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Subject: Request to Amend the Existing Exemption from 10 CFR 50, Appendix R, for the Component Cooling Water Heat Exchanger and Pump Room

Ladies and Gentlemen:

This letter requests the amendment of an existing exemption concerning certain requirements of Title 10 of the Code of Federal Regulations (CFR), Section 50, Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979." Specifically, this existing exemption applies to Appendix R Section III.G, "Fire Protection of Safe Shutdown Capability," requirements for the Davis-Besse Nuclear Power Station (DBNPS) Component Cooling Water (CCW) Heat Exchanger and Pump Room (Room 328). The exemption to be amended was issued by the NRC on November 23, 1982 (DBNPS Log Number 1138), in response to the DBNPS exemption request dated April 29, 1982 (DBNPS Serial Number 815).

Background Information

Section III.G of Appendix R requires, in part, 20 feet of separation between redundant system equipment in the same fire area, with no intervening combustibles. Contrary to this requirement, all three CCW pumps for the DBNPS are located at one end of Room 328, and although the redundant CCW pumps are more than 20 feet apart, the third pump, a "swing" component, is located between the redundant pumps. The centerline of the swing pump is approximately 11 feet from the centerline of each of the other two pumps. Only one CCW pump is needed for safe shutdown. In order to maintain the remainder of the room in compliance with Appendix R requirements, certain electrical conduits and valves in Room 328 associated with the CCW

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system were, at the time of the original exemption request, protected against fire to ensure that a fire would not lead to the inoperability of both CCW pumps.

The April 29, 1982 letter requested an exemption from the Section III.G requirement. The basis of the exemption request was that the existing fire protection features designed into Room 328 were considered equivalent to those specified by Section III.G of Appendix R. The fire protection features described in the exemption request included, in part, the fire barrier protection for the electrical conduits and valves associated with providing CCW. Specifically, the exemption request contained the following statement:

> Selected conduits and valves which are required for safe shutdown in the CCW heat exchanger and pump room are protected by a 1-hr. fire barrier. The conduit and valve fire barrier system consists of two 1 inch thick Kaowool blankets wrapped around and banded to the conduit and valves with 1/2 inch wide type 316 stainless steel bands and buckles. Table 1 summarizes the raceway and valves that are protected and indicates the raceway's associated function.

The NRC staff issued the requested exemption on November 23, 1982. The Safety Evaluation issued by the NRC staff in support of the requested exemption stated, in part, the following:

> Conduits and valves which are required for safe shutdown are protected by a one-hour-fire-rated barrier. The barrier consists of two 1-inch thick Kaowool blankets wrapped around and banded to the conduit and valves with 1/2-inch wide type 316 stainless steel bands and buckles.

The Safety Evaluation also stated, in part:

> We have evaluated the licensee's request on the basis of equivalent protection provided by the specific features of this fire area. The following features were identified as providing passive fire protection equivalent to a one hour fire rated enclosure or the 20 foot separation free of intervening combustibles for one of the redundant CCW pumps:
>
> .
> .
> .
>
> 4. A one hour fire rated barrier is provided for the cables and valves in the area.
>
> We have concluded that, based on the above features, a one hour fire rated enclosure for one CCW pump will not enhance the fire protection features for accomplishing safe shutdown and is not required.

Since the issuance of this exemption by the NRC in 1982, the necessity of protecting these conduits and valves from fire has evolved to the point where their fire protection wrapping is no longer required in order to ensure safe shutdown. This evolution is discussed below.

Fire Protection Evolution for the Conduits/Valves

A copy of the above referenced Table 1 is enclosed. This table has been updated to correct minor typographical errors in raceway items 12, 15, and 20. In addition, raceway items 43 through 48 have been added to include circuits, which, although similarly wrapped for fire protection, were not listed in the original exemption request submittal. Also, notes have been added to the table to refer to the reasons (discussed below) why fire wrapping is no longer required for the listed circuits.

On March 15, 1989, the DBNPS submitted a letter (DBNPS Serial Number 1642) regarding the crediting of various manual operator actions for fire protection. The letter noted that the manual operator action to establish temporary ventilation in the CCW pump room in the event of a fire is no longer considered necessary since the CCW pumps would not overheat despite the fire and postulated loss of the CCW pump room ventilation. This determination eliminated the need for fire wrap on several ventilation circuits in Room 328 (see specifically raceway item numbers 17, 20, and 24 on the enclosed Table 1).

On February 16, 1990, the DBNPS submitted a letter (DBNPS Serial Number 1757) regarding changes in fire protection compliance approaches. The letter noted that since CCW valves CC 5095, CC 5096, CC 5097, and CC 5098 are not immediately required to achieve hot shutdown and time is available for manual actions, the fire barrier wraps for these valves are not required. This determination eliminated the need for fire wrap on these valves and associated circuits in Room 328 (see specifically raceway item numbers 15, 21, 29, 30, 37, 38, 39, 40, 41, and 42 on the enclosed Table 1).

Due to concerns with the durability and qualifications of the Kaowool fire wrap material, the February 16, 1990 letter also noted the intent to replace the Kaowool wrap on CCW pump circuits in Room 328. This effort was completed in June, 1990. The replacement material installed was Thermo-Lag 330-1. For certain circuits, analyses determined that fire wrap was no longer required (see specifically raceway item numbers 14, 25, 32, and 37 on the enclosed Table 1) and need not be added.

During 1992, the DBNPS implemented Plant Modification 87-1315 to replace the Service Water (SW) control valves on the CCW heat exchangers, SW valves SW1424, SW1429, and SW1434. The original valves had two solenoid valves that controlled valve opening and closing, providing a potential failure for the valve in the closed position. The replacement valves use a single solenoid that fails the valve to the open position when depowered. This modification eliminated the need for fire wrap on the associated circuits in Room 328 (see specifically raceway item numbers 19, 22, and 23 on the enclosed Table 1).

On December 8, 1994, the DBNPS submitted a letter (DBNPS Serial Number 2258) regarding Generic Letter 92-08, "Thermo-Lag 330-1 Fire Barriers." The letter included a summary of Thermo-Lag 330-1 Fire Barrier systems (Thermo-Lag) installed at the DBNPS, and noted that Thermo-Lag was installed to support commitments made in the April 29, 1982 exemption

request. The letter noted that some of the Kaowool blankets credited in the earlier exemption request were subsequently replaced with Thermo-Lag barriers, and that, in addition, Thermo-Lag was added to some additional circuits which did not previously have Kaowool. A complete listing of Thermo-Lag-protected raceway in Room 328 was later provided in a June 13, 1995 DBNPS letter (DBNPS Serial Number 2298).

In a January 25, 1999 letter (DBNPS Serial Number 2577), the DBNPS provided a final closeout regarding resolution of Thermo-Lag 330-1 issues. This letter noted that Thermo-Lag 330-1 fire barriers were no longer credited at the DBNPS. The letter noted that control circuitry for the CCW pumps was modified under Plant Modification 96-0005, eliminating the need for fire barriers in Room 328. The letter further noted that some Thermo-Lag fire barriers in Room 328 were removed and some were abandoned in place; where Thermo-Lag barriers were abandoned in place, the seismic adequacy was evaluated; and the weight of the abandoned material was included in the combustible loading calculations for the applicable areas.

The aforementioned Plant Modification 96-0005 deleted the low flow and high temperature switches from tripping the CCW pump, while maintaining the automatic start of the redundant CCW pump and valve transfer logic. This modification also deleted the local control stations for the CCW pumps located in Room 328. As noted above, this modification eliminated the need for the remaining fire barriers in Room 328.

In summary, during the years subsequent to the issuance of the exemption, the CCW pump room conduits and valves were either modified or re-analyzed to eliminate the necessity for fire protection wrap. Thus, while the safety basis for the exemption remained (i.e., the CCW pump's safe shutdown capability would not be affected by a fire in the room), a portion of the basis of the exemption had been modified.

Need for Amended Exemption

In July, 2000, the NRC conducted a baseline safety system design and capability inspection at the DBNPS. The results of the inspection were provided in NRC Inspection Report No. 50-346/2000007(DRS), dated September 11, 2000 (DBNPS Log Number 1-4150). Section 1R21.9 of the report summarized a non-cited violation involving non-compliance with the bases of the exemption for the fire protection requirements within the CCW pump room. Specifically, the inspection report stated:

> During walkdowns of the CCW room, the team noted that the three CCW pumps did not meet the Appendix R, Fire Protection Program for Nuclear Power Facilities, separation requirements of 20 feet, and that none of components or circuits had fire protection barriers. The team learned that the licensee had previously requested and was granted an Appendix R exemption by the NRC on November 23, 1982. The exemption stated that items identified in Table 1 (i.e., circuits and components), of their April 29, 1982, Exemption Request, would be protected with a one-hour fire wrap/barrier. Credit was taken for the approved exemption to demonstrate separation or adequacy of fire protection

features in the CCW room. However, the CCW room no longer met the exemption bases and, therefore, no longer met Appendix R requirements. The failure to meet Appendix R requirements was considered a violation of 10 CFR Part 50, Appendix R, Section III.G.

In subsequent telephone discussions, the NRC staff indicated that it was appropriate for the DBNPS to submit a request to amend the existing exemption to remedy the situation described in the inspection report.

Request to Amend Existing Exemption

As described above, the underlying basis for the existing exemption request remains technically valid and sound. The conduits and valves in the CCW heat exchanger and pump room are not required to be protected for safe shutdown and, furthermore, do not affect the performance of the CCW pump required for safe shutdown. Accordingly, the underlying basis for the issuance of the existing exemption is maintained. The DBNPS requests that the existing exemption be amended to reflect that the room's conduits and valves listed in Table 1 are no longer wrapped for fire protection, and that these conduits and valves have been either modified or determined to have no adverse impact on the safe shutdown capability of a CCW pump.

Should you have any questions or require additional information, please contact Mr. David H. Lockwood, Manager - Regulatory Affairs, at (419) 321-8450.

Very truly yours,

MKL

Enclosures

cc: J. E. Dyer, Regional Administrator, NRC Region III
S. P. Sands, NRC/NRR Project Manager
K. S. Zellers, NRC Region III, DB-1 Senior Resident Inspector
Utility Radiological Safety Board

TABLE 1

CONDUIT/VALVE 1 HR. FIRE BARRIER

PROTECTION - CCW HEAT EXCHANGER

AND PUMP ROOM (ROOM 328)

	Raceway	Function	Note
1.	37073A (Train 1)	Power for CCW flow switches for pump discharge headers	4
2.	37073B (Train 1)	Power to flow switch CC Pump 1 discharge (FIS 1422C)	4
3.	37073C (Train 1)	Power to flow switch CC Pump 3 discharge (FIS 1427C)	4
4.	37073D (Train 1)	Power to flow switch CC Pump 3 discharge (FIS 1427C)	4
5.	37073E (Train 1)	Power to flow switch CC Pump 2 discharge (FIS 1432C)	4
6.	37074A (Train 2)	Power to flow switch CC Pump 1 discharge (FIS 1422D)	4
7.	37074B (Train 2)	Power to flow switch CC Pump 1 discharge (FIS 1422D)	4
8.	37074C (Train 2)	Power to flow switch CC Pump 3 discharge (FIS 1427D)	4
9.	37074D (Train 2)	Power to flow switch CC Pump 3 discharge (FIS 1427D)	4
10.	37074E (Train 2)	Power to flow switch CC Pump 2 discharge (FIS 1432D)	4

	Raceway	Function	Note
11.	36110C (Train 2)	Control CC Pump 2	4
		Control CC Heat Exchanger 2 discharge (TSH 1435)	4
		Control CC Pump 2 discharge (FIS 1432D)	4
		Control to start CC Pump 2 on low CC Pump 1 flow (FIS 1422D)	4
12.	37448A (Train 2)	Control CC Pump 2	4
13.	36010C (Train 1)	Control for CC Pump 1	4
		Control - CC Heat Exchanger 1 CC discharge (TSH 1483)	4
		Control - CC Pump 1 discharge (FIS 1422C)	4
		Control to start CC Pump 1 on low CC Pump 2 flow (FIS 1432C)	4
14.	36204C (Train 2)	Ch. 2 control to start CC Pump 3	4
		Control CC heat exchanger 3 CC discharge (TSH 1484B)	4
		Control - CC pump 3 discharge (FIS 1427D)	4
		Control - CC Pump 1 discharge (FIS 1422D)	5
15.	37035A (Train 1)	Control - CC header line 1 isolation valve (CC 5095)	2
16.	37047B (Train 1)	Control - CC Pump 1 discharge (FIS 1422C)	4
17.	37047C (Train 1)	Control - CC Pump 1 discharge (FIS 1422C)	4
		Control CC Pump Rm. Vent Fan 1-1	1
18.	37440A (Train 1)	Control - CC Pump 1	4
19.	37449A (Train 1)	Control - Service water return from CC heat exchanger 1 (SV 1424 & SV 1424A)	3

	Raceway	Function	Note
20.	37450A (Train 2)	Control - CC Pump Rm. vent fan 1-2 Control - CC Pump 1 discharge (FIS 1422D)	1 4
21.	37450B (Train 2)	Control - CC header line 2 isolation valve (CC 5096)	2
22.	37452A (Train 2)	Control - Service water from CC heat exchanger 2 (SV 1434 & SV 1434A)	3
23.	37453A	Control - Service Water from CC heat exchanger 3 (SV 1429 & SV 1429A)	3
24.	37469C (Train 1)	Control - CC Pump 3 Control - CC Pump Rm. vent fan 1-1	4 1
25.	37480A (Train 2)	Control - CC Pump 3 CC heat exchanger CC discharge (TSH 1484B) Control - CC Pump 3 discharge (FIS 1427D) Control CC Pump 1 (FIS 1422D)	4 4 5
26.	37481A (Train 2)	Control - CC Pump 3 Control - CC Pump 3 CC heat exchanger CC discharge (TSH 1484A) Control - CC Pump 3 discharge (FIS 1427C)	4 4 4
27.	37493D & E (Train 2)	Control - CC Pump 2 discharge (FIS 1432D)	4
28.	37495B, C, & D (Train 2)	Control - CC heat exchanger 3 CC discharge (TSH 1484B) Control - CC heat exchanger 2 CC discharge (TSH 1435)	4 4
29.	37495E (Train 2)	Control - CC header line 2 isolation valve (CC 5096)	2
30.	37496A (Train 1)	Control - CC header line 1 isolation valve (CC 5095)	2

	Raceway	Function	Note
31.	37498B (Train 2)	Control - Stop CC Pump 3 on low flow (FIS 1427D)	4
32.	37498C (Train 2)	Control - Start CC Pump 2 low flow Pump 1	5
33.	37499B (Train 1)	Control - Stop CC Pump 3 on low flow (FIS 1427C)	4
34.	37499C (Train 1)	Control - Start CC Pump 3 low flow CC Pump 2 (FIS 1432C)	4
35.	37590A (Train 1)	Control - CC Pump 3 CC heat exchanger CC discharge (FIS 1484A)	4
		Control - Stop CC Pump 3 on low flow (FIS 1427C)	4
		Control - CC Pump 1 (TSH 1483 & FIS 1422C)	4
36.	37591A (Train 2)	Control - CC Pump 2 (TSH 1435 & FIS 1432D)	4
37.	37593A (Train 1)	Control - Start CC Pump 3 low flow Pump 1 (FIS 1432C)	5
		Control - CC header line 1 isolation valve (CC 5095)	2
38.	37600A & B (Train 1)	Control - CC header line 1 isolation valves (CC 5095 & CC 5097)	2
39.	37601B & D (Train 2)	Control - CC header line 2 isolation valves (CC 5096 & CC 5098)	2
40.	46088B & D (Train 1)	Power - CC header line 1 isolation valves (CC 5095 & CC 5097)	2
41.	47342A & C (Train 2)	Power - CC header line 2 isolation valves (CC 5096 & CC 5098)	2
42.	CCW Valves 5095 and 5096	Valves wrapped with Kaowool	2

	Raceway	Function	Note
43.	37444A (Train 1)	Control - CC Pump 1 start and stop buttons	4
44.	JB3715 (Train 1)	Control - High Water Temp Trip for CC Pump 1	4
		Control - Low Flow Trip for CC Pump 1	4
		Control - CC Pump 3 start and stop buttons	4
		Control - High Water Temp Trip for CC Pump 3	4
45.	JT3718 (Train 2)	Control - Low Flow Trip for CC Pump 2	4
		Control - High Water Temp Trip for CC Pump 2	4
46.	37087A (Train 2)	Control - 125VDC to FIS1422D, FIS1427D, and FIS 1432D	4
47.	JB3721 (Train 1)	Control - High Water Temp Trip for CC Pump 1	4
		Control - Low Flow Trip for CC Pump 1	4
		Control - High Water Temp Trip for CC Pump 3	4
		Control - Low Flow Trip for CC Pump 3	4
48.	JB3722 (Train 2)	Control - High Water Temp Trip for CC Pump 2	4
		Control - Low Flow Trip for CC Pump 2	4
		Control - 125VDC to FIS1422D, FIS1427D, and FIS 1432D	4

Notes:

1. Fire wrap not required based on analysis described in the March 15, 1989 DBNPS letter (DBNPS Serial Number 1642).

2. Fire wrap not required based on analysis described in the February 16, 1990 DBNPS letter (DBNPS Serial Number 1757).

3. Fire wrap not required as a result of Plant Modification 87-1315.

4. Fire wrap not required as a result of Plant Modification 96-0005.

5. Fire wrap not required. Circuits are for flow switches FIS 1422D and FIS 1432C, which provide only automatic start signals. This feature is not credited for functioning after a fire.

Docket Number 50-346
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Enclosure 2

COMMITMENT LIST

THE FOLLOWING LIST IDENTIFIES THOSE ACTIONS COMMITTED TO BY THE DAVIS-BESSE NUCLEAR POWER STATION (DBNPS) IN THIS DOCUMENT. ANY OTHER ACTIONS DISCUSSED IN THE SUBMITTAL REPRESENT INTENDED OR PLANNED ACTIONS BY THE DBNPS. THEY ARE DESCRIBED ONLY FOR INFORMATION AND ARE NOT REGULATORY COMMITMENTS. PLEASE NOTIFY THE MANAGER – REGULATORY AFFAIRS (419-321-8450) AT THE DBNPS OF ANY QUESTIONS REGARDING THIS DOCUMENT OR ANY ASSOCIATED REGULATORY COMMITMENTS.

COMMITMENTS	DUE DATE
None	N/A