

03-21-2011 Briefing to the Commission on the incidents in Japan.

Five Commission members made open remarks.

Bill Borchardt spoke regarding the prepared presentation.

- Defense in depth

1. support NISA
2. gather info
3. support US Ambassador to Japan

Earthquake resulted in the shutdown of 10 reactors.

The tsunami cause the loss of emergency power to six units at F-D

1,2,3 in operation

4,5,6 in outages

H2 explosion in unit 1 Sat.

H2 explosion in unit 3 Mon

H2 explosion in unit 2 and 4 Tues

1,2,3 have experienced some core damage

Today 1,2,3 appear stable

Containment is currently maintained

Grey smoke today, source is unknown, no increase in radiation or temperature

Power on border of units 1 and 2, may be cableing problems in units 1 and 2

Over the next few days will be doing the same for units 3 and 4.

Diesel generators are at units 5 and 6

First concern was impact of tsunami of US plants

By Mon. dispatched 11 staff to Japan, support Japanese government, support NISA, help information flow from Japan to US fleet.

Ops Center remains in 24/7 posture.

EPA has not identified any radiation levels that are of concern in US from Japan.

Defense in depth. Will not rely on any one level of protection. So designs take into account the specific site characteristics. There are multiple physical barriers to radiation release. We have taken advantage of many lessons learned. As a result, we have revised emergency planning, added new requirements for hydrogen control, and required enhanced pumps and valves. After TMI, we created the resident inspector program.

New rulemaking that has been in place, station blackout rule, what would the plant's response be if it lost all AC power.

Hydrogen rule for beyond design basis hydrogen levels.

We've had a Mark 1 containment improvement plan for all BWR Mark 1s.

Will be enhancing inspection staff.

Have issued Information Notice to licensees.

Verifying loss of total electric power, and impact of flooding, and impact of seismic events. Will aid in evaluating industry ability to deal with events.

90 day evaluation of events in Japan. Will expect generic communication to come out of this. May lead to order with actions licensees will take place. Will include a 30 day quick look report to commission. Will have limited stakeholder feedback. Results will be made public.

Longer term, will be developing lessons learned. The review may include other federal agencies, (i.e. emergency preparedness FEMA). Start date of long term is unclear. Will identify additional research, changes to reactor oversight program, new rulemaking, interagency issues. Will expect substantial stakeholder involvement. Expect to result in generic communication.

Questions from Commission Members

In the staff's expert assessment, have the events stabilized?

Offsite power is close to becoming available, that is a good sign things are turning around.
Spent fuel pool in units 3 and 4, stabilizing.
Containment stabilized in 1,2,3 and water being injected.
Things are on the verge of being stabilized.

Are the needs of the site being most urgently addressed?

Radiation releases and dose rates that we have seen on site were from the condition of the units 3 and 4 spent fuel pool. They have been addressing those issues. Don't have a clear understanding of the conditions in the reactor buildings.

Narrative of 3 events: earthquake, tsunami, loss of power. Is our regulatory focus where it needs to be?

High degree of confidence has an adequate basis.

Generic safety issue 199. What was occurring there and how will the events in Japan alter the results of that.

USGS seismic info for central and east US. Everytime we get new info (seismic or otherwise), we do a quicklook to see if we need to take action.

Our role in interagency response. Do we ensure all efforts of industry and industry interaction are coordinated?

Try to facilitate in the US government role contact.

Can you describe the info notice?

Main purpose to have a regulatory follow-up to verify the plant procedures that all those things post 9-11 are still in place. Make sure they have not fallen into disuse because they haven't been used.

Mark 1 BWRs in US. Venting valves because of containment, have the Japanese done this? If they have done this would that have affected the accident and in what way?

Not clear if they have done this. It would not have affected loss of power. Vent would relieve the pressure in the taurus. The hardened vent would not have done anything to help the hydrogen that came from the spent fuel pool.

Why did the Germans shut down their plants and we did not?

Not aware of the Germans, but am 100% confident in US basis. Should we take a regulatory action based on the events and have not reached that conclusion.

Richter scale vs. horizontal ground acceleration. 9.0 was not expected. Strongest earthquakes occurred east of Rockies in 1800s at 7.7 range. But look at Japan, how do we address that. We look at faults, historical record, add margin, and consider specific location relative to fault. We design for a ground motion of a certain magnitude. We have actions in place that say even if we are wrong, we have equipment in place.

Ground motion in Japan, recently did a reevaluation which is in progress and it's not clear what modification were made. .62g, original design basis .37g. The ground motions were not out of the range they had considered. Tsunami guidance not issued yet.

We account for seismic zones in central and eastern US. The faults for the 1811 and 1812 earthquakes have not been identified.

Mentioned probabilities, and we always ask, what if we are wrong? So probabilities are always easy to attack, but if we always ask this, it is less easy to attack?

Do we consider secondary events, (i.e. fire or tsunami after an earthquake?)

Our reviews are very site specific. If you are on very soft soil, the review isn't challenging. You don't take every possible occurrence and pile them together. We take into account every natural phenomenon that could take place at an event. We analyze for a tsunami and we do that for our plants on the coast.

Compare events in Japan to TMI in the media. I tend to compare to 9-11. Is there a major conceptual ah-ha that we'll miss?

I don't see a significant weakness. Staff and maybe even recently retired people that need to take a look at how we apply defense in depth and being risk informed and evaluate if something different needs to be done. Has given me confidence, was viewed by some stakeholders as being overly conservative, but it appears to be paying off now.

Do have the sense that the plant survived the earthquake, but the tsunami caused the loss of power. When you look at our plants, if you lose a lot of infrastructure, the ability

to get to a site, if you lose rail transport, I see a lot of struggle to get resources to the accident.

In the US, we have the station blackout rule that requires an analysis and its coping strategy for complete loss of power. That has resulted in various approaches: a gas turbine, non-safety related diesel generators. We have the Department of Homeland Security. And the backstop for all of that is that the US industry shares operating experience and has an inventory of spare parts (outside of the regulatory framework).

Is it your understanding that all hydrogen that led to the explosions came from the spent fuel?

I couldn't guess, it's certainly a likely source.

What measures are in place to prevent hydrogen from collecting and exploding in U.S. plants?

The hardened vent is designed to protect containment. So even if you have fuel damage, you can prevent the release of radioactive material. TMI had core damage, but radiological release was limited. The hardened vents will allow the primary containment to stay intact. We've required inerting of the containment since the late 1980's. It's filled with nitrogen, so if you don't have oxygen and even if you did have hydrogen, you don't have an explosion.

After TMI, there could be too many suggestions, some were absolutely beneficial to safety, but others if followed through, may not have been beneficial to safety.

It's a simple problem, all you have to do is keep water in the pool. Even in a bad situation where you have boiling, as long as you keep the fuel covered with water. What the task force has to do is evaluate the equipment that will be used isn't stored in the same area so it isn't damaged.

So we do have a proposal on the table and we should act on that.