Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

January 8, 1999

10 CFR 50.55a(a)(3)(i)

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

Gentlemen:

In the Matter of	)	Docket Nos. 50-259
Tennessee Valley Authority	)	50-260
		50-296

BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 1, 2, AND 3 - AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI, INSERVICE TESTING, VALVE PROGRAM - REQUEST FOR RELIEF, PV-38

In accordance with 10 CFR 50.55a(a)(3)(i), TVA is submitting a request for relief to the BFN ASME Section XI Inservice Testing (IST), Valve Program. This request for relief seeks to extend the interval between disassembly of a check valve, within a group of four similar check valves for the Emergency Equipment Cooling Water for the Units 1 and 3 Diesel Generators, from 18 to 24 months. The guidance provided in Generic Letter 89-04, "Guidance On Developing Acceptable Inservice Testing Programs," acknowledges the potential for extension of the valve disassembly/inspection interval provided the extension is supported by actual in-plant data from previous testing. The enclosed request for relief provides the required justification.

The Code of record for the BFN IST Valve Program is the 1989 Edition of the ASME Section XI Code. In addition, TVA is using the ASME/American National Standards Institute Operations and Maintenance (OM) Standards, Part 10, "Inservice Testing of Valves in Light-Water Reactor Power Plants," (OM-10).

A047 1/1

TVA requests approval of Request for Relief PV-38 by October 1, 1999, to support the next Diesel Generator Maintenance Outage scheduled for November 1999.

There are no commitments contained in this letter. If you have any questions, please telephone me at (256) 729-2636.

Sincerely,

T. E. Abney
Manager of Licensing
and Industry Affairs

Enclosure
cc: (Enclosure):
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ENCLOSURE

TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT (BFN)

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI,
INSERVICE TESTING, VALVE PROGRAM
(SECOND INSPECTION INTERVAL)

REQUEST FOR RELIEF

(See Attached)

TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT (BFN)

ASME SECTION XI, INSERVICE TESTING, VALVE PROGRAM
(SECOND INSPECTION INTERVAL)

REQUEST FOR RELIEF PV-38

EXECUTIVE SUMMARY: In accordance with 10 CFR 50.55a(a)(3)(i), TVA is proposing an alternative to the testing requirements for check valves (ASME/ANSI OMa-1988 addenda, Part 10). It is requested that the interval between sample disassembly of each check valve within a group of four be extended from 18 to 24 months. NRC Generic Letter GL 89-04, Position 2, allows sample disassembly of similar check valves on the basis of one valve per group of four valves every refueling outage (based on an 18 month operating cycle). TVA has previously submitted Request for Relief PV-14 by letter dated October 29, 1993, and received NRC approval by letter dated May 16, 1995. This relief request stated that the check valves for the Emergency Equipment Cooling Water supply for the Unit 1 and Unit 3 Diesel Generators would be disassembled on a one valve per operating cycle (18 months) basis. GL 89-04, Position 2, states that the one valve per 18 month refueling outage frequency may be extended to one valve per 24 month refueling outage frequency with appropriate justification. This request for relief presents justification for extending the frequency of disassembly of one valve per 18 month operating cycle to one valve per 24 month operating cycle.

UNIT: BFN Unit 0 (The valves in this request for relief are common to all three BFN units)

IST INTERVAL: Second ASME Section XI Inservice Testing (IST) Interval for Valves, (Start Date: September 1, 1992)

SYSTEM(S): Emergency Equipment Cooling Water (EECW) (System 67)

COMPONENTS: EECW to Unit 1 Diesel Generator Cooler check valves 0-CKV-67-507, 508, 514, 515, 521, 522, 528, 529, 624, 625, 627, 628, 630, 631, 634, 635

EECW to Unit 3 Diesel Generator Cooler check valves 3-CKV-67-693, 694, 695, 696, 703, 704, 705, 706, 713, 714, 715, 716, 723, 724, 725, 726

DRAWING(S): 1-47E859-1 (Unit 1/2), 3-47E859-2 (Unit 3) (Copy Attached)

ASME CODE CLASS: 3

ASME CODE EDITION: ASME Section XI, 1989 Edition, no Addenda and ASME/American National Standards Institute Operations and Maintenance (OM) Standards, Part 10

CATEGORY: C

FUNCTION: Pass rated cooling water flow for the Unit 1 and Unit 3 Diesel Generator engines (Open Position); Prevent backflow from the opposite EECW header (Closed Position)

ASME CODE REQUIREMENT(S): ASME/ANSI OMa-1988 addenda, Part 10, Paragraph 4.3.2 requires that check valves be exercised to the position required to perform their intended function at least every refueling outage. As an alternative, (Paragraph 4.3.2.4.c) check valves may be disassembled each refueling outage to verify operability. GL 89-04, Position 2, allows similar check valves to be considered in groups of four (maximum) with a rotating disassembly of one valve per group each refueling outage (based on an 18 month operating cycle).

ASME CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED:

Relief is requested from the testing requirements for check valves (ASME/ANSI OMa-1988 addenda, Part 10, paragraph 4.3.2.4.c). It is requested that the interval between sample disassembly of each check valve within a group of four be extended from 18 to 24 months.

BASIS FOR RELIEF:

The valves are verified open quarterly by flow testing. System design prevents the valves from being verified closed by reverse flow. Each diesel generator cooler supply line utilizes two check valves in series without an intermediate tap. Attempts to detect closure of these check valves with non-intrusive test methods have been unsuccessful. The isolation valves used to force the valves closed are not capable of quick opening or closing (the valves have handwheel operators). This means that most of the check valve disks contact their seat lightly, generating insufficient noise to be detected by an acoustic monitor. The valves also utilize a soft-seat sealing material which dampens seat contact noise. Noise in the system masks whatever closing signals are generated, and the close proximity of the series check valves would make it extremely difficult to identify closure of individual check valves in the best of conditions. The test equipment purchased to perform non-intrusive testing cannot obtain an ultrasonic trace of disk position for stainless steel check valves, which includes these check valves. Non-intrusive testing of these valves has, therefore, been determined to be impractical due to the inability to obtain repeatable acoustic and ultrasonic signals. Radiography has also been determined to be impractical after a review of test shots on similar

check valves. The radiographs that were reviewed did not reveal sufficient detail to determine valve closure. Test equipment for detecting disk position using magnetics has not been purchased and was therefore unavailable for use in determining feasibility.

Since these check valves were changed from carbon steel to stainless steel material in the mid-1980's, none of the valves have failed a visual inspection during periodic disassembly. Through the Unit 2 Cycle 6 (May 1993) refueling outage the check valves were disassembled and inspected once per operating cycle. After the Unit 2 Cycle 6 refueling outage, the check valves were grouped in groups of four in accordance with Generic Letter 89-04 Position 2. Since this was done, at least one check valve from each group has been disassembled and inspected on a rotating basis during each operating cycle. Inspection results have detected only slight discoloration of the valve disks. No corrosion, pitting, or other adverse conditions have been detected. The only maintenance required on the valves is an occasional replacement of the closure assist spring. Per the vendor, this spring is not required for the valve to close in liquid service under backflow conditions. Free motion of the valves has been unimpeded in all cases.

A review of the Equipment Performance and Information Exchange (EPIX) System, previously the Nuclear Plant Reliability Data System (NPRDS), for this type of check valve has determined that there have been no failures of valve function for this type and size of check valve in this particular application. The only failure listed for this particular application and type was for a broken closure assist spring.

A review of the Electric Power Research Institute (EPRI) Application Guide for Check Valves in Nuclear Power Plants for

location-related problems has determined that there is no potential for problems resulting from the location of the valves. There is more than enough straight pipe upstream of the valves to preclude any turbulent flow concerns. The flow velocities in the system are appropriate for this type of check valve. Extension of the inspection frequency for any particular check valve in a group is consistent with Generic Letter 89-04 Position 2, currently contained in NUREG-1482, provided (1) the NPRDS database is searched for similar valves, (2) the location of the valves is addressed with regard to the EPRI Guide for Check Valves in Nuclear Power Plants and (3) the disassembly of the valves is documented in detail regarding condition and ability to full-stroke. Previously, BFN has disassembled these check valves on a once per operating cycle frequency in accordance with Request for Relief PV-14. With a yearly diesel generator outage, disassembly of the check valves once per operating cycle was easily incorporated into the diesel maintenance outages. BFN has recently changed the schedule for diesel generator maintenance outages from an annual to a biennial frequency. This means that in order to perform check valve disassembly, the affected diesel generator must be made inoperable for approximately 12 hours (minimum) every other operating cycle. This reduces the diesel generator availability and does not provide a compensating increase in the safety of the plant (based on the inspection results of the check valves to date).

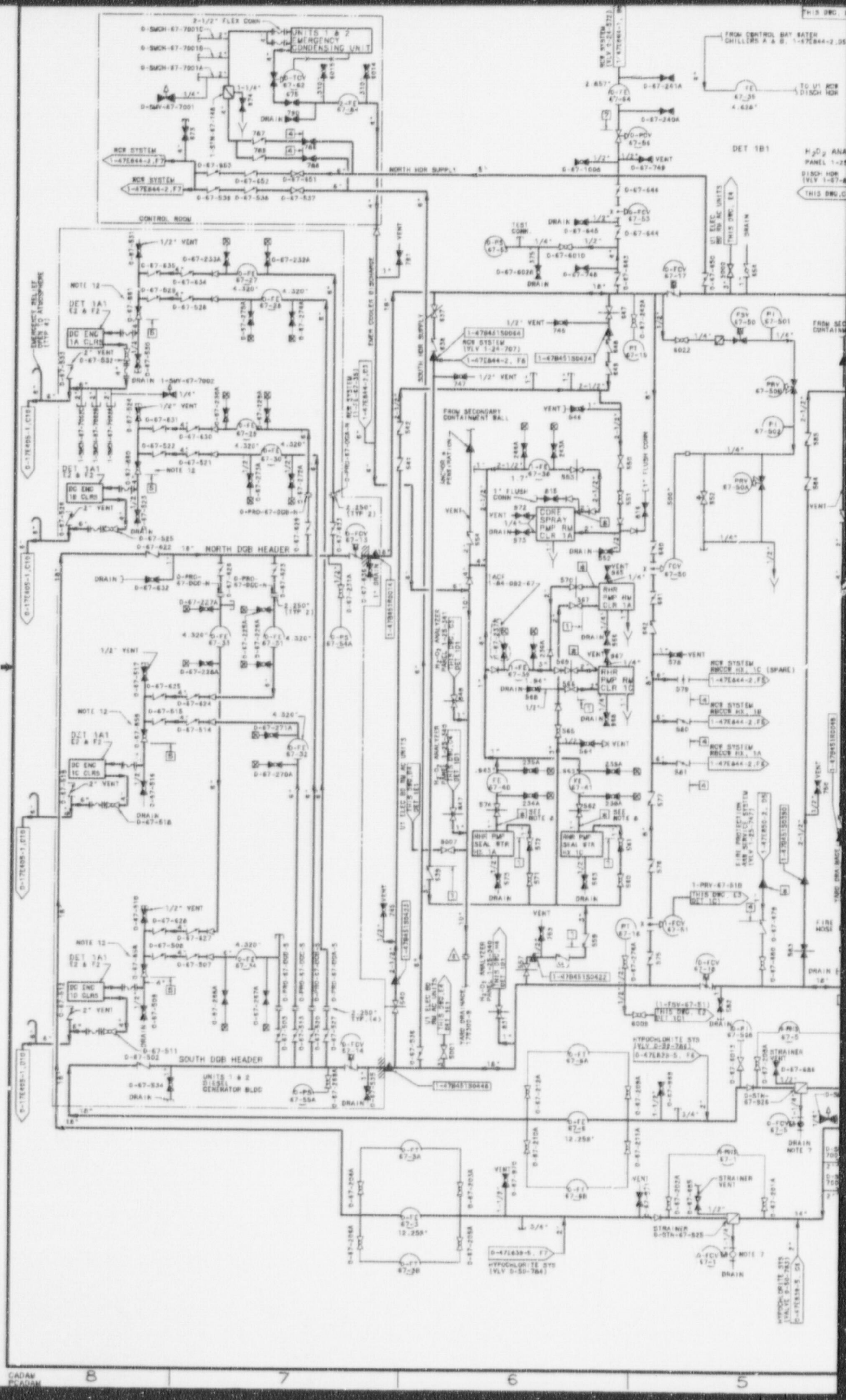
ALTERNATIVE REQUIREMENTS: These check valves will be grouped (4 valves maximum) according to design and service conditions and disassembled on a rotating basis in accordance with Position 2 of NRC Generic Letter 89-04 with the exception that the interval between inspections will be scheduled with the diesel generator maintenance outages

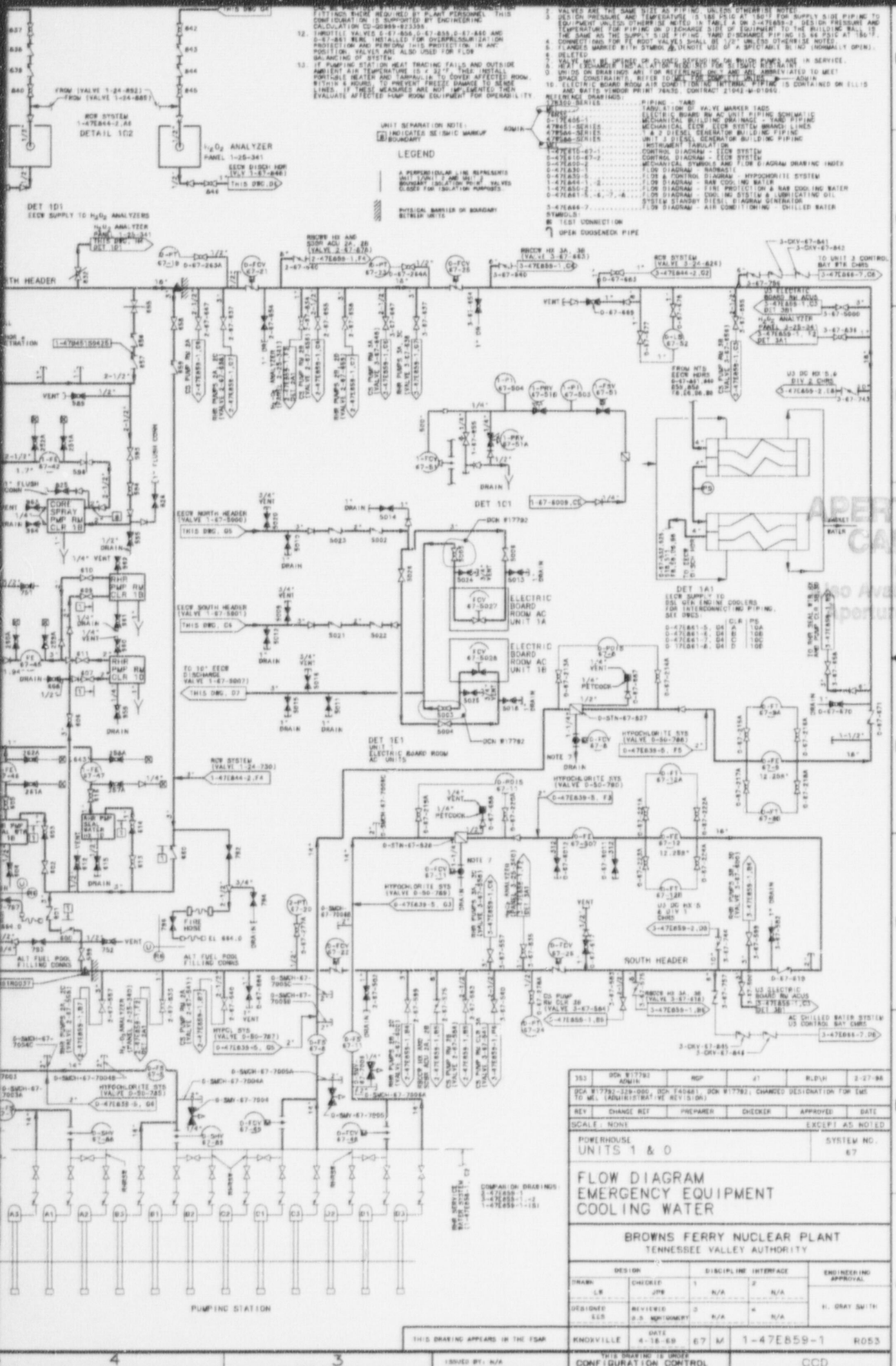
(biennially). This will extend the current inspection interval from once every 18 months to once every 24 months. Therefore, each valve will be inspected at least once every eight years instead of every six years. Based on the inspection results of the check valves to date, as described above, this interval extension provides an acceptable level of quality and safety.

If a check valve selected for disassembly fails the criteria of GL 89-04, then an evaluation will be performed promptly (generally by the end of the shift during which the failure occurs) to determine the failure mechanism and the likelihood that the remaining valves in the test group are affected significantly by this mechanism. The remaining check valves in the affected test group will be disassembled and inspected per GL 89-04 Position 2 criteria using the guidance of GL 91-18. The remaining valves in the test group will be disassembled within a time frame determined by the failure mechanism evaluation.

IMPLEMENTATION SCHEDULE:

This request for relief is applicable to the Second Ten-Year Interval for the BFN Inservice Testing (IST) Program for valves.


UNITS 1 & 2 EMERGENCY CONDENSING UNIT
2-1/2" FLEX CONN
RCW SYSTEM
NORTH HDR SUPPLY
CONTROL ROOM
DET 1B1
NORTH DGB HEADER
SOUTH DGB HEADER
UNITS 1 & 2 DIESEL GENERATOR BLDG
DC ENG 1A CLRS
DC ENG 1B CLRS
DC ENG 1C CLRS
DC ENG 1D CLRS
NOTE 12
CORE SPRAY PMP RM CLR 1A
RHR PMP RM CLR 1A
RHR PMP RM CLR 1C
RHR PMP SEAL HTR HX 1A
RHR PMP SEAL HTR HX 1C
FROM SECONDARY CONTAINMENT WALL
SOUTH HDR SUPPLY
HYPOCHLORITE SYS
STRAINER
DRAIN
VENT
CADAM
PCADAM
8
7
6
5



353	DCN W17782 ADMIN	RDP	41	RLP\H	2-27-96

DCA W17782-329-000, DCN T40681, DCN W17782, CHANGED DESIGNATION FOR EMS TO MCL (ADMINISTRATIVE REVISION)

REV	CHANGE REF	PREPARER	CHECKER	APPROVED	DATE

SCALE: NONE — EXCEPT AS NOTED

POWERHOUSE
UNITS 1 & 0

SYSTEM NO.
67

FLOW DIAGRAM EMERGENCY EQUIPMENT COOLING WATER

BROWNS FERRY NUCLEAR PLANT
TENNESSEE VALLEY AUTHORITY

DESIGN		DISCIPLINE INTERFACE		ENGINEERING APPROVAL
DRAWN: LR	CHECKED: JTB	1: N/A	2: N/A	H. GRAY SMITH
DESIGNED: EES	REVIEWED: D.S. MONTGOMERY	3: N/A	4: N/A	

THIS DRAWING APPEARS IN THE FSAR

KNOXVILLE | DATE 4-18-69 | 67 | M | 1-47E859-1 | R053

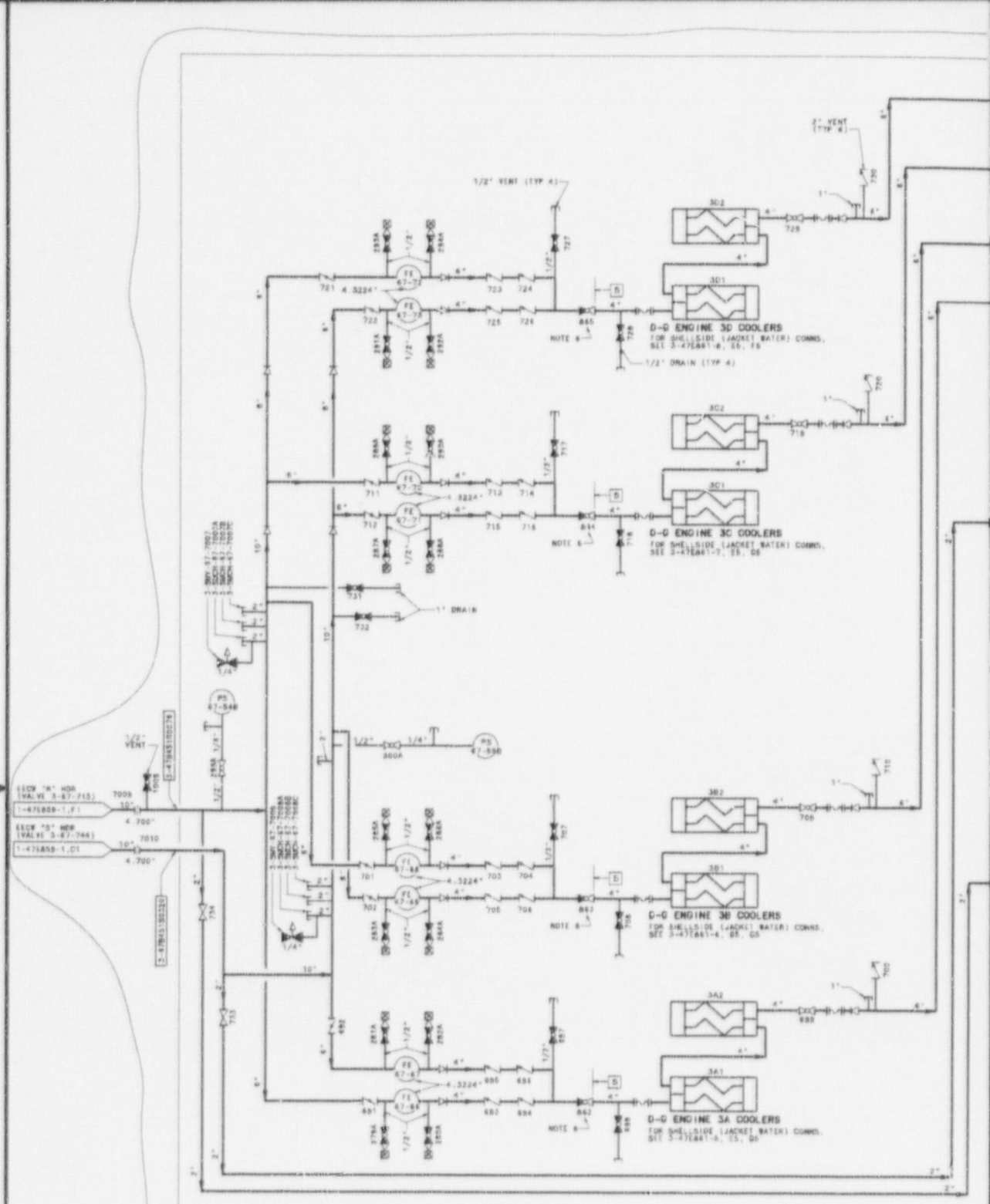
ISSUED BY: N/A

THIS DRAWING IS UNDER CONFIGURATION CONTROL

CCD

1-47E859-1

4 3 2 1



UNIT 3 DIESEL GENERATOR R

REV	CHANGE REF	DATE	DFTR	CHKR	DSGN	RVWR	APPR'D	APPR'D	APPR'D	ISSUE
022	ADMIN		YSW		N/A		N/A	N/A		
	REMOVED VALVE POSITION DESIGNATIONS PER RIMS MEMO REQ 960209 015 (REF: RIPPER 960725). DELETED UNIT SEPARATION COLOR CODING PER SSP 12.50 R16. DELETED SYMBOL (ADMINISTRATIVE REVISION)									
021	ADMIN	11-9-95	KEB	JR	N/A	RLD/L	N/A	N/A	RLD	RLB/D
	CORRECTED TYPOGRAPHICAL ERROR IN NOTE 6									
020	TADF 3-95-1-67	7-21-95	BDD	LSH	N/A	RLD/T	N/A	N/A	N/A	RLB/D
	REMOVED REFERENCE TO DETAIL A4 TO REFLECT TADF 3-84-1-67 RETURN TO NORMAL									
019	DCN T33465	6-8-95	RML	WRS	N/A	RLD/L	N/A	N/A	N/A	RLB/ NSC
	ADDED ORIFICE UNIDS 7009 & 7010 AND STRAINER UNIDS 7013, 7014, 7015 AND 7016 PER DCA T33465-001-000									
018	DCN #27295 S4	4-3-95	BDD	LTJ	N/A	RLB/L	N/A	N/A	N/A	RLB/ NSC
	REMOVED 2" MSR PIPING FROM VALVE D-34-784, ADDED BLIND FLANGE PER DCA #27295-133-000, DCN A28674									

GIC CADAM

8 7 6 5

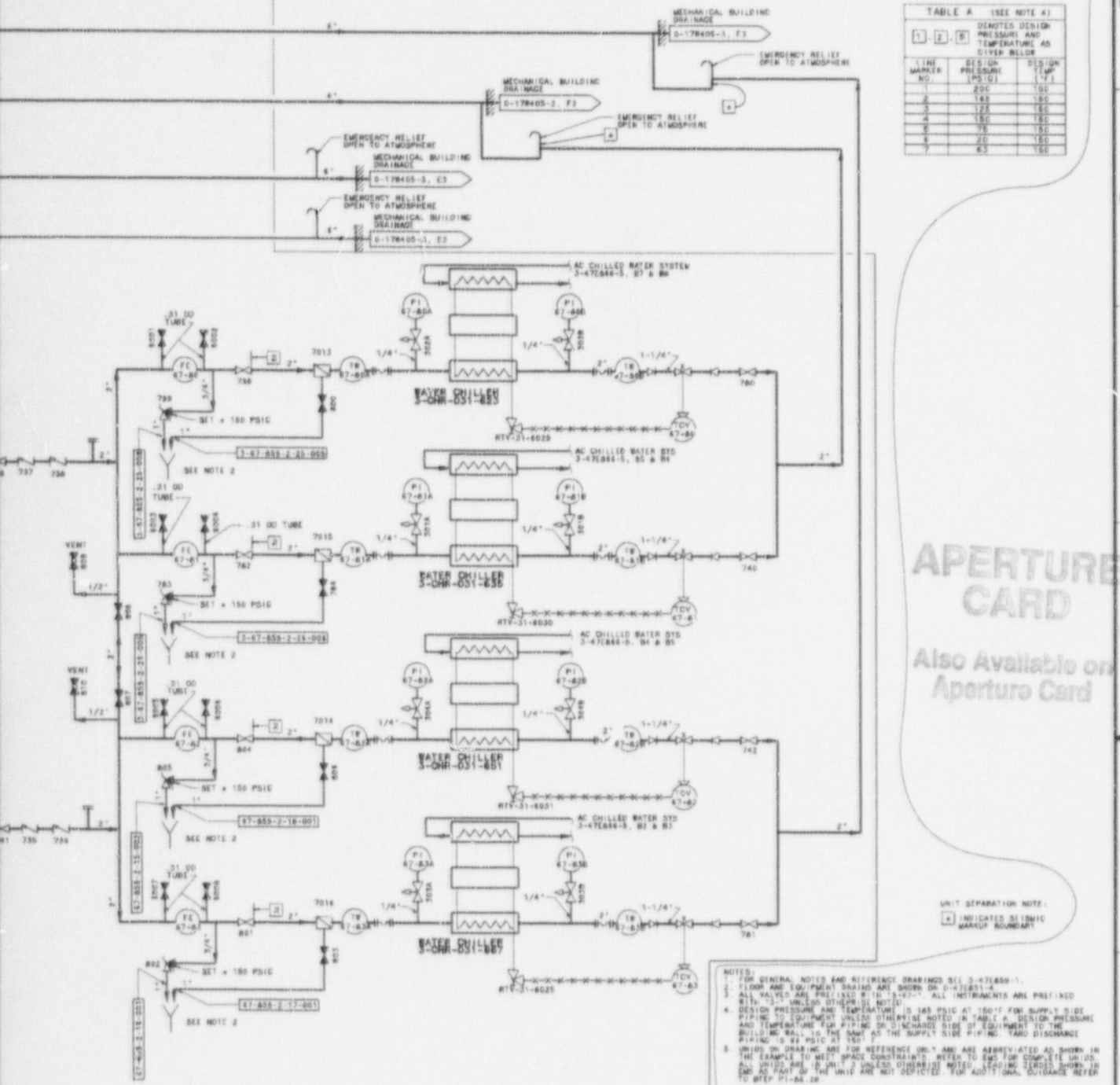


TABLE A (SEE NOTE 4)		
1, 2, 5 DENOTES DESIGN PRESSURE AND TEMPERATURE AS GIVEN BELOW		
LINE MARKER NO.	DESIGN PRESSURE (PSIG)	DESIGN TEMP (°F)
1	200	150
2	165	150
3	125	150
4	150	150
5	75	150
6	20	150
7	65	150

NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE 3-47E859-1.
2. FLOOR AND EQUIPMENT DRAINS ARE SHOWN ON 0-47E851-4.
3. ALL VALVES ARE PREFIXED WITH "3-67-". ALL INSTRUMENTS ARE PREFIXED WITH "3-". UNLESS OTHERWISE NOTED.
4. DESIGN PRESSURE AND TEMPERATURE IS 165 PSIG AT 150°F FOR SUPPLY SIDE PIPING TO EQUIPMENT UNLESS OTHERWISE NOTED IN TABLE A. DESIGN PRESSURE AND TEMPERATURE FOR PIPING ON DISCHARGE SIDE OF EQUIPMENT TO THE BUILDING WALL IS THE SAME AS THE SUPPLY SIDE PIPING. YARD DISCHARGE PIPING IS 84 PSIG AT 150°F.
5. UNIDS ON DRAWING ARE FOR REFERENCE ONLY AND ARE ABBREVIATED AS SHOWN IN THE EXAMPLE TO MEET SPACE CONSTRAINTS. REFER TO EMS FOR COMPLETE UNIDS. ALL UNIDS ARE "D UNIT 3 UNLESS OTHERWISE NOTED. LEADING ZEROES SHOWN IN EMS AS PART OF THE UNID ARE NOT DEPICTED. FOR ADDITIONAL GUIDANCE REFER TO BFEP P1-86 28.

EXAMPLE: EMS UNID	DRAWING UNID
D1N-3-SHV-067-7008	SHV-67-7008
D1N-3-CHR-031-0667	CHR-31-667
D1N-3-RTV-031-4025	RTV-31-4025

6. THROTTLE VALVES 3-67-867,3-67-863,3-67-866 AND 3-67-865 WERE INSTALLED FOR OVERPRESSURIZATION PROTECTION AND PERFORM THIS PROTECTION IN ANY POSITION. VALVES ARE ALSO USED FOR FLOW BALANCING OF SYSTEM.

REV NO.	CHANGE REF	DATE	DFTR	CHKR	DSGN	RVWR	APPD	APPD	APPD	ISSD
017	SCN 827289 S6	3-30-98	SDD	LTJ	N/A	RLD/L	N/A	N/A	N/A	N/A
	REMOVED 2" SCR PIPING FROM VLV'S 0-24-780. ADDED BLIND FLANGE PER DCA 827289-051-001, SCN 827289 S3									
016	ADMIN	1-30-95	MPT	JK	N/A	RLD/L	N/A	N/A	RLD	N/A
	ADDED NOTE 5 PER R-MEI MEMO R92 950119 839									
015	SCN 532340A	11-8-94	KED	JK	N/A	RLP	RD	VDS	HEC	N/A
	ADDED PRESSURE SET POINTS FOR RELIEF VALVES 3-67-783, -785, -802 AND -805									
014	TVA 3-94-1-67 ADMIN	6-24-94	SDD	RAC	N/A	RLD/H	N/A	N/A	RLD	JRH
	ADDED REFERENCE TO FE-67-61 PER TACF 3-94-1-67. ADDED UNIDS, SYSTEM NUMBER AND NOTE 5 PER DCN 7561. REVISED REFERENCE DRAWINGS TO REFLECT UNITIZATION (ADMINISTRATIVE REVISION)									

SCALE: NONE — EXCEPT AS NOTED

DIESEL GENERATOR BUILDING UNIT 3 — SYSTEM NO. 67.51

FLOW DIAGRAM EMERGENCY EQUIPMENT COOLING WATER

C — BROWNS FERRY NUCLEAR PLANT, TENNESSEE VALLEY AUTHORITY — Q

DESIGN		DISCIPLINE INTERFACE		ENGINEERING APPROVAL
DRAWN DAS	CHECKED JLT	1 N/A	2 N/A	ROY H. DUNHAM
DESIGNED MR. [illegible]	REVIEWED J.B. MONTGOMERY	3 N/A	4 N/A	

THIS DRAWING APPEARS IN THE FSAR | KNOXVILLE | DATE 4-15-75 | 67 | M | 3-47E859-2 | R022

ISSUED BY: N/A | THIS DRAWING IS UNDER CONFIGURATION CONTROL | CCD

9901220022-02

SYMBOLS:
TEST CONNECTION
OPEN GOOSENECK PIPE

REFERENCE DRAWINGS:
0-178405-3 ..... MECHANICAL BUILDING DRAINAGE
3-47E610-67-1 ..... MECHANICAL CONTROL DIAGRAM EMERGENCY EQUIPMENT COOLING WATER SYSTEM
0-47E851-4 ..... FLOW DIAGRAM-DRAINAGE
3-47E844-2 ..... FLOW DIAGRAM-TURBINE BUILDING CLOSED COOLING WATER
3-47E841-5,4,7,6 ..... FLOW DIAGRAM-COOLING WATER SYSTEM AND LUBRICATING OIL SYSTEM, STANDBY DIESEL GENERATOR 3A, B, C, D
3-47E666-5 ..... FLOW DIAGRAM-AIR CONDITIONING, CHILLED WATER

LEGEND
PHYSICAL BARRIER OR BOUNDARY BETWEEN UNITS

COMPANION DRAWINGS:
3-47E666-1
0-47E859-1
3-47E859-1