primary containments remain functional. In addition, units 1, 2, and 3 suffered from decreasing SFP levels due to loss of their SFP cooling systems. TEPCO cut a hole in the side of the unit 2 secondary containment to prevent hydrogen buildup following a sustained period when there was no water injection into the core.

Units Four through Six had been shutdown for refueling outages at the time of the earthquake. The fuel assemblies for Unit Four had been offloaded from the reactor core to the SFP. The Unit four SFP suffered a total loss of water along with structural damage affecting its ability to retain water. Significantly elevated radiation levels were measured outside of Unit 4. The SFPs for Units Five and Six appear intact, but have been heating up. Emergency power is available to provide cooling water flow through the SFPs for Units 5 and 6.

The Japanese Government ordered an evacuation out to 20 km for the area surrounding Fukushima Daiichi. Residents out to 30 km were ordered to shelter in place.

The damage to Fukushima Daiichi nuclear power station appears to have been caused by initiating events outside of the design basis for the facilities.

BACKGROUND

Appendix A to 10 CFR Part 50, General design criteria (GDC) 2, "Design Bases for Protection against Natural Phenomena," or, as appropriate, similar requirements in the licensing basis for a reactor facility requires that structures, systems, and components (SSCs) important to safety be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions. The design bases for these SSCs reflects: (1) appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, (2) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena, and (3) the importance of the safety functions to be performed.

As a result of the terrorist events of September 11, 2001, the NRC issued EA-02-026, "Order for Interim Safeguards and Security Compensatory Measures" (the ICM Order) dated February 25, 2002, (designated safeguards information (SGI)), which modified then-operating licenses for commercial power reactor facilities to require compliance with specified interim safeguards and security compensatory measures. Section B.5.b of the ICM Order requires licensees to adopt mitigation strategies using readily available resources to maintain or restore core cooling, containment, and SFP cooling capabilities to cope with the loss of large areas of the facility due to large fires and explosions from any cause, including beyond-design-basis aircraft impacts.

By letter dated February 25, 2005 the NRC staff provided guidance for implementing Section B.5.b of the ICM Order. This guidance, designated as SGI, included best practices for mitigating losses of large areas of the plant and measures to mitigate fuel damage and minimize

releases. Following issuance of the B.5.b Phase 1 Guidance, the NRC staff conducted inspections at operating reactor sites using Temporary Instruction (TI) 2515/164 (SGI) and subsequently TI 2515/168 (SGI) to ensure compliance with Section B.5.b of the ICM Order.

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The specific strategies covered in NEI 06-12, Revision 2, were developed based on the results of assessments conducted at currently licensed power reactor facilities for the purpose of enhancing plant specific mitigation capability for damage conditions caused by a large explosion or fire. These assessments identified a wide spectrum of potential plant specific strategies. NEI 06-12, Revision 2 specifies one set of strategies applicable to all pressurized-water reactors and another set applicable to all boiling-water reactors. Both sets are derived from the results of the plant specific assessments.

The B.5.b Phase 1 Guidance and NEI 06-12, Revision 2, were used by each licensee in preparing information submitted to the NRC that describes a plant specific approach to implementing mitigating strategies and supports each plant specific license condition. The NRC staff has completed its review of the information submitted by each licensee, as well as information obtained during prior NRC inspections, and has issued an OUO-SRI safety evaluation (SE) that documents the bases for its approval of the license condition for each facility. The SE issued for each licensee includes regulatory guidance in Section 3.0 of Appendix A, "Phase 1 Assessment," that recites the generic B.5.b Phase 1 Guidance of Reference 3, as clarified in TI 2515/168, in a form that is designated OUO-SRI rather than SGI.

On March 27, 2009, the NRC amended 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," and Part 73, "Physical Protection of Plants and Materials," with new requirements published in the *Federal Register* dated March 27, 2009 (74 FR 13926). This rulemaking added paragraph (i) to 10 CFR 50.34, "Contents of applications; technical information," to require submittal of a "description and plans for implementation of the guidance and strategies intended to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities under the circumstances associated with the loss of large areas of the plant due to explosions or fire as required by § 50.54(hh)(2) of this chapter." This rulemaking also added 10 CFR 50.54(hh)(2)

in order to impose the same mitigating strategies requirements on new reactor applicants and licensees as those imposed by the ICM Order and associated license conditions. The Statement of Considerations for this rulemaking specifically noted that the requirements described in Section 50.54(hh) are for addressing certain events that are the cause of large fires and explosions that affect a substantial portion of the nuclear power plant and are not limited or directly linked to an aircraft impact. In addition, the rule contemplates that the initiating event for such large fires and explosions could be any number of beyond-design basis events, including natural phenomena such as those described in GDC 2 (i.e., earthquakes, tornadoes, floods, tsunami, and seiches), without regard to the GDC 2 limitation in magnitude of the design bases for the natural phenomena.

NRC regulations at 10 CFR 50.63 require that light-water-cooled nuclear power plants be capable of withstanding for a specified duration and recovering from a station blackout.

DISCUSSION

The nuclear power industry has taken the actions listed below at each licensed reactor site. Additional information is available in the NEI Fact Sheet, "Industry Taking Action to Ensure Continued Safety at U.S. Nuclear Energy Plants," dated March 16, 2011, available at <u>www.nei.org</u>.

- 1. Verification of the capability to mitigate conditions that result from severe adverse events, including the loss of significant operational and safety systems due to natural events, fires, aircraft impact and explosions.
- Verification of the capability to mitigate a total loss of electric power to a nuclear power plant.
- 3. Verification of the capability to mitigate flooding and the impact of floods on systems inside and outside the plant.
- 4. Identification of the potential for loss of equipment functions during seismic events appropriate for the site and development of mitigating strategies of potential vulnerabilities.

Assessment of the implications of beyond design-basis natural phenomena, including earthquakes, is continuing as more information becomes available. In the near term, the NRC is considering additional generic communications and additional action that requests operating plants to provide specific information relating to their facilities to enable the NRC staff to complete the Regulatory Assessment. The NRC staff is concurrently developing a TI in order to perform independent assessment of nuclear power plant readiness to address beyond design-basis natural phenomena under the Reactor Oversight Process.

PAPERWORK REDUCTION ACT STATEMENT

This Information Notice does not contain any information collections and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.).

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid Office of Management and Budget control number.

CONTACTS

This information notice requires no specific action or written response. Please direct any questions about this matter to the technical contact listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

Timothy J. McGinty, Director Division of Policy and Rulemaking Office of Nuclear Reactor Regulation

Technical Contact: Eric E. Bowman, NRR 301-415-2963 e-mail: Eric.Bowman@nrc.gov

Note: NRC generic communications may be found on the NRC public Web site, <u>http://www.nrc.gov</u>, under Electronic Reading Room/Document Collections.

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Distribution: OPA OGC

ADAMS Accession Number: ML110760432 * by e-mail

OFFICE	NRR/DPR/PGCB	TECH	NRR/DIRS/D*	NRR/DE/D*
NAME	EBowman		BWestreich	PHiland (GWilson for)
DATE	03/17/11	X/XX/11 email	03/17/2011	03/17/2011
OFFICE	NSIR/DSP*	DPR/PGCB/LA	DPR/PGCB/BC	NRR/DPR/D
NAME	RCorreia	CHawes	SRosenberg	TMcGinty
DATE	03/17/2011	03/17/2011	03/17/2011	

OFFICIAL RECORD COPY

Valentine, Nicholee

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From:	Bowman, Eric
Sent:	Thursday, March 17, 2011 12:34 PM
То:	McGinty, Tim
Cc:	Quay, Theodore; Rosenberg, Stacey
Subject:	RE: FYI: Plans to Draft and Issue an NRC Information Notice on the Japanese
-	Earthquake/Tsunami Effects on Japanese Power Plants

I just spoke with the tech editors; they are going to strive to get it done today; I'll touch base with the others on concurrence as well.

V/R Eric

From: McGinty, Tim
Sent: Thursday, March 17, 2011 12:31 PM
To: Bowman, Eric; Rosenberg, Stacey
Cc: Quay, Theodore
Subject: FW: FYI: Plans to Draft and Issue an NRC Information Notice on the Japanese Earthquake/Tsunami Effects on Japanese Power Plants

Let's talk. Can we issue tomorrow?

From: Boger, Bruce
Sent: Thursday, March 17, 2011 11:42 AM
To: McGinty, Tim
Subject: RE: FYI: Plans to Draft and Issue an NRC Information Notice on the Japanese Earthquake/Tsunami Effects on Japanese Power Plants

Thanks, Tim. As you might have expected, many folks would like to have this issued before the Commission meeting Monday morning. Wanna try for the new generic communication timeliness record?

From: McGinty, Tim
Sent: Thursday, March 17, 2011 11:17 AM
To: Nelson, Robert; Howe, Allen; Westreich, Barry; Brown, Frederick; Cheok, Michael; Hiland, Patrick; Thomas, Eric; Skeen, David; Burnell, Scott; Williamson, Edward; Giitter, Joseph; Evans, Michele
Cc: Boger, Bruce; McDermott, Brian; Leeds, Eric; Blount, Tom; Quay, Theodore; Bowman, Eric; Rosenberg, Stacey
Subject: FYI: Plans to Draft and Issue an NRC Information Notice on the Japanese Earthquake/Tsunami Effects on Japanese Power Plants

This is an FYI:

DPR staff (Eric Bowman, lead) is developing an Information Notice on the above Subject for near-term issuance.

I anticipate that it will go into concurrence today, and we will ask concurrence of DIRS, DE, and NSIR.

Upon having the necessary comments and concurrences (by noon tomorrow), we plan to share the draft for "awareness" to ensure full coordination prior to issuance. For awareness, we anticipate sharing with the DRA's, DORL, OPA, OGC and the Executive Team in the Operations Center. Our goal is to be in a position to issue the Information Notice early next week.

We are open to suggestions on this plan, so please don't hesitate. If you want to identify a primary contact for us to work with, in your organization, please respond to Eric Bowman, Stacey Rosenberg or myself. Thanks in Advance for your Support, Tim

.

Valentine, Nicholee

From:Bowman, EricSent:Thursday, March 17, 2011 3:18 PMTo:Wilson, GeorgeSubject:RE: ACTION REQUESTED

Done, but I changed "completed drained" to "completely drained."

Thanks!

Ε

From: Wilson, George Sent: Thursday, March 17, 2011 3:16 PM To: Bowman, Eric Subject: RE: ACTION REQUESTED

Eric try this and then you have DE's concurrence.

Units Four through Six had been shutdown for refueling outages at the time of the earthquake, with the core for Unit Four offloaded to the SFP. Subsequent damage to the Unit Four SFP resulted in the inability for the SFP structure to retain water and thus completed drained the SFP of cooling water

From: Bowman, Eric Sent: Thursday, March 17, 2011 3:05 PM To: Wilson, George Subject: ACTION REQUESTED

George,

The latest version of the IN is attached. I'm trying to put together a final version for Ops Center ET review tonight.

Thanks!

Eric

Bamford, Peter

From: Sent: To: Subject: Miller, Ed) WYCY Thursday, March 17, 2011 10:17 AM NRR_DORL Distribution Clarification of public interface guidelines

Per Harold's request, I am passing along a clarification from Nelson on the guidance for referring external information requests on the Japanese events to OPA (301-415-8200). This direction applies to <u>all</u> external requests, including any that may come from entities that you have normal contact with, such as your state contact.

Ed

Bamford, Peter

From: Sent: To: Cc: Subject: HRMSBulletin Resource Thursday, March 17, 2011 9:25 AM HRMSBulletin Resource HRMSBulletin Resource Clarification for use of the Tac ZG0061

Clarification for use of the TAC (ZG0061) that was established for the events in JAPAN

This TAC (ZG0061) was established to track activity related to staff that are supporting the recent events in Japan. Managers that are performing managerial functions relating to the events in Japan should continue to use the TAC (ZM0000). In the situation where a manager is required to perform duties which would be considered <u>different</u> than managerial responsibilities should record their time under the new TAC ZG0061. Support staff that are performing Japan events should use TAC's that relate to their normal responsibilities. In the situation where administrative support staff is required to perform duties that would be considered <u>different</u> than routine administrative support responsibilities should record their time under the new TAC ZG0061.

If you have any additional questions please e-mail Jackie Jones <u>Jackie.Jones@NRC.GOV</u> or Mary Matheson at <u>Mary.Matheson@NRC.GOV</u>.

~ dí

Weaver, Tonna

From: Sent: To: Subject: Thompson, John Thursday, March 17, 2011 4:00 PM Ruland, William question

Bill,

Now that I am back at work from the mountains, I have been thinking about the Japan events.

One thing that strikes me after the Japan events and that could be a lesson learned here concerns the robustness of the EDG fuel oil transfer system for US plants. I know from my experience with MSPI, that some plants (I know at least several) have EDG fuel oil transfer systems design issues where failure of a single fuel oil transfer pump fails one or both EDGs. Failure of both pumps fails both EDGs at other sites. Additionally, this system can vary significantly in design from plant to plant and does have risk significance.

If I were to offer up a suggestion, it would be a review of those US plants that have less robust fuel oil transfer system designs to upgrade their EDG fuel oil transfer systems, to require full seismic qualifications and redundancy and to include this system within the MSPI for reliability and unavailability monitoring. For the past two years, as MSPI lead, I was trying to get NEI to place these pumps within scope of the Emergency AC system MSPI, and the industry was balking and dragging their feet. Rani is still pursuing this issue with industry, but I don't think with much progress.

Anyway, it is just a suggestion.

John

Weaver, Tonna

From:	Einziger, Robert
Sent:	Thursday, March 17, 2011 3:57 PM
To:	RST01 Hoc
Cc:	Ruland, William; Dudes, Laura; McIntyre, David; Einziger, Robert; Haney, Catherine; Dorman, Dan; Gordon, Matthew; Rahimi, Meraj; Ordaz, Vonna; Pstrak, David
Subject:	RE: N2 on dry spent fuel
Attachments:	Proposal to handle dried Spent fuel pool.docx

In addition to the information in the attachment, my colleague Matt Gordon informed me that enough liquid N2 to fill a pool 40' x 40' x 100' (probably on the order of the size of the SNF pool in Japan) could be contained in a container about 6' x6' x6'. A tank this size should be easily attained from any Liquid gas supplier. The tank could be lowered by helicopter into the pool away from the fuel then opened. If you could get liquid Argon, you might not even have to get it directly into the pool but rather suspend the tank over the pool and open the valve remotely.

From: RST01 Hoc Sent: Thursday, March 17, 2011 3:45 PM To: Einziger, Robert Cc: Ruland, William Subject: N2 on dry spent fuel

Bill Ruland wanted me to request your input on putting liquid N2 into a dry spent fuel pool. You may have sent it previously. Please send again to this operations center address

Frank Collins RST Coordinator

Proposal to handle dried spent fuel pool

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RE Einziger, Ph.D. SFST/MNSS/NRC

Credential: I have over 30 yrs experience at National Laboratories studying the behavior of Spent Fuel rods in an Oxidizing Atmosphere.

The spent fuel consists of UO2 fuel inside a Zircaloy-2 cladding covered with a Zirconium oxide layer and a layer of CRUD. If the pool goes dry, the rods will heat up until the rate of heat production is balanced by the rate of heat removal by conduction, convection, and radiation. As the rod is heating up the gas inside the rod will be stressing the cladding, that has a lower yield strength and thus the cladding will expand. The expansion will cause the CRUD to flake off and break up to particulate in the 1-10 micron range as it hits the pool floor. This CRUD, with a main radioactive component as Co-60 may become airborne

Somewhere between 600 and 1000C the Zircaloy cladding that has a high concentration of zirconium hydrides on the outer surface may catch on fire. Zirconium hydride is pyrophoric but the ignition temperature is not an intrinsic properties but is dependent onn many features including the surface to volume ratio of the cladding.. Concurrently the pressure in the rod will continue to rise until ~750C when the rod will burst, ejecting fission gases and volatiles in the gap including Cs and I compounds. Some fuel particulate will also be ejected.

As these temperatures the exposed fuel will rapidly oxidize to U3O8 with a ~32% volume expansion. This expansion will split the cladding from end to end in a relatively short time. The fuel, now in grain size articulate (~10-15 micron) will stay in the cladding as a compact until it experiences a mild physical force at which time it will fall to the bottom of the pool.

Of primary important is to prevent the oxidation of the UO2 fuel that contains the preponderance of the radionuclides. Unless you can cover the fuel completely with water the fuel will oxide. When water is sprayed on the fuel, steam is formed which further oxidizes the fuel. A better choice would be to put liquid Argon in the pool if it is available. In not then use liquid N2. The benefits of these gases are that they have a large, (`1000 times) volume expansion when they vaporize thus a small volume has to be put in the pool then the volume of water and more importantly, both will displace the oxygen and prevent the further oxidation of the fuel. (note that this is more effective for the Argon than the N2). Once the oxygen is displaced, both the fire, if it occurs, and fuel oxidation will stop. At this point it would be best to fill the pool with sand and glass formers and let the fuel melt into a glass. Since the assemblies are ~ 50% dense, and the pool is about ½ to 2/3 full (at least it was when I was there in November). The glass layer would be about 3-5 feet high. The molten glass could then be quenched to solidify it. One has to be aware though, if the fuel is allowed to melt into a glass, most of the fission gases, and volatiles trapped in the fuel pellets would escape.

Any success of this plan would be dependent on the availability of liquid gases in Japan, and ability to deliver them. That is out of my range of expertise.

Just a suggestion.

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Nelson, Robert

From: Sent: To: Subject: Nelson, Robert 1 NUC Thursday, March 17, 2011 1:03 PM Lee, Erika RE: DORL Staff Supporting Japanese Events

Please confirm w/Markley on the Comm Team (Lyons & Guzman)

NELSON

From: Lee, Erika Sent: Thursday, March 17, 2011 12:52 PM To: Nelson, Robert; Howe, Allen; Giitter, Joseph Cc: Chernoff, Harold Subject: DORL Staff Supporting Japanese Events Importance: High

Harold asked me to put together the attached table showing DORL staff and areas of responsibility in support of the Japanese events. Please take a look at the information and let me know of any changes by 4 this afternoon so that this information can be posted on DORL's website.

Thanks,

Erika Lee, Administrative Assistant U.S. Nuclear Regulatory Commission Office of Nuclear Reactor Regulation Division of Operating Reactor Licensing Plant Licensing Branch LPL1-2 301-415-0373 <u>erika.lee@nrc.gov</u>

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Weaver, Tonna

From: Sent: To: Subject: Attachments:

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Lyon, Warren IN YUL Thursday, March 17, 2011 6:09 PM Parks, Benjamin My start of a GL Japanese Accident GL.doc

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UNITED STATES NUCLEAR REGULATORY COMMISSION OFFICE OF NUCLEAR REACTOR REGULATION WASHINGTON, DC 20555-0001

NRC GENERIC LETTER 2011-XX: ADDRESSING LESSONS LEARNED FROM THE JAPANESE NUCLEAR POWER PLANT ACCIDENTS CAUSED BY THE MARCH 11, 2011 EARTHQUAKE

ADDRESSEES

All holders of operating licenses for nuclear power reactors, including those who have permanently ceased operations but have irradiated nuclear fuel stored onsite, and all applicants for construction permits for new nuclear power reactors.

PURPOSE

The U.S. Nuclear Regulatory Commission (NRC) is issuing this generic letter (GL) to address issues identified as a result of the Japanese nuclear power plant accidents caused by the March 11, 2011 earthquake and subsequent tsunami. Specifically, the NRC is issuing this GL for three purposes:

- (1) to request addressees to submit information that describes the realistic capability of their nuclear power plants and fuel storage facilities to withstand an earthquake and potential associated phenomena
- (2) to request addressees to describe plans for enhancing their capability
- (3) to collect the requested information to determine if additional regulatory action is required

Pursuant to Title 10 Section 50.54(f) of the *Code of Federal Regulations* (10 CFR 50.54(f)), addressees are required to submit a written response to this GL.

TAXXXXXXXXX

BACKGROUND

Brief discussion of the accident and purpose.

APPLICABLE REGULATORY REQUIREMENTS

Look at backfit rule and anything else that takes us beyond the design basis and Appendices A and B.

DISCUSSION

Start with ultimate heat sink and walk through the heat removal paths. Include need for electricity.

Examine potential mechanisms that could cause loss-of-fuel storage pool water inventory such as when a fuel storage pool in configured for fuel transfer.

The enclosure to this GL, "Technical Considerations for Enhancing Capability to Withstand Seismic Events," provides additional information. Addressees should consider this information when preparing responses to this GL. Furthermore, the NRC staff plans to use this information during activities that are being planned as a follow-up to this GL.

REQUESTED ACTIONS

The NRC requests that each addressee realistically evaluate the ability of its nuclear power plants and nuclear fuel storage facilities to withstand a seismic event, including a tsunami, and, where weaknesses are identified, to suggest practical means, if any, to strengthen the identified weaknesses.

REQUESTED INFORMATION

The NRC requests that each addressee provide the following information: (a) A description of the results of evaluations that were performed pursuant to the above requested actions; (b) a description of all corrective actions that you identified, including plant, programmatic, procedure, and modifications; (c) a statement regarding which corrective actions were completed and the schedule for completing corrective actions that you plan to complete; and (d) a brief discussion of identified corrective actions that you do not plan to pursue that includes the reasons for not pursuing that action further.

REQUIRED RESPONSE

In accordance with 10 CFR 50.54(f), an addressee must respond as described below.

Within three months of the date of this GL, each addressee is requested to submit a written response consistent with the requested actions and information.

GL 2011-XX Page 3 of ??

The required written response should be addressed to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, 11555 Rockville Pike, Rockville, MD 20852, under oath or affirmation under the provisions of Section 182a of the Atomic Energy Act of 1954, as amended, and 10 CFR 50.54(f). In addition, addressees should submit a copy of the response to the appropriate regional administrator.

REASONS FOR INFORMATION REQUEST

The NRC is requesting this information to support an NRC reexamination of the capability of United States nuclear facilities to withstand seismic events in light of the experience related to the seismic-related nuclear power plant accidents in Japan that initiated on March 11, 2011.

BACKFIT DISCUSSION

Under the provisions of Section 182a of the Atomic Energy Act of 1954, as amended, this GL requests information applicable to establishing the realistic capability of withstanding seismic events and preventing a release of radioactive material that would be detrimental to public health and safety. No backfit is either intended or approved by the issuance of this GL. Therefore, the NRC staff has not performed a backfit analysis.

FEDERAL REGISTER NOTIFICATION

A notice of opportunity for public comment on this GL was published in the *Federal Register* (xx FR xxxx) on XXXX. The NRC received XX sets of comments. The NRC staff considered all comments that were received. The NRC staff's evaluation of the comments is publicly available through the NRC's ADAMS under Accession No. TAXXXXXXXX.

CONGRESSIONAL REVIEW ACT

The NRC has determined that this action is not subject to the Congressional Review Act.

PAPERWORK REDUCTION ACT STATEMENT

This GL contains an information collection that is subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). The Office of Management and Budget approved this information collection under clearance number 3150-0011 which expires on June 30, 2010.

The burden to the public for this mandatory information collection is estimated to average 200 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection.

Send comments on any aspect of this information collection, including suggestions for reducing the burden, to the Records and FOIA/Privacy Services Branch (T5-F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet electronic mail to infocollects@nrc.gov; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0011), Office of Management and Budget, Washington, DC 20503.

GL 2011-XX Page 4 of ??

Public Protection Notification

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CONTACT

Please direct any questions about this matter to the technical contacts or the Lead Project Manager listed below, or to the appropriate Office of Nuclear Reactor Regulation (NRR) or Office of New Reactors (NRO) project managers.

Timothy McGinty, Director Division of Policy and Rulemaking Office of Nuclear Reactor Regulation

David Matthews, Director?? Division of New Reactor Licensing Office of New Reactors

Technical Contact:s: Warren C. Lyon, NRR/DSS, 301-415-2897 Benjamin T. Parks, NRR/DSS, 301-415-6472 Kent Wood, NRR/DSS, 301-415-4120 NRO

Lead Project Manager: Sheldon D. Stuchell, NRR/DPR, 301-415-1847 NRO

Enclosure:

"Technical Considerations for Enhancing Capability to Withstand Seismic Events,"

Note: NRC generic communications may be found on the NRC public Web site, <u>http://www.nrc.gov</u>, under Electronic Reading Room/Document Collections.

Enclosure GL 2011-XX Page 1 of ??

Technical Considerations for Enhancing Capability to Withstand Seismic Events

One objective of this generic letter (GL) is to identify practical improvements that may be implemented in operating or advanced reactors and on-site irradiated fuel storage facilities. The NRC believes this can be accomplished by reasonable practice and in many cases by not requiring criteria as typically applied to safety related equipment or the single failure requirement.

The NRC has identified several potential candidates that it suggests addressees consider when responding to this GL. This list is not complete, some of the candidates may not be practical, some of the candidates may not apply to individual addresses, and addressees will likely identify other candidates.

- 1. Alternate alternating current (AC) source defined in 10 CFR 50.2
 - a. Location with respect to protection from seismic and tsunami events
 - b. Capability to move and connect the alternate AC source assuming sufficient damage to the plant and environment to cause a station blackout due to a seismic event followed by a tsunami
 - c. Post-event refueling and other maintenance of the alternate AC source
- 2. Modifications to buildings containing equipment useful or required for long-term cooling
 - a. Improvements in seismic response capability
 - b. Improvements in resistance to short term flooding associated with a tsunami
 - (1) Elevate building ventilation openings
 - (2) Elevate diesel engine intake and exhaust openings
 - (3) Provide water resistant doors and seals
- Install battery driven ignitors in the upper level of boiling water reactor (BWR) secondary containments and pressurized water reactor (PWR) fuel storage pool buildings. Install such ignitors in any other locations where hydrogen may accumulate in sufficient quantity to be of potential concern.
- 4. Install fuel storage pool water makeup capability via an external connection similar to the Sizewell Unit 3 installation.
- 5. Install a spray system to cool fuel in the fuel storage pool if the pool is damaged and water level cannot be maintained above the top of the stored fuel.
- 6. Provide in-depth fuel storage pool cooling and makeup capability.
- 7. Provide additional dry storage facility protection against loss of natural circulation cooling due to debris or flooding.
- 8. Provide additional standby battery power to extend station blackout capability.

BACKGROUND

Brief discussion of the accident and purpose.

APPLICABLE REGULATORY REQUIREMENTS

Look at backfit rule and anything else that takes us beyond the design basis and Appendices A and B.

DISCUSSION

Start with ultimate heat sink and walk through the heat removal paths. Include need for electricity.

Examine potential mechanisms that could cause loss-of-fuel storage pool water inventory such as when a fuel storage pool in configured for fuel transfer.

The enclosure to this GL, "Technical Considerations for Enhancing Capability to Withstand Seismic Events," provides additional information. Addressees should consider this information when preparing responses to this GL. Furthermore, the NRC staff plans to use this information during activities that are being planned as a follow-up to this GL.

REQUESTED ACTIONS

The NRC requests that each addressee realistically evaluate the ability of its nuclear power plants and nuclear fuel storage facilities to withstand a seismic event, including a tsunami, and, where weaknesses are identified, to suggest practical means, if any, to strengthen the identified weaknesses.

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REQUIRED RESPONSE

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OMB Control No.: 3150-0011

UNITED STATES NUCLEAR REGULATORY COMMISSION OFFICE OF NUCLEAR REACTOR REGULATION WASHINGTON, DC 20555-0001

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Within three months of the date of this GL, each addressee is requested to submit a written response consistent with the requested actions and information.

GL 2011-XX Page 3 of ??

The required written response should be addressed to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, 11555 Rockville Pike, Rockville, MD 20852, under oath or affirmation under the provisions of Section 182a of the Atomic Energy Act of 1954, as amended, and 10 CFR 50.54(f). In addition, addressees should submit a copy of the response to the appropriate regional administrator.

REASONS FOR INFORMATION REQUEST

The NRC is requesting this information to support an NRC reexamination of the capability of United States nuclear facilities to withstand seismic events in light of the experience related to the seismic-related nuclear power plant accidents in Japan that initiated on March 11, 2011.

BACKFIT DISCUSSION

Under the provisions of Section 182a of the Atomic Energy Act of 1954, as amended, this GL requests information applicable to establishing the realistic capability of withstanding seismic events and preventing a release of radioactive material that would be detrimental to public health and safety. No backfit is either intended or approved by the issuance of this GL. Therefore, the NRC staff has not performed a backfit analysis.

FEDERAL REGISTER NOTIFICATION

A notice of opportunity for public comment on this GL was published in the *Federal Register* (xx FR xxxx) on XXXX. The NRC received XX sets of comments. The NRC staff considered all comments that were received. The NRC staff's evaluation of the comments is publicly available through the NRC's ADAMS under Accession No. TAXXXXXXXX.

CONGRESSIONAL REVIEW ACT

The NRC has determined that this action is not subject to the Congressional Review Act.

PAPERWORK REDUCTION ACT STATEMENT

This GL contains an information collection that is subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). The Office of Management and Budget approved this information collection under clearance number 3150-0011 which expires on June 30, 2010.

The burden to the public for this mandatory information collection is estimated to average 200 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection.

Send comments on any aspect of this information collection, including suggestions for reducing the burden, to the Records and FOIA/Privacy Services Branch (T5-F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet electronic mail to infocollects@nrc.gov; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0011), Office of Management and Budget, Washington, DC 20503.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

CONTACT

Please direct any questions about this matter to the technical contacts or the Lead Project Manager listed below, or to the appropriate Office of Nuclear Reactor Regulation (NRR) or Office of New Reactors (NRO) project managers.

Timothy McGinty, Director Division of Policy and Rulemaking Office of Nuclear Reactor Regulation

David Matthews, Director?? Division of New Reactor Licensing Office of New Reactors

Technical Contact:s: Warren C. Lyon, NRR/DSS, 301-415-2897 Benjamin T. Parks, NRR/DSS, 301-415-6472 Kent Wood, NRR/DSS, 301-415-4120 NRO

Lead Project Manager: Sheldon D. Stuchell, NRR/DPR, 301-415-1847 NRO

Enclosure:

"Technical Considerations for Enhancing Capability to Withstand Seismic Events,"

Note: NRC generic communications may be found on the NRC public Web site, <u>http://www.nrc.gov</u>, under Electronic Reading Room/Document Collections.

Enclosure GL 2011-XX Page 1 of ??

Technical Considerations for Enhancing Capability to Withstand Seismic Events

One objective of this generic letter (GL) is to identify practical improvements that may be implemented in operating or advanced reactors and on-site irradiated fuel storage facilities. The NRC believes this can be accomplished by reasonable practice and in many cases by not requiring criteria as typically applied to safety related equipment or the single failure requirement.

The NRC has identified several potential candidates that it suggests addressees consider when responding to this GL. This list is not complete, some of the candidates may not be practical, some of the candidates may not apply to individual addresses, and addressees will likely identify other candidates.

- 1. Alternate alternating current (AC) source defined in 10 CFR 50.2
 - a. Location with respect to protection from seismic and tsunami events
 - b. Capability to move and connect the alternate AC source assuming sufficient damage to the plant and environment to cause a station blackout due to a seismic event followed by a tsunami
 - c. Post-event refueling and other maintenance of the alternate AC source
- 2. Modifications to buildings containing equipment useful or required for long-term cooling
 - a. Improvements in seismic response capability
 - b. Improvements in resistance to short term flooding associated with a tsunami
 - (1) Elevate building ventilation openings
 - (2) Elevate diesel engine intake and exhaust openings
 - (3) Provide water resistant doors and seals
- 3. Install battery driven ignitors in the upper level of boiling water reactor (BWR) secondary containments and pressurized water reactor (PWR) fuel storage pool buildings. Install such ignitors in any other locations where hydrogen may accumulate in sufficient quantity to be of potential concern.
- 4. Install fuel storage pool water makeup capability via an external connection similar to the Sizewell Unit 3 installation.
- 5. Install a spray system to cool fuel in the fuel storage pool if the pool is damaged and water level cannot be maintained above the top of the stored fuel.
- 6. Provide in-depth fuel storage pool cooling and makeup capability.
- 7. Provide additional dry storage facility protection against loss of natural circulation cooling due to debris or flooding.
- 8. Provide additional standby battery power to extend station blackout capability.

Enclosure GL 2011-XX Page 2 of ??

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Sturzebecher, Karl

From: Sent: To: Subject: Bayssie, Mekonen Thursday, March 17, 2011 8:43 AM Rivera-Lugo, Richard; RES_DE RE: NRC's Congressional Hearing - March 16th

The Full Hearing could be found on C-span on http://www.c-span.org/Events/Congress-looks-at-Nuclear-Safety-and-Crisis-in-Japan/10737420229-1/

From: Rivera-Lugo, Richard Sent: Thursday, March 17, 2011 8:39 AM To: RES_DE Subject: NRC's Congressional Hearing - March 16th

FYI - Article from the NY Times about Chairman Jaczko's Congressional hearing on March 16th.

http://www.nytimes.com/2011/03/17/science/earth/17nrc.html? r=2

 Richard Rivera-Lugo, EIT, MEM

 Technical Assistant (Acting)

 U.S. Nuclear Regulatory Commission – HQ

 RES/DE

 Ph.
 301-251-7652

 Fax
 301-251-7420

 Mail
 M.S. C5C07M

 E-mail
 Richard.Rivera-Lugo@nrc.gov

 ♣ Please consider the Environment before printing this e-mail.

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Sturzebecher, Karl

From: Sent: To: Subject: Sturzebecher, Karl Thursday, March 17, 2011 8:52 AM 'Fernandez, Maria T.' RE: U.S. supercomputer experts assess radiation risks amid crisis at Japanese nuclear facility - Nextgov

Read this...

http://www.nytimes.com/2011/03/17/science/earth/17nrc.html? r=3

interesting...

-----Original Message-----From: Fernandez, Maria T. [mailto:Maria.T.Fernandez@ssa.gov] Sent: Wednesday, March 16, 2011 7:48 AM To: Sturzebecher, Karl Subject: U.S. supercomputer experts assess radiation risks amid crisis at Japanese nuclear facility - Nextgov

Interesting article ...

http://www.nextgov.com/nextgov/ng_20110314_3634.php?oref=rss?zone=NGtoday#

n-193

Roche, Robert

From:Roche, RobertSent:Thursday, March 17, 2011 12:26 PMTo:'RJBudnitz@lbl.gov'; 'boza@ce.berkeley.edu'; 'jeremic@ucdavis.edu'Cc:Kammerer, Annie; Rivera-Lugo, RichardSubject:Seminar Rescheduled: Seismic Research at LBNL

Greetings to All,

I regret to inform that we just found out this morning that we need to reschedule the upcoming RES Seminar on Seismic Research at LBNL. A new date has not been determined at this time but we will contact you as soon as possible for scheduling the new date. This rescheduling is necessary for an urgent Commission Meeting to discuss current events that will take place on the March 22 at both the NRC Auditorium and the Commissioners' Hearing Room.

Regards,

Robert G. Roche-Rivera U.S. Nuclear Regulatory Commission RES/DE/SGSEB Office:C-05C13 Mail Stop: C-05C07M (301) 251 - 7645 Robert.Roche@nrc.gov

m-199

From: Sent: To: Subject: Jimenez, Juan Thursday, March 17, 2011 12:23 PM Rupinta, Shane Gliding

FYLL will glide from 1pm to 2pm, the site that Pat wants is a place to track Japanese requests. Its just a list with some fields.... (basic). I will do it when I get back, I am unable to do it now because I don't have full control to the DSA Site and I am currenty awaiting for Dennis Lam or EPM to give me access (sent 2 emails).

Thanks

en e

Juan Jiménez Electrical Engineer (EIT) RES/DSA/CDB U.S. Nuclear Regulatory Commission 301-251-7903 (office) Office: 03C25 Mail: 3a07M

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From: Sent: To: Subject: Lam, Dennis Thursday, March 17, 2011 12:42 PM Jimenez, Juan RE:

Done.

From: Jimenez, Juan Sent: Thursday, March 17, 2011 12:04 PM To: Lam, Dennis Subject:

Hey Dennis

 $\{ \cdot, \cdot \}_{i \in \mathbb{N}}$

Can you give me full control to the DSA Site? They want me to build a list to track Japan related requests and they want it right away but I don't have full control...

http://portal.nrc.gov/edo/res/DSA/default.aspx

thanks

Juan Jiménez

Electrical Engineer (EIT) RES/DSA/CDB U.S. Nuclear Regulatory Commission 301-251-7903 (office) Office: 03C25 Mail::3a07M

in. Nate



From: Sent: To: Subject:

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> Jimenez, Juan Thursday, March 17, 2011 2:33 PM Wagner, Katie RE:

http://portal.nrc.gov/edo/res/DSA/Lists/Status%20of%20Japan%20Related%20Reguests/AllItems.aspx

From: Wagner, Katie Sent: Thursday, March 17, 2011 1:20 PM To: Jimenez, Juan Subject:

Juan,

Here is the sheet I have so far for your reference, I will update it and put it up on the G drive as soon as I learn how to pass-word protect the file (or I guess I could just convert it to pdf).

Thanks,

gare ,

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as por co

Katie Wagner General Engineer U.S. Nuclear Regulatory Commission (301) 251.7917 Katie.Wagner@nrc.gov

N-202

Betancourt, Luis

From: Sent: To: Subject: Betancourt, Luis Thursday, March 17, 2011 4:05 PM Roggenbrodt, William RE: Status of Japan's Nuclear Power Plants

No prob!

LUIS BETANCOURT DIGITAL 1&C ENGINEER (EIT) RES/DE/DICB| 301-251-7409 | MS C-2A07M | Luis.Betancourt@nrc.gov

U.S. Nuclear Regulatory Commission

A Please consider the environment before printing this e-mail

From: Roggenbrodt, William Sent: Thursday, March 17, 2011 3:37 PM To: Betancourt, Luis Subject: RE: Status of Japan's Nuclear Power Plants

- Thanks, Luis.

Bill

From: Betancourt, Luis
Sent: Thursday, March 17, 2011 3:28 PM
To: RES_DE_DICB; NRO_DE_ICE1 Distribution; NRO_DE_ICE2 Distribution; NRR_DE_EICB Distribution
Subject: Status of Japan's Nuclear Power Plants

Folks,

The attachment gives an informative, up-to-date summary of the status of the ten Fukushima Boiling Water Reactors. It is provided by the Japan Atomic Industrial Forum (JAIF) and I believe it is updated from time to time at <u>http://www.jaif.or.jp/english/</u>. The attachment also provides the latest radiation readings at the site boundary. What is lacking is information on what radionuclides are causing that dose rate.

Enjoy!

Luis D. Betancourt, EIT

Digital I&C Engineer
U.S. Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Digital Instrumentation and Control Branch
21 Church Street, Rockville MD, 20850, USA

① C-2A07M

③ 301-251-7409

圖 301-251-7422

Luis.Betancourt@nrc.gov

"We are what we believe we are" - C.S. Lewis

Please consider the environment before printing this e-mail

203

Status of nuclear power plants in Fukushima as of 19:00 March 16 (Estimated by JAIF)

Power Station	Fukushima #1 Nuclear Power Station					
Unit	1	2	3	4	5	6
Electric / Thermal Power output (MW)	460 / 1380	784 / 2381 1100 / 3293				
Type of Reactor	BWR-3	BWR-4	BWR-4	BWR-4	BWR-4	BWR-5
Operation Status at the earthquake occurred	Service	Service	Service	Outage	Outage	Outage
Core and Fuel Integrity	Damaged	Damaged	Damaged	No fuel rods	Not Damaged	Not Damaged
Containment Integrity	Not Damaged	Damage Suspected	Damage Suspected	Not Damaged	Not Damaged	Not Damaged
Core cooling requiring AC power	Not Functional	Not Functional	Not Functional	Not necessary	Not necessary	Not necessary
Core cooling not requiring AC power	Not Functional	Not Functional	Not Functional	Not necessary	Not necessary	Not necessary
Building Integrity	Severely Damaged	Slightly Damaged	Severely Damaged	Severely Damaged	Not Damaged	Not Damaged
water level of the pressure vessel	Around half of the Fuel	Recovering after Dried-up	Around half of the Fuel	Safe	Safe	Safe
pressure of the pressure vessel	Stable	Fluctuating	Stable	Safe	Safe	Safe
Containment pressure	Stable	D/W: Unknown, S/P: Atmosphere	Stable	Safe	Safe	Safe
Water injection to core (Accident Management)	Continuing (Seawater)	Continuing(Seawater)	Continuing(Seawater)	Not necessary	Not necessary	Not necessary
Water injection to Containment Vessel (AM)	Continuing(Seawater)	to be decided(Seawater)	to be decided(Seawater)	Not necessary	Not necessary	Not necessary
Containment venting (AM)	Continuing(Seawater)	Preparing(Seawater)	Continuing(Seawater)	Not necessary	Not necessary	Not necessary
Fuel Integrity in the spent fuel pool	(No info)	(No info)	Level Low, Preparing I Water Injection	Level Low, Preparing Water Injection Damage to Fuel Rods Suspected	Pool Temp. Increasing	Pool Temp. Increasing
Environmental effect	NPS border: 1937 // Sv/h at 14:30, Mar. 16					
Evacuation Area	20km from NPS * People who live between 20km to 30km from the Fukushima #1NPS are to stay indoors.					
Remarks	A fire broke on the 4th floor of the Unit-4 Reactor Building around 6AM, Mar. 15, and the radiation monitor readings increased outside of the building: 30mSv between Unit-2 and Unit-3, 400mSv beside Unit-3, 100mSv beside Unit-4 at 10:22, Mar. 15. It is estimated that spent fuels stored in the spent fuel pit heated and hydrogen was generated from these fuels, resulting in explosion. TEPCO later announced the fire was been burned out. Another fire was observed at 5:45, Mar. 16, and then disappeared later. Other staff and workers than fifty TEPCO employees who are engaged in water injection operation have been evacuated. White smoke was seen rising from the vicinity of Unit-3 at around 8:30, Mar. 16. TEPCO estimates that failing to cool the SFP has resulted in evaporation of pool water generating steam.				ng: poration of pool water,	

Power Station	Fukushima #2 Nuclear Power Station				
Unit	1	2	3	4	
Electric / Thermal Power output (MW)		1			
Type of Reactor	BWR-5	BWR-5	BWR-5	BWR-5	
Operation Status at the earthquake occurred	Service	Service	Service	Service	
Core and Fuel Integrity	Not Damaged	Not Damaged	Not Damaged	Not Damaged	
Containment Integrity	Not Damaged	Not Damaged	Not Damaged	Not Damaged	
Core cooling requiring AC power	Functioning	Functioning	Functioning	Functioning	
Core cooling not requiring AC power	Not necessary	Not necessary	Not necessary	Not necessary	
Building Integrity	Not Damaged	Not Damaged	Not Damaged	Not Damaged	
water level of the pressure vessel	(No info)	(No info)	(No info)	(No info)	
pressure of the pressure vessel	(No info)	(No info)	(No info)	(No info)	
Containment pressure	(No info)	(No info)	(No info)	(No info)	
Water injection to core (Accident Management)	Not necessary	Not necessary	Not necessary	Not necessary	
Water injection to Containment Vessel (AM)	Not necessary	Not necessary	Not necessary	Not necessary	
Containment venting (AM)	Not necessary	Not necessary	Not necessary	Not necessary	
Fuel Integrity in the spent fuel pool	(No Info)	(No Info)	(No Info)	(No Info)	
Environmental effect	NPS border: 29.4 <i>µ</i> Sv/h at 12:00, Mar. 16				
Evacuation Area	10km from NPS				
Remarks	All the units are in cold shutdown.				

[Source]

Governmental Emergency Headquarters: News Release (3/16 7:00), Press conference (3/14 11:45, 16:15, 3/15 8:00, 11:00, 16:25, 3/16 11:15) NISA: News Release (3/14 7:30), Press conference (3/16 12:00) TEPCO: Press Release (3/14 16:00, 17:35, 3/15 6:00, 12:00, 16:30, 23:35, 3/16 0:00),

Press Conference (3/14 12:10, 20:00, 3/15 8:00, 8:30, 3/16 early morning)

[Abbreviations]

SFP: spent fuel pool INES: International Nuclear Event Scale

NISA: Nuclear and Industrial Safety Agency TEPCO: Tokyo Electric Power Company, Inc.

[Significance judged by JAIF] : low



: severe



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Recipient

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RES_DE_DICB NRO_DE_ICE1 Distribution NRO_DE_ICE2 Distribution NRR_DE_EICB Distribution Hardin, Leroy Ashcraft, Joseph Sturzebecher, Karl Zhao, Jack Mott, Kenneth Roggenbrodt, William Carte, Norbert Mossman, Timothy Sydnor, Russell Jung, lan Singh, Gursharan Chung, Pong Truong, Tung Jackson, Terry Stattel, Richard Mazumdar, Subinoy Kemper, William Rahn, David Taneja, Dinesh

Read

Read: 3/17/2011 3:29 PM Read: 3/17/2011 3:29 PM Read: 3/17/2011 3:31 PM Read: 3/17/2011 3:33 PM Read: 3/17/2011 3:32 PM Read: 3/17/2011 3:33 PM Read: 3/17/2011 3:34 PM Read: 3/17/2011 3:36 PM Read: 3/17/2011 3:43 PM Read: 3/17/2011 3:49 PM Read: 3/17/2011 3:49 PM Read: 3/17/2011 3:50 PM Read: 3/17/2011 4:00 PM Read: 3/17/2011 4:05 PM Read: 3/17/2011 4:07 PM Read: 3/17/2011 4:10 PM Read: 3/17/2011 4:31 PM Read: 3/17/2011 4:32 PM Deleted: 3/22/2011 4:32 PM

Marksberry, Don

From:	RSTO1 Hoc - OPS CENTER
Sent:	Thursday, March 17, 2011 7:05 PM
То:	RST01 Hoc; Hiland, Patrick; Brown, Frederick; Skeen, David; Dudes, Laura; Ruland, William;
	Case, Michael; Alter, Peter; Hasselberg, Rick; Rini, Brett; Berry, Rollie; Collins, Frank;
	Morlang, Gary; Schoenebeck, Greg; Kowalczik, Jeffrey; Sloan, Scott; Circle, Jeff; Esmaili,
	Hossein; Cheok, Michael; Ward, Leonard; Laur, Steven; Salay, Michael; Schaperow, Jason;
	Fuller, Edward; Marksberry, Don; Kolb, Timothy; Norton, Charles; Brown, Eva; Shea, James;
	Vick, Lawrence; Brown, Michael; Williams, Joseph; Hart, Ken; Bloom, Steven; Padovan, Mark;
	Williams, Donna; Isom, James; Dozier, Jerry; Thorp, John; Kugler, Andrew
Subject:	Protracted Event Staffing for Reactor Safety Team Staffing for Japanese Earthquake.doc
Attachments:	Protracted Event Staffing for Reactor Safety Team Staffing for Japanese Earthquake.doc

All,

As you may be aware, the EOC is preparing extended EOC staffing. Attached is the most current draft of the watchbill which extends through 3/26/2011. We are a couple shy for this weekend, but more importantly there are significant gaps to fill for next week. Please review and if your schedule permits let an RST Coordinator know if you have availability to support. Thanks in advance for your help.

Greg Schoenebeck

p-204

	Reactor Safety Tea	m Protracted Event	Staffing for Japanese	Earthquake Respo	onse
Team Position	RST Director	RST Coordinator	Accident Analyst	BWR Expert	RST Communicator
03/13/11 Day 0700 - 1500	Pat Hiland	Peter Alter	Jeff Circle	Tim Kolb	Joe Williams
03/13/11 Swing 1500 - 2300	Fred Brown	R. Hasselberg	Hossein Esmaili	Chuck Norton	Ken Hart
03/13/11 Mid 2300 - 0700	Dave Skeen	Brett Rini (C)	Mike Cheok (C)	Eva Brown (C)	none
03/14/11 Day 0700 - 1500	Laura Dudes	Peter Alter	Jeff Circle	Tim Kolb	Steve Bloom
03/14/11 Swing 1500 - 2300	Bill Ruland (C)	R. Berry (C)	Len Ward (C)	Chuck Norton (C)	Mark Padovan
03/14/11 Mid 2300 - 0700	Mike Case (C)	R. Berry (C)	Steve Laur (C)	Eva Brown (C)	Ken Hart (C)
03/15/11 Day 0700 - 1500	Dave Skeen (C)	R. Hasselberg (C)	Jeff Circle (C)	Jim Shea Peter Alter (C) –	Donna Williams ©
03/15/11 Swing 1500 - 2300	Fred Brown ©	Frank Collins (C)	Michael Salay (C)	Chuck Norton (C)	Jim Isom
03/15/11 Mid 2300 - 0700	Pat Hiland	Mike Morlang (C)	J. Schaperow N/A (Move)	Eva Brown (C)	Ken Hart ©
03/16/11 Day 0700 - 1500	Dave Skeen (C)	R. Hasselberg ©	Ed Fuller (C)	Larry Vick ©	Joe Williams ©
03/16/11 Swing 1500 - 2300	Bill Ruland	G. Schoenebeck (C)	Hossein Esmaili ©	Chuck Norton (C)	Steve Bloom ©
03/16/11 Mid 2300 - 0700	Mike Case	Rollie Berry (C)	Mike Salay	Eva Brown (C)	Mark Padovan
03/17/11 Day 0700 - 1500	Laura Dudes (?)	Frank Collins (C)	Jeff Circle (C)	Jim Shea (Peter Alter?)	Donna Williams
03/17/11 Swing 1500 - 2300	Fred Brown	Schoenebeck (C)	Steve Laur	C. Norton (C)	Frank Collins/John Thorp
03/17/11 Mid 2300 - 0700	Pat Hiland	Rollie Berry (C)	Mike Salay (C)	Eva Brown (C)	John Thorp (C)
03/18/11 Day 0700 - 1500	Laura Dudes	Peter Alter	Hossein Esmaili	Jim Shea?	Jim Isom
03/18/11 Swing 1500 - 2300	Bill Ruland	<u>G.Schoenebeck</u> ©	J. Schaperow	C. Norton	Ken Hart ©
03/19/11 Mid 2300 - 0700	Jennifer Uhle	Rollie Berry ©	Don Marksberry	Mike Brown	Andy Kugler (C)
03/19/11 Day 0700 - 1500	Laura Dudes	Scott Sloan		Peter Alter (C)	Joe Williams ©

03/19/11 Swing	Dave Skeen	Oleg Bukhrin (c)	Ed Fuller (C)	Chuck Norton (C)	
1500 - 2300					
2300 - 0700	Jennifer Uhle	Frank Collins (c)	Mike Salay (C)		
03/20/11 Day 0700 - 1500	Laura Dudes	Peter Alter (C)		Larry Vick (C)	
03/20/11 Swing 1500 - 2300	Dave Skeen	Eric Thomas (c)		Chuck Norton (C)	
03/21/11 Mid 2300 - 0700	Jennifer Uhle	Mike Morlang (C)		Mike Brown (C)	
03/21/11 Day 0700 - 1500	Fred Brown	Peter Alter (C)	Jeff Circle ©		Joe Williams (C)
03/21/11 Swing 1500 - 2300	Dave Skeen	Greg Schoenebeck ©		Chuck Norton (C)	
03/22/11 Mid 2300 - 0700	Jennifer Uhle	Frank Collins ©		Mike Brown (C)	
03/22/11 Day 0700 - 1500	Fred Brown	Rick Hasselberg ©	Ed Fuller (C)		Steve Bloom ©
03/22/11 Swing 1500 - 2300	Dave Skeen	Mike Morlang ©		Chuck Norton (C)	
03/23/11 Mid 2300 - 0700	Brian Holian	Oleg Bukhrin (c)		Mike Brown (C)	
03/23/11 Day 0700 - 1500	Fred Brown	Eric Thomas (c)	Jeff Circle ©	Larry Vick (C)	Joe Williams (C)
03/23/11 Swing 1500 - 2300	Bill Ruland	Greg Schoenebeck ©		Chuck Norton (C)	Ken Hart ©
03/24/11 Mid 2300 - 0700	Brian Holian	Frank Collins ©			
03/24/11 Day 0700 - 1500	Fred Brown	Rick Hasselberg ©	Jeff Circle ©		
03/24/11 Swing 1500 - 2300	Bill Ruland	Brett Rini ©		Chuck Norton (C)	
03/25/11 Mid 2300 - 0700	Brian Holian			· .	
03/25/11 Day 0700 - 1500	Pat Hiland	Eric Thomas (c)			Donna Williams (c)
03/25/11 Swing 1500 - 2300	Bill Ruland	Brett Rini ©			
03/26/11 Mid 2300 - 0700	Brian Holian	Frank Collins ©			

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Roche, Robert

From:	Roche, Robert
Sent:	Friday, March 18, 2011 9:10 AM
То:	'jeremic@ucdavis.edu'
Cc:	Kammerer, Annie
Subject:	RE: Seminar Rescheduled: Seismic Research at LBNL

Thanks much Boris!

-----Original Message-----From: Boris Jeremic [mailto:jeremic@ucdavis.edu] Sent: Thursday, March 17, 2011 3:20 PM To: Roche, Robert Cc: Boris Jeremic Subject: Re: Seminar Rescheduled: Seismic Research at LBNL

Hello Robert,

Of course, there are too many things going with Fukushima...

Let me know if we can help in any way, some quick analysis of shaking, seismic effects on NPPs (in whatever level of detail is appropriate...)...

Best regards, Boris

On 03/17/2011 09:26 AM, Roche, Robert wrote:

> Greetings to All,

>

> I regret to inform that we just found out this morning that we need to

> reschedule the upcoming RES Seminar on Seismic Research at LBNL. A new

> date has not been determined at this time but we will contact you as

> soon as possible for scheduling the new date. This rescheduling is

> necessary for an urgent Commission Meeting to discuss current events

> that will take place on the March 22 at both the NRC Auditorium and the Commissioners' Hearing Room.

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> Regards,

>

> Robert G. Roche-Rivera

>

> U.S. Nuclear Regulatory Commission

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> RES/DE/SGSEB

> Office:C-05C13

>

> Mail Stop: C-05C07M

> > (301) 251 - 7645

>

> Robert.Roche@nrc.gov <mailto:Robert.Roche@nrc.gov>

>



Wagner, Katie

From: Sent: To: Subject: Wagner, Katie Friday, March 18, 2011 11:26 AM Lee, Richard RE: GE request for NRC mateials

Ok

From: Lee, Richard Sent: Friday, March 18, 2011 11:24 AM To: Wagner, Katie Cc: Tinkler, Charles Subject: RE: GE request for NRC mateials

Yes! I called Charlie to tell SNL to release the reports, and he will be the contact to answer questions (I any) from GE.

From: Wagner, Katie Sent: Friday, March 18, 2011 11:06 AM To: Lee, Richard Subject: FW: GE request for NRC mateials

Is this the email?

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

Well done Richard thanks!

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

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

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

Dear Katie:

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

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

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

Richard

Wagner, Katie

From:Wagner, KatieSent:Friday, March 18, 2011 1:05 PMTo:Lee, RichardSubject:FW: GE request for NRC mateials

Richard - Is the status of this item "Completed" or still "Pending"? - Thanks, Katie

From: Lee, Richard Sent: Friday, March 18, 2011 11:24 AM To: Wagner, Katie Cc: Tinkler, Charles Subject: RE: GE request for NRC mateials

Yes! I called Charlie to tell SNL to release the reports, and he will be the contact to answer questions (I any) from GE.

From: Wagner, Katie Sent: Friday, March 18, 2011 11:06 AM To: Lee, Richard Subject: FW: GE request for NRC mateials

Is this the email?

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

Well done Richard thanks!

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

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

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

Dear Katie:

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

N-2014



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

2

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

Richard

Yarsky, Peter

From: Sent: To: Cc: Subject: Yarsky, Peter Friday, March 18, 2011 1:12 PM Gibson, Kathy Elkins, Scott RE: Availability to go to Japan

Kathy,

I do not have anything of import scheduled for that time frame, am willing, and do have a passport.

-Pete

-----Original Message-----From: Gibson, Kathy Sent: Friday, March 18, 2011 12:05 PM To: Yarsky, Peter Cc: Elkins, Scott Subject: Availability to go to Japan Importance: High

Peter,

We are looking for good engineers with good people skills to go to Japan around the 24th (next Thursday) for about 2 weeks. Are you available and willing? And do you have a passport?

Thanks, Kathy

n-208

From: Sent: To: Subject: Jimenez, Juan Friday, March 18, 2011 11:26 AM Wagner, Katie RE: Japan Sharepoint

Ok done

From: Wagner, Katie Sent: Friday, March 18, 2011 11:20 AM To: Jimenez, Juan Subject: RE: Japan Sharepoint Yes.

From: Jimenez, Juan Sent: Friday, March 18, 2011 11:20 AM To: Wagner, Katie Subject: RE: Japan Sharepoint

Only DSA Branches?

From: Wagner, Katie Sent: Friday, March 18, 2011 11:13 AM To: Jimenez, Juan Subject: Japan Sharepoint

Juan,

Please change the permissions of the site so that it is viewable ONLY by DSA staff, plus the following people:

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Brian Sheron Jennifer Uhle Brett Rini Michael Case Stuart Richards Douglas Coe Kevin Coyne

Also, if you haven't already added a column for branch near the staff contact please add that.

Thanks, Katie

n shake

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Sturzebecher, Karl

From: Sent: To: Subject: Waterman, Michael Friday, March 18, 2011 1:25 PM Betancourt, Luis; RES_DE_DICB RE: Status of Japan's Nuclear Power Plants

Luis

Here is some radionuclide information that might give you a feel for some of the radionuclides that are being released.

Radionuclide	U-235 Fission Yield (%)	Half-Life (years)	β ⁻ Decay Yield (MeV)	γ Decay Yield (MeV)
⁶⁰ Co	17.7	5.272	0.318	1.3325, 1.1732,
⁸⁵ Kr	1.33	10.730	0.687	0.514
⁹⁰ Sr	5.9	29.000	0.546, 2.29,	1.761
¹⁰⁶ Ru	0.39	1.01	0.0394, 3.54,	0.5118, 0.622, 0.328
¹³⁴ Cs	7.19	2.060	0.658, 0.089	0.6047, 0.7358, 0.2427, 1.365
¹³⁷ Cs	6.23	30.100	0.512, 1.173	0.6616
¹⁴⁴ Ce	5.45	0.78	0.316, 0.182	0.0336, 0.1335, 0.6964
¹⁴⁷ Pm	2.26	2.6234	0.225,	0.1212,

These are some of the nastier radionuclides because their half-lives coupled with their fission yields means they are highly radioactive and there is a lot of each one available for release. In other words, these radionuclides decay fast enough to produce a lot of gamma radiation while they are around, but do not decay fast enough to decay away in a short time. In five half lives, an element will decay to about 0.7% of its original mass. Assuming the fuel rods in the spent fuel pools are the primary source of leakage, the radionuclides that are likely to be producing energy in abundance are ⁶⁰Co, ⁸⁵Kr, ⁹⁰Sr, and ¹³⁷Cs because the spent fuel rods are likely less than 10 years old. At that age, the mass of these radionuclides are at least half their original mass or more.

The other nuclides in the list are there because of their fission yield values and their half lives. For example, while the ¹³⁴Cs will decay to half its original mass in 2 years, there is so much of it that the remaining mass is still significant.

I hope this helps

Mike

-210

Folks,

The attachment gives an informative, up-to-date summary of the status of the ten Fukushima Boiling Water Reactors. It is provided by the Japan Atomic Industrial Forum (JAIF) and I believe it is updated from time to time at http://www.jaif.or.jp/english/. The attachment also provides the latest radiation readings at the site boundary. What is lacking is information on what radionuclides are causing that dose rate.

Enjoy!

Luis D. Betancourt, EIT

Digital I&C Engineer U.S. Nuclear Regulatory Commission Office of Nuclear Regulatory Research Digital Instrumentation and Control Branch 21 Church Street, Rockville MD, 20850, USA © C-2A07M © 301-251-7409 301-251-7422 Luis.Betancourt@nrc.gov "We are what we believe we are" - C.S. Lewis

Please consider the environment before printing this e-mail

Wagner, Katie

From: Sent: To: Subject: Wagner, Katie Friday, March 18, 2011 2:56 PM Jimenez, Juan RE: Report

Juan,

I have entered most of the info now and printed the report and it looks good. I was thinking maybe it would be nice to have page #s since this report might get very long (already 2 pages) . . . ie. "Page 1 of 2" at the bottom.

Also, is it possible to have the report auto-generate with the Table heading info at the top of each page (ie. "Date" "Requestor") since there is quite a bit of info involved in these reports.

Please let me know if these two things are possible.

Thanks, Katie

From: Jimenez, Juan Sent: Friday, March 18, 2011 12:41 PM To: Wagner, Katie Subject: Report

x-211

Wagner, Katie

Rear in Sugar

From:Wagner, KatieSent:Friday, March 18, 2011 3:07 PMTo:Scott, HaroldSubject:RE: RE: CNN.com text story JAPAN

Harold, please stop by my desk so we can talk about this, I think I'm missing something. - Thanks, Katie

From: Scott, Harold Sent: Friday, March 18, 2011 1:14 PM To: Wagner, Katie Subject: FW: RE: CNN.com text story JAPAN

Attachment is ML100270582 Does not seem DSA can answer

From: Arthur Motta [mailto:atm2@psu.edu] Sent: Friday, March 18, 2011 12:56 PM To: Scott, Harold Subject: Fwd: RE: CNN.com text story request for your expertise

Harold

I read through the first page, especially the statement on page 1 below and could not understand. Can you help me answer this reporter's question? I won't attribute to you

Arthur

Overall seismic core damage risk estimates are consistent with the Commission's Safety Goal Policy Statement because they are within the subsidiary objective of 10-4 /year for core damage frequency. The GI-199 Safety/Risk Assessment, based in part on information from the U.S. Nuclear Regulatory Commission's (NRC's) Individual Plant Examination of External Events (IPEEE) program, indicates that no concern exists regarding adequate protection and that the current seismic design of operating reactors provides a safety margin to withstand potential earthquakes exceeding the original design basis.

The changes in seismic core-damage frequency (SCDF) estimated in the Safety/Risk Assessment Stage of GI-199 for numerous plants lie in the range of 10-4 /yr to 10-5 /yr, which meet the numerical risk criteria for an issue to proceed to the Regulatory Assessment Stage of the GIP.

From: "Patterson, Thom" <<u>Thom.Patterson@turner.com</u>> To: Arthur Motta <<u>atm2@psu.edu</u>> Date: Fri, 18 Mar 2011 12:41:20 -0400 Subject: RE: CNN.com text story request for your expertise Thread-Topic: CNN.com text story request for your expertise Thread-Index: AcvliReDmS542BIbTH6UbOwfS+hoagAASgPg Accept-Language: en-US X-MS-Has-Attach: yes
X-MS-TNEF-Correlator:

x-originalarrivaltime: 18 Mar 2011 16:41:21.0893 (UTC)

Dr. Motta,

' `

Thank you very much for your expertise today on the phone.

Do you have a moment to tell me in layman's terms what this attached NRC report says about the likelihood of a seismic event threatening the Limerick facility?

News reports have crunched actual numbers with probabilities about what the chances are. I'm trying to understand how to obtain those figures.

Best,

Thom

From: Arthur Motta [mailto:atm2@psu.edu]
Sent: Friday, March 18, 2011 12:25 PM
To: Patterson, Thom
Subject: Re: CNN.com text story request for your expertise

Thom

I'm on a conference call will call you soon

Arthur

At 12:08 PM 3/18/2011, you wrote:

Dr. Motta,

I'm working on a story for CNN's website today about the NRC nuclear facility rankings report.

Would you have a minute to help me?

I'm trying to accurately describe how unlikely the possibility of earthquake damage would be to the facility in the Pottstown, Pennsylvania, area.

If you have five minutes this afternoon, I'd be very grateful.

Best, Thom

Thom Patterson Writer/Producer CNN .com one cnn center - atlanta, ga 30303 o | 404.878.5829 f | 404.878.1282 thom.patterson@turner.com Arthur T. Motta Professor of Nuclear Engineering and Materials Science and Engineering Chair of Nuclear Engineering Program Department of Mechanical and Nuclear Engineering 227 Reber Building Penn State University, University Park, PA, 16802 <u>http://www.mne.psu.edu/motta/</u> phone: 814-865-0036 fax: 814-865-1280

Cartwright, William

From:	NEWS Automated Mailer [ContactPointNEWS@iaea.org]
Sent:	Friday, March 18, 2011 5:15 AM
То:	NEWS.Contact-Point@iaea.org
Subject:	New ERF on NEWS, INES Rating: 3, Japan, Power Reactor

Dear NEWS User,

This is to notify you as a registered user of the NEWS Web site that an Event Rating Form (ERF) for the Event titled:

"Loss of the cooling function to the ultimate heat sink due to the big tsunami"

has as of today, Friday, 18 March 2011, 10:12:38 UTC, been added to the NEWS Web site. Additional information regarding the ERF is as follows:

Country: Japan Location/Facility: FUKUSHIMA-DAINI-1 Event Type: Power Reactor Event Date: 2011.03.11

Rating Date: 2011.03.18 ERF Version: Provisional INES Rating Level: 3

For more detailed information about the ERF, including the related Event and press releases as well as on-site participation in forum discussions, please visit the NEWS Web site at:

1

m21

http://www-news.iaea.org/news/

Sigmon, Rebecca

From: Sent: To: Subject: Sigmon, Rebecca Friday, March 18, 2011 9:07 AM Thomas, Eric japanese industry site

http://www.jaif.or.jp/english/news_images/pdf/ENGNEWS01_1300368041P.pdf

This is the most recent version of the chart laying out each unit with a color-coded status of various essential systems.

1

pzit

Jon

Rebecca

From:	NEWS Automated Mailer [ContactPointNEWS@iaea.org]
Sent:	Friday, March 18, 2011 5:10 AM
То:	NEWS.Contact-Point@iaea.org
Subject:	New ERF on NEWS, INES Rating: 3, Japan, Power Reactor

Dear NEWS User,

This is to notify you as a registered user of the NEWS Web site that an Event Rating Form (ERF) for the Event titled:

"Loss of cooling function and water supplying function on the spent fuel pool due to the big tsunami."

has as of today, Friday, 18 March 2011, 10:07:27 UTC, been added to the NEWS Web site. Additional information regarding the ERF is as follows:

Country: Japan Location/Facility: FUKUSHIMA-DAIICHI-4 Event Type: Power Reactor Event Date: 2011.03.11

Rating Date: 2011.03.18 ERF Version: Provisional INES Rating Level: 3

For more detailed information about the ERF, including the related Event and press releases as well as on-site participation in forum discussions, please visit the NEWS Web site at:

http://www-news.iaea.org/news/

NEWS Administration

m215

From:	NEWS Automated Mailer [ContactPointNEWS@iaea.org]
Sent:	Friday, March 18, 2011 5:25 AM
То:	NEWS.Contact-Point@iaea.org
Subject:	New ERF on NEWS, INES Rating: 3, Japan, Power Reactor

Dear NEWS User,

This is to notify you as a registered user of the NEWS Web site that an Event Rating Form (ERF) for the Event titled:

"Loss of the cooling function to the ultimate heat sink due to the big tsunami"

has as of today, Friday, 18 March 2011, 10:18:13 UTC, been added to the NEWS Web site. Additional information regarding the ERF is as follows:

Country: Japan Location/Facility: FUKUSHIMA-DAINI-4 Event Type: Power Reactor Event Date: 2011.03.11

Rating Date: 2011.03.18 ERF Version: Provisional INES Rating Level: 3

For more detailed information about the ERF, including the related Event and press releases as well as on-site participation in forum discussions, please visit the NEWS Web site at:

http://www-news.iaea.org/news/

From:	NEWS Automated Mailer [ContactPointNEWS@iaea.org]
Sent:	Friday, March 18, 2011 5:19 AM
То:	NEWS.Contact-Point@iaea.org
Subject:	New ERF on NEWS, INES Rating: 3, Japan, Power Reactor

Dear NEWS User,

This is to notify you as a registered user of the NEWS Web site that an Event Rating Form (ERF) for the Event titled:

"Loss of the cooling function to the ultimate heat sink due to the big tsunami"

has as of today, Friday, 18 March 2011, 10:14:53 UTC, been added to the NEWS Web site. Additional information regarding the ERF is as follows:

Country: Japan Location/Facility: FUKUSHIMA-DAINI-2 Event Type: Power Reactor Event Date: 2011.03.11

Rating Date: 2011.03.18 ERF Version: Provisional INES Rating Level: 3

For more detailed information about the ERF, including the related Event and press releases as well as on-site participation in forum discussions, please visit the NEWS Web site at:

http://www-news.iaea.org/news/

NEWS Administration

m-21-1

NEWS Automated Mailer [ContactPointNEWS@iaea.org]
Friday, March 18, 2011 5:05 AM
NEWS.Contact-Point@iaea.org
New Event on NEWS, Japan, Power Reactor

Dear NEWS User,

This is to notify you as a registered user of the NEWS Web site that a new Event with the title:

"The core damage by loss of all cooling function due to the big tsunami."

has as of today, Friday, 18 March 2011, 09:51:46 UTC, been added to the NEWS Web site. Additional information regarding the new Event is as follows:

Sender Country: Japan Date of Event: 2011-03-11 Facility/Place: FUKUSHIMA-DAIICHI-2

For more detailed information about the Event including related documents, press releases and on-site participation in forum discussions, please visit the NEWS Web site at:

http://www-news.iaea.org/news/

m-218

From:	NEWS Automated Mailer [ContactPointNEWS@iaea.org]
Sent:	Friday, March 18, 2011 5:01 AM
То:	NEWS.Contact-Point@iaea.org
Subject:	New ERF on NEWS, INES Rating: 5, Japan, Power Reactor

Dear NEWS User,

This is to notify you as a registered user of the NEWS Web site that an Event Rating Form (ERF) for the Event titled:

"The core damage by loss of all cooling function due to the big tsunami."

has as of today, Friday, 18 March 2011, 09:59:34 UTC, been added to the NEWS Web site. Additional information regarding the ERF is as follows:

Country: Japan Location/Facility: FUKUSHIMA-DAIICHI-3 Event Type: Power Reactor Event Date: 2011.03.11

Rating Date:2011.03.18ERF Version:ProvisionalINES Rating Level:5

For more detailed information about the ERF, including the related Event and press releases as well as on-site participation in forum discussions, please visit the NEWS Web site at:

http://www-news.iaea.org/news/

From:	NEWS Automated Mailer [ContactPointNEWS@iaea.org]
Sent:	Friday, March 18, 2011 4:57 AM
То:	NEWS.Contact-Point@iaea.org
Subject:	New ERF on NEWS, INES Rating: 5, Japan, Power Reactor

Dear NEWS User,

This is to notify you as a registered user of the NEWS Web site that an Event Rating Form (ERF) for the Event titled:

"The core damage by loss of all cooling function due to the big tsunami."

has as of today, Friday, 18 March 2011, 09:54:39 UTC, been added to the NEWS Web site. Additional information regarding the ERF is as follows:

Country: Japan Location/Facility: FUKUSHIMA-DAIICHI-2 Event Type: Power Reactor Event Date: 2011.03.11

Rating Date: 2011.03.18 ERF Version: Provisional INES Rating Level: 5

For more detailed information about the ERF, including the related Event and press releases as well as on-site participation in forum discussions, please visit the NEWS Web site at:

http://www-news.iaea.org/news/

From:
Sent:
To:
Subject:

NEWS Automated Mailer [ContactPointNEWS@iaea.org] Friday, March 18, 2011 4:54 AM NEWS.Contact-Point@iaea.org New Event on NEWS, Japan, Power Reactor

Dear NEWS User,

This is to notify you as a registered user of the NEWS Web site that a new Event with the title:

"The core damage by loss of all cooling function due to the big tsunami."

has as of today, Friday, 18 March 2011, 09:51:46 UTC, been added to the NEWS Web site. Additional information regarding the new Event is as follows:

Sender Country: Japan Date of Event: 2011-03-11 Facility/Place: FUKUSHIMA-DAIICHI-2

For more detailed information about the Event including related documents, press releases and on-site participation in forum discussions, please visit the NEWS Web site at:

http://www-news.iaea.org/news/

1221

From:	NEWS Automated Mailer [ContactPointNEWS@iaea.org]
Sent:	Friday, March 18, 2011 1:48 AM
То:	NEWS.Contact-Point@iaea.org
Subject:	New ERF on NEWS, INES Rating: 3, Japan, Power Reactor

Dear NEWS User,

This is to notify you as a registered user of the NEWS Web site that an Event Rating Form (ERF) for the Event titled:

"Effect to the Nuclear Facilities from the earthquake on east area of Japan"

has as of today, Friday, 18 March 2011, 06:33:54 UTC, been added to the NEWS Web site. Additional information regarding the ERF is as follows:

Country: Japan Location/Facility: FUKUSHIMA-DAIICI-1,2 FUKUSHIMA-DAINI-1, Japan Event Type: Power Reactor Event Date: 2011.03.11

Rating Date: 2011.03.12 ERF Version: Provisional INES Rating Level: 3

For more detailed information about the ERF, including the related Event and press releases as well as on-site participation in forum discussions, please visit the NEWS Web site at:

http://www-news.iaea.org/news/

NEWS Administration

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