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NL-16-029

March 21, 2016

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
11545 Rockville Pike, TWFN-2F1  
Rockville, MD 20852-2738

**SUBJECT:** Entergy Basis For Performance of the Mitigating Strategies Assessment with the Flood Hazard Information And Report For Recommendations 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident  
Indian Point Units 2 and 3  
Docket Nos. 50-247 and 50-286  
License Nos. DPR-26 and 64

**REFERENCES:** 1. Entergy Letter to NRC, NL-15-151, "Entergy Submittal of Revision 1 to "Flood Hazard Re-evaluation – Combined Effect Floods – Coastal Processes" In Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Flooding Aspects of Recommendations 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated December 10, 2015.

2. FEMA, 2011. FEMA P-55, Coastal Construction Manual: Principles and Practices of Planning, Siting, Designing, Constructing, and Maintaining Residential Buildings in Coastal Areas, 4th Edition, Federal Emergency Management Agency, 2011. Available at <http://www.fema.gov/media-library/assets/documents/3293>.

3. ASCE, 2010. Minimum Design Loads for Buildings and Other Structures, ASCE Standard ASCE/SEI 7-10, American Society of Civil Engineers.

Dear Sir or Madam:

The purpose of this letter is to commit to perform the Flooding Hazard Mitigating Strategy Assessment (MSA) and report for Indian Point 2 and 3 using the combined effect flood determined by Reference 1. Entergy will perform the MSA using the deterministic Probable Maximum Storm Surge (PMSS) of 150,000 cfs as discussed with the NRC staff in the audit of February 3 and 4 at NRC headquarters in Rockville Maryland. The results are a maximum stillwater elevation of 18.9 feet, NGVD29 at IPEC with coincident wave activity as discussed at the audit. Coincident wave activity is discussed below. NRC acceptance of this commitment will be included in the Mitigating Strategies Flood Hazard Information

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(MSFHI) letter. This commitment is for the MSA at the site only and acceptance in the MSFHI letter does not change the Entergy position on the beyond design basis flooding applicable to the Indian Point site found in Reference 1 until such time as it changes.

The coincident wind-wave activity was calculated for wave crest and wave runup elevations at specific locations on the IPEC site during the controlling combined effects flood. Figure 1 of Attachment 1 presents the locations of five representative points for calculating wave action associated with the maximum stillwater elevation of 18.9 feet, NGVD29. Table 1 of Attachment 1 presents a summary of re-evaluated flood elevations at the locations shown on Figure 1.

The wave crest elevations at applicable locations at IPEC were based on deep water waves just off-shore of IPEC outboard of the river bulkhead that were calculated to have a height of 5.7 feet and a period of 4.2 seconds under conditions expected during the PMSS. These waves break at the river bulkhead thereby limiting the size of wave that can propagate across the inundated site area inboard of the bulkhead (per Reference 2 the maximum height in shallow water of the breaking wave is usually 78 percent of the stillwater depth). The wave form in shallow water is distorted so that the crest and trough are not equidistant from the stillwater level, with 70 percent of the wave height above the stillwater elevation. When an unbroken wave encounters a vertical wall, a reflected wave is formed and Reference 3 indicates that the crest of the reflected wave extends above the stillwater elevation by 120 percent of the depth (higher than the initiating wave).

There are two new commitments contained in this submittal. If you have any questions regarding this confirmation of receipt, please contact Mr. Robert Walpole, Manager, Regulatory Assurance at (914) 254-6710.

Respectfully,

  
LC/sp

- Attachment:
1. Calculated Water Elevations For Wind – Wave Activity Effects With a Figure Showing Wave Effect Locations
  2. List of Regulatory Commitments

cc: Mr. Douglas Pickett, Senior Project Manager, NRC NRR DORL  
Mr. Daniel H. Dorman, Regional Administrator, NRC Region 1  
NRC Resident Inspector  
Mr. John B. Rhodes, President and CEO, NYSERDA  
Ms. Bridget Frymire, New York State Dept. of Public Service

ATTACHMENT 1 TO NL-16-029

CALCULATED WATER ELEVATIONS FOR  
WIND – WAVE ACTIVITY EFFECTS WITH A  
FIGURE SHOWING WAVE EFFECT LOCATIONS

ENTERGY NUCLEAR OPERATIONS, INC.  
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3  
DOCKET NOS. 50-247 AND 50-286



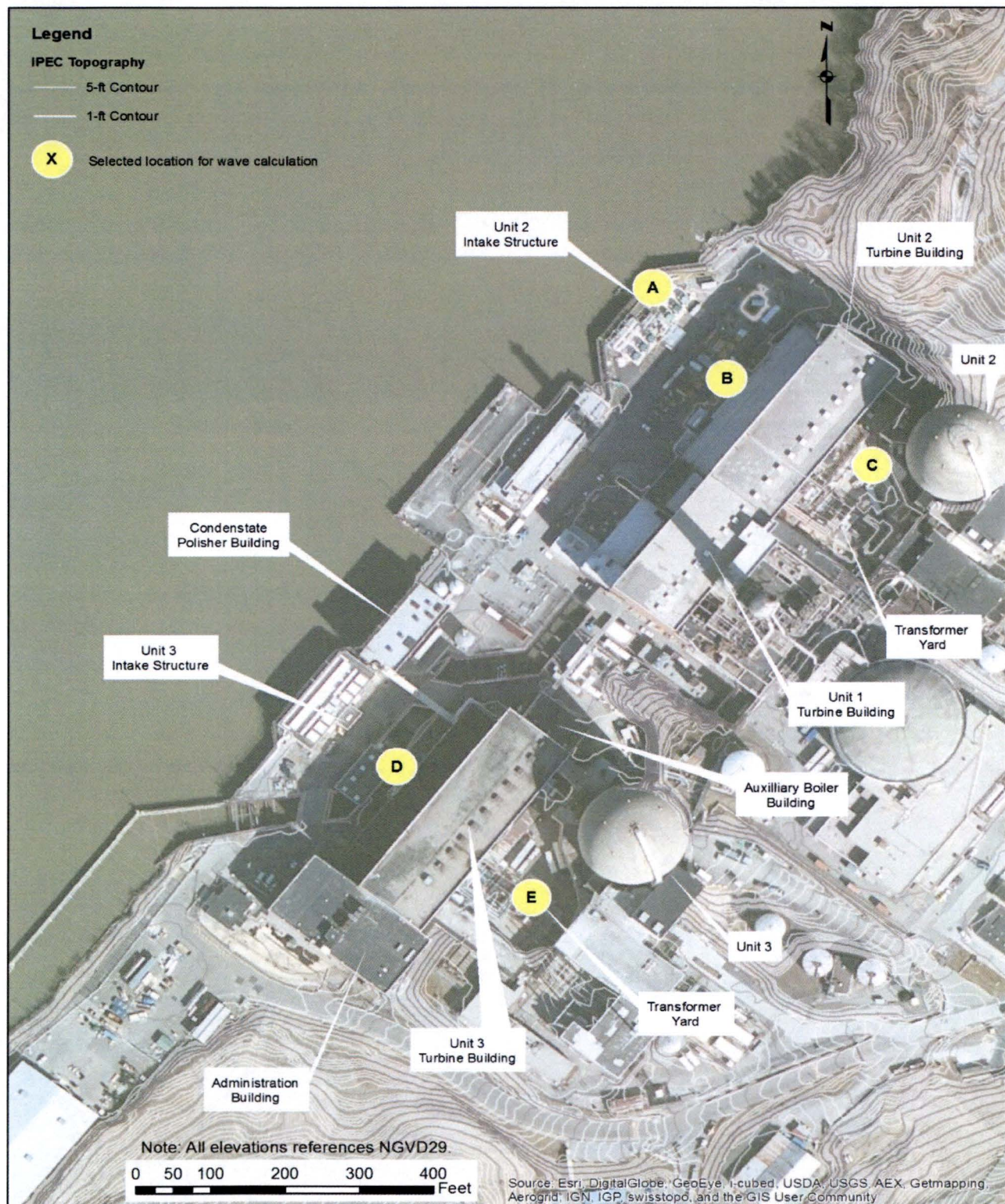
Table 1: IPEC Hazard Evaluation Summary Table – River Flow of 150,000 cfs

<b>Mechanism Storm Surge</b>	<b>Stillwater Elevation</b>	<b>Wave Height / Runup</b>	<b>Reevaluated Hazard Evaluation</b>	<b>Figure Location</b>
H.3 Combined Flood Event Riverward of U2 Intake Structure	18.9 ft NGVD29	5.7 ft (Wave)	21.8 ft NGVD29	A
H.3 Combined Flood Event Landward of U2 Intake Structure	18.9 ft NGVD29	3.9 ft (Wave)	21.0 ft NGVD29	Between A and B
H.3 Combined Flood Event Riverward of U2 Turbine Building	18.9 ft NGVD29	4.7 ft (Runup)	23.6 ft NGVD29	B
H.3 Combined Flood Event East of U2 Turbine Building	18.9 ft NGVD29	Minimal	18.9 ft NGVD29	C
H.3 Combined Flood Event Riverward of U3 Turbine Building	18.9 ft NGVD29	4.7 ft (Runup)	23.6 ft NGVD29	D
H.3 Combined Flood Event East of U3 Turbine Building	18.9 ft NGVD29	minimal	18.9 ft NGVD29	E

Note: Conservatively, only areas behind the turbine buildings have been designated as sheltered from waves. Other locations and systems may also be locally sheltered, partially or fully, by existing structures on the site. Examples include the Unit 2 intake pumps.



Figure 1: Selected Point Locations (A through E) for Wave Calculation



ATTACHMENT 2 TO NL-16-029

LIST OF REGULATORY COMMITMENTS

ENTERGY NUCLEAR OPERATIONS, INC.  
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3  
DOCKET NOS. 50-247 AND 50-286

**List of Regulatory Commitments**

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check One)		SCHEDULED COMPLETION DATE (If Required)
	ONE- TIME ACTION	CONTINUING COMPLIANCE	
Entergy will perform the mitigating strategies assessment flooding at IPEC using maximum Stillwater of 18.9 feet, NGVD29 (reflecting PMSS of 150,000 cfs) and coincident wind-wave activity as documented in NL-16-029 subject to NRC concurrence in a MSFHI letter.	[✓]		To be established
Provide NRC a report of MSA.	[✓]		To be established