Docket No. 50-346

Mr. Richard P. Crouse Vice President, Nuclear Toledo Edison Company Edison Plaza - Stop 712 300 Madison Avenue Toledo, Ohio 43652 DISTRIBUTION DOCKET File NRC PDR L PDR ORB#4 Rdg DEisenhut OELD CMiles LHarmon ACRS-10 TBarnhart-4 EJordan PMcKee WJones DBrinkman RDiggs RIngram ADe Agazio Gray File+4

Dear Mr. Crouse:

SUBJECT: AMENDMENT NO. 79 TO FACILITY OPERATING LICENSE NO. NPF-3; STEAM GENERATOR BLOWDOWN/DRAIN SYSTEM ISOLATION VALVES

The Commission has issued the enclosed Amendment No. 79 to Facility Operating License No. NPF-3 for the Davis-Besse Nuclear Power Station, Unit No. 1. This amendment consists of changes to the Appendix A Technical Specifications in response to Item 1 of your application dated September 25, 1981 (No. 738), and as modified by letters dated September 26, 1983 (No. 988), and September 11, 1984 (No. 1081). This completes action for all the items contained in your September 25, 1981 application. Item 2 was incorporated into the license by amendment No. 50 and Item 3 was incorporated by Amendment No. 54. Your letter of August 13, 1984 (No. 1073) withdrew Item 4 from further consideration.

This amendment changes Table 3.6-2, Containment Isolation Valves, to allow for the modified steam generator blowdown and drain system.

A copy of the Safety Evaluation supporting this amendment is enclosed. Notice of Issuance will be included in the Commission's Monthly Notice in the Federal Register.

Sincerely,

"ORIGINAL SIGNED ET:" Albert W. De Agazio, Project Manager Operating Reactors Branch #4 Division of Licensing

Enclosures: 1. Amendment No. 79 2. Safety Evaluation

cc w/enclosures: See next page



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Toledo Edison Company

cc w/enclosure(s):

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Mr. James G. Keppler, Regional Administrator U. S. Nuclear Regulatory Commission, Region III 799 Roosevelt Road Glen Ellyn, Illinois 60137

Mr. Robert F. Peters Manager, Nuclear Licensing Toledo Edison Company Edison Plaza 300 Madison Avenue Toledo Obio 42552 U.S. Nuclear Regulatory Commission Resident Inspector's Office 5503 N. State Route 2 Oak Harbor, Ohio 43449

Regional Radiation Representative EPA Region V 230 South Dearborn Street Chicago, Illinois 60604

Ohio Department of Health ATTN: Radiological Health Program Director P. O. Box 118 Columbus, Ohio 43216

James W. Harris, Director (Addressee Only) Division of Power Generation Ohio Department of Industrial Relations 2323 West 5th Avenue P. O. Box 825 Columbus, Ohio 43216



# UNITED STATES

## TOLEDO EDISON COMPANY

AND

## THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

## DOCKET NO. 50-346

## DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1

## AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 79 License No. NPF-3

- 1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by the Toledo Edison Company and The Cleveland Electric Illuminating Company (the licensees) dated September 25, 1981, as supplemented September 26, 1983, and September 11, 1984, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
- Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-3 is hereby amended to read as follows:

9501040023 841211 PDR ADUCK 05000346 P PDR

## Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 79, are hereby incorporated in the license. The Toledo Edison Company shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

øohn F. Stolz, Chief

Operating Reactors Branch #4 Division of Licensing

Attachment: Changes to the Technical Specifications

Date of Issuance: December 11, 1984

## ATTACHMENT TO LICENSE AMENDMENT NO. 79

## FACILITY OPERATING LICENSE NO. NPF-3

## DOCKET NO. 50-346

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

## Page

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# TABLE 3.6-2

# CONTAINMENT ISOLATION VALVES (Continued)

PENETRATIO	N VALVE NUMBER	FUNCTION	ISOLATION TIME
<b>*</b> 29 #	וואס	Decay Heat Pump Suction Line	N/A
*29	DH23	Decay Heat Pump Suction Line	N/A
29 #	PSV4849	Decay Heat Pump Suction Line	N/A
35 #	AF599	Auxiliary Feedwater Line	N/A
36 #	AF608	Auxiliary Feedwater Line	N/A
<b>*</b> 39 #	MS107	Main Steam Line	N/A
<b>*</b> 39 #	MS107A	Main Steam Line	N/A
<del>*4</del> 0 #	MS106	Main Steam Line	N/A
<del>*4</del> 0 #	MS106A	Main Steam Line	N/A
41	RC113	Pressurizer Quench Tank Inlet Line	N/A
42A	SA502	Service Air Supply Line	N/A
42B	CV124	Containment Vessel Air Sample Return	N/A
43A	IA501	Service Air Supply Line	N/A
43B	CV125	Containment Vessel Air Sample Return	N/A
<b>4</b> 4A	CF15	Core Flood Tank Fill and Nitrogen Supply Line	N/A
448	NN58	Pressurizer Quench Tank Inlet Line	N/A
<b>*</b> 47A	CF2A	Core Flood Tank Sample Line	N/A
*47A	CF2B	Core Flood Tank Sample Line	N/A
*47B	CF5A	Core Flood Tank Vent Line	N/A
<b>*</b> 47B	CF5B	Core Flood Tank Vent Line	N/A
49	DH87	Refueling Canal Fill Line	N/A
49	DH88	Refueling Canal Fill Line	N/A

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Amendment No. 3

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CONTAINMENT ISOLATION VALVES ( tinued)

PENETRATION VALVE NUMBER NUMBER	FUNCTION	ISOLATION TIME
49 DH87	Refueling Canal Fill Line	N/A
49 DH88	Refueling Canal Fill Line	N/A
50 # HP48	High Pressure Injection	N/A
52 MU242	RCP Seal Water Supply	N/A
53 MU243	RCP Seal Water Supply	N/A
54 MU244	RCP Seal Water Supply	N/A
55 MU245	RCP Seal Water Supply	N/A
Deleted Deleted Deleted	· · · · · · · · · · · · · · · · · · ·	
Deleted		
59 Flange	Secondary Side Cleaning (Inside Containment)	N/A
59 Flange	Secondary Side Cleaning (Outside Containment)	N/A
67 CV209	Hydrogen Dilution System Supply	N/A
69 CV210	Hydrogen Dilution System Supply	N/A
71A # CV2000B	Containment Pressure Sensor	N/A
71C CF16	Core Flood Tank Nitrogen Fill Line	k/A
72A # CV2001B	Containment Pressure Sensor	N/A
72C # CV624B	Containment Pressure Differential Transmitter	N/A
73A # CV2002B	Containment Pressure Sensor	N/A
73C # CV645B	Containment Pressure Differential Transmitter	N/A
74A # CV2003B	Containment Pressure Sensor	N/A
*74C DH2735	Pressurizer Auxiliary Spray	N/A
*74C DH2736	Pressurizer Auxiliary Spray	N/A

\*May be opened on an intermittent basis under administrative control. #Not subject to Type C leakage tests.

\*\*Surveillance testing not required prior to entering MODE 4 but shall be performed prior to entering Mode 3.

##Provisions of Specification 3.0.4 are not applicable provided the valve is in the closed positions and deactivated.

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Amendment No. 2. 31, 79

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49DH87Refueling Canal Fill LineN/A49DH88Refueling Canal Fill LineN/A50 #HP48High Pressure InjectionN/A52MU242RCP Seal Water SupplyN/A53MU243RCP Seal Water SupplyN/A54MU244RCP Seal Water SupplyN/A55MU245RCP Seal Water SupplyN/A56MU245RCP Seal Water SupplyN/A57MU245RCP Seal Water SupplyN/A59FlangeSecondary Side Cleaning (Inside Containment)N/A59FlangeSecondary Side Cleaning (Outside Containment)N/A67CV209Hydrogen Dilution System SupplyN/A71A # CV20005Containment Pressure SensorN/A71CCF16Core Flood Tank Nitrogen Fill LineN/A72A # CV201BContainment Pressure Differential TransmitterN/A73A # CV2002EContainment Pressure SensorN/A73C # CV645BContainment Pressure Differential TransmitterN/A74A # CV2003BContainment Pressure SensorN/A74A # CV2003BContainment Pressure SensorN/A74A # CV2003BContainment Pressure SensorN/A74CDH2735Pressurizer Auxiliary SprayN/A	PENETRATION ' VE NUMBER NUMBE	R FUNCTION	ISOLATION TIME
49DH88Refueling Canal Fill LineN/A50 #HP48High Pressure InjectionN/A52MU242RCP Seal Water SupplyN/A53MU243RCP Seal Water SupplyN/A54MU244RCP Seal Water SupplyN/A55MU245RCP Seal Water SupplyN/A56MU245RCP Seal Water SupplyN/A57MU245RCP Seal Water SupplyN/A58MU245RCP Seal Water SupplyN/A59FlangeSecondary Side Cleaning (Inside Containment)N/A59FlangeSecondary Side Cleaning (Outside Containment)N/A67CV209Hydrogen Dilution System SupplyN/A71A #CV2000BContainment Pressure SensorN/A71CCF16Core Flood Tank Nitrogen Fill LineN/A72A #CV2002BContainment Pressure Differential TransmitterN/A73A #CV202BContainment Pressure SensorN/A73C #CV202BContainment Pressure SensorN/A73C #CV203BContainment Pressure Differential TransmitterN/A74A #CV2003BContainment Pressure SensorN/A74A #CV2003BContainment Pressure SensorN/A74ACV203BContainment Pressure SensorN/A74ACV203BContainment Pressure SensorN/A74ACV203BContainment Pressure SensorN/A74ACV203BContainment Pressure Se	49 DH87	Refueling Canal Fill Line	N/A
50 #HP48High Pressure InjectionN/A52MU242RCP Seal Water SupplyN/A53MU243RCP Seal Water SupplyN/A54MU244RCP Seal Water SupplyN/A55MU245RCP Seal Water SupplyN/A56MU245RCP Seal Water SupplyN/A57MU245RCP Seal Water SupplyN/A58MU245RCP Seal Water SupplyN/A59FlangeSecondary Side Cleaning (Inside Containment)N/A59FlangeSecondary Side Cleaning (Outside Containment)N/A67CV209Hydrogen Dilution System SupplyN/A69CV210Hydrogen Dilution System SupplyN/A71A #CV2000BContainment Pressure SensorN/A71CCF16Cortainment Pressure SensorN/A72C #CV202BContainment Pressure Differential TransmitterN/A73A #CV2002BContainment Pressure Differential TransmitterN/A73A #CV202BContainment Pressure SensorN/A73C #CV203BContainment Pressure Differential TransmitterN/A74A #CV2003BContainment Pressure SensorN/A74A #CV203BContainment Pressure SensorN/A74ACV203BContainment Pressure SensorN/A74ACV203BContainment Pressure SensorN/A74ACV203BContainment Pressure SensorN/A74ACV203BContai	49 DH88	Refueling Canal Fill Line	N/A
52MU242RCP Seal Water SupplyN/A53MU243RCP Seal Water SupplyN/A54MU244RCP Seal Water SupplyN/A55MU245RCP Seal Water SupplyN/A56MU245RCP Seal Water SupplyN/ADeletedDeletedDeleted59FlangeSecondary Side Cleaning (Inside Containment)N/A59FlangeSecondary Side Cleaning (Outside Containment)N/A67CV209Hydrogen Dilution System SupplyN/A69CV210Hydrogen Dilution System SupplyN/A71A # CV2000BContainment Pressure SensorN/A71CCF16Core Flood Tank Nitrogen Fill LineN/A72A # CV202BContainment Pressure SensorN/A73A # CV202BContainment Pressure SensorN/A73C # CV64SBContainment Pressure SensorN/A73C # CV203BContainment Pressure SensorN/A74A # CV2003BContainment Pressure SensorN/A74A # CV203BContainment Pressure SensorN/A74A # CV203BContainment Pressure SensorN/A74A # CV203BContainment Pressure SensorN/A74A # CV203BContainment Pressure SensorN/A*74CDH2735Pressurizer Auxiliary SprayN/A	50 # HP48	High Pressure Injection	N/A
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73A # CV2002BContainment Pressure SensorN/A73C # CV645BContainment Pressure Differential TransmitterN/A74A # CV2003BContainment Pressure SensorN/A*74CDH2735Pressurizer Auxiliary SprayN/A*74CDH2736Pressurizer Auxiliary SprayN/A	72C # CV624B	Containment Pressure Differential Transmitter	N/A
73C # CV645BContainment Pressure Differential TransmitterN/A74A # CV2003BContainment Pressure SensorN/A*74CDH2735Pressurizer Auxiliary SprayN/A*74CDH2736Pressurizer Auxiliary SprayN/A	73A # CV2002B	Containment Pressure Sensor	N/A
74A # CV2003BContainment Pressure SensorN/A*74CDH2735Pressurizer Auxiliary SprayN/A*74CDH2736Pressurizer Auxiliary SprayN/A	73C # CV645B	Containment Pressure Differential Transmitter	N/A
*74C DH2735 Pressurizer Auxiliary Spray N/A *74C DH2736 Pressurizer Auxiliary Spray N/A	74A # CV2D03B	Containment Pressure Sensor	N/A
*74C DH2736 Pressurizer Auxiliary Spray N/A	*74C DH2735	Pressurizer Auxiliary Spray	N/A
	*74C DH2736	Pressurizer Auxiliary Spray	N/A

\*May be opened on an intermittent basis under administrative control. #Not subject to Type C leakage tests.

\*\*Surveillance testing not required prior to entering MODE 4 but shall be performed prior to entering Mode 3.

##Provisions of Specification 3.0.4 are not applicable provided the valve is in the closed positions and deactivated.

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Amendment No. 2. 31, 79

# TABLE 3.6-2

# CONTAINMENT ISOLATION VALVES (Continued)

PENETRATION VALVE NUMBER NUMBER	FUNCTION	
	Contractor Neger Verst Handen	(30001037
ID KLI/ISA	Containment Vessel Vent Header	, UI 10
16 RC1719B	Containment Vessel Vent Header	10
18 # 55598	Steam Generator Secondary Water Sample Line	10
19 MU33	Normal RCS Makeup Line	10
19 # HP2A	High Pressure Injection Line	15
20 # HP2B	High Pressure Injection Line	15
21 DW6831A	Demineralized Water Supply Line	10
21 DW6831B	Demineralized Water Supply Line	10
22 # HP2D	High Pressure Injection Line	15
25 CS1531	Containment Spray Line	35
25 CS1530	Containment Spray Line	35
30 # . DH9A	Containment Sump Emergency Recirc Line	71
31 # DH9B	Containment Sump Emergency Recirc Line	71
32 <sup>/</sup> RC1773A	RCS Drain to RC Drain Tank	10
32 RC1773B	RCS Drain to RC Drain Tank	10
37 # FW601	Main Feedwater Line	15
38 # FW612	Main Feedwater Line	15
**39 # MS100	Main Steam Line	5
**39 # ICSTIA	Main Steam Line	10
39 # MS375	Main Steam Line	10
39 # MS100-1	Main Steam Line	10
**40 # MS101	Main Steam Line	5
**40 # ICSTIB	Main Steam Line	10
40 # MS394	Main Steam Line	10
40 # MST01-1	Main Steam Line	10

DAVIS-BESSE, UNIT 1

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Amendment No. 3, 72

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## TABLE 3.6-2

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PENETRATI NUMBER	ION VALVE	FUNCTION	ISOLATION TIME
41	RC232	Pressurizer Quench Tank Circulating Inlet Line	10
42A	SA2010	Service Air Supply Line	10
42B	CV5010E	Containment Vessel Air Sample Return	n 15
43A	IA2011	Instrument Air Supply Line	10
43B	CV5011E	Containment Vessel Air Sample Return	n 15
44A	CF1541	Core Flood Tank Fill and N2 Supply Line	10
448	NN236	Pressurizer Quench Tank N2 Supply Line	10
47A	CV1545	Core Flood Tank Sample Line	10
47B	CV1542	Core Flood Tank Vent Line	10
48	RC229A	Pressurizer Quench Tank Circulating Outlet Line	10
48	RC229B	Pressurizer Quench Tank Circulating Outlet Line	10
50 #	HP2C	High Pressure Injection Line	15
51	CV5037	Hydrogen Purge System Exhaust Line	<b>50</b>
51	CV5038	Hydrogen Purge System Exhaust Line	60
52	MU66A	Reactor Coolant Pump Seal Supply	12
53	MU66B	Reactor Coolant Pump Seal Supply	12
54	MU66C	Reactor Coolant Pump Seal Supply	12
55	MU66D	Reactor Coolant Pump Seal Supply	12
56	MU38	Reactor Coolant Pump Seal Return	12
56	MU59A	Reactor Coolant Pump Seal Return	30
56	MU59B	Reactor Coolant Pump Seal Return	30
56	MU59C	Reactor Coolant Pump Seal Return	30
56	MU59D	Reactor Coolant Pump Seal Return	30
57	MS 603	Steam Generator Blowdown Line	80
60	MS671	Steam Generator Blowdown Line	80

## CONTAINMENT ISOLATION VALVES (Continued)

DAVIS-BESSE, UNIT 1

TABLE	3.	5-2
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# CONTAINMENT ISOLATION VALVES (Continued)

PENETRAT: NUMBER	ION VALVE	R FUNCTION	ISOLATION TIME (seconds)
41	RC232	Pressurizer Quench Tank Circulating Inlet Line	10
42A	SA2010	Service Air Supply Line	10
428	CV5010	E Containment Vessel Air Sample Return	n 15
43A	IA2011	Instrument Air Supply Line	10
43B	CV50118	E Containment Vessel Air Sample Return	n 15
<b>44A</b>	CF1541	Core Flood Tank Fill and N2 Supply Line	10
<b>4</b> 4B	NN236	Pressurizer Quench Tank N2 Supply Line	10
47A	CV1545	Core Flood Tank Sample Line	10
47B	CV1542	Core Flood Tank Vent Line	10
48	RC229A	Pressurizer Quench Tank Circulating Outlet Line	10
48	RC2298	Pressurizer Quench Tank Circulating Outlet Line	10
50 #	HP2C	High Pressure Injection Line	15
51	CV5037	Hydrogen Purge System Exhaust Line	50
51	CV5038	Hydrogen Purge System Exhaust Line	60
52	MU66A	Reactor Coolant Pump Seal Supply	12
53	MU66B	Reactor Coolant Pump Seal Supply	12
54	MU66C	Reactor Coolant Pump Seal Supply	12
55	MU66D	Reactor Coolant Pump Seal Supply	12
56	MU38	Reactor Coolant Pump Seal Return	12
56	MU59A	Reactor Coolant Pump Seal Return	30
56	MU59B	Reactor Coolant Pump Seal Return	30
56	MU59C	Reactor Coolant Pump Seal Return	30
56	MU59D	Reactor Coolant Pump Seal Return	30
57	MS 603	Steam Generator Blowdown Line	80
60	MS611	Steam Generator Blowdown Line	80

DAVIS-BESSE, UNIT 1

3/4 6-18

Amendment No. 79

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# UNITED STATES

### SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

### SUPPORTING AMENDMENT NO.79 TO FACILITY OPERATING LICENSE NO. NPF-3

## TOLEDO EDISON COMPANY

AND

## THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

## DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1

## DOCKET NO. 50-346

## Introduction

By letter dated September 25, 1981, and in a response for more information from the NRC staff, by letters dated September 26, 1983, and September 11, 1984, the Toledo Edison Company (the licensee) proposed an amendment to the Davis-Besse Unit 1 Facility Operating License No. NPF-3. The proposed amendment provides Technical Specification (TS) changes for converting two existing steam generator (SG) drains to the main condenser presently used at shutdown temperatures and pressures to two SG blowdown systems which will be used at full operating temperatures and pressures. The licensee desires this change to decrease the operating time required to bring the secondary water purity into operating limits during startups and to provide for better control of SG level following possible tube ruptures.

The modifications, as described in the September 26, 1983 submittal, include the removal of the 1-inch motor operated containment isolation valves (CIV) 603A and 611A in the SG drain systems and the modification of the two 4-inch remote motor operated CIVs 603 and 611 to permit automatic closure of these valves on Steam Feedwater Rupture Control System (SFRCS) trips actuated by a loss of feedwater, steam line break, or feedwater line break. The modification will also indirectly provide containment isolation from a High-High containment pressure Safety Features Actuation System (SFAS) trip which isolates the feedwater system thus giving a loss of feedwater SFRCS trip and CIV closure. The modifications also include the addition of two 4-inch remotely operated blowdown control-drag valves which prevent water hammer in the lines near the condenser and two manual isolation valves near the condenser.

Presently, all drain valves and CIVs are closed during startup and power operations. The licensee proposes to operate the new blowdown systems with all valves inside containment open, the MS 603 and MS 611 CIVs may be operated closed or open, and the drag valves closed. Although the blowdown systems are designed to operate at any power level and may be pressurized during operations, they will be normally used for blowdown during startups.

8501040028 841211 PDR ADUCK 05000346 P PDR Since the blowdown lines may be open down to the drag valves near the condenser, the lines may experience the normal operating temperatures (594°F) and pressures (925 psig). The present drain line from SG 1-1 leaves containment on the west side through penetration P-58, into Penetration Room PR 208 and through Room 303. These rooms were not designed for the environmental conditions that could result from high pressure line breaks. To avoid high pressure lines in these rooms, a new 4-inch line is installed inside containment routing the blowdown from SG 1-1 on the west side of containment, to spare penetration P-60 on the east side of containment. Penetration P-60 leaves containment into Penetration Room PR-236 which also contains penetration P-57, the existing SG 1-2 blowdown exit. Both blowdown CIVs, MS 603 (relocated) and MS 611 (existing), will be located in PR-236. Penetration P-58 will be converted to a spare penetration and the old SG 1-1 drain lines will be mostly left in place.

A summary of the modifications follows: SG 1-1

- Installation of 221 ft of new pipe inside containment
- From containment penetration to condenser: 81 feet is existing; 167 feet is new
- 34 new supports added
- 73 existing supports
- Added 4 pipe whip restraints (WRs), R1, R2A, R2B, and R3
- Stress Calculation No. 12B, 163, 164 and 641

- SG 1-2
- No piping change inside containment
- From containment penetration to condenser: 104 feet is existing; 140 feet is new
- o 17 new supports added
- 82 existing supports
- Added 6 WRs, R4 through R9
- Stress Calculations No. 12A, 64D, and 64G

#### Evaluation

We evaluated the modification information supplied in the licensee's submittal of September 26, 1983, against the criteria of Standard Review Plan (SRP), NUREG 0800, Sections 3.6.1, Plant Design for Protection Against Postulated Piping Failures in Fluid Systems Outside Containment; 3.6.2, Determination of Rupture Locations and Dynamic Effects Associated with the Postulated Rupture of Piping; 6.2.1, Containment Functional Design; 6.2.3, Secondary Containment Functional Design; 6.2.4, Containment Isolation Systems; Branch Technical Positions BTP ASB 3-1, pertaining to SRP Section 3.6.1; and BTP MEB 3-1 pertaining to SRP Section 6.2.4. We reviewed selective analyses from the licensee contractor's piping stress analysis No. 163 (D2), dated December 2, 1981. Areas reviewed included:

Global coordinates, pipe O.D. and wall thickness, allowable stress (hot and cold) as specified by specification, and design criteria from Node Points 280 to 320.

Application of stress intensification factor at elbow, Node No. 315.

Loading Combinations:

(1)  $S_{th} - S_a$ (2)  $S_w + S_p + S_{OBE} - 1.2 S_h$ (3)  $S_w + S_p + S_{SSE} - S_y$  for old pipe (4)  $S_w + S_p + S_{SSE} - 2.4 S_h$  for new pipe (5)  $S_w + S_p + S_{OBE} + S_{th} - 0.8 (.2 S_p + S_a)$ Where  $S_{th}$  = Thermal Stress  $S_w$  = Weight Stress

 $S_n = Pressure Stress$ 

 $S_{OBF}$  = Operating Basis Earthquake Stress

 $S_{SSF}$  = Safe Shutdown Earthquake Stress

 $S_h = 15,000$  psi for SA 106 Gr. B Pipe at 536°F

 $S_{a} = f(1.25 \ S + 0.25 \ S_{h}) = 22,500 \ psi$ 

S<sub>v</sub> = 27,436 psi @ 536°F

No adverse findings were revealed, except an allowable stress of 2.4 S<sub>b</sub> was not considered to be technically acceptable for load combination 4, and was not in accordance with the original Safety Analysis Report (SAR) commitment. However, since all pertinent stresses were within  $S_v$ , safety is not compromised.

The review also included a selected seismic restraint analysis for the snubber and rigid restraint at Node No. 283. The contractor's structural and mechanical loads and associated stress calculations were contained in Problem No. 163, "Davis-Besse 1 Steam Generator No. 1-1 Drain/Blowdown System" dated January 14, 1982. The analysis reviewed was considered acceptable. -4-

Due to the deletion of Penetration P-58 and utilization of the spare penetration P-60, new analyses were performed for the flued head containment vessel penetration anchor and affected area vessel reinforcement plate. Design loadings were developed and documented in Plant Design Calculation No. M1 (01), "Pipe Stress Analysis Resolved Penetration Loads P-57 and P-60", dated January 27, 1982. The analyses are reported in "Certification of Addendum 1 to Stress Report (dated February 18, 1977) for Containment Vessel at the Davis-Besse Nuclear Power Station, Unit No. 1, Port Clinton, Ohio", dated September 1, 1983. Measures taken to evaluate the design revisions were considered substantial and acceptable.

We reviewed the criteria used by the licensee to determine pipe break locations and whip restraint (WR) design and the criteria implementation by reviewing one of the highest pipe stress locations shown on Calculation No. 163 (D1), Node Point 80, which required installation of a pipe whip restraint (WR). The direction of pipe whip as well as measures to restrain the movements were checked. The review of the WR design is contained in Civil Calculation No. 6, Vol. F-11, "FCR 78-126: Steam Generator Blowdown System Pipe Whip Restraint R2", Rev. 1, dated February 24, 1982. Design and material strength calculations for the bent plate WR and the stretch bar WR were reviewed and no adverse conditions observed. The design criteria for the base plate and the concrete expansion anchors were based on IE Bulletin 79-02 requirements and were in order.

The use of the above criteria and Regulatory Guide (RG) 1.46 permits the determination of break locations by studying the piping maximum stresses instead of assuming longitudinal and circumferential breaks at all fittings. This is, however, not in accordance with the provisions contained in the present Updated Safety Analysis Report (USAR), Rev. 0, dated July, 1982, Paragraph 3.6.2.2.1, "Pipe Restraint Design Criteria to Prevent Pipe-Whip Impact Within the Containment Vessel." The five systems whose breaks are postulated per RG 1.46 do not include the SG Blowdown System.

The licensee proposes to revise USAR Paragraph 3.6.2.2.1 to include the SG Blowdown System as one of the systems permitted to be analyzed in accordance with RG 1.46. We feel that this method of analysis for the SG Blowdown lines is appropriate and find this revision to be acceptable.

Since the SG Blowdown lines will be at operating conditions of 594°F and 925 psig, safety analyses were also conducted to determine the possible environmental and physical effects due to compartment pressurization and jet impingement resulting from a pipe rupture. The analyses indicated that a more severe accident had already been postulated for all the areas through which the SG Blowdown lines pass, i.e.

The annulus area by a rupture of the 18-inch main feedwater line Room 236 by a rupture of a 6-inch main steam line Room 314 by an 18-inch main feedwater line The Turbine Building by rupture of a 36-inch main steam line Should one of the blowdown lines rupture outside containment, radioactivity would be released only if there is primary to secondary leakage. Any radioactivity releases of this type are within the allowable limits specified in the Technical Specifications. The rupture, if significant, would be readily detected and isolated by feedwater - steam flow and SG level imbalances. Minor leaks will be detected by routine patrols of Penetration Room, PR-236, Room 314, and the Turbine Building. See USAR Section 3.6.2.7.

The licensee has determined that jet impingement barriers will be required in two locations within containment, one to protect a 2½-inch High Pressure Injection pipe, the other a 1-inch electrical conduit for Decay Heat Valve 12.

The SG Blowdown systems have no other engineered safety function other than containment isolation and are classified as Type III penetrations in the USAR. A Type III penetration is a line that penetrates containment and is neither part of the reactor coolant system pressure boundary nor is it connected directly to the containment atmosphere. General Design Criteria 57 sets down the requirements for containment isolation of this type penetration as requiring at least one CIV which is either closed automatically, is locked closed, or is capable of remote manual operation.

Since the present SG drain lines are used only during shutdown conditions, the existing CIVs, MS-603 and MS-611, are remote manually operated valves, and, as required following a containment isolation signal, they are closed manually by procedure from the control room. The proposed SG Blowdown systems are still classified as Type III penetrations; however, the CIVs, MS-603 and MS-611, have been converted to automatic closure by SFRCS trips. These trips are initiated by low steam line pressure, main feedwater/SG differential pressure, SG low level, and reactor coolant pumps inoperative. CIVs MS-603 and MS-611 will also be closed automatically by High-High pressure (38 psig) in containment since this SFAS trip closes the main feedwater and main steam valves which in turn results in a feedwater/SG differential pressure (SFRCS trip).

The only TS changes required by this modification are in Table 3.6.2, Containment Isolation Valves. Changes include the deletion of the 1-inch CIVs, MS-603A and MS-611A, removal of the asterisk from CIVs MS-603 and MS-611, moving these valves to Section A of the table, changing the name of the valves from SG Drain Lines to SG Blowdown Lines, changing the penetration number for MS-611 from P-58 to P-60 and adding the isolation time of 80 seconds.

Having found that the redesign meets the required criteria, the above TS changes are found to be acceptable.

## Environmental Consideration

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. We have determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

#### Conclusion

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

Dated: December 11, 1984

The following NRC personnel contributed to this Safety Evaluation: I. T. Yin, K. R. Ridgway, T. N. Tambling