

NUCLEAR REGULATORY COMMISSION
FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT, UNITS 3 AND 4
DOCKET NOS. 50-250 AND 50-251
EXEMPTION
[NRC-2010-0025]

1.0 BACKGROUND

Florida Power and Light Company (FPL, the licensee) is the holder of Facility Operating License Nos. DPR-31 and DPR-41, which authorize operation of Turkey Point, Unit Nos. 3 and 4 (Turkey Point 3 and 4). The license provides, among other things, that the facility is subject to all rules, regulations, and orders of the U.S. Nuclear Regulatory Commission (NRC) now or hereafter in effect. The facility consists of two pressurized-water reactors located in Florida City, Florida.

2.0 REQUEST/ACTION

By letter dated October 13, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML092950342), and pursuant to Title 10 of the *Code of Federal Regulations* (CFR), Section 26.9, FPL requested an exemption from the requirements of 10 CFR 26.205(c), "Work hours scheduling," and (d), "Work hour controls," during declarations of severe weather conditions such as tropical storm and hurricane force winds at the Turkey Point site. Supplemental responses and responses to requests for additional information (RAI) are dated March 9, 2010 (ADAMS Accession No. ML100770099), September 2, 2010 (ADAMS Accession No. ML102580335), October 6, 2010 (ADAMS Accession No. ML102850047), and October 20, 2010 (ADAMS Accession No. ML103060463).

The requested exemption applies to individuals who perform duties identified in 10 CFR 26.4(a)(1) through (a)(5) who are sequestered onsite during the severe wind event, as travel to and from the site during severe wind conditions may be hazardous or not possible. The exemption request states that because of the unpredictable nature and potential speed of a storm, a need to activate the storm crew could occur on short notice and without the ability to meet work hour controls. The exemption request also states that although the plant may not meet the criteria for declaring an emergency based on the NRC-approved emergency action levels, emergency preparedness would require the implementation of the site emergency plan.

After the high wind conditions pass, wind damage to the plant and surrounding area might preclude sufficient numbers of individuals from immediately returning to the site. Additionally, if mandatory civil evacuations were ordered, this could also delay the return of sufficient relief personnel. The Emergency Coordinator (a senior management official at Turkey Point) will decide when weather conditions permit sufficient personnel to travel safely to and from the site. When this declaration is made, full compliance with 10 CFR 26.205(c) and (d) is again required.

The exemption would allow Turkey Point to sequester individuals onsite, when travel to and from the site during high wind conditions is hazardous or not possible due to severe weather conditions. According to the National Weather Service, sustained wind speed of 40 miles per hour (mph) makes travel unsafe for the common traveler.

If conditions are such that sustained winds of 73 mph are present onsite, then Turkey Point will declare a Notice of Unusual Event (UE). When this declaration is made, an exemption from these same work hour controls is available under 10 CFR 26.207(d).

3.0 DISCUSSION

The NRC staff has reviewed the licensee's overall request against the regulations contained in 10 CFR 26.205 and 26.207 and related *Federal Register* Notice Statements of

Consideration [73 FR 16965]. Also, the NRC staff reviewed the guidance in Regulatory Guide 5.73, Fatigue Management for Nuclear Power Plant Personnel. Information from the National Hurricane Center (NHC) (<http://www.nhc.noaa.gov/>) was used to understand various conditions or affects related to tropical storm and hurricane wind speeds.

10 CFR Part 26 Subpart I, Managing Fatigue

The fatigue management provisions in 10 CFR Part 26 Subpart I are designed as an integrated approach to managing both cumulative and acute fatigue. The requirement to schedule individuals' work hours consistent with the objective of preventing impairment from fatigue is found in 10 CFR 26.205(c). Section 26.205(d) of 10 CFR provides the actual work hour controls—which are 16 work hours in any 24-hour period, 26 work hours in any 48-hour period, and 72 work hours in any 7-day period. This section also provides limits on the number of hours an individual may work; limits on the minimum break times between work periods; and limits for the minimum number of days off an individual must be given.

Section 26.205(b) of 10 CFR is the requirement to count work hours and days worked. Sec. 26.205(b)(3) is the requirement to consider other periods of work not included in Sec. 26.205(d) so that they can be included in the work hour control calculations when a covered individual resumes covered work.

Regulatory Guide 5.73

Regulatory Guide 5.73, Fatigue Management for Nuclear Power Plant Personnel, endorses the Nuclear Energy Institute (NEI) report NEI 06-11, revision 1, "Managing Personnel Fatigue at Nuclear Power Plants," with certain clarifications, additions and exceptions.

Staff has endorsed this guidance for use during declared emergencies. After exiting the emergency, the licensee is immediately subject to the scheduling requirements of 10 CFR 26.205(c) and the work hour/rest break/minimum day off requirements of 10 CFR 26.205(d). As required by 26.205(b)(3), all time worked during the emergency must be tracked to ensure that

individuals are not fatigued when work hour controls are reinstated. In a public meeting on July 2, 2010, to discuss lessons learned regarding submitting an exemption request from Part 26, Subpart I work hour controls during periods of severe winds such as a tropical storm or hurricane, the staff concluded that it finds NEI 06-11 Section 7.5 "Reset from Deviations" to be an acceptable method for resuming work hour controls after the recovery period.

Precedence

STP Nuclear Operating Company, the licensee for South Texas Project Units 1 and 2 has been granted a similar exemption from severe wind conditions, which can be found in the *Federal Register* dated July 12, 2010 (75 FR 39707).

Lessons Learned

The effects of Hurricane Andrew on the Turkey Point site were used to identify lessons learned to consider when evaluating this request. The following sources were reviewed:

- NUREG-1474, "Effect of Hurricane Andrew on the Turkey Point Nuclear Generating Station from August 20-30, 1992."
- NRC Information Notice 93-53, "Effect of Hurricane Andrew on Turkey Point Nuclear Generating Station and Lessons Learned."
- NRC Information Notice 93-53, Supplement 1, "Effect of Hurricane Andrew on Turkey Point Nuclear Generating Station and Lessons Learned."
- NUREG-0933, "Resolution of Generic Safety Issues," Issue 178: Effect of Hurricane Andrew on Turkey Point (Rev 2).

Hurricane Andrew was a Category 5 hurricane that struck the Turkey Point site on August 24, 1992. On September 10, 1992, the NRC and the Institute of Nuclear Power Operations jointly sponsored a team to review the damage of Hurricane Andrew on the nuclear units and the utility's actions to prepare for the storm and recover from it and compile lessons

learned that might benefit other nuclear utilities. The licensee exemption request and the licensee's site procedures related to severe winds were compared to the actions and lessons learned documented in NUREG-1474, including an indication that detailed methodical preparations should be made prior to the onset of hurricane force winds.

The NRC staff has reviewed the FPL exemption request for the Turkey Point site and agrees that preparing the site for the onset of severe wind conditions such as hurricanes, including sequestering enough essential personnel to provide for shift relief, is prudent to ensure plant and personnel safety.

10 CFR 26.207(d) Exemption

Pursuant to 10 CFR 26.207(d) licensees need not meet the requirements of Sec. 26.205(c) and (d) during declared emergencies as defined in the licensee's emergency plan. The FPL RAI response letter dated March 9, 2010, clarified that the entry condition for the exemption is when site preparations are commenced per the licensee's severe weather preparation procedure (confirmed tropical storm watch or warning, or confirmed hurricane watch or warning). As defined by the NHC, a tropical storm watch is declared when sustained winds of at least 39 mph are expected somewhere within the specified coastal area. The entry condition for a Turkey Point declaration of an Unusual Event is a confirmed hurricane warning, which is defined by the NHC when sustained winds of 74 mph are expected somewhere within the specified coastal area. Therefore, entry conditions for the requested exemption may precede the declaration of a UE.

Section 26.207(d) states that licensees need not meet the requirements of 26.205(c) and (d) during declared emergencies, therefore there is no need for an additional exemption to be granted during the period of a declared emergency for severe winds. Although work hours, breaks, and days off are calculated as usual during a license-declared plant emergency,

licensees are unconstrained in the number of hours they may allow individuals to work performing covered duties or the timing and duration of breaks they must require them to take.

The FPL RAI response letter dated March 9, 2010, clarifies that the exit condition for the exemption is when the Emergency Coordinator determines there are sufficient personnel available to meet the requirements of 10 CFR 26.205 (c) and (d). Therefore, exit conditions for this exemption request can possibly come well after the exit of the UE.

To summarize, the FPL exemption request for Turkey Point Units 3 and 4 can be characterized, as having three parts: a high wind exemption; a recovery exemption immediately following an Emergency Plan exemption; and a recovery exemption immediately following a high wind exemption.

High Wind Exemption

A high wind exemption encompasses the period starting with the entry conditions prior to the declaration of a UE (confirmed hurricane warning is in effect). As a tropical storm or hurricane approaches landfall, high wind speeds - in excess of wind speeds that create unsafe travel conditions - are expected. During these times, the National Weather Service typically publishes a projected path of the storm. This condition will be described as the "high wind condition," or "period of high winds."

FPL requests an exemption from 10 CFR 26.205(c) and (d) work hour controls during periods of high winds. For the purposes of this exemption, declaration of the entry condition allows any onsite individual who performs duties identified in 10 CFR 26.4(a)(1) through (a)(5) to not have to meet the requirements of 10 CFR 26.205(c) and (d) if they are designated as part of the storm crew. This entry condition occurs when there is a confirmed tropical storm watch or warning or when there is a confirmed hurricane watch or warning and the Emergency Coordinator indicates that site preparations should be commenced per the severe weather preparation procedure.

The NHC defines a hurricane warning as an announcement that hurricane conditions (sustained winds of 74 mph or higher) are expected somewhere within the specified coastal area. Because severe wind preparedness activities become difficult once winds reach tropical storm force, a hurricane warning is issued 36 hours in advance of the anticipated onset of tropical-storm-force winds (39 to 73 mph).

Lessons learned that are published in NUREG-1474 include the acknowledgement that detailed, methodical preparations should be made prior to the onset of hurricane force winds. The NRC staff finds the Turkey Point proceduralized actions are consistent with the lessons learned.

Recovery exemption immediately following a High Wind exemption

The period immediately following the high wind exemption, but when the conditions for a UE no longer exist, may still require a recovery period. Also, high winds that make travel unsafe but that fall below the threshold of an emergency, could be present for several days. After the high wind condition has passed, sufficient numbers of personnel may not be able to access the site to relieve the sequestered individuals. An exemption during these conditions is consistent with the intent of the 10 CFR 26.207(d) exemption.

Recovery exemption immediately following an Emergency Plan exemption

Following a declared emergency, under 10 CFR 26.207(d), due to high wind conditions, the site may not be accessible by sufficient numbers of personnel to allow relief of the sequestered individuals. Once the high wind conditions have passed and the UE exited, a recovery period might be necessary. An exemption during these circumstances is consistent with the intent of 10 CFR 26.207(d).

Once Turkey Point has entered into either the high wind exemption or the 10 CFR 26.207(d) exemption, the licensee should not need to make a declaration that it is invoking the recovery exemption.

Unit Shutdown

If a hurricane warning is in effect and the storm is projected to reach the site as a Category 1 or 2 hurricane, then shutdown of the units to hot standby (mode 3) is commenced at least two (2) hours before the projected onset of sustained hurricane force winds at the site. Both units will remain offline for the duration of the hurricane force winds (or restoration of reliable offsite power). If the storm is projected to reach the site as a category 3, 4, and 5 hurricane prior to landfall, specific shutdown conditions are established at least two (2) hours before the projected onset of sustained hurricane force winds at the site. Because severe weather preparations are likely commenced prior to the shutdown of the units, then this exemption will allow sufficient personnel onsite to ensure that the facility is properly secured for severe weather.

Lessons learned from Hurricane Andrew, NUREG-1474, include having both units shutdown and on residual heat removal when the storm strikes so that a loss of offsite power will not jeopardize core cooling. The NRC staff finds the Turkey Point plan is consistent with the lessons learned.

Storm Crew

Turkey Point plans to sequester sufficient individuals to staff two 12-hour shifts of workers consisting of personnel from operations, maintenance, health physics, chemistry, and security, to maintain the safe and secure operation of the facility. The Turkey Point hurricane plan provides for bunking facilities that provide an accommodation for restorative rest for the off crew. A 12-hour break provides each individual with an opportunity for restorative rest. Although, the accommodations and potentially stressful circumstances may not be ideal for restorative rest, the NRC finds that these actions are consistent with the practice of fatigue management when limited personnel are available during severe weather conditions.

Maintenance

The FPL RAI response letter dated September 2, 2010, clarified that the exemption request does not apply to discretionary maintenance activities. Suspension of work hour controls is for storm preparation activities and those deemed critical for plant and public safety. The staff finds the exclusion of discretionary maintenance from the exemption request to be consistent with the intent of the exemption.

Procedural Guidance

By letter dated October 20, 2010, Turkey Point committed to maintain the following guidance, applicable to this exemption, in a site procedure:

- The conditions necessary to sequester site personnel that are consistent with the conditions specified in the Turkey Point exemption request.
- Provisions for ensuring that personnel who are not performing duties are provided an opportunity as well as accommodations for restorative rest.
- The condition for departure from the exemption is based on the Emergency Coordinator's determination that adequate staffing is available to meet the requirements of 10 CFR 26.205(c) and (d).

Returning to Work Hour Controls

Turkey Point must return to work hour controls when the Emergency Coordinator determines that adequate staff is available to meet the 10 CFR 26.205(c) and (d) requirements. Upon exiting the exemption, the work hour controls in Section 26.205(c) and (d) apply and the requirements in 26.205(b)(3) must be met.

Authorized by Law

As stated above, this exemption would apply to the storm crew sequestered on site. The licensee's request states that adherence to all work hour controls could impede the licensee's ability to use whatever staff resources may be necessary to respond to a plant emergency and

ensure that the plant maintains a safe and secure status. As stated above, 10 CFR 26.9 allows the NRC to grant exemptions from the requirements of 10 CFR 26.205(c) and (d). The NRC staff has determined that granting of the licensee's proposed exemption will not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations. Therefore, the exemption is authorized by law.

No Undue Risk to Public Health and Safety

The underlying purposes of 10 CFR 26.205(c) and (d) are to prevent impairment from fatigue due to duration, frequency, or sequencing of successive shifts. Based on the above evaluation, no new accident precursors are created by utilizing whatever staff resources may be necessary to respond to a plant emergency and ensure that the plant maintains a safe and secure status; therefore, the probability of postulated accidents is not increased. Even though it might be necessary to utilize whatever staff resources during severe weather preparation and storm crew activation, opportunities for restorative sleep will be maintained. Also, the consequences of postulated accidents are not increased, because there is no change in the types of accidents previously evaluated. Therefore, there is no undue risk to public health and safety.

Consistent with Common Defense and Security

The proposed exemption would allow the licensee to utilize whatever staff resources may be necessary to respond to a plant emergency and ensure that the plant maintains a safe and secure status. The licensee will provide sufficient numbers of management and supervision over the storm crew or the resources utilized during the plant emergency to provide additional oversight for monitoring the effects of fatigue to ensure that the safety and security of the facility are maintained. Also, during the plant emergency, opportunities for restorative sleep will be maintained. Therefore, the common defense and security is not impacted by this exemption.

Otherwise in the Public Interest

The proposed exemption would increase the availability of the licensee staff. The exemption would allow licensee staff to return to the site and perform additional duties to ensure the plant is in a safe configuration during the emergency. Therefore, granting this exemption is otherwise in the public interest.

4.0 CONCLUSION

Granting this exemption is consistent with 10 CFR 26.207(d) Plant Emergencies, which allows the licensee to not meet the requirements of 10 CFR 26.205 (c) and (d) during declared emergencies as defined in the licensee's emergency plan. The Part 26 Statements of Consideration, page 17148 states that "Plant emergencies are extraordinary circumstances that may be most effectively addressed through staff augmentation that can only be practically achieved through the use of work hours in excess of the limits of § 26.205(c) and (d)." The objective of the exemption is to ensure that the control of work hours do not impede a licensee's ability to use whatever staff resources may be necessary to respond to a plant emergency and ensure that the plant reaches and maintains a safe and secure status.

The actions described in the exemption request and submitted procedures are consistent with the recommendations in NUREG-1474. Also consistent with NUREG-1474, NRC staff expects the licensee would have completed a reasonable amount of hurricane preparation prior to the need to sequester personnel, in order to minimize personnel exposure to high winds.

Based on the considerations discussed above, the NRC staff has determined that (1) the proposed exemption is authorized by law, (2) there is a reasonable assurance that the health and safety of the public will not be endangered by the proposed exemption (3) such activities will be consistent with the Commission's regulations and guidance, and (4) the issuance of the

exemption will not be contrary to the common defense and security or to the health and safety of the public. Therefore, the staff finds this request to be acceptable.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will not have a significant effect on the quality of the human environment (75FR 34776; June 18, 2010). This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 27th day of December 2010.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

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