A large, decorative blue wave graphic that starts as a light blue shape on the left and curves upwards and to the right, ending as a solid blue shape on the right side of the slide.

**Turkey Point Units 6 & 7 S-COLA
Orientation Session**
July 28, 2009

Agenda



- **Introductions**
- **Emergency Preparedness**
- **Deep Well Injection**
- **Final Safety Analysis Report (FSAR)**
- **Exemption Request**
- **Seismic**
- **Environmental Report Discussion**

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Emergency Preparedness

- **Turkey Point Units 3, 4, 6 & 7 are addressed in the Radiological Emergency Plan (COLA Part 5)**
- **The following information has been submitted**
 - State of Florida Radiological Emergency Management Plan (Annex A to State Comprehensive Emergency Management Plan) (July 2008) – w/o appendices
 - State of Florida Radiological Emergency Management Plan, Annex A, Appendix II, Turkey Point Nuclear Power Plant Site Plan
 - Miami-Dade County Radiological Emergency Preparedness Plan
 - Monroe County Radiological Emergency Preparedness Plan

COLA Part 5 addresses the Multiple Units Site Elements of RG 1.206

Emergency Preparedness

RG 1.206

1. Address the extent to which the existing site's emergency plan is credited for the new unit(s), including how the existing plan would be able to adequately accommodate an expansion to include one or more additional reactors and include any required modification of the existing emergency plan for staffing, training, EAL, and the like.
2. Include a review of the proposed extension of the existing site's emergency plan pursuant to 10 CFR 50.54(q), to ensure that the addition of a new reactor(s) would not decrease the effectiveness of the existing plans and the plans, as changed, would continue to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50.
3. Describe any required updates to existing emergency facilities and equipment, including the alert notification system.
4. Incorporate any required changes to the existing onsite and offsite emergency response arrangements and capabilities with State and local authorities or private organizations.

APPLICATION

1. The integrated Radiological Emergency Plan (REP) for Turkey Point that addresses Units 3 & 4 as well as Units 6 & 7 is generally discussed in COLA REP Part 1 Section A, Staffing in REP Part 2 Sec B, Training in REP Part 2 Sec O, EALs in REP Part 2 Sec D.2
2. NRC approval is required prior to implementing the new REP, therefore, 10CFR50.54 (q) is not applicable
3. Any required update to emergency response facilities (ERF) are addressed in the REP. ERFs are described in REP Part 2 Sec H, communications in REP Part 2 Sec F, notification system in REP Part 2 Sec E, 10-M Met Tower in REP Part 2 Sec I.5
4. No required changes have been identified to the existing onsite and offsite emergency response arrangements and capabilities

COLA Part 5 addresses the Multiple Units Site Elements of RG 1.206

Emergency Preparedness

RG 1.206

5. Justify the applicability of the existing 10-mile plume exposure EPZ and 50-mile ingestion control EPZ.
6. Address the applicability of the existing ETE or provide a revised ETE, if appropriate.
7. If applicable, address the exercise requirements for collocated licensees, in accordance with Section IV.F.2.c of Appendix E to 10 CFR Part 50, and the conduct of EP activities and interactions discussed in RG 1.101, Revision 5.
8. If applicable, include ITAAC which address any changes to the existing emergency plans, facilities and equipment, and programs that are to be implemented, along with a proposed schedule, with the application.
9. Describe how emergency plans, to include security, is integrated and coordinated with emergency plans of adjacent sites.

APPLICATION

5. The 10 and 50 mile EPZs are unchanged from the current REP as shown in REP Part 1 Figures 1-3 and 1-4, respectively
6. A revised ETE is provided in COLA Part 5, Supplement 1
7. Exercise criteria are described in REP Part 2 Sec N
8. Emergency Planning ITAAC which addresses the entire site is described in Table 3.8-1 of COLA Part 10, Appendix B
9. The interface between the REP and the Security Plan is one of parallel operation. The plans are compatible. The REP response measures, once initiated, are executed in parallel with measures taken in accordance with the Security Plan as described in REP Part 2 Sec D.1.h

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Related Hydrology – Boulder Zone

- **Geology**

- Highly transmissive zone of limestones and dolomites found in the lower Oldsmar Limestone in the Lower Floridan aquifer in southeastern Florida
- Consists mostly of massively bedded dolostones within which secondary permeability has been extensively developed
- Occurs at a depth of about 2800 ft near site

- **Transmissivity**

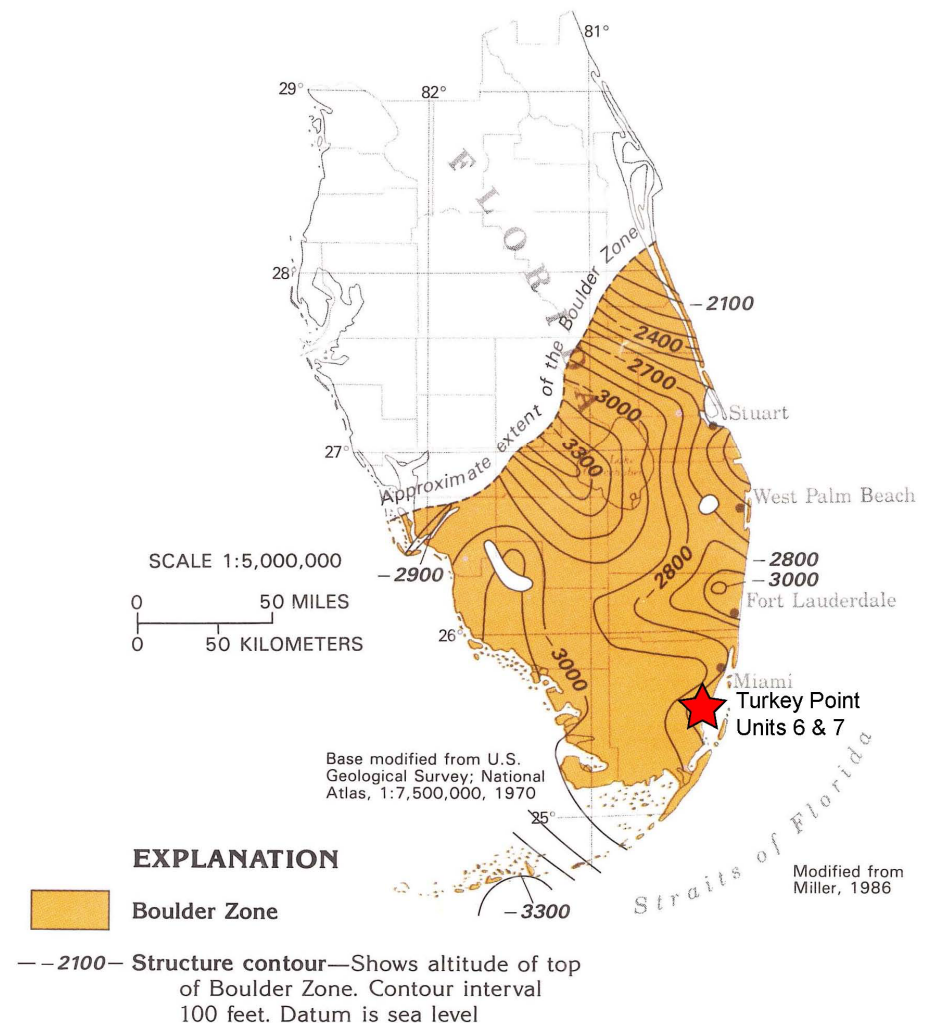
- 3,200,000 to 24,600,000 ft²/d

- **Water quality**

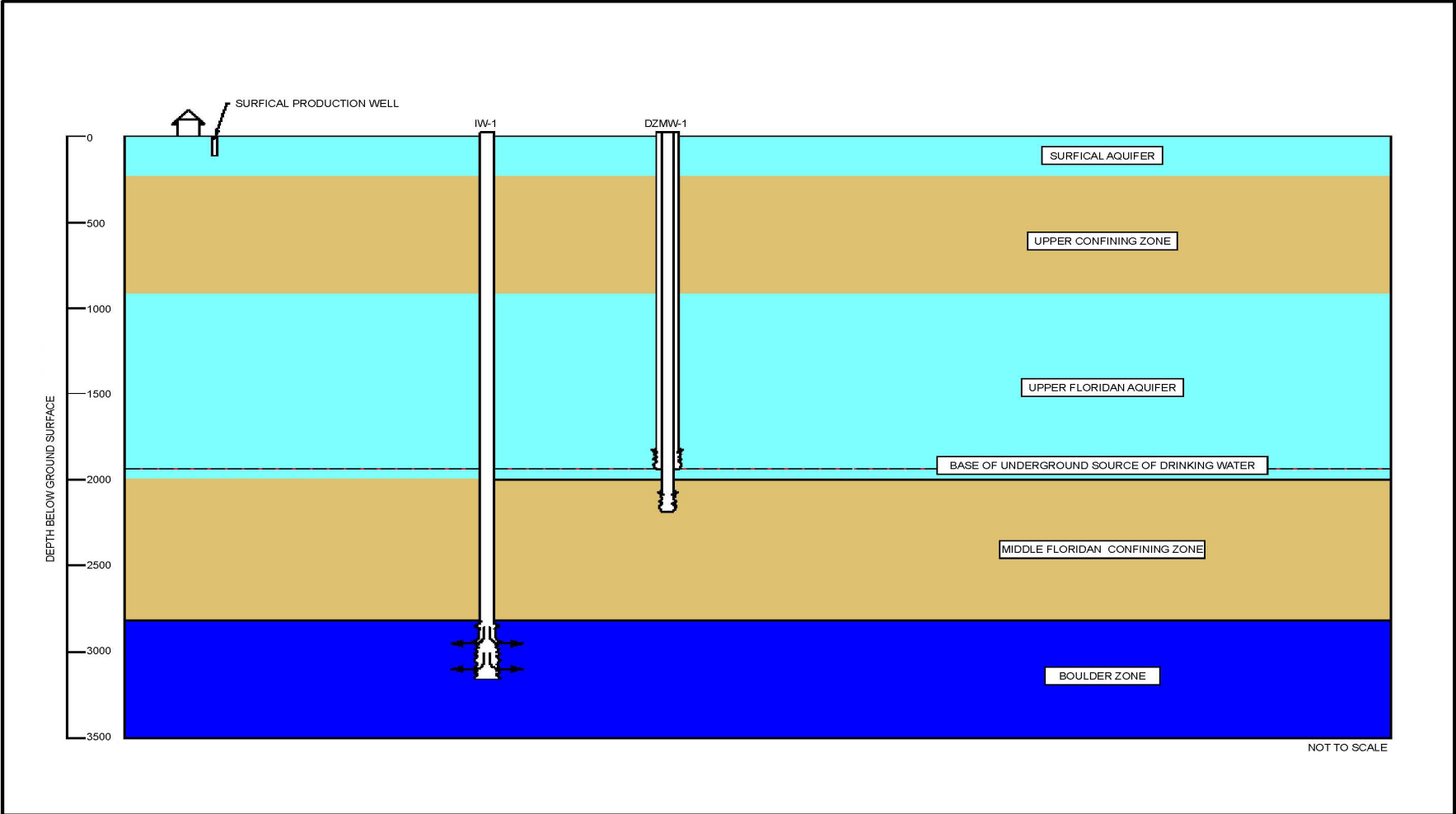
- Geochemically similar to modern seawater (37,000 mg/L TDS)
- Anomalous water temperature (nominally 50°F near coast)

- **Use**

- Wastewater disposal by deep well injection
- Oil field brines, municipal and industrial wastewater



Typical Deep Injection Well



Regulatory Framework

- **Consistent with 10 CFR 20.2001, FPL proposes to release licensed material in liquid effluents, within section 20.1301 limits, through deep well injection**
- **Although human exposure from normal deep well injection operations is not reasonable, FSAR Sec. 11.2 and ER Sec. 5.4 assumed an off-normal operations scenario to assign a potential receptor dose**
- **If 10 CFR 20.2002 were to apply, sufficient information is provided in the COL Application to meet its requirements**
- **In sum, whether under 20.2001 or 20.2002, FPL has demonstrated that the disposal method meets the dose limits of Part 20**

The COL Application includes information that addresses 10 CFR 20.2002 requirements

10 CFR 20.2002

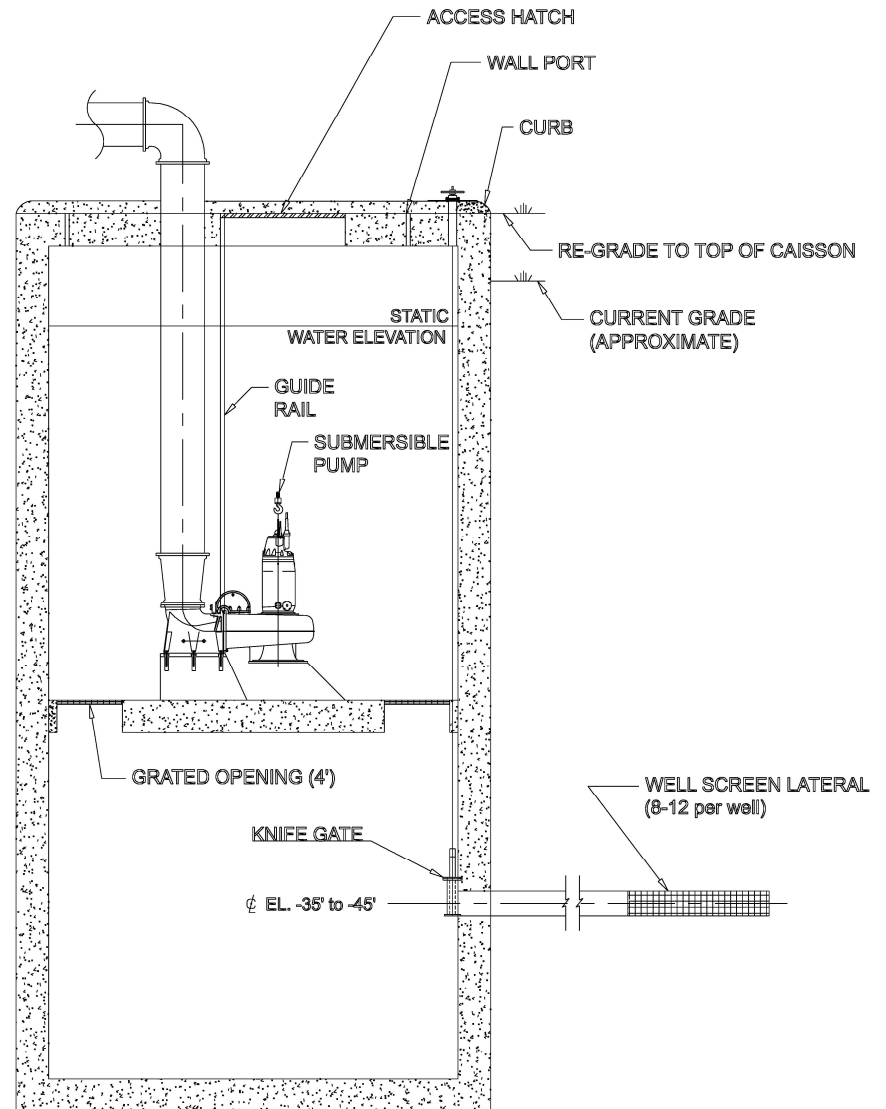
- a) A description of the waste containing licensed material to be disposed of, including the physical and chemical properties important to risk evaluation, and the proposed manner and conditions of waste disposal; and
- b) An analysis and evaluation of pertinent information on the nature of the environment; and
- c) The nature and location of other potentially affected licensed and unlicensed facilities; and
- d) Analyses and procedures to ensure that doses are maintained ALARA and within the dose limits in this part.

APPLICATION

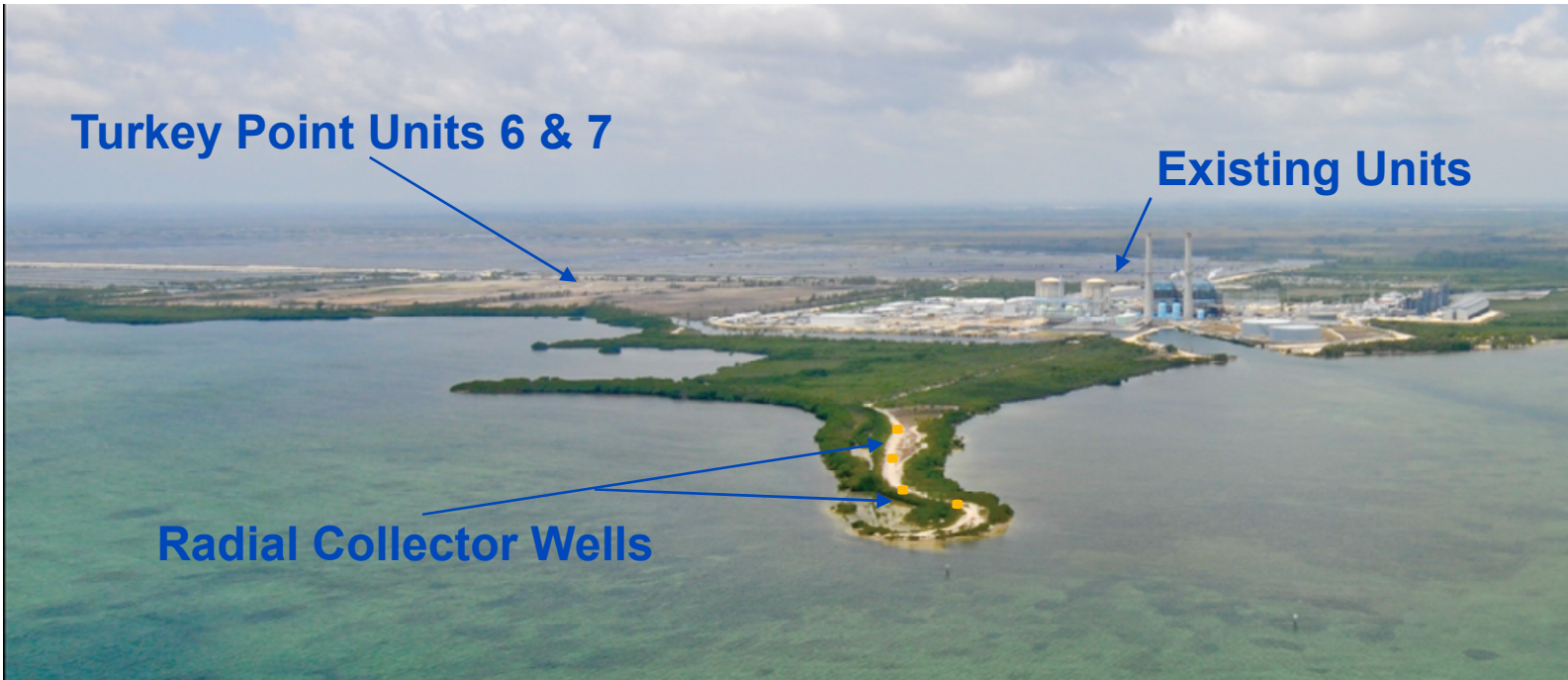
- a) FSAR Sections: 11.2.1, and 11.2.3.5; ER Sections: 3.5.1, 3.9.1 and 10.2.1
- b) FSAR Sections: 2.4.12 and 2.5.1; ER Sections: 2.3.1, Table 10.1-2
- c) ER Sections: 4.2.1.1.9, 5.2.1.1.9, 5.4.11, 10.2.1.2 and Tables 10.1-1 and 10.1-2
- d) FSAR Sections: 11.2.3.5, ER Sections: 5.4.1.1 and 5.11

Typical Radial Collector Well

- **Draws water supply from infiltrated surface water**
- **Specifically designed to reduce environmental impact**
- **Experience with Ranney wells in water and power applications**
 - Grand Gulf (Entergy) - 40 MGD
 - Process/cooling water
 - Kansas City Public Utilities - 55 MGD
 - Water supply intake



Proposed Radial Collector Well Locations



- **Four onshore caissons each one-third capacity (one backup)**
- **Approximately 125 MGD**
- **Laterals extending up to 900 ft**
- **Laterals approximately 40 ft below the bottom of Biscayne Bay**

Radial Collector Wells

- **Construction of the radial collector wells limited to upland areas**
- **During operation**
 - Wells would recharge predominantly from Biscayne Bay
 - No adverse impacts to wetlands
 - No impingement and entrainment
 - Approach Velocity at the substrate water interface would be less than 0.00001 ft/sec
 - Effects to water quality from operation of the Radial Collector Wells would be small
- **FSAR Sections: 2.4.12 and 9.2.11; ER Sections: 3.4.2.1.1.2 and 9.4.2.3**

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FPL follows the Design Centered Approach and participates in the AP1000 Design Centered Working Group

FSAR – Design Centered Approach

- **The Turkey Point S-COLA incorporates standard content from revision 1 of the Bellefonte COLA**
- **FPL will endorse responses to R-COLA Standard Content Requests for Additional Information (RAIs) following docketing of COLA**
- **Review of RAIs will include standard content R-COLA RAI responses from October 2008**

FPL follows the Design Centered Approach and participates in the AP1000 Design Centered Working Group

FSAR – Technical Specifications

- **Adopted the AP1000 DCD Revision 17 Generic Technical Specifications**
- **Consistent with ISG-08, bounding values were used to address the bracketed information and reviewer's notes (Part 4 Section A.2)**

Site specific characteristics and parameters which are not bounded by the DCD values are evaluated and found to be acceptable

FSAR – Site Specific Design Considerations

- **Summary of Operating Basis Wind Speed Departure**
 - DCD value of 145 mph (3 second gust) is a 50-year return period value
 - PTN Units 6 & 7 50-year return period value is 150 mph (Part 2 FSAR Table 2.0-201)
 - SRP uses a 100-year return value (3 second gust) for review of applications
 - PTN Units 6 & 7 100-year return value is 161 mph (3 second gust) (Part 2 FSAR Table 2.0-201)
- **Departure justification**
 - Safety-related structures that could be affected are the Auxiliary Building and Shield Building of the Nuclear Island
 - The higher wind speed will not adversely affect any safety-related structures, systems, or components (SSCs) (Part 7 PTN Departure 2.0-1)

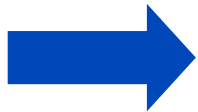
Site specific characteristics and parameters which are not bounded by the DCD values are evaluated and found to be acceptable

FSAR – Site Specific Design Considerations

- **Summary of Severe Winds Departure**
 - The initiating event frequencies for high winds (hurricanes) for Units 6 & 7 exceed the DCD value (Part 2 FSAR Section 19.58)
- **Departure justification**
 - The evaluation of Core Damage Frequency, using the appropriate value of Conditional Core Damage Probability and the hurricane initiating event frequency determined, that for the base case (Loss of Offsite Power with Nonsafety Systems Unavailable for Select Events), the CDF is not greater than $1.0E-08$
 - Further detailed PRA is not necessary for the Units 6 & 7 High Winds analysis (Part 7 PTN Departure 19.58-1)

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Exemption acceptable under 10 CFR 52.7 and 52.93 for site parameters and interface requirements based on departure evaluation

Maximum Safety Wet Bulb Air Temperature Exemption

- **Summary of Maximum Safety Wet Bulb Air Temperature Exemption**
 - DCD Maximum Safety Wet Bulb Air Temperature (noncoincident) is 86.1 °F
 - The corresponding site characteristic is 87.4 °F (FSAR Subsection 2.3.1.5)
- **Exemption justification**
 - The results of the departure evaluation show that the higher maximum safety wet bulb (noncoincident) air temperature will not adversely affect any safety-related SSCs as presented in the DCD
 - Based on the departure evaluation, granting relief from the maximum safety air temperature in the DCD would maintain the safety in the design, which is the underlying purpose of the rule
 - This exemption is identified as PTN Exemption B.2 (Part 7 PTN Departure 2.0-3)

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Based on the site specific geological and seismological information presented in FSAR Section 2.5, nothing was identified which precludes the safe operation of the facilities

Seismogenic Fault/Geo-tectonics

- **Regional Tectonic Setting**
 - Discussed in FSAR Subsection 2.5.1.1.3
 - Cuba and northern Caribbean region (Part 2 FSAR Subsection 2.5.2.4.4.3.2)
- **Surface Faulting**
 - Discussed in FSAR Section 2.5.3
 - No capable tectonic sources or capable faults in site vicinity (25-mile radius)

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