Wisconsin Electric
POWER COMPANY

Point Beach Nuclear Plant
6610 Nuclear Rd., Two Rivers, WI 54241

(414) 755-2321

NPL 97-0350

10 CFR 50.4
10 CFR 50.90

June 13, 1997

US NUCLEAR REGULATORY COMMISSIO:
Document Control Desk
Mail Station P1-137
Washington, DC 20555

Ladies/Gentlemen:

DOCKETS 50-266 AND 50-301
REQUEST FOR ADDITIONAL INFORMATION
TECHNICAL SPECIFICATIONS CHANGE REQUEST 192
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

In a letter dated June 9, 1997, the Nuclear Regulatory Commission provided a request for additional information regarding Technical Specifications Change Request 192. The response to the request for additional information is provided as an attachment to this letter, for Questions 1, 2, 4, and 5. The response to Question 3 is being provided to Region III inspection personnel, as requested.

We have determined that the additional information does not involve a significant hazards consideration, authorize a significant change in the types or total amounts of any effluent release, or result in any significant increase in individual or cumulative occupational exposure. Therefore, we conclude that the proposed amendments meet the requirements of 10 CFR 51.22(c)(9) and that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared. The conclusions of the original "No Significant Hazards" determinations for operation under the proposed Technical Specifications remain applicable.

A001

Please contact us if you have any questions or require additional information.

Sincerely,

Douglas F. Johnson
Manager
Regulatory Services and Licensing

Subscribed and sworn before me on this 13th day of June, 1997.

Ann M. Fitzgerald
Notary Public, State of Wisconsin
Ann M. Fitzgerald

My commission expires 1-11-98.

Attachment

cc: NRC Resident Inspector
NRC Regional Administrator
PSCW

RESPONSES TO NRC FOR ADDITIONAL INFORMATION
TECHNICAL SPECIFICATIONS CHANGE REQUEST 192

Question #1

Provide a chronology, from 0 to 720 hours, of the unfiltered inleakage flow rates and sources, filtered flow rates, adsorber and HEPA (high-efficiency particulate air) filter efficiencies, initiations signals, and a list of operating components for all design basis accidents with and without an accompanying loss of offsite power (LOOP).

RESPONSE:

The current limiting design basis accident for control room dose analysis is a large break LOCA.

Without LOOP:

Chronology, from 0 to 720 hours: The system is initially in Mode 1 and switches to Mode 4 at the start of the accident and continues in that state for the duration of the 720 hours.

Unfiltered inleakage flow rate: 10 cfm Sources: Doors opening

Filtered flow rate: 4950 cfm

Adsorber and HEPA filter efficiencies: Elemental 95% Organic 95%
Particulate 99%

Initiation signal. Mode 4 initiated by High Radiation signal

List of major operating components:

One Charcoal filter fan (W-014A or B)
One Recirculation fan (W-013B1 or B2)
One chilled water pump (P-112A or B)
Chiller (HX-038B1, 2, 3, 4)

With LOOP:

Chronology, from 0 to 720 hours: System is initially in Mode 1 and switches to Mode 4 at the start of the accident (filtered intake) although, with the loss of power, all AC powered equipment is not operating (fans, chillers, etc). At about the time of containment sump recirculation, power is restored to at least one set of fans, instrument air is restored, alignment is established for Mode 4 operation and the system continues in that state for the duration of the 720 hours. The chiller and chilled water pump are powered from non-safeguards power supplies. The chiller and chilled water pump are only required for cooling the control room and computer room. They are not required for radiological protection. Restoration of the chiller and a chilled water pump within two hours is adequate for control room and computer room temperature control. If necessary, heating could also be restored within about two hours.

Unfiltered inleakage flow rate: It is judged that control room and computer room inleakage would be less than or equal to 10 cfm which is based on the judgment that the room is heating-up during the loss of ventilation which causes leakage to be predominantly outwards.

Sources: Doors opening

Filtered flow rate: 0 CFM prior to restoration of power to fan. 4950 cfm after fan is started.

Adsorber and HEPA filter efficiencies: Elemental 95% Organic 95% Particulate 99%

Initiation signal: Mode 4 initiated by High Radiation signal

List of major operating components:

Prior to restoration of Control Room ventilation system: None

After restoration:
One Charcoal filter fan (W-014A or B)
One Recirculation fan (W-013B1 or B2)
One chilled water pump (P-112A or B)
Chiller (HX-038B1, 2, 3, 4)

Question #2

Provide a detailed description of the timing for getting the control room ventilation system back on the diesels after being shed due to a LOCA (loss of coolant accident) with a LOOP. Provide the temperature rise in the control room and computer room at the end of this time and the basis for the acceptability of the temperature rise. What is the basis for your assumptions for unfiltered inleakage, performance during a LOOP, and control room heat up? Have any tests been conducted to verify system response.

RESPONSE:

For the large break LOCA the control room ventilation system can be re-powered and aligned for operation in Mode 4 within about 10 minutes of establishing containment sump recirculation. The longest time that containment sump recirculation is normally achieved for large break LOCA scenarios is about 50 minutes. Therefore, the system should be restored to Mode 4 operation within approximately one hour of the start of the event. No other design basis accident scenarios would take longer than the LOCA for restoration of the control room ventilation system after a LOOP. Therefore, the LOCA remains the limiting event for control room dose analysis. For other design basis scenarios, the order of emergency operating procedure steps would lead to the restoration of ventilation at about the same time. For these scenarios the time to restore the ventilation system fans is currently judged to be about 30 minutes.

The large break LOCA with LOOP is further reconciled with the emergency diesel loading analyses as follows: Tables 8.2-1 and 8.2-2 in the PBNP FSAR show that the control room ventilation system fans and the instrument air compressor can be accommodated by the emergency diesel generator load analysis during the recirculation phase of a LOCA. As stated previously, the longest expected time for containment sump recirculation in a large break LOCA is about 50 minutes. If diesel capacity is available, control room ventilation can be started during the injection phase of a large break LOCA. This would achieve restoration of the control room ventilation fans in about 30 minutes. It should be noted that the chiller and chilled water pump, which are only required for cooling not radiological protection, could take longer to restore because they are powered from non-safeguards power supplies.

A calculation for postulated LOCA/LOOP conditions, which utilized the results of testing performed in 1994, was performed for the most temperature sensitive equipment that could be needed post-accident in the computer room, the plant computer input multiplexers (MUX). Test data was recorded for loss of ventilation and operation of the system in Mode 4 without cooling. The calculation demonstrated that during extreme summer conditions, the computer room MUX inlet temperature would rise to approximately 98°F by the time cooling was restored at two hours. This temperature is conservatively based on Mode 4 operation (without chillers) for the entire two hours, since the calculation determined that a complete loss of ventilation resulted in a less severe two hour temperature of about 88°F.

Control room heat up test data recorded during the Mode 4 computer room testing described above showed a heat up transient very similar to the computer room transient. The calculated 98°F temperature for the MUX is representative of control room temperature for operation in Mode 4 for two hours without cooling. Again, Mode 4 operation without cooling is judged to result in a greater temperature rise than the total loss of ventilation situation based on the results of testing of these cases for the computer and control rooms.

As stated previously, leakage is expected to be less than or equal to 10 cfm which is based on the judgment that the room is heating-up during the loss of ventilation which causes leakage to be predominantly outwards.

Question #4

The computer room dampers (CV 4849A and CV 4849B) fail to a closed position upon a loss of instrument air or upon a LOOP. During the inspection beginning May 19, 1997, it was stated that the reason these dampers fail closed is to isolate the Halon from the control room. Following a LOOP, all of the dampers of the control room ventilation systems but these two dampers fail to their emergency mode 4 position. When the control room ventilation system fans are back on the diesels, these two valves remain closed. Without instrument air an operator would have to be sent to manually align the dampers. Have you incorporated this information in your dose analysis, including possible changes in the control room envelope volume?

RESPONSE:

Instrument air is also included in diesel loading analysis for recirculation phase of LOCA. Therefore, instrument air would be considered available for repositioning of the computer room dampers when the control room ventilation system is restored. Isolation of the control room from the computer room would reduce the control room envelope volume to 40,529 cu. ft. during the time that these dampers are closed.

The assessment of the control room dose after a LOOP is not dependent on the position of the dampers that isolate the computer room. In fact, significant air exchange between the computer room and the control room is not expected when the ventilation system is not running regardless of the position of these dampers (CV-4849A and 4849B). Therefore, the position of these dampers during the time that the ventilation system is not operating is not relevant to the evaluation of the effects of a loss of ventilation. The evaluation of the effects of the loss of ventilation provided in a June 3, 1997, letter to the Nuclear Regulatory Commission states:

> "The operation of the control room ventilation system has not been evaluated previously for situations of the loss of offsite power. Although, in recent years the control room filter fan and recirculation fan have been included on the emergency diesel generator loading tabulation during the recirculation phase of a loss of coolant accident (FSAR Table 8.2-2). The control room ventilation system for Point Beach does not automatically restart after a loss of offsite power. Operator action would be required to restore operation of the control room ventilation system after a loss of offsite power.
>
> The analyses for radiological consequences in the control room are based on operation of the system in Mode 4, which is unfiltered recirculation with filtered make-up. It is judged that the radiological effects in the control room of the stopping and subsequent restart of the system after a loss of offsite power would not be greater than the doses associated with Mode 4 operation of the system post-accident, based on the following:
>
> 1. The control room would start from positive pressurization because the system normally runs in Mode 1 which is a positive pressurization mode.
>
> 2. During the loss of ventilation, the air inside the control room would heat-up and expand, which would continue to enhance pressurization and outflow and tend to minimize in-leakage.
>
> 3. The control room would normally be closed which helps maintain pressurization and reduces in-leakage.
>
> 4. The control room ventilation system damper positions would be expected to fail or automatically transfer the system into Mode 4 which provides for filtered make-up. If any in-leakage through the normal control room intake occurred, it would be filtered at the same or higher efficiency assumed in the analysis.

5. Unfiltered radionuclides such as noble gases would not be drawn into the control room by the control room charcoal filter fan."

Question #5

What is the basis for not assuming worst-case flow rates (4950 ± 10% ft^3/min) in your dose analysis? In addition, why are the efficiencies not reduced by the TS 1% bypass in your dose analysis?

RESPONSE:

Analysis of minimum and maximum flow cases are not required because the results of comparison of minimum and maximum flow show that resultant thyroid doses change by <1%. Therefore, analyses based on the design flowrates provides an acceptable basis for determining operator dose.

Overall efficiency of the charcoal adsorber filter is 99% (bypass 1%) times 99% (filter laboratory test Technical Specification acceptance criterion), which yields 98%. This preserves the 95% overall efficiency assumption. The HEPA filter is tested in situ with a 99% Technical Specification acceptance criterion. The analysis uses a 99% particulate removal efficiency in the analysis, which is consistent with the Technical Specification requirement.

WIND SPEED DATA

Wind speed data from the PBNP meteorology towers is based on the 10 meter elevation. If 10 meter data in unavailable, 45 meter data is adjusted to 10 meters.