

**From:** Thomas Saporito <saprodani@gmail.com>  
**Sent:** Wednesday, September 03, 2014 4:59 PM  
**To:** Klett, Audrey  
**Cc:** Hanks, Patrick; Kelly, JR  
**Subject:** Attachment - Presentation Outline to the 2.206 Enforcement Petition  
**Attachments:** 2014.09.03 NRC PRB (Turkey Point)(outline).pdf

Hello Audrey:

Please find the attachment to this email which is my presentation outline to the NRC PRB this date. I request that the members of the NRC PRB receive a copy of this document; and that the document becomes part of the record in support of the 2.206 Enforcement Petition accordingly.

Please confirm receipt of this document via email.

Kind regards,

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Good afternoon Mr. Chairman and members of the NRC Petition Review Board. My name is Thomas Saporito, Senior Consultant at Saprodoni Associates in southern Florida. I am the petitioner in this matter having filed an enforcement petition under 10 CFR Section 2.206 on July 18<sup>th</sup>, 2014, related to licensed operations at the Turkey Point Nuclear Plant operated by the Florida Power & Light Company or “licensee”. During this discussion, reference will be made to one or more attachments in support of the 2.206 Enforcement Petition of which access to those documents has been made available to the PRB via Ms. Audrey Klett, NRC Project Manager. I request that all of those documents be made a part of the official NRC record in the instant action accordingly.

To the extent that this is a public record, I am going to provide a brief summary of my experiences in filing 2.206 Enforcement Petitions with the NRC over the last 26-years is relevant to enlighten the public about NRC operations in protecting public health and safety and the environment.

Notably, the NRC's website states that:

*The U.S. Nuclear Regulatory Commission (NRC) was created as an independent agency by Congress in 1974 to ensure the safe use of radioactive materials for beneficial civilian purposes while protecting people and the environment. The NRC regulates commercial nuclear power plants and other uses of nuclear materials, such as in nuclear medicine, through licensing, inspection and enforcement of its requirements. <http://www.nrc.gov/about-nrc.html>*

So, clearly, the NRC's mission is to ensure the safe use of radioactive materials for beneficial civilian purposes while protecting people and the environment.

The NRC licensed approximately 104-nuclear reactors for operation under Title 10 of the Code of Federal Regulations – Part 50. These regulations are in-fact the **safety margins** which NRC licensees - like the Florida Power & Light Company - are required to rigidly follow in conducting licensed operations of any nuclear reactor. The regulations under 10 CFR 50 employ “site specific” technical specifications which are the “**safety margins**” that reactor operators at each nuclear plant must fully comply with in operating any nuclear reactor.

Over the last 26-year period, the NRC has consistently relaxed the **safety margins** set-out in 10 CFR 50 to allow its licensees - like the Florida Power & Light Company - to continue licensed operations which otherwise would have required the nuclear reactors to be shutdown. The most egregious action taken by the NRC was to relax the safety margins under 10 CFR 50 to allow licensees - like the Florida Power & Light Company - to extend operation of nuclear reactors 20-years beyond the 40-year **safety-design basis** set-out under the agency's own regulations.

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Notably, experts have asserted that the stainless steel nuclear reactor vessels sustain severe embrittlement degradation from radioactive neutron bombardment during power operations. The NRC's action in relaxing the safety regulations to allow operation of these embrittled nuclear reactor vessels – is a blatant disregard for public health and safety and the environment as a whole. The NRC apparently has **failed to learn from the ongoing nuclear disaster at the Japanese Fukushima nuclear plant** – in that the agency should be **tightening its safety regulations** instead of relaxing its safety regulations.

#### Attachment-1

If you look at Attachment-1 on the first page – it states that - **The tragedy at the Fukushima nuclear plant will cost 11.08 trillion yen (\$105 billion), twice as much as Japanese authorities predicted at the end of 2011, says the study.**

The Fukushima nuclear facility has 4-nuclear reactors. Three of the four nuclear reactors at the Fukushima facility are **still melting down to this day and spewing radioactive contamination into the environment**. The plant owner and the government are now desperate to stop the radioactive leaks. So much so - that they are attempting to freeze the earth around the reactor cores as a last ditch fix. The half-life of uranium 235 is **704-million years** which means that after 704-million years, the radiation from the uranium is cut in half.

**I was the first US citizen to file a 2.206 Enforcement Petition** following the Fukushima nuclear accident - requesting the NRC to evaluate the safety of all US based nuclear power plants. Notably, to this date, the agency has **not yet completed is review of that petition**. Thousands of people will never be able to return to their homes and businesses because of the radioactive contamination.

If the Turkey Point Nuclear Plant had a similar meltdown, the entire city of Miami and perhaps the entire state of Florida - would have to be evacuated forever. **Nobody wants that to happen – and the people of Florida have placed their trust and belief in the NRC to protect them and their families and the environment where they work and live.**

For these reasons, the people of Florida **expect the NRC to enforce its regulations** instead of **relaxing** its regulations in allowing - FPL the licensee - to **increase the Ultimate Heat Sink water temperature to 104-degrees F at the Turkey Point Nuclear Plant.**

#### Attachment-16

For the benefit of the public – a nuclear power reactor consists of a huge stainless steel vessel that contains many fuel rods which are long pipes filled with enriched uranium-235 pellets. The fuel rods are combined in fuel-rod assemblies and are positioned in such a manner to cause a nuclear reaction in the reactor's core. This event is call “criticality” at which time billions of atoms split and release neutrons which are contained by the reactor's stainless

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steel vessel. This process creates a tremendous amount of heat energy which is transferred to the primary-radioactive side of steam generators where the heat energy is transferred to the secondary-non-radioactive side of the steam generators where it flashes to steam and spins a steam turbine-generator that makes electric power.

Now, turning to the instant action regarding licensed operations at the Turkey Point Nuclear Plant. In this discussion, I will speak to the various NRC safety regulations under 10 CFR Part 50 that the Florida Power & Light Company relaxed with the **blessing of the NRC**. The **rushed** approval of the LAR by the NRC appears to accommodate the licensee's economic interests over and above the health and safety of the public and the environment as I will explain in greater detail.

#### **Attachment-4**

For the record, I refer to **Attachment-4** which is a July 22, 2014 letter from the licensee to the NRC – a License Amendment Request No. 231, Application to Revise Ultimate Heat Sink Temperature Limit.

The licensee states in their letter, in part, that:

In Reference 1 Florida Power & Light Company (FPL) requested an amendment to the Technical Specifications (TS) for the Turkey Point Nuclear Plant (Turkey Point), Units 3 and 4. In Reference 2 FPL requested the NRC to review and approve the application on an emergency basis. This letter supplements the application by revising the proposed Surveillance Requirements (SR) for the ultimate heat sink (UHS). The revision to the proposed SRs is contained in Enclosure 1. In addition, Enclosure 2 to this letter provides the FPL response to the Request for Additional Information (RAI) contained in Reference 3. The Reference 1 application proposed to revise the UHS water temperature limit from 100°F to 104°F with consideration for instrument uncertainty. This supplement revises the proposed wording in the SRs to be consistent with the Limiting Condition for Operation, increases the proposed frequency of verifying UHS water temperature when water temperature exceeds 100°F, and adds a requirement to the SRs to add instrument uncertainty to the indicated value.

Now, before discussing the concerns related to the licensee's actions as stated in their July 22, 2014 letter to the NRC, I am going to restate three requests outlined in the 2.206 Enforcement Petition as follows – and I'm going to paraphrase here. The NRC was requested to require FPL to complete the following actions:

1. The licensee completes an **"independent" [evaluation]** via a contractor to assess and to fully understand and correct the "root-cause" for the rise in temperature of cooling water in the canals utilized by the licensee to cool the two nuclear reactors at the Turkey Point nuclear facility.

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*(It is noted here that the word “evaluation” was inadvertently omitted from the original 2.206 petition but is now incorporated into the petition through this reference).*

2. The licensee completes a comprehensive evaluation of all nuclear safety related plant equipment and components which may have been otherwise affected as a direct or indirect result of the increase in the cooling water temperature in the canals; and
3. The licensee completes an **“independent”** safety-assessment through a 3rd party contractor to review of all plant nuclear safety related equipment and/or components – to ensure that such nuclear safety related systems and/or components will properly function to protect public health and safety under all NRC regulations and requirements under 10 CFR Part 50 and under other NRC regulations and requirements – in operating the two Turkey Point Nuclear Reactors with cooling water from the canals in excess of 100-degree (F).

**Attachment-3:**

Now, for the record as reflected in Attachment-3, the licensee submitted their License Amendment Request on **July 10<sup>th</sup>, 2014** and the NRC approved that request on **August 14<sup>th</sup>, 2014** (less than one-month later, omitting the weekends) – despite the fact that my 2.206 Enforcement Petition was submitted to the NRC on **July 18, 2014** requesting the agency to require the licensee to retain an independent contractor to make a safety evaluation and review **prior** to the agency approving the License Amendment Request.

Clearly, the **NRC apparently places the licensee's economic interests related to continued operation of the Turkey Point Nuclear Plant over and above the agency's stated mission to protect public health and safety and the environment.** Over the last 26-year period, my engagement with the NRC in submitting enforcement petitions – consistently resulted in the agency acting in the interest of the affected licensee rather than for the protection of public health and safety and the environment. To this extent, I have filed a complaint with the NRC Office of Inspector General and asked that the NRC staff be investigated in these circumstances.

**Attachment-9:**

As stated by the licensee in Attachment-9 (at the bottom of page 1 and continuing on page 2) – FPL requested the NRC to review and approve the application on an emergency basis. However, **there was no reason for the NRC to act on an emergency basis.** The licensee has ample capacity to provide uninterrupted electric service to its customers without operation of the Turkey Point Nuclear Plant. Indeed, the licensee has over the last several years brought several new gas operated power plants on-line. Moreover, when the licensee has

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taken the Turkey Point Nuclear Plant to a cold-shutdown mode of operation to refuel the reactor, their customers continued to receive uninterrupted electric service.

**For these reasons standing alone**, I request on the record, that the NRC's Inspector General's office be provided a copy of the record transcripts of this meeting along with all documents exchanged between the licensee and the NRC – including email communications – so that the Inspector General's office can make a determination whether the NRC engaged in wrongdoing in rushing the approval of the licensee's License Amendment Request – in blatant disregard for the protection of public health and safety and the environment – and without proper consideration of the instant petition and my elaboration on the petition.

Before I get into a more detailed discussion of the licensee's License Amendment Request, let the record reflect that the Turkey Point Nuclear Plant was designed and built for safe operation with the **Ultimate Heat Sink water temperature at 100-degrees Fahrenheit or less**. Moreover, the licensee sought and received an operating license from the NRC with a submittal of a Final Safety Analysis Review or FSAR and an Updated FSAR which specified that the Ultimate Heat Sink water temperature was required to be 100-degrees Fahrenheit or less. That safety margin then became part of the licensee's technical specifications for the Turkey Point Nuclear Plant.

#### **Attachment-4**

As stated by the licensee in this document at page 3:

The limit on Ultimate Heat Sink (UHS) temperature in conjunction with the SURVEILLANCE REQUIREMENTS of Technical Specification 3/4.7.2 will ensure that sufficient cooling capacity is available either: (1) To provide normal cool down of the facility, or (2) To mitigate the effects of accident conditions within acceptable limits. FPL has the option of monitoring the UHS temperature by monitoring the temperature in the ICW system piping going to the inlet of the CCW Heat Exchangers. Monitoring the UHS temperature after the ICW but prior to CCW Heat Exchangers is considered to be equivalent to temperature monitoring before the ICW Pumps. The supply water leaving the ICW Pumps will be mixed and therefore, it will be representative of the bulk UHS temperature to the CCW Heat Exchanger inlet. The effects of the pump heating on the supply water are negligible due to low ICW head and high water volume. Accordingly, monitoring the UHS temperature after the ICW Pumps but prior to the CCW Heat Exchangers provides an equivalent location for monitoring the UHS temperature. With the implementation of the CCW Heat Exchanger Performance Monitoring Program, the limiting UHS temperature can be treated as a variable with an absolute upper limit of 100°F without compromising any margin of safety. **Demonstration of actual heat exchanger performance capability supports system operation with postulated canal temperatures greater than 100°F. Therefore, an upper TS limit of 100°F is conservative.** (Emphasis added).

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As can be seen here, the Turkey Point Nuclear Plant employ a vast amount of highly technical safety-related equipment which is intended to protect public health and safety by preventing a nuclear accident. The licensee's "assumption" that the heat exchanger's performance supports system operation with postulated canal temperatures greater than 100-degrees F is conservative – should be reviewed and evaluated by an independent contractor who can take the required time needed to make a proper review and investigation about this important safety-related equipment. Instead, the NRC made a "rush" decision in a very short period of time and without properly considering the instant 2.206 Enforcement Petition.

Now, continuing with Attachment-4, the licensee goes on to state at Pages 3 and 4 that:

## 2.2 Proposed TS and Bases Changes

The proposed revision to TS 3/4.7.4:

LCO 3.7.4 would state: The ultimate heat sink shall be OPERABLE with an average supply water temperature less than or equal to 104°F\*\*.

Current SR 4.7.4 would be revised as follows:

4.7.4 The ultimate heat sink shall be determined OPERABLE:

a. At least once per 24 hours by verifying the average supply water temperature\* is less than or equal to 104°F\*\*.

SR 4.7.4.b would be added:

b. At least once per hour by verifying the average supply water temperature\* is less than or equal to 104°F\*\*, when water temperature exceeds 100°F\*\*.

The current TS bases above will be supplemented with the following two paragraphs: Verifying UHS water temperature at least once per 24 hours is adequate to ensure the limit of 104°F is not exceeded when the water temperature is less than 100°F. Due to daily variations in temperature, when UHS water temperature exceeds 100°F the water temperature shall be verified at least once per hour to ensure that cooling canal system temperature variations are appropriately captured thus ensuring the Technical Specification limit is not exceeded. For the UHS water temperature monitoring Surveillance Requirements, instrument measurement uncertainty is added to the indicated value to ensure the Technical Specification limit is not exceeded.

(Emphasis added).

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So, here the licensee's revisions to their reactor's safety margins as stated in SR 4.7.4.b is flawed insofar as the licensee will only conduct a surveillance on the UHS water temperature once every 24-hours when the UHS water temperature is less than 100°F. Moreover, the licensee contends that only when the UHS water temperature exceeds 100°F will the surveillance be performed at least once per hour.

So, here is a hypothetical analysis of why the licensee's SR 4.7.4b is flawed. Let's assume that during normal power operations at the Turkey Point Nuclear Plant a surveillance was performed on the UHS water temperature at midnight and found to be at less than 100°F. To the extent that the UHS water temperature was less than 100°F, the licensee would not again perform a surveillance until midnight the following day.

Now assume that at 01:00hrs the UHS water temperature rises to 105°F or higher. The licensee would remain unaware of the increase in water temperature until the next surveillance at midnight the following day. so, in this hypothetical – the licensee would be in violation of its reactor safety margins and NRC regulations and requirements for a period of at least 11hrs.

The licensee then states at Page 5 that:

A revision to new TS SR 4.7.4.b is proposed that will increase the frequency of monitoring UHS temperature when water temperature exceeds 100°F from at least once every 6 hours to at least once per hour. This increased frequency ensures that cooling canal system temperature variations are appropriately captured. The frequency is based on experience with temperature trends over the course of each day.

(Emphasis added).

These revisions by the licensee to TS SR 4.7.4.b amply demonstrates that the licensee failed to conduct a thorough fault-tree analysis and that the basis for the licensee's LAR was performed in a rushed and hurried manner. For this reason standing alone, Petitioner's requests outlined in the 2.206 Enforcement Petition for the licensee to retain an independent contractor to evaluate the application and effects of changing the UHS water temperature to 104°F should be granted by the NRC. To the extent that the NRC reviewed the licensee's LAR on a "rush" and emergency basis – and subsequently approved the LAR - as-is – the NRC OIG should investigate the NRC's actions accordingly.

Here the NRC cannot have any measure of reasonable assurance that the licensee's revision to the TS changes requested in their supplement do not alter the determination of no significant hazards and the environmental considerations contained in the licensee's Reference 1 application - as suggested by the licensee - that the revised request is bounded by the basis for change to a higher UHS temperature limit contained in the application, and

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the proposed changes to the TS SRs provide additional restrictions on verifying compliance with the UHS water temperature limit.

Indeed, the licensee's contentions related to these safety margins must be evaluated by an independent contractor to protect public health and safety and the environment.

#### Attachment-5

As stated by in Attachment-5 at page 2 of the enclosure to that document:

Accordingly, the NRC staff are concerned that the LAR to revise the UHS water temperature limit from 100 degrees Fahrenheit (°F) to 104 'F could adversely affect the population of Federally threatened American crocodiles (*Crocodylus acutus*) living on the Turkey Point site and the designated critical habitat on the plant site.

The licensee responded, in part, by stating that:

In 2011, Florida Power & Light Company (FPL) increased the crocodile monitoring in the cooling canal system (CCS). FPL and University of Florida (UF) conducted several years of pre-Uprate crocodile monitoring to assess the spatial distribution, growth and survivorship of the crocodiles. FPL committed to a minimum of 2 years post-Uprate monitoring to ensure the increase in temperature and salinity will have no impact to the crocodile population utilizing the CCS. Both Units have been operating in the Uprated mode since June of 2013. The surveys consist of spotlight surveys every other month (2011-2013) and capture and tagging surveys three times a year.

(Emphasis added).

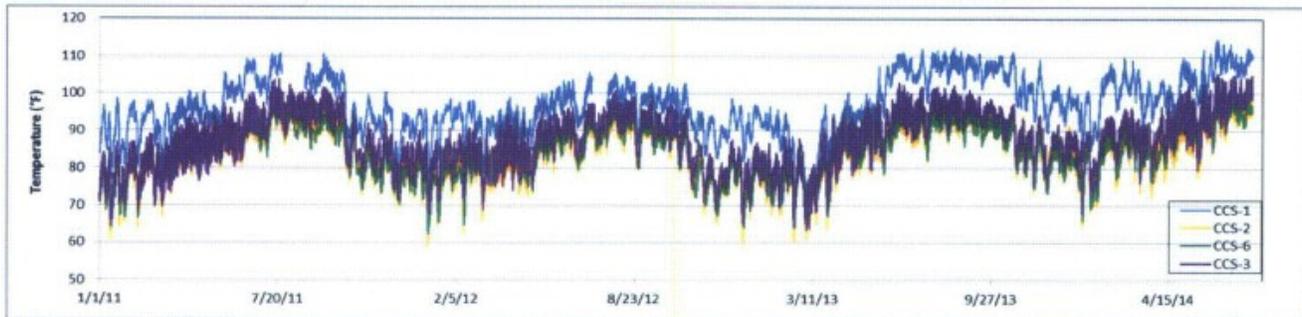
Here again, the licensee's contentions to the NRC must be validated by an independent contractor to ensure that the affected wildlife living in and around the Turkey Point Nuclear Plant is not adversely affected by the increase in water temperature.

Moreover, at Page 3 of the referenced document, the licensee states that:

FPL has several stations that monitor temperature in the CCS on an hourly basis. Below is a time series temperature plot for 4 of those stations.

Now, if you look closely at the licensee's temperature plot, it can be determined that following the licensee's June 2013 uprate at the Turkey Point Nuclear Plant the canal water temperature has consistently visited a value at or above 100°F. It appears that the Turkey Point uprate significantly contributed to the increased canal water temperature.

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Time Series Temperature Plot

The Petitioner contends here that not only is this consistently high canal water temperature a danger to the wildlife that lives in the canal, it poses a serious threat to continued licensed operations of the Turkey Point Nuclear Plant.

For this reason standing alone, the NRC should grant the requests outlined in the 2.206 Enforcement Petition to protect public health and safety and the environment and require the licensee to have a contractor independently investigate the “root-cause” of the increase in the canal water temperature.

#### Attachment-6:

The licensee states in Attachment-6 at pages 7 and 8, in the supplement to that document, that:

Increasing the ICW temperature to 104°F while reducing the CCW heat exchanger fouling factor to 0.002714 hr-ft<sup>2</sup>-OF/BTU provides insignificant changes to the containment peak pressure and containment peak saturation temperatures. The results have either the same or slight changes some up, some down—from the previously reported results. These minor temperature changes provide essentially no impact to the containment peak pressure and peak temperature response. It is concluded that small temperature variations within the CCW supply water have an insignificant impact on the containment response. The ICW temperature increase / reduced fouling factor tradeoff results in CCW heat removal performance that is essentially the same, providing an acceptable response for the GOTHIC containment model. Therefore, the current results provided in the UFSAR remain valid for the increase in ICW temperature to 104°F.

So, here the Petitioner contends that considering the concerns already discussed with the PRB today, the NRC cannot have any measure of reasonable assurance that the current results provided in the UFSAR remain valid for the increase in ICW temperature to 104°F –

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and that the licensee will operate the Turkey Point Nuclear Plant in strict compliance with NRC regulations and requirements. Again, the NRC should grant the requests made in the 2.206 Petition to protect public health and safety and the environment in these circumstances.

**Attachment-9:**

The licensee states in Attachment-9 at page 2, of the supplement to that document, that:

The Reference I application proposed to revise the UHS water temperature limit from 100°F to 104°F with consideration for instrument uncertainty, and added a SR to increase the frequency of verifying UHS water temperature to at least once every 6 hours when water temperature exceeds 100°F. Reference 4 supplemented the application by revising the proposed wording in the SRs to be consistent with the Limiting Condition for Operation, increasing the proposed frequency of verifying UHS water temperature to at least once per hour when water temperature exceeds 100°F, and adding a requirement to the SRs to add instrument uncertainty to the indicated value. This supplement removes the proposed requirement in TS SR 4.7.4 to add instrument uncertainty to the indicated value of UHS temperature. This supplement also proposes a change to the frequency of performing the CCW heat exchanger performance test from at least once per 31 days to at least once per 14 days.

Here, the Petitioner contends that the frequency of performing the CCW heat exchanger performance test should be at least once per 7 days given the degradation that is possible to the heat exchanger due to the increased water temperature – and the rising salinity of the canal water.

For this reason standing alone, the NRC should grant the requests made in the 2.206 Enforcement Petition to protect public health and safety and the environment in these circumstances.

**Attachment-2:**

This document identifies concerns directly related to the fragile Eco-system and environment in and about the Turkey Point Nuclear Plant with respect to the increased canal water temperature. (read issues here).

**Attachment-13:**

This document identifies concerns directly related to the fragile Eco-system and environment in and about the Turkey Point Nuclear Plant with respect to the increased canal water temperature. (read issues here).

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**Attachment-14:**

This document identifies concerns directly related to the fragile Eco-system and environment in and about the Turkey Point Nuclear Plant with respect to the increased canal water temperature. (read issues here). **Contradicts FPL's contentions** - compare to Attachment-13

**Attachment-15:**

Discuss the NRC's environmental assessment for TPN 6&7 – where the agency took the time to investigate – compared to the agency's review and approval of the recent recent LAR in a hurried and emergency basis.

**Summary:**

In summary, the licensee has admitted that the water temperature in the canal system in and about the Turkey Point Nuclear Plant has risen; and that the canal system is the UHS specified in the licensee's UFSARs. Although the licensee contends that the increase in the canal water temperature is due to increased algae growth – there exists evidence that the **June-2013 uprate of the Turkey Point Nuclear Plant is the main cause for the increase** in the canal water temperature. Moreover, the increased salinity of the canal water remains a mystery to the licensee as the licensee has failed to identify and correct the root-cause for the increase. To the extent that the increase in salinity of the canal water can adversely affect the heat transfer and removal from vital safety-related plant equipment and components, the **licensee has failed to adjust their surveillance frequency adequately in these circumstances.**

For all these states reasons, the NRC should grant the requests set-out in the 2.206 Enforcement Petition accordingly to protect public health and safety and the environment in these circumstances.

I will now respond to any questions.

Thank you.