Enclosure

FIRE PROTECTION

SAFETY EVALUATION REPORT
SUPPLEMENT
POINT BEACH NUCLEAR PLANT
UNIT NOS. 1 AND 2

By letter dated September 26, 1979, December 20, 1979 and June 23, 1980, Wisconsin Electric Power Company provided additional information regarding fire protection modifications identified as incomplete in the Point Beach Fire Protection Safety Evaluation Report (SER) of August 2, 1979. Several of these items are now complete, and are discussed below.

Smoke Exhaust, Section 3.1.2

In the SER, it was our concern that a manually-activated smoke exhaust system be installed for the cable spreading room,control room, and computer room since the existing fans and other equipment in the air handling system are not designed to withstand high temperatures and thus could be incapacitated. The capacity and configuration of the normal air handling systems is inadequate for effective smoke removal.

By letter dated September 26, 1979, the licensee submitted specifications and plans covering the design and construction of the smoke exhaust system that will resolve our concerns.

Based on our review, we conclude that the proposed smoke exhaust system meets the requirements of Section D.4 of Appendix A to BTP APCSB 9.5-1 and is therefore, acceptable.

Fixed Water Suppression Systems, Section 3.1.4

In the SER, it was our concern that:

1) the manually-activated dry pipe sprinkler system for each diesel generator room does not provide sufficient assurance that the worst case fire will be extinguished promptly and not affect the structural integrity of the control building;

2) the lack of fire protection in the general area over the safety injection pumps and component cooling water pumps; and

3) the lack of fire protection in the general area over the diesel-driven fire pump and the service water pump.

By letter dated June 23, 1980, the licensee proposed to upgrade the manually-activated dry pipe sprinkler system in each diesel generator room with a wet pipe system operated automatically with flow annunciation in the control room.

The licensee also proposed to install an automatic wet pipe sprinkler system over the safety injection pumps, component cooling water pumps, diesel-driven fire pump and the service water pumps.

We find that the automatically operated wet pipe sprinkler system for the diesel generator meets the guidelines of Section F.9 of Appendix A to BTP APCSB 9.5-1 and therefore, is acceptable. We also find that the automatic sprinkler system for the safety injection pumps, component cooling water pumps, diesel driven fire pump and the service water pump meets the guidelines of Section D.1(a), (1) (2) of Appendix A to BTP APCSB 9.5-1 and, therefore, is acceptable.

The automatic sprinkler systems should meet the guidelines of NFPA 13 "Standard for the Installation of Sprinkler Systems."

Fire Detectors, Section 3.1.12 and

Smoke Detector System Qualification, Section 3.2.5

In the Fire Protection Safety Evaluation Report we were concerned that the smoke detectors might not respond to the products of combustion for the combustibles in the area where smoke detectors are installed. We were also concerned that ventilation air flow patterns in the area might reduce or prevent detector response and we recommended that the licensee perform an in-situ smoke detector test.

By letter dated December 20, 1979 the licensee submitted its own plan for locating fire detectors including input from installers, Draft Reg. Guide 1.120 and standards published by Underwriters Laboratories and the National Fire Protection Association.

Based on our review we find that the required methodology for an in-situ smoke detector test is beyond the current state-of-the-art, and therefore, an in-situ test cannot be performed at this time.

We find that with acceptable bench testing of smoke detectors, and considering that the smoke detection systems meet appropriate NFPA codes and are designed by experienced personnel, the smoke detectors are acceptable.

Carbon Dioxide Hose Reel Nozzles, Section 3.1.23

In the SER, it was our concern that the discharge nozzles of the carbon dioxide hose reels in the control room are large and would be difficult to maneuver within the cabinets.

By letter dated September 26, 1979 the licensee submitted a drawing showing a typical carbon dioxide hose reel with the proposed new nozzle for use in the control room cabinets.

SUMMARY OF STAFF REQUIREMENTS
TO RESOLVE OPEN ITEMS
POINT BEACH 1 AND 2
DOCKET NOS. 50-266/301

3.1.5 Water Damage Protection

In the Fire Protection Safety Evaluation Report we were concerned that floor drains be provided in the cable spreading room to prevent damage to safety-related equipment.

The licensee has not responded to our concern in the Safety Evaluation Report and has not submitted information for use to complete our review.

In order to meet the requirements of Section III.G of proposed Appendix R to 10 CFR 50, we require that drains be provided to prevent damage to safety-related equipment in the cable spreading room.

3.1.9 Fire Barriers

In the Fire Protection Safety Evaluation Report we were concerned that a fire in the turbine building lube oil area could pierce the control buildings wall adjacent to the turbine building. We were also concerned that an unmitigated fire might pierce the walls of the cable spreading room, diesel generator room, and the viewing window in the control room separating it from the turbine area. Also the charcoal and absolute filters for the service building and general auxiliary building ventilation exhaust are located in adjacent rooms and separated by an unrated barrier.

The licensee has not responded to our concern in the Safety Evaluation Report and has submitted no information for us to complete our review.

Based on our review, we conclude that the licensee should meet the following requirements of Section III.G,M,N of proposed Appendix R to 10 CFR Part 50:

1. Upgrade the control building walls that could be affected by a turbine lube oil reservoir fire to a three hour fire rating, including fire dampers, fire doors and penetration seals.

2. Upgrade the wall of the cable spreading room and diesel generator room to a three hour fire rating, including all openings and penetrations.

3. Upgrade the viewing window of the control room wall to a two hour fire rating as well as upgrade the wall to a two hour fire rating that separates the service building and general auxiliary building ventilation exhaust filters from the remainder of the auxiliary building.

3.1.14 Cable Separation

In the Fire Protection Safety Evaluation Report, we were concerned about the loss of redundant safety-related equipment and/or cables-conduit due to a fire

of a combustible transient fire load (exposure fire) as well as the interaction of this fire on installed combustibles in the area.

Specific areas of concern are the following:

1. Cable Spreading Room
2. Switchgear Room
3. Emergency Diesel Generator Rooms
4. Auxiliary Building elevations 8, 26, 46
5. Auxiliary Feedwater Pump Room and Local Control Station
6. Containment
7. Yard Area

The licensee has not responded to our concern in the Safety Evaluation Report and has submitted no information for us to complete our review.

The licensee has not demonstrated that adequate protection features have been provided for cables and equipment of redundant systems important to achieving safe shutdown conditions to ensure that at least one means of achieving such conditions survives postulated fires.

To meet our fire protection guidelines, alternate shutdown capability should be provided when safe shutdown cannot be ensured by barriers and detection and suppression systems because of the exposure of redundant safe shutdown equipment, cabling, or components in a single fire area, to an exposure fire, or fire suppression activities, or rupture or inadequate operation of fire suppression systems.

To meet Section III, Paragraph G of the proposed Appendix R to 10 CFR Part 50, the licensee should provide an alternate shutdown capability independent of these areas. The alternate shutdown system should meet the requirements of Section L, Paragraph III of proposed Appendix R to 10 CFR Part 50.

3.1.17 Hydrogen Hazard Fire Protection

In the SER we were concerned about the potential damage from a fire resulting from a leaking hydrogen supply header. We were also concerned that this hydrogen line would increase the severity of postulated fires over the turbine lube oil reservoir.

By letter dated September 26, 1979, the licensee proposed to:

1. install an excess flow and manual isolation valves in the auxiliary building hydrogen supply header at its point of entry into the auxiliary building, and

2. provide a sketch showing the rerouting of the hydrogen line that avoids passing over the turbine lube oil reservoir.

Based on our review we conclude that the proposed hose reel nozzle meets the guidelines of Section E.6 of Appendix A to the BTP APCSB 9.5-1 and is therefore acceptable.

Ventilation Duct Penetration Seals, Section 3.1.25

In the SER it was our concern that a fire could penetrate the two-hour fire rated wall of the switchgear room through the unprotected louvered penetrations.

By letter dated September 26, 1979 the licensee proposed to install an automatic three-hour fire rated curtain type fire door damper for protection of the ventilation opening in the switchgear room.

Based on our review we find that the fire door damper meets the guidelines of Section D.1.(j) of Appendix A to BTP APCSB 9.5-1 and is acceptable.

Control Room Light Fixtures, Section 3.1.33

In the Fire Protection Safety Evaluation Report, we were concerned that the fluorescent light fixture diffusers in the control room have a flame spread rating of 25 or less.

By letter dated June 23, 1980, the licensee proposed to provide aluminum light fixture diffusers for the control room light fixtures.

Based on our review, we conclude that the licensee's proposed light fixture diffusers meet the guidelines of Section D.1(d) of Appendix A to BTP APCSB 9.5-1 and therefore, are acceptable.

Fire Brigade Size, Section 3.2.3

In the Fire Protection SER, we recommended a minimum on-site fire brigade of five members. By letter dated October 1, 1979, the licensee submitted a request to change the Technical Specifications revising the fire brigade size from four to five members, as requested. A conforming amendment was subsequently issued on November 13, 1979, thereby resolving this item.

Date: October 21, 1980

Based on our review, we conclude that the licensee's proposed modifications are not acceptable. Fire barriers have not been installed between the hydrogen line and adjacent safety-related cables and equipment in the auxiliary building.

In order to meet the requirements of Section III.G of proposed Appendix R to 10 CFR Part 50, the licensee should install fire barriers in the auxiliary building, elevation 8 ft and 26 ft to separate the hydrogen line from safety-related cables and equipment.

3.1.24 Diesel Generator Air Intake Structure

In the Fire Protection Safety Evaluation Report, we were concerned that the combustion air intakes for the two emergency diesel generators are located within the turbine building on the 26 foot elevation and approximately 35 and 60 feet respectively from Unit 1 lube oil reservoir. Smoke from a lube oil reservoir fire could be drawn into the diesel generator combustion air intakes and prevent the diesel from starting.

The licensee has not responded to our concern in the Safety Evaluation Report and has submitted no information for us to complete our review.

In order to meet the requirements of Section III.G of proposed Appendix R to 10 CFR Part 50, a three hour fire rated enclosure should be provided around the existing air intake structures for the diesel generators so that combustion and ventilation air can be ducted directly from outdoors as well as from inside the building to ensure start-up capability in the event of a turbine building fire. All fire dampers should be automatic in operation.

3.1.26 Auxiliary Building Cable Tray Penetration Seals

In the Fire Protection Safety Evaluation Report, we were concerned that a fire could spread from one fire area to another fire area through unsealed cable tray penetrations and damage redundant safety-related systems.

The licensee has not responded to our concern in the Safety Evaluation Report and has submitted no information for us to complete our review.

In order to meet the requirements of Section III.M of proposed Appendix R to 10 CFR Part 50 we will require the licensee to install three hour fire rated cable tray penetration seals at the following locations in the auxiliary building cubicle walls:

1. Elevation 8 feet
2. Elevation 26 feet
3. Elevation 46 feet and above

3.1.27 Containment Building Fire Stops

In the Fire Protection Safety Evaluation Report, we were concerned that fire stops be added to certain cable trays that pass through containment building compartment walls to minimize combustible pathways between compartments.

The licensee has not responded to our concern in the Safety Evaluation Report and has submitted no information for us to complete our review.

In order to meet the requirements of Section III.M of proposed Appendix R to 10 CFR Part 50 we will require fire stops to be installed to minimize combustible pathways between cable trays.

3.1.28 Service Building Penetration Seals

In the Fire Protection Safety Evaluation Report, we were concerned that a fire in the service building may damage safety-related systems in adjoining buildings through unprotected cable tray penetrations.

The licensee has not responded to our concern in the Safety Evaluation Report and has submitted no information for us to complete our review.

In order to meet the requirements of Section III.M of proposed Appendix R to 10 CFR Part 50, we will require three hour fire rated seals in all cable tray penetrations from the service building to safety related areas.

3.1.29 Cable Tray Penetration Seal Qualifications

In the Fire Protection Safety Evaluation Report, we were concerned that the cable tray penetrations in existing walls, floors, ceilings have not been qualified as rated fire stops in accordance with ASTM E-119 standards.

The licensee has not responded to our concern in the Safety Evaluation Report and has submitted no information for us to complete our review.

In order to meet the requirements of Section III.M of the proposed Appendix R to 10 CFR Part 50, we will require all penetrations of cable trays in existing walls, floors, and ceilings to be qualified by an independent testing laboratory in accordance with ASTM E-119 exposure fire.

3.1.32 Fire Hydrant Inspections

In the Fire Protection Safety Evaluation Report, we were concerned that administrative procedures be implemented for fire hydrant inspections on a periodic basis to verify that the hydrant barrel is dry and that the hydrant is not damaged.

By letter dated June 23, 1980, the licensee submitted a description of administrative procedures for fire hydrant inspection that is conducted yearly.

Based on our review, we conclude that the Fire Hydrant Administrative Procedures are not acceptable since the procedure should be done semi-annually.

Based on our review, we conclude that the licensee should inspect the hydrants every six months for possible damage and to ensure the hydrant barrels are dry. The Administrative Procedure should meet the guidelines of NFPA 24 "Outside Protection."

3.2.1 Safe Shutdown Capability

In the Fire Protection Safety Evaluation Report, it was our concern that in several areas such as cable spreading room, switchgear room, Auxiliary Building EL. 8 feet, 26 feet and 46 feet and above, Auxiliary feed pump area, containment buildings and the containment facades, redundant systems could be damaged by a single fire thus the possibility of affecting safe shutdown.

By letter dated December 29, 1978, the licensee provided the results of an evaluation of the capability to achieve and maintain safe shutdown for postulated fires in the various plant areas.

Based on our evaluation, we concluded that the licensee has not demonstrated that adequate protection features have been provided for cables and equipment of redundant systems important to achieving safe shutdown conditions to ensure that at least one means of achieving such conditions survives postulated fires.

To meet our fire protection guidelines, alternate shutdown capability should be provided when safe shutdown cannot be ensured by barriers and detection and suppression systems because of the exposure of redundant safe shutdown equipment, cabling, or components in a single fire area, to an exposure fire, or fire suppression activities, or rupture or inadequate operation of fire suppression systems.

To meet Section III, Paragraph G of the proposed Appendix R to 10 CFR Part 50, the licensee should provide an alternate shutdown capability for the following areas of the plant:

1. Cable spreading room
2. Switchgear room
3. Control room
4. Auxiliary feedwater pump area
5. Auxiliary building EL. 8 ft., 26 ft., and 46 ft. and above
6. Containment
7. Containment facades.

The alternate shutdown system should meet the requirements of Section L, Paragraph III of proposed Appendix R to 10 CFR Part 50.

3.2.2 Circulating Water Pump House Fire Protection

In the Fire Protection Safety Evaluation Report, we were concerned that a fire may damage redundant service water pumps in the intake structure as well as damaging both fire water pumps.

By letter dated December 29, 1978, the licensee proposed the following:

1. a wet pipe automatic sprinkler system over the diesel fire pump, and a small curb and floor drain routed to the circulating water pump pit area, with suitable deflectors to contain spilled oil from the diesel;

2. a wet pipe automatic sprinkler system over the service water pumps; and

3. a metal security wall around the pump area.

Based on our review, we conclude that the installation of a wet pipe automatic sprinkler system over the diesel fire pump and service water pumps, and a curb, drain, and deflectors for the diesel pump, are acceptable. However, the installation of a metal security wall around the service pump area will not preclude a fire from damaging redundant systems and is not acceptable.

In order to meet the requirements of Section III.G of proposed Appendix R to 10 CFR 50, the licensee should install two one-and-one-half hour fire rated barriers separating the service water pumps in the intake structure into three sections with a service water pump in each section. Also the diesel fire pump day tank should be relocated to the same side of the fire rated barrier as the diesel fire pump. Any opening in the 1-1/2 hour fire barrier should be properly protected including a curb installed at all door openings to prevent a flammable liquid spill from reaching both sides of a barrier.

3.2.4 Fire Brigade Training Frequency

In the Fire Protection Safety Evaluation Report, we were concerned about the adequacy of fire brigade training.

The licensee proposed that practice sessions for the five man fire brigade be conducted on a two year cycle including the shift supervisor.

We find the licensee's proposed practice session cycle not acceptable because it does not provide adequate training to assure plant fire brigade personnel understand and familiarize with the operation of the fire-fighting equipment provided and fire fighting methods. Also we are of the opinion that the five man brigade should not include the shift supervisor.

The licensee should meet the requirements of Section III.H.I of proposed Appendix R to 10 CFR Part 50 on fire brigade training.

3.2.6 Reactor Coolant Pump Lube Oil Collection

In the SER, it was our concern that damage to safety-related systems could result from a fire at a reactor coolant pump inside containment.

By letter dated December 29, 1978, the licensee proposed modifications to the existing RCP oil collection system. The oil deflector cones will be fitted with curbs and drain piping installed terminating in four 55 gallon drums on elevation 10 feet inside containment.

In our review, we conclude that the oil collection system is not acceptable because the proposed oil collection system does not cover all pressurized and unpressurized leakage sites, in particular the high pressure lift pump and piping.

The licensee should provide a RCP oil collection system which meets Section III, Paragraph O of the proposed Appendix R to 10 CFR Part 50.

FIRE PROTECTION REVIEW STATUS
POINT BEACH NUCLEAR PLANTS, 1 & 2
DOCKET NOS. 50-266 AND 50-301

ITEM	DESCRIPTION	STATUS*
3.1.2	Smoke Exhaust	C
3.1.4	Fixed Water Suppression Systems	C
3.1.12	Fire Detectors	C
3.1.23	Carbon Dioxide Hose Reel Nozzles	C
3.1.25	Ventilation Duct Penetration Seals	C
3.1.33	Control Room Light Fixtures	C
3.2.3	Fire Brigade Size	C
3.2.5	Smoke Detector - System Qualification	C
3.1.5	Water Damage Protection	R
3.1.9	Fire Barriers	R
3.1.14	Cable Separation	R
3.1.17	Hydrogen Hazard Protection	R
3.1.24	Diesel Generator Air Intake Structure	R
3.1.26	Aux. Bldg. Cable Tray Penetration Seals	R
3.1.27	Containment Bldg. Fire Stops	R
3.1.28	Service Building Penetration Seals	R
3.1.29	Cable Tray Penetration Seal Qualification	R
3.1.32	Fire Hydrant Inspections	R
3.2.1	Safe Shutdown Capability	R
3.2.2	Circulating Water Pump House Fire Protection	R
3.2.4	Fire Brigade Training Frequency	R
3.2.6	RCP Lube Oil Collection System	R

* C - Closed
R - Requirement