

August 21, 2009

MEMORANDUM TO: Frederick D. Brown  
Division of Inspection and Regional Support  
Office of Nuclear Reactor Regulation

FROM: John Munro, Acting Chief */RA/*  
Operator Licensing and Human Performance Branch  
Division of Inspection and Regional Support  
Office of Nuclear Reactor Regulation

SUBJECT: PUBLIC MEETING TO DISCUSS LICENSEE AND  
NRC PLANS FOR HURRICANE PREPARATION GUIDANCE AS  
APPLICABLE TO 10 CFR 26, SUBPART I, MANAGING FATIGUE

Enclosed is the meeting summary for the August 4, 2009, stakeholder meeting regarding the implementation of 10 CFR Part 26, Subpart I, "Managing Fatigue." The purpose of the meeting was to allow interested stakeholders an opportunity to discuss the ability of sites to meet future work hour controls required by 10 CFR Part 26, Subpart I, under hurricane conditions and to provide information on the potential sites affected. The meeting was held at NRC Headquarters, Executive Boulevard Building, in Rockville, MD.

The meeting was noticed on July 24, 2009. The notice is available electronically at the NRC's Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html> where the public can access the text and image files of NRC's public documents in the NRC's Agencywide Document Access and Management System (ADAMS). The meeting notice can be found under accession number ML092040714.

The meeting participants included NRC staff and contractors, members of the power reactor licensee community, and representatives from the Nuclear Energy Institute (NEI).

CONTACT: Timothy Kolb, NRR/DIRS  
301-415-1428

Enclosures: 1. Meeting Summary  
2. Meeting Attendance List  
3. Agenda  
4. NEI Meeting Presentation

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## **Summary of August 4, 2009, Public Meeting Regarding Plans for Hurricane Preparation Guidance as Applicable to 10 CFR Part 26, Subpart I**

On August 4, 2009, a public meeting was held regarding licensee and NRC plans for hurricane preparation guidance as applicable to 10 CFR Part 26, Subpart I, "Managing Fatigue." At a public meeting held on May 22, 2009, regarding the status of Subpart I implementation, industry representatives explained that licensees sometimes increase staffing levels before the declaration of a weather-related emergency, specifically in the case of a hurricane watch. As a result, these response workers may violate the work hour controls required by 10 CFR Part 26, Subpart I. This discussion was continued at a subsequent public meeting held on July 15, 2009, at which time, the NRC staff stated that it would take action to coordinate a separate meeting on this topic to ensure that industry stakeholders and NRC experts are present. Thus, the August 4, 2009, meeting was scheduled to allow interested stakeholders an opportunity to discuss the ability of sites to meet future work hour controls required by 10 CFR Part 26, Subpart I, under hurricane conditions and to provide information on the potential sites affected. This meeting focused on the impact of hurricanes in particular, but the discussion may potentially be applied to other weather events (e.g., heavy snow events, flooding).

The meeting was noticed on July 24, 2009. The notice is available electronically at the NRC's Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html> where the public can access the text and image files of NRC's public documents in the NRC's Agencywide Document Access and Management System (ADAMS). The meeting notice can be found under accession number ML092040714.

The list of the meeting attendees is included as Enclosure 2 and the agenda is included as Enclosure 3.

The meeting began with introductions, followed by a presentation by NEI and industry representatives on plans for hurricane preparation with regard to the work hour requirements in 10 CFR Part 26, Subpart I. Industry's presentation is included as Enclosure 4.

The presentation included, and the group discussed, the following items:

### **1. Sites Potentially Affected by Hurricanes**

NEI presented a list of sites that have the greatest likelihood of being affected by a hurricane. The site list was divided into two sections: (1) highest potential for being affected by a hurricane and (2) lower potential for being affected by a hurricane. The sites on the first list (South Texas Project, Waterford 3, Turkey Point, St. Lucie, Brunswick, Crystal River) are located near the coast and have been affected by hurricanes in the past. The NRC staff asked if sites on the second list have had to increase staffing levels in the past due to a hurricane. It was noted that Farley, Salem-Hope Creek, and Riverbend have had to increase staffing levels due to a hurricane.

The NRC staff asked if the list is a complete list of the sites that were highly likely to be impacted by hurricanes. An NEI representative responded that the list provided is complete. However, an industry representative commented that Catawba had to increase staffing levels due to hurricane Hugo, but Catawba was not included on the list. NEI acknowledged that this information should be added to the list.

ENCLOSURE 1

An industry representative stated that he has a master list that includes every plant that has undertaken a post-disaster review. The representative noted that all of those sites most likely increased staffing or shut down due to a hurricane. This representative stated that he would send this list to an NEI representative, who agreed to provide the information to the NRC staff.

The NRC staff requested a list of plants that have increased staffing levels due to hurricanes. In addition, the staff asked for information on how much advanced notice the sites received prior to the staffing change. NEI representatives stated that industry will provide NRC with the requested information.

## 2. Number of Employees Affected by Hurricanes

NEI presented the approximate number of employees affected by a hurricane at a dual unit site (approximately 250) and a single unit site (approximately 150). Industry representatives explained that these figures are based on a "12-hours on / 12-hours off" shift rotation that includes two full shifts of the minimum Emergency Response Organization (ERO). The shifts are not staggered; the staffing remains constant throughout an event. The NRC staff asked if the number of affected employees is based on the needs of the ERO. Industry representatives responded that, in general, yes, a site will need at least two complete shifts of minimum ERO staffing.

The NRC staff asked if utilities have a procedure that directs when a site should increase staffing. An industry representative stated that the steps (e.g., readiness, sequestration, emergency plan, site restoration) are incorporated into procedures at some sites, but not all. However, the length of the steps can vary depending on the size, speed, and severity of the storm, as well as whether the unit is in an outage. Industry representatives stated that they had no objection to proceduralizing staffing increases due to hurricanes.

## 3. Non-rulemaking Options for Addressing the Issue

NEI presented several non-rulemaking options for addressing the impact of hurricanes on sites' ability to meet the future work hour controls. Industry provided their reasoning for each option, but concluded that none of the options were viable. First, industry considered waivers as a potential option. However, industry representatives noted that waivers are burdensome to process due to the additional requirements for processing waivers. Industry representatives also noted, and the NRC staff agreed, that other fatigue management provisions of the rule, such as behavioural observation and self-declarations, would be in affect while a site was preparing for a hurricane. Next, industry considered the option of increasing storm crew manning to keep the work hours for affected workers in compliance with the rule, but concluded that simply adding additional personnel is not practical and would expose more people than necessary to the dangers of a hurricane. Thirdly, industry representatives discussed the option of providing storm crew personnel with days off while they are sequestered in response to the hurricane. Industry noted that this option would be limited to only a few members of the storm crew, could be increasingly limited based on the storm severity, and would be difficult to monitor and document.

The NRC staff asked if sites must exit their declared emergency action level (EAL) immediately after the hurricane warning is dropped. Industry representatives responded that sites are not required to exit the EAL immediately; however sites try not to operate under their emergency plan longer than necessary. Industry and the NRC staff agreed that work hour controls are not intended to change the way a site declares an emergency plan.

#### 4. Industry Conclusions

Industry representatives concluded their presentation by outlining key conclusions. They stated that, to provide the most efficient use of personnel, the emergency plan director should make the final determination and declare increased staffing due to an impending hurricane, regardless of existing work hour requirements.

The NRC staff asked whether industry would seek an exemption from work hour controls before sequestering staff in response to a hurricane. Industry representatives responded that the most important task is to prepare for the storm. They noted that, in extraordinary circumstances, individuals may need to exceed work hour limitations before sequestration.

The NRC staff stated that criteria are needed to better define when workers may be exempted from the work hour control requirements of Subpart I during hurricane emergencies. Further, the staff explained that these criteria must be in licensee procedures. Industry representatives agreed and will take action to develop more specific criteria for entry into and exit from an enforcement discretion condition.

#### 5. Potential Path Forward

The NRC staff emphasized the importance of industry input when developing the NRC's position on this issue. The staff noted that it could take multiple years to revise the current rule to address the impact of weather-related events on compliance with work hour controls. In the meantime, the staff suggested that industry submit exemption requests for sites that are highly likely to be affected by a future hurricane.

An industry representative asked what the timeframe is for NRC's processing of exemption requests. The NRC staff responded that the process can move slowly and suggested that industry create a model that can be used for many plants, which would decrease the time it takes for the NRC to review the requests. The staff acknowledged that some sites may need to submit an exemption request retroactively (i.e., after the hurricane has affected employee work hours).

The NRC staff noted that it may not be able to process exemption requests by October 1, 2009, the implementation date for 10 CFR 26, Subpart I. Therefore, the staff is drafting enforcement guidance to use before the requests are approved. This guidance would be in effect until a revised rule is published. Enforcement guidance would help the staff determine whether enforcement discretion can be used when evaluating compliance with the rule. Under enforcement discretion, sites would still violate the work hour requirements, but the NRC would have discretion from taking enforcement action. The staff is currently drafting such guidance and hopes to have a document complete for internal review later this month.

The NRC staff emphasized that it will continue to consider information from industry on this topic when developing its position.

**August 4, 2009, Public Meeting Regarding Plans for Hurricane Preparation Guidance as  
Applicable to 10 CFR Part 26, Subpart I**

Attendance List

NAME	AFFILIATION
MaryAnn Ashley	NRC
Howard Benowitz	NRC
Mike Boggi	NRC
John Butler	NEI
Kevin Kingsley	Entergy
Tim Kolb	NRC
Michael Markley	NRC
Kamishan Martin	NRC
Jeffry McBrayer	Entergy
Tom Rohe	FPL
Stewart Schneider	NRC
Undine Shoop	NRC
Russell Smith	NEI
R.L. Sullivan	NRC
Georgia Thu	ICF
John Wray	NRC
<i>Via phone</i>	
Paul Bemis	PG&E
Kevin Brennan	Dominion
Nancy Chapman	Bechtel
Liz Gormsen	ICF
Glen Kaegi	Exelon
Al Lindsay	Duke Energy
Tom Medina	FPL
Don Rickard	STARS
Ken Tapplet	South Texas

## **August 4, 2009, Public Meeting Agenda**

MEETING AGENDA FOR THE CATEGORY 2 PUBLIC MEETING TO DISCUSS LICENSEE  
AND NRC PLANS FOR HURRICANE PREPARATION GUIDANCE AS APPLICABLE TO  
10 CFR 26, SUBPART I, MANAGING FATIGUE.

August 4, 2009; 9:00 a.m. – 12:00 p.m.  
U.S. Nuclear Regulatory Commission  
Executive Boulevard Building Rm EBB 1-B13  
6003 Executive Boulevard  
Rockville, MD 20852

The NRC staff is conducting this public meeting to discuss options for addressing the need for the industry to staff sites in preparation for hurricanes where licensees typically sequester site personnel who will be covered by the new work hour controls prior to the allowed exemption upon EAL entry.

9:00 – 9:15	Welcome/Introductions
9:15 – 9:30	Public comments
9:30 – 10:15	NEI/Industry discussion on needs and potential sites affected
10:15 – 10:30	Break
10:30 – 11:45	NRC potential path forward to support industry needs
11:45 – 11:55	Public comments
11:55 – 12:00	Summary of action items and closing remarks

## NEI Meeting Presentation

### **Need for a generic answer since numerous facilities are potentially affected.**

Although not all facilities are impacted by hurricanes, a sufficiently large number are affected to justify revision of the Fatigue Management Rule. When reviewing the specific aspects of the Rule that are affected and the common response to sequestering Storm Crews, Rulemaking should resolve the condition.

Facilities impacted by hurricanes are:

#### Costal Sites

- South Texas Project
- Waterford 3
- Turkey Point
- St Lucie
- Brunswick
- Crystal River

Nearby Costal Sites or lower potential for hurricane

- San Onofre
- Diablo Canyon
- Seabrook
- Millstone
- Oyster Creek Surry
- Farley
- Calvert Cliffs
- Salem-Hope Creek
- Riverbend
- North Anna
- Pilgrim

We didn't have all the utilities represented so this will take some additional work.

**How many employees are actually affected – 10, 100, 200 - and which departments are particularly impacted. (e.g. are these principally covered workers, etc.)**

The following is a typical Storm Crew.

#### **Dual Unit Site**

Operations	52 personnel
Security	78 personnel
Maintenance	18 personnel
Health Physics	15 personnel
Chemistry	8 personnel
ERO & Support	75 personnel

ENCLOSURE 4

**Single Unit Site**

Operations	26 personnel
Security	50 personnel
Maintenance	20 personnel
Health Physics	13 personnel
Chemistry	3 personnel
ERO & Support	42 personnel

Personnel in Operations, Security, Maintenance, and portions of HP and Chemistry are covered workers.

**Circumstances prompting the condition.**

Facility receives a forecast that hurricane force winds are predicted to affect the operating unit(s). Facility takes action to prepare the site for hurricane force winds, sequester crews on site to respond to the hurricane and evacuates all other station personnel who will take action to evade the hurricane. Hurricanes can be slow moving or fast moving and can change direction on short notice. The commonality is that Storm Crews will be set for each condition without the ability to provide relief until the storm has passed and it is safe for relief crews to come back to the facility. The time that relief can be expected is variable depending on the results of the storm damage.

On short notice hurricanes, we must hold personnel over and do call-ins to expedite securing the facility. These personnel are not part of the sequestered team and may exceed limits. Short notice hurricanes may not provide sufficient time to allow personnel days off prior to sequestering. This added to slow moving hurricane that forces extended sequestering outside of Emergency Plan event may cause sequestered team members to exceed limits. Additionally, experience demonstrates that time to return to the plant can be relatively long. Plant may exit emergency condition before recovery personnel can return to site to relieve sequestered team. This can cause limits to be exceeded.

**The procedures that the licensee has in place to cover the circumstance.**

The definitions for Site Preparation Activation, Storm Crew De-activation, and the approving authority for declaring these conditions should be in a site administrative procedure. The definitions would be something similar to the following:

Site Preparation Activation: The date and time that a Senior Manager qualified as an Emergency Director determines that site preparation activation should commence responding to hurricane force winds forecasted to be on-site.

Storm Responders Deactivation: The date and time that the Senior Manager qualified as an Emergency Director determines that the requirements for storm responders are not necessary and that sufficient staff is available to meet the work hour restrictions.

Emergency Director: A senior manager designated by the station procedures who is trained as an Emergency Director in the Emergency Plan.

Normally, the track of a hurricane can be forecasted with some reliability before landfall. However, history has shown that the track and severity of hurricanes can change dramatically in a short time span and confidence is not high until shortly before (24 to 48 hours) reaching landfall. The industry practice to prepare for a hurricane is similar and begins several days before landfall is predicted. Commencement of hurricane site preparations is directed by senior management on site.

Following a storm, it is difficult to predict when relief personnel will be ready to return to the site because storm evacuation actions performed by each individual will vary. Storm crew members will be relieved as soon as relief personnel are available to report back to the site. Since the reliefs are not part of the storm crew, the availability of these individuals is contingent on the magnitude of storm damage. The stations will develop a staffing transition plan that will address restoring compliance with work hour requirements.

During storm crew activation and prior to de-activation, the facility may meet the conditions for entering the Emergency Plan. Since Part 26.207(d) already states that licensees need not meet the requirements of Parts 26.205(c) and (d) during declared emergencies, there is no need for exemption for storm crew members during the period of the declared emergency. However, this exemption should be applied to conditions that require the activation of a storm crew responding to severe weather involving hurricane force winds regardless whether the emergency plan is entered.

**Other options rather than requesting rulemaking from the Fatigue Management Rule were considered.**

- **Waivers**

The Fatigue Management Rule allows licensees to grant waivers of the work hour controls. To grant a waiver, an operations shift manager determines that the waiver is necessary to mitigate or prevent a condition adverse to safety, or a security shift manager determines that the waiver is necessary to maintain site security, or site senior-level management with requisite signature authority makes either determination. A supervisor assesses the individual face-to-face and determines that there is reasonable assurance that the individual will be able to safely and competently perform his or her duties during the additional work period for which the waiver will be granted. The supervisor must receive specific training and the bases for individual waivers must be documented. The face-to-face supervisor assessment may not be performed more than 4 hours before the individual begins performing any work under the waiver. There is no specified time for how long a waiver is effective, but from the requirements it is clear it is intended for a specific work activity, and not intended for large groups of personnel performing a number of activities.

The storm crew could be activated for a number of days. From the above requirements for granting a waiver, use of waivers is an impractical option for meeting the Fatigue Management Rule for controlling work hours because a large number of covered workers are impacted by the

severe weather condition. The waiver option, in these circumstances, would impede the ability to focus on plant safety and security and may be detrimental to the health and safety of the public.

- Increase storm crew manning

The storm crew including the ERO is already a large population of individuals. Bunking and sanitary facilities are limited on site to accommodate this population of people and provide the opportunity for a restorative sleep. Operations and Security are limiting groups. One additional crew for these two organizations would require approximately 60 additional personnel (for a two-unit site – at least 40 additional people for a single unit site) to be sequestered on site. Simply adding additional personnel to the storm crew to meet work hour controls is not practical. In addition, exposing additional personnel to the dangers of dealing with a hurricane as well as creating hardships on additional families to accommodate the rule is not reasonable.

- Allow for day off for storm crew personnel during activation

The strategy of allowing members of the storm crew to take a day off while sequestered to the site during storm crew activation was considered. Essentially, an individual would not be assigned any duties for the licensee during that day to facilitate meeting the requirements of Part 26.205(d)(2)(ii) and 26.205(d)(3). This option would only be limited to a few members of our storm crew. For example, as stated above, Operations and Security would not be able to take advantage of this. Also, the option could be increasingly limited based on the severity of the storm and the response required. Finally, it would be difficult to demonstrate that employees sequestered on site for an entire day did not perform duties for the licensee.

- Other regulatory processes

Rulemaking is the best resolution path.

A License Amendment does not appear a practical resolution and it is not clear what part of the License would be amended to allow relief from meeting regulatory requirements.

Because rulemaking is a long process, some Licensees may find it necessary to submit requests for exemption from the Rule until rulemaking is completed. The NRC could obviate the need for exemptions with the issuance of a generic discretion from enforcement of the rule similar to the enforcement discretion given from meeting certain required of the Fire Protection Rule with a sunset clause.