



February 6, 2020

NRC 2020-0003
10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Point Beach Nuclear Plant, Units 1 and 2
Dockets 50-266 and 50-301
Renewed License Nos. DPR-24 and DPR-27

License Amendment Request 289: Tornado Missile Protection Licensing Basis

Reference:

1. USNRC Letter to NextEra Energy Point Beach LLC, Request to Extend Enforcement Discretion Provided in Enforcement Guidance Memorandum 15-002 for Tornado-Generated Missile Protection Non-Conformances Identified in Response to Regulatory Issue Summary 2015-06, "Tornado Missile Protection" (EPID: L-2018-LLL-0018), May 21, 2018 (ADAMS Accession No. ML18135A305)

Pursuant to 10 CFR 50.90, NextEra Energy Point Beach, LLC (NextEra) hereby requests an amendment to Renewed Facility Operating Licenses DPR-24 and DPR-27 for Point Beach Nuclear Plant Units 1 and 2 (Point Beach), respectively. The proposed license amendment would modify the Point Beach current licensing basis (CLB) for tornado missile protection by describing the historical plant design for safe shutdown equipment located external to Seismic Class I structures. The proposed license amendment would resolve the licensing basis non-conformances associated with the extended enforcement discretion authorized by Reference 1.

The enclosure to this letter provides NextEra's evaluation of the proposed change. Attachment 1 provides the existing Point Beach Updated Final Safety Analysis Report (UFSAR) pages marked up to show the proposed changes. No changes are proposed to the Point Beach Technical Specifications.

NextEra has determined that the proposed license amendment does not involve a significant hazards consideration pursuant to 10 CFR 50.92(c), and there are no significant environmental impacts associated with the proposed change. The Point Beach Onsite Review Group (ORG) has reviewed the proposed license amendment. In accordance with 10 CFR 50.91(b)(1), a copy of the amendment request is being forwarded to the designee for the State of Wisconsin..

NextEra Energy Point Beach, LLC

6610 Nuclear Road, Two Rivers, WI 54241

NextEra requests that the proposed license amendment is processed as a normal license amendment request, with approval within one year and implementation within the following 90 days.

This letter contains no new regulatory commitments.

Should you have any questions regarding this submittal, please contact Mr. Eric Schultz, Licensing Manager, at 920-755-7854.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on the 5 day of February 2020.

Sincerely,



Robert Craven
Site Director
NextEra Energy Point Beach, LLC

Enclosure
Attachments

cc: Administrator, Region III, USNRC
Project Manager, Point Beach Nuclear Plant, USNRC
Resident Inspector, Point Beach Nuclear Plant, USNRC
Public Service Commission Wisconsin

ENCLOSURE

NextEra Energy Point Beach, LLC

License Amendment Request (LAR) 289

Evaluation of the Proposed Change

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Attachment 1 - Proposed Updated Final Safety Analysis Report (markup)
Attachment 2 – Excerpt of Westinghouse Letter E-R-206, Dated October 2, 1969

1.0 SUMMARY DESCRIPTION

NextEra Energy Point Beach, LLC (NextEra) requests an amendment to Renewed Facility Operating Licenses DPR-24 and DPR-27 for Point Beach Nuclear Plant Units 1 and 2 (Point Beach), respectively. The proposed license amendment would modify the Point Beach current licensing basis (CLB) for tornado missile protection by describing the historical plant design for safe shutdown equipment located external to Seismic Class I structures.

2.0 DETAILED DESCRIPTION

2.1 System Design and Operation

At Point Beach, all systems and components of the facility are classified according to their importance. The original classification system at PBNP used designators called Class I, Class II, and Class III. Those items vital to safe shutdown and isolation of the reactor, or whose failure might cause or increase the severity of a loss of coolant accident, or result in an uncontrolled release of excessive amounts of radioactivity were designated Class I. Those items important to reactor operation but not essential to safe shutdown and isolation of the reactor and whose failure could not result in the release of substantial amounts of radioactivity were designated Class II. Those items not related to reactor operation or safety were designated Class III.

All systems and components designated Seismic Class I are designed so that there is no loss of function in the event of the maximum hypothetical ground acceleration acting in the horizontal and vertical directions simultaneously. The working stress for both Seismic Class I and Seismic Class II items is kept within code allowable values for the design earthquake. Similarly, measures are taken in the plant design to protect against high winds, flooding, and other natural phenomena.

2.2 Description of the Proposed Changes

The proposed license amendment would modify the Point Beach licensing basis by incorporating historical design input information for tornado missile protection in Section 1.3.1, *Overall Plant Requirements (GDC 1 - GDC 5)*, and Section 1.3.10, *References*, of the Point Beach Updated Final Safety Analysis Report (UFSAR) as follows:

UFSAR Section 1.3.1, OVERALL PLANT REQUIREMENTS (GDC 1 - GDC 5)

The design basis for tornado missile protection of systems and components is that it is possible to shut the plant down and maintain the plant in safe shutdown during and after the passage of a tornado. The systems and equipment needed for this event do not lose function provided (Reference 1):

- a) **Critical items are housed in structures capable of withstanding tornado winds, depressurization and missiles, or**

- b) the separation provided between redundant systems or components is such that reasonable assurance exists that a single missile cannot cause a loss of function of both systems or components, and
- c) large structures, such as facade, auxiliary building superstructure, turbine buildings, etc., are so designed that they will not collapse and fall on redundant components or systems.

UFSAR Section 1.3.12, REFERENCES

1. ~~Not used.~~ Westinghouse Letter E-R-206, "Point Beach Criteria", from R. Salvatori, Westinghouse PWR Systems Division Reliability Group, to F. Konchar, Point Beach Project, October 2, 1969.

2.3 Reason for the Proposed Change

The proposed license amendment will resolve the licensing basis non-conformance associated with Tornado Missile Protection. In Reference 6.2, the NRC granted enforcement discretion for tornado missile protection non-conformances based on a generic risk analysis which demonstrated a very low probability of tornado missile scenarios leading to core damage. For Point Beach, the enforcement discretion would expire three years after the June 2015 issuance of NRC Regulatory Issues Summary (RIS) 2015-06 (Reference 6.3). In Reference 6.1, the NRC extended the enforcement discretion to June 2020 following NextEra's extension request (Reference 6.4) demonstrating Point Beach implementation of compensatory measures consistent with References 6.5 and 6.6.

3.0 TECHNICAL EVALUATION

The Point Beach General Design Criteria (GDC) describe the principal criteria and safety objectives for the design of Point Beach Units 1 and 2. The Point Beach GDCs are similar to the Atomic Industrial Forum version of the Proposed 1967 GDCs published by the Atomic Energy Commission. Point Beach GDC 2 states the following regarding station capability to withstand tornadoes:

"Those systems and components of reactor facilities which are essential to the prevention or to the mitigation of the consequences of nuclear accidents which could cause undue risk to the health and safety of the public shall be designed, fabricated, and erected to performance standards that enable such systems and components to withstand, without undue risk to the health and safety of the public, the forces that might reasonably be imposed by the occurrence of an extraordinary natural phenomenon such as earthquake, tornado..."

Point Beach GDC 2 establishes that Class I components shall be protected from the forces caused by tornadoes, including tornado-generated missiles. The Point Beach design satisfies GDC 2 by enclosing Class I equipment within Seismic Class I structures, i.e. structures featuring thick, reinforced concrete walls designed to withstand the effects of extraordinary natural phenomena. UFSAR Section 1.3.1 describes the protection provided by these structures as follows:

"The containments and Seismic Class I portions of the Auxiliary Building, the turbine hall, the pumphouse, and the diesel generator building are designed to withstand the effects of a tornado. The design criteria of the containment and the Class I portions of the auxiliary and turbine buildings to withstand the effects of a tornado, including wind force, pressure differential, and missile impingement are described in Bechtel Topical Report B-TOP-3, "Design Criteria for Nuclear Power Plants Against Tornadoes." Design criteria for the diesel generator building are described in FSAR Appendix D. The design of the pumphouse to withstand tornados and tornado missiles is described in Section 9.6. Seismic design criteria are described in FSAR Appendix A.5." [See Reference 6.7 for B-TOP-3]

In general, tornado missile scenarios do not represent an immediate safety concern, according to NRC staff (Reference 6.6), because their risk is bounded by the initiating event frequency and Class I equipment are typically designed to withstand the effects of tornados. More specifically, for a tornado missile-induced event to occur, tornado-generated missiles must strike and fail unprotected equipment or subcomponents by rendering the equipment incapable of performing their safety function. In Reference 6.2, the NRC granted enforcement discretion for tornado missile protection non-conformances based on a generic risk analysis which conservatively demonstrated that tornado missile scenarios that lead to core damage are of very low probability.

To address these low probability scenarios in the Point Beach licensing basis, the proposed change modifies the Point Beach UFSAR by describing the historical plant design for Class I equipment and/or subcomponents located external to Seismic Class I structures. Specifically, the proposed change establishes that the separation between redundant Class I systems and components provides reasonable assurance that a single tornado missile cannot cause a loss of function of both redundant systems or components and challenge safe shutdown capability. The proposed change further establishes that large structures at Point Beach are so designed that they would not collapse onto Class I systems or components and render them incapable of performing their safety function. The proposed change is in recognition that Point Beach GDC 2 requires mitigation systems to be designed, fabricated and tested to withstand tornados, including portions of systems external to Seismic Class I structures, and that the concept of separation and redundancy was implicit in the historical plant design as the means of satisfying Point Beach GDC 2 for exposed portions of Class I systems. The proposed change is also in recognition that for Class I equipment located within Class II or III buildings, the original plant design established that failure of the building shall not cause a loss of function of the equipment. The UFSAR Section 1.3.1 discussion describing Seismic Class I portions of the auxiliary, turbine hall, pumphouse, and diesel generator buildings addresses this latter condition.

Westinghouse letter E-R-206, dated October 2, 1969 (Reference 6.8; see Attachment 2 for relevant excerpts) articulates the design bases philosophy for the original construction of Point Beach whereby redundancy is credited for protection of exposed equipment

provided sufficient separation is present. Reference Attachment 2 for excerpts of Westinghouse letter E-R-206, dated October 2, 1969. Given the Point Beach GDC criteria for equipment design and layout, the historical design bases construction philosophy reasonably presumes that one missile at a time has the requisite velocity, rigidity and directionality to render a component necessary for safe shutdown non-functional. The presumption is consistent with the NRC's conclusion in Reference 6.6 that tornado missiles would have to affect multiple trains of safety systems and/or means of achieving safe shutdown in order for a consequential tornado missile-induced scenario to occur. Moreover, equipment necessary for safe shutdown satisfy the applicable GDC single failure criteria (see Section 4.0) and plant shutdown would be required if this redundancy were lost beyond the period allowed by the Point Beach Technical Specifications (TS). Hence by plant design, a single failure of equipment necessary for safe shutdown can be tolerated at any time regardless of the cause. Thereby, provided that a tornado-generated missile is the cause of the single failure for the postulated design basis event, additional single failures need not be considered and, due to redundancy and separation in plant design, a lone tornado-generated missile cannot credibly prevent safe shutdown.

The historical construction design bases criteria specified in Reference 6.8, established that Point Beach can be shut down and maintained in a safe shutdown condition during and after the passage of a tornado provided (1) critical equipment is housed in structures capable of withstanding tornado missiles, or (2) the separation provided between redundant systems and components is such that reasonable assurance exists that a single tornado-generated missile cannot cause a loss of function of both systems or components, and large structures are so designed that they will not collapse and fall onto redundant components or systems. The proposed change modifies the Point Beach licensing basis for tornado missile protection by describing these historical construction design bases criteria in UFSAR Section 1.3.1, *Overall Plant Requirements (GDC 1- GDC 5)*, and by adding Reference 6.8 to UFSAR, Section 1.3.12, *References*, as provided in Attachment 1 of this amendment request.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

- 10 CFR 50.71(e), states, in part, that licensees shall periodically update the final safety analysis report (FSAR) to assure that the information included contains the latest developed, and that the submittal shall include all analyses performed by or on behalf of the applicant or licensee at Commission request.
- Point Beach GDC 1 states that those systems and components of reactor facilities which are essential to the prevention, or the mitigation of the consequences, of nuclear accidents which could cause undue risk to the health and safety of the public shall be identified and then designed, fabricated, and erected to quality standards that reflect the importance of the safety function to be performed.
- Point Beach GDC 2 states that systems and components of reactor facilities which are essential to the prevention or to the mitigation of the consequences of nuclear accidents which could cause undue risk to the

health and safety of the public shall be designed, fabricated, and erected to performance standards that enable such systems and components to withstand, without undue risk to the health and safety of the public, the forces that might reasonably be imposed by the occurrence of an extraordinary natural phenomenon such as earthquake, tornado, flooding condition, high wind, or heavy ice. The design bases so established shall reflect: (a) appropriate consideration of the most severe of these natural phenomena that have been officially recorded for the site and the surrounding area and (b) an appropriate margin for withstanding forces greater than those recorded to reflect uncertainties about the historical data and their suitability as a basis for design.

- Point Beach GDC 20 states that redundancy and independence designed into protection systems shall be sufficient to assure that no single failure or removal from service of any component or channel of such a system will result in loss of the protection function.
- Point Beach GDC 39 states that an emergency power source shall be provided and designed with adequate independency, redundancy, capacity, and testability to permit the functioning of the engineered safety features and protection systems required to avoid undue risk to the health and safety of the public. This power source shall provide this capacity assuming a failure of a single active component.
- Point Beach GDC 40 states that adequate protection for those engineered safety features, the failure of which could cause an undue risk to the health and safety of the public, shall be provided against dynamic effects and missiles that might result from plant equipment failures.
- Point Beach GDC 41 states that engineered safety features shall provide sufficient performance capability to accommodate the failure of any single active component without resulting in undue risk to the health and safety of the public.
- Point Beach GDC 52 states that where an active heat removal system is needed under accident conditions to prevent exceeding containment design pressure, this system shall perform its required function, assuming failure of any single active component.
- Generic Letter 88-20, Supplement 4 requested information relating to severe external events in order to resolve Systematic Evaluation Program (SEP) issues, including high winds and tornadoes.

The proposed change complies with the requirements of 10 CFR 50.71(e) and the applicable Point Beach GDCs. All regulatory requirements and applicable design criteria will continue to be satisfied as a result of the proposed license amendment.

4.2 No Significant Hazards Consideration

The proposed license amendment will modify the Point Beach current licensing basis (CLB) for tornado missile protection by describing the historical plant design for safety-related equipment located external to Seismic Class 1 structures. As required by 10 CFR 50.91(a), NextEra evaluated the proposed changes using the criteria in 10 CFR 50.92 and determined that the proposed changes do not involve a significant hazards consideration. An analysis of the issue of no significant hazards consideration is presented below:

- (1) Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

The proposed change modifies the Point Beach licensing basis by incorporating historical construction design bases information which addresses tornado missile protection of safety-related equipment located external to Seismic Class 1 structures. Revising the licensing basis to reflect historical construction design neither affects the current design of any SSC, nor the manner in which SSCs are operated and controlled. No changes are proposed to the facility or to existing accident analysis assumptions or inputs. Incorporating historical design bases information cannot be an event initiator, or increase the likelihood of any accident or equipment malfunction, or alter the expected outcomes. The plant will continue to operate within the parameters assumed in existing accident analyses.

Therefore, the proposed license amendments would not involve a significant increase in the probability or consequences of an accident previously evaluated.

- (2) Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed change incorporates the historical construction design for tornado missile protection into the licensing basis. The proposed change neither installs new plant equipment or modifies the manner in which existing equipment is designed, operated or maintained. Thereby no new failure modes or new type of malfunction can result. The proposed change neither creates new event initiators nor modifies existing accident analyses assumptions or inputs. Thereby no change in the types or amount of effluent released off-site or projected occupational exposures from any accident can result. The safety analyses inputs, assumptions and expected outcomes are unchanged by the proposed change.

Therefore, the proposed license amendments would not create the possibility of a new or different kind of accident from any previously evaluated.

- (3) Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No

The proposed change incorporates the historical construction design for tornado missile protection into the licensing basis. The proposed change does not affect plant operating margins or the reliability of equipment credited in safety analyses. No new or altered methods of assessing plant performance are introduced and the accident analyses assumptions and inputs are unaffected. Thereby, no safety limits or limiting safety settings are challenged by the proposed change.

Therefore, the proposed license amendment would not involve a significant reduction in the margin of safety.

Based upon the above analysis, NextEra concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of no significant hazards consideration is justified.

4.3 Conclusion

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

The proposed amendment modifies a regulatory requirement with respect to the installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or changes an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

- 6.1 USNRC Letter to NextEra Energy Point Beach LLC, Request to Extend Enforcement Discretion Provided in Enforcement Guidance Memorandum 15-002 for Tornado-Generated Missile Protection Non-Conformances Identified in Response to Regulatory Issue Summary 2015-06, "Tornado Missile Protection" (EPID: L-2018-LLL-0018), May 21, 2018 (ADAMS Accession No. ML18105A305)
- 6.2 NRC Enforcement Guidance Memorandum (EGM) 15-002, Enforcement Discretion for Tornado-Generated Missile Protection Noncompliance, June 10, 2015 (ADAMS Accession No. ML 5111A269)
- 6.3 NRC Regulatory Issue Summary 2015-06, Tornado Missile Protection, June 10, 2015 (ADAMS Accession No. ML15020A419)
- 6.4 NextEra Energy Point Beach LLC, Letter NRC 2018-0022 to USNRC, Request to Extend Enforcement Discretion Provided in Enforcement Guidance Memorandum 15-002 for Tornado-Generated Missile Protection Non-conformances Identified in Response to Regulatory Issue Summary 2015-06, "Tornado Missile Protection", April 26, 2018 (ADAMS Accession No. ML18116A306)
- 6.5 DSS-ISG-2016-01, Clarification of Licensee Actions in Receipt of Enforcement Discretion Per Enforcement Guidance Memorandum EGM 15-002, "Enforcement Discretion for Tornado-Generated Missile Protection Noncompliance", February 2016 (ADAMS Accession No. ML15348A202)
- 6.6 NRC Enforcement Guidance Memorandum (EGM) 15-002, Revision 1, Enforcement Discretion for Tornado-Generated Missile Protection Non-Compliance, February 7, 2017 (ADAMS Accession No. ML16355A286)
- 6.7 Bechtel Topical Report B-TOP-3, Design Criteria for Nuclear Power Plants Against Tornadoes, (Proprietary), March 12, 1970
- 6.8 Westinghouse letter E-R-206 dated 2 October 1969

ATTACHMENT 1

PROPOSED UPDATED FINAL SAFETY ANALYSIS REPORT (MARKUP)

(5 pages follow)

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1.3 GENERAL DESIGN CRITERIA

The general design criteria define the principal criteria and safety objectives for the design of this plant. A complete set of these GDCs are stated explicitly in Table 1.3-1. Table 1.3-1 also identifies other locations in this report that repeat specific GDCs.

Regarding the origin of these criteria, the Atomic Energy Commission (AEC) published proposed GDCs for public comment in 1967. The Atomic Industrial Forum (AIF) reviewed these proposed criteria and recommended changes. The Point Beach GDCs documented in this FSAR are similar in content to the AIF version of the Proposed 1967 GDCs.

Appendix A of 10 CFR 50 contains a different set of GDCs which were published in 1971 (After Point Beach construction permits were issued). Note that the GDCs found in 10 CFR 50 Appendix A differ both in numbering and content from the GDCs adopted herein for PBNP.

The parenthetical numbers following the section headings indicate the numbers of the proposed General Design Criterion (GDC).

1.3.1 OVERALL PLANT REQUIREMENTS (GDC 1- GDC 5)

All systems and components of the facility are classified according to their importance. The original classification system at PBNP used designators called Class I, Class II and Class III. Those items vital to safe shutdown and isolation of the reactor, or whose failure might cause or increase the severity of an accident or result in an uncontrolled release of excessive amounts of radioactivity were designated Class I. Class I systems and components were considered essential to the protection of the health and safety of the public. Those items important to reactor operation, but not essential to safe shutdown and isolation of the reactor or control of the release of substantial amounts of radioactivity were designated Class II. Those items not related to reactor operation or safety were designated Class III.

Subsequent evaluation of the equipment classification system pursuant to NRC Generic Letter 83-28 resulted in the definition of safety-related functions and the related classification criteria described in more detail in the Quality Assurance Program section of the FSAR (1.4).

These safety classifications are: Safety-Related, Augmented Quality, and Non-Safety-Related. After the adoption of these classifications pursuant to Generic Letter 83-28, PBNP systems and components were reclassified accordingly. Although there may be some commonality between the original Class I category and the Safety-Related category, it is important to note that these classifications are defined differently and represent different time periods of plant operation. Quality standards of material selection, design, fabrication, and inspection conform to the applicable provisions of recognized codes and good nuclear practice.

All systems and components designated Seismic Class I are designed so that there is no loss of function in the event of the maximum hypothetical ground acceleration acting in the horizontal and vertical directions simultaneously. The working stress for both Seismic Class I and Seismic Class II items is kept within code allowable values for the design earthquake. Similarly, measures are taken in the plant design to protect against high winds, flooding, and other natural phenomena.

The containments and Seismic Class I portions of the Auxiliary Building, the turbine hall, the pumphouse, and the diesel generator building are designed to withstand the effects of a tornado. The design criteria of the containment and the Class I portions of the auxiliary and turbine buildings to withstand the effects of a tornado, including wind force, pressure differential, and missile impingement are described in Bechtel Topical Report B-TOP-3, "Design Criteria for Nuclear Power Plants Against Tornadoes." Design criteria for the diesel generator building are described in FSAR Appendix D. The design of the pumphouse to withstand tornadoes and tornado missiles is described in Section 9.6. Seismic design criteria are described in FSAR Appendix A.5.

Reference Sections:

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FIRE PROTECTION SYSTEM (FP)	9.10

A complete set of as-built facility plant and system diagrams, including arrangement plans and structural plans, and records of initial tests and operation are maintained throughout the life of the plant. A set of all the quality assurance data generated during fabrication and erection of the essential components of the plant, as defined by the quality assurance program, is retained.

Reference Sections:

<u>Section Title</u>	<u>Chapter</u>
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1.3.2 PROTECTION BY MULTIPLE FISSION PRODUCT BARRIERS (GDC 6-GDC 10)

Each reactor core, with its related control and protection system, is designed to function throughout its design lifetime without exceeding acceptable fuel damage limits. The core design, together with reliable process and decay heat removal systems, provides for this capability under all expected conditions of normal operation with appropriate margins for uncertainties and anticipated transient situations.

INSERT

The design basis for tornado missile protection of systems and components is that it is possible to shut down the plant and maintain the plant in safe shutdown during and after the passage of a tornado. The equipment needed for this event remains operable provided (Reference 1):

- a) Critical items are housed in structures capable of withstanding tornado winds, depressurization and missiles, or
- b) the separation provided between redundant systems or components is such that reasonable assurance exists that a single missile cannot cause a loss of function of both systems or components, and
- c) large structures, such as facade, auxiliary building superstructure, turbine buildings, etc., are so designed that they will not collapse and fall on redundant components or systems.

under Generic Letters 89-13 and 91-13), or else no specific docketed resolution was identified (e.g. Item 3.4, Isolation of High and Low Pressure Systems).

1.3.11 RESOLUTION OF OTHER ISSUES ADDRESSED BY THE INDIVIDUAL PLANT EXAMINATION OF EXTERNAL EVENTS

In addition to several SEP issues, the IPEEE addressed several other Generic Safety Issues (GSIs) identified by the NRC in Generic Letter 88-20 Supplement 4. The NRC subsequently reviewed and accepted the information contained in the IPEEE submittal, and closed the associated open GSIs based on that information (5). In addition, during the NRC review of the Extended Power Uprate (EPU) License Amendment Request, the NRC revisited the IPEEE information (6), thereby incorporating it by reference into the EPU license bases.

Table 1.3-3 lists the Generic Safety Issues that were resolved for Point Beach by the IPEEE submittals and review.

- 1.3.12 REFERENCES
- | |
|---|
| Westinghouse Letter E-R-206, "Point Beach Criteria", from R. Salvatori, Westinghouse PWR Systems Division Reliability Group, to F. Konchar, Point Beach Project, October 2, 1969. |
|---|
1. Not used. ←
2. SECY-90-343, "Status of the Staff Program to Determine How the Lessons Learned from the Systematic Evaluation Program Have Been Factored Into the Licensing Bases of Operating Plants," October 4, 1990.
 3. NRC Generic Letter 95-04, "Final Disposition of the Systematic Evaluation Program Lessons-Learned Issues," April 28, 1995.
 4. Point Beach Letter VPMPD-95-056, "Generic Letter 88-20, Supplement 4 Summary Report on Individual Plant Examination of External Events for Severe Accident Vulnerabilities," June 30, 1995.
 5. NRC Staff Evaluation Report on Individual Plant Examination of External Events Submittal for Point Beach Units 1 and 2, dated Sept 15, 1999 (ML112030452, SER 1999-0003).
 6. NRC Safety Evaluation Report, "Point Beach Nuclear Plant Units 1 and 2 - Issuance of License Amendments Regarding Extended Power Uprate," May 3, 2011 (ML11045159, SER 2011-0004).

ATTACHMENT 2

EXCERPT OF WESTINGHOUSE LETTER E-R-206, DATED OCTOBER 2, 1969

(7 pages follow)

E-R-206

PWR SYSTEMS DIVISION
RELIABILITY GROUP

October 2, 1969
POINT BEACH CRITERIA

TO:
F. KONCHAR
POINT BEACH PROJECT

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Upon request of Point Beach Project, we transmit herewith the criteria for Seismic Design of Class I Items, Steam Line Break Outside the Containment, Tornado Design and Turbine Overspeed as they apply to the Point Beach Projects. These criteria have been discussed with Messrs. McAdoo, Wiesmann, Stevenson and Marburger, and their thoughts are reflected in this document. We believe that these general criteria and specific applications will assist Bachtel in the finalization of the Point Beach Plant design.

I would like to point out that the basic criteria are not new. Everybody, with a bit of imagination and some reading of the documentation on the Point Beach Projects, would have been able to abstract these criteria.

I hope your staff can use the available documents to convince Bachtel of the fact that they had these criteria for years and reduce their charges for the required analyses.

Romano Salvatori

R. Salvatori, Manager
Reliability

dc

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3.0 TORNADO DESIGN CRITERIA

3.1 General Criteria

The design of nuclear plant systems shall be such that it is possible to shut the plant down and keep it in a hot shutdown condition during and after the passage of a tornado.

A tornado can be defined as a vortex of air with the following characteristics:

Average translational velocity:	60 mph
Max tangential velocity:	300 mph
Max depressurization:	3 psi

(The relationship between horizontal velocity and depressurization is given in the attached appendix)

Tornado-generated missiles:

- a) 4000 lb automobile:
 - (i) injected vertically not more than 10 ft
 - (ii) Max vertical velocity component on ground impact: 17 mph
 - (iii) Max horizontal velocity: 51 mph
 - (iv) The max. vertical and horizontal velocities are reached at the same time, on ground impact.
- b) 4" x 12" x 12' wood plank or metal siding:
 - (i) Max horizontal velocity: 240 mph
 - (ii) Max vertical velocity component on ground impact: 89 mph
 - (iii) Max total velocity: 286 mph

If due consideration to tornado effects is given in the design and layout of systems required for hot shutdown, it can be assumed that one missile at a time has such a combination of velocity, rigidity and directionality that it would render the stricken component inoperable. The plant is designed with redundancy of active components necessary to meet the single failure criterion (without regard to cause) where applicable, e.g., active Class I components. In addition, the Technical Specifications will require shutdown of the plant within a short period of time if such redundancy of active components is lost. Therefore, at any time when the plant is operating, single failure of an active component (without regard to cause) can be tolerated.

It can be assumed that due consideration to tornado effects is given and the needed amount of equipment remains operable, if:

- a) Critical items are housed in structures capable of withstanding tornado winds, depressurization and missiles; or
- b) the separation provided between redundant systems or components is such that reasonable assurance exists that a single missile cannot render both systems or components inoperable; and
- c) large structures, such as facade, auxiliary building super-structure, turbine buildings, etc., are so designed that they will not collapse and fall on redundant components or systems. If this is not the case, the postulation of only one "bad" missile striking at a time cannot be defended and the design requirements for the shields shall be much more restrictive than those previously listed.

3.2 Specific Applications

- a) If it is postulated that a tornado-generated missile punctures a hole in a steam line without totally rupturing it, the general criteria presented in 2.1 are still met because the redundant active components can be assumed unaffected by tornado and the single failure of an active component criterion is met.
- b) If a tornado-generated missile renders inoperable a motor operated valve but does not rupture it, the redundant valve can be assumed to work. Hence, the criterion given in 3.1 is met.
- c) If a tornado-generated missile can rupture a main steam stop valve, this will represent a steam line break. Hence the general criteria given in 2.1 shall apply. These criteria are met with the present WEP arrangement if it can be shown that the check valve on the same line is not damaged. Damage to the check valve could result from complete severance and whipping of the main steam line as a consequence of the stop valve failure.
- d) In the case of WEP, an analysis of the facade, auxiliary building superstructure and turbine buildings shall be performed to show that these structures do not collapse on top of both steam lines and associated valves and on top of redundant components or systems required for hot shutdown. The analysis shall be performed for the worst combination of horizontal wind and depressurization (reference is made to

the attached appendix). These analyses will determine whether the structures will collapse or not.

If they do collapse, the maximum wind force-depressurization required to strip the metal siding panels off the frame shall be calculated.

It shall be determined then whether the frames can stand these loads.

If the frame does withstand these loads, the panels can be assumed stripped off and an analysis shall be performed to show whether the bare frame can stand the forces associated with the worst combination of wind and depressurization.

Independent of the wind and pressure forces, calculations shall be performed to determine whether a missile can cause any of the above mentioned structures to collapse.



Westinghouse Electric Corporation

August 4, 1967

PEW-B-408

SE-RS-260

S.O. WEP-610/1

Mr. J. V. Leslie, Project Engineer
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P.O. Box 3963
San Francisco, California 94119

Dear Sir:

POINT BEACH NUCLEAR PLANT UNIT NO. 1
SEISMIC ANALYSIS REQUIREMENTS FOR STRUCTURES
WITHIN THE ENVIRONS OF CLASS I AND II SYSTEM COMPONENTS

The following information is offered in order to clarify our position with regard to seismic criteria.

It should be understood the seismic classification of building structures, as with system components, is dependent on function. However, the effect that a structure's failure would have on the class of components within its environs cannot be ignored.

In particular, Class I or II components must not be compromised by adjacent structural failure. This may be accomplished by meeting one of the following options.

1. Designing the adjacent structures regardless of their functional seismic requirements using the Class I or II design criteria as necessary.
2. Investigate the adjacent structures designed to meet functional requirements to determine that no structural failure would occur which could impair Class I or II component function.
3. Investigate the effect of adjacent structural failure on Class I and II components to determine that no impairment of function of these components would result from such structural failure.

The option that is applied to missile and tornado accident criteria (i.e., if redundant or back up systems are available which cannot be compromised by the same accident, no specific design of that particular system for the tornado or missile accident is required) cannot be used in the case of earthquake because of the high degree of correlation between the earthquake accident and potential structural damage throughout the plant area. In addition, earthquake effects can be felt within the containment while missile and tornado effects on the primary system are blocked by the containment structure.

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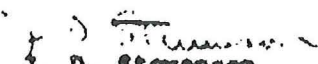
Mr. J. K. Leslie

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August 7, 1967

It is necessary that all structures which could interact with Class I or II components meet the requirements of option 1 or 2 alternatively the Class I or II components meet the requirements of option 3.

Very truly yours,


J. D. Stevenson
Reactor and Steam Systems

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