

DUKE POWER COMPANY

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May 5, 1988

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

Subject: McGuire Nuclear Station, Unit 1
Docket No. 50-369
ASME Code Section XI Requirements
Relief Request No. 88-04

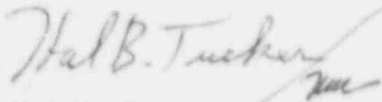
Gentlemen:

Pursuant to 10CFR 50.55a(g)(5)(iii), find attached the subject request for relief from ASME Code Section XI Requirements pertaining to McGuire Nuclear Station's Nuclear Service Water system piping.

Pursuant to 10CFR 170.3(y), 170.12(c), and 170.21 find enclosed an application fee of \$150.00.

Should there be any questions concerning this matter, please contact S.E. LeRoy at (704)373-6233.

Very truly yours,



Hal B. Tucker

SEL/10/sbn

Attachment

xc: Dr. J. Nelson Grace
Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
101 Marietta St., NW, Suite 2900
Atlanta, GA 30323

Mr. Darl Hood
U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D.C. 20555

Mr. W.T. Orders
NRC Resident Inspector
McGuire Nuclear Station

8805190006 880505
PDR ADOCK 05000369
Q DCD

w/check \$150
#18010102

A047
11

DUKE POWER COMPANY

McGUIRE NUCLEAR STATION RELIEF REQUEST NO. 88-04

REQUEST FOR RELIEF FROM ASME CODE SECTION XI
REQUIREMENT DETERMINED TO BE IMPRACTICAL

1. Component For Which Relief Is Requested:

A. Name and Number:

McGuire Nuclear Station modification MG-12135 Rev. 0 will add a 6" inspection port on the side of Containment Spray Heat Exchanger 1A. The 6" inspection port as shown on the attached drawing requires a reinforcing collar to maintain pressure vessel strength. This connection is considered an alteration (as compared to a repair) to the pressure vessel per the National Board Inspection Code Book. The hydrostatic pressure testing requirement for a pressure vessel alteration is pressurizing the entire heat exchanger to 110% of its design pressure or 220 psig. Pressurizing the entire heat exchanger is impractical; therefore, relief is requested for this method of pressure testing.

B. Function:

The NS system is an Engineered Safety Feature which serves to remove thermal energy from the Containment Building in the event of a loss-of-coolant-accident. The NS Heat Exchanger is of the shell and tube type with the tubes welded to the tube sheet. Borated water from either the Refueling Water Storage Tank or the lower compartment of the Containment Building circulates through the tubes while Nuclear Service Water (RN) circulates through the shell side. The NS Heat Exchanger is designed to assure adequate heat removal capacity from the water during the recirculation mode. The 6" inspection port will be used to help analyze fouling build up on the heat exchanger tubes for cleaning purposes.

C. ASME III Code Class:

Equivalent Class 3

D. Materials and Welds

Weld RN1FW 115-27 is a 3/8" fillet weld. Welds RN1FW115-24 and RN1FW115-26 are 3/16" double-bevel-groove welds with a fillet weld on top. RN1FW115-25 is a V-groove weld with a convex contour. The reinforcing pad is 1/2" x 11" OD SA-516 grade 70. The pipe material is 6" OD, schedule 40, SA 106 grade B, and the flange is 150 lb. raised face, weld neck, SA105 with a 150 lb., SA-105 blind flange, (See attached).

2. ASME Code Section XI Requirement That Has Been Determined To Be Impractical:

ASME Boiler and Pressure Vessel Section XI, 1980 Edition through Winter 1980 addenda, Article IWA-4400, IWD-5000.

3. Basis For Requesting Relief:

Hydrostatic testing of welds referenced in Section 1 of this request would be impractical based on the following reason:

The inlet and outlet isolation valves are 18" valves and are a butterfly type design. Historically, these butterfly valves have not held design hydro pressures without significant leakage. It is believed that additional hydro pump capacity would not result in the desired pressure due to leakage past these valves. The installation of blind flanges upstream and downstream of the outlet isolation valves would require complete drain down of the RN Supply and Return Header. This task could not be accomplished within the 72 hour Technical Specification limit. The RN system is a low pressure, low temperature (135 psig, 95° F) system, while the heat exchanger vessel is designed for 200 psig. Therefore, the hydrostatic pressure would be limited to 1.1 times 135 psig or 149 psig due to limiting RN system design parameters.

4. Alternative Testing:

- A. A pneumatic test will be performed on the subject welds, prior to drilling a hole in the vessel, at 110% of 200 psig or 220 psig to assure weld integrity, (See attached).
- B. An In-Service-Inspection (ISI) at system pressure will be performed following the return of the vessel to service.

5. Why The Alternate Proposed Testing Will Provide An Acceptable Level Of Quality And Safety:

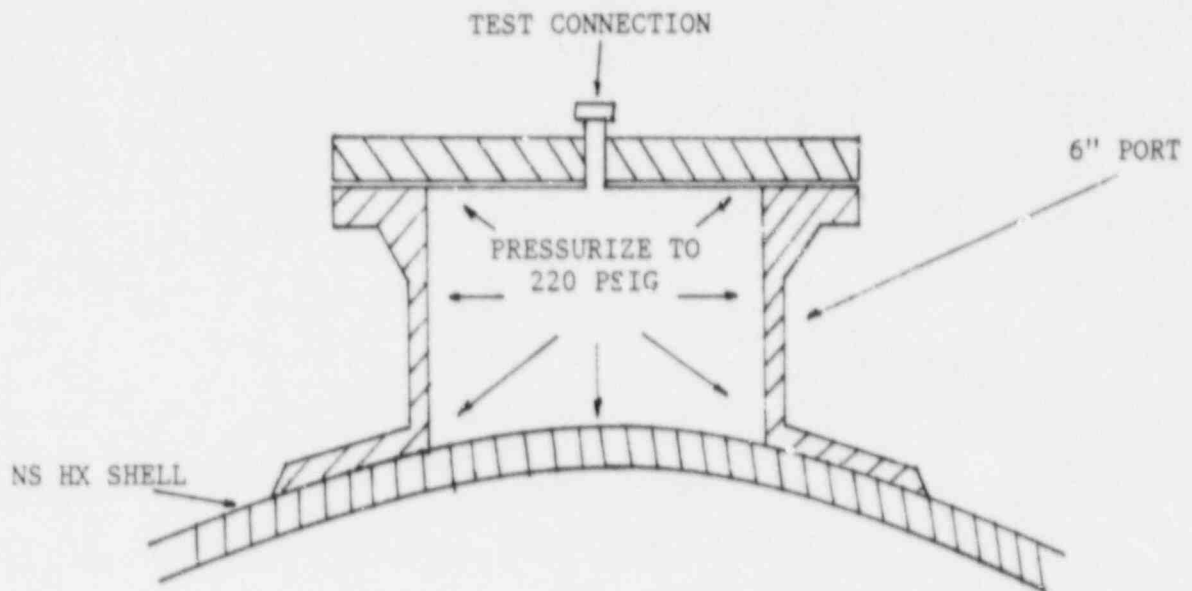
- A. The hydrostatic pressure would be limited to 149 psig based on RN system design parameters. The proposed pneumatic pressure test will be accomplished by pressurizing the inspection nozzle port to 220 psig before the heat exchanger vessel is penetrated. This proposed alternative to the code requirement along with the previously mentioned ISI will provide an acceptable level of quality and safety.

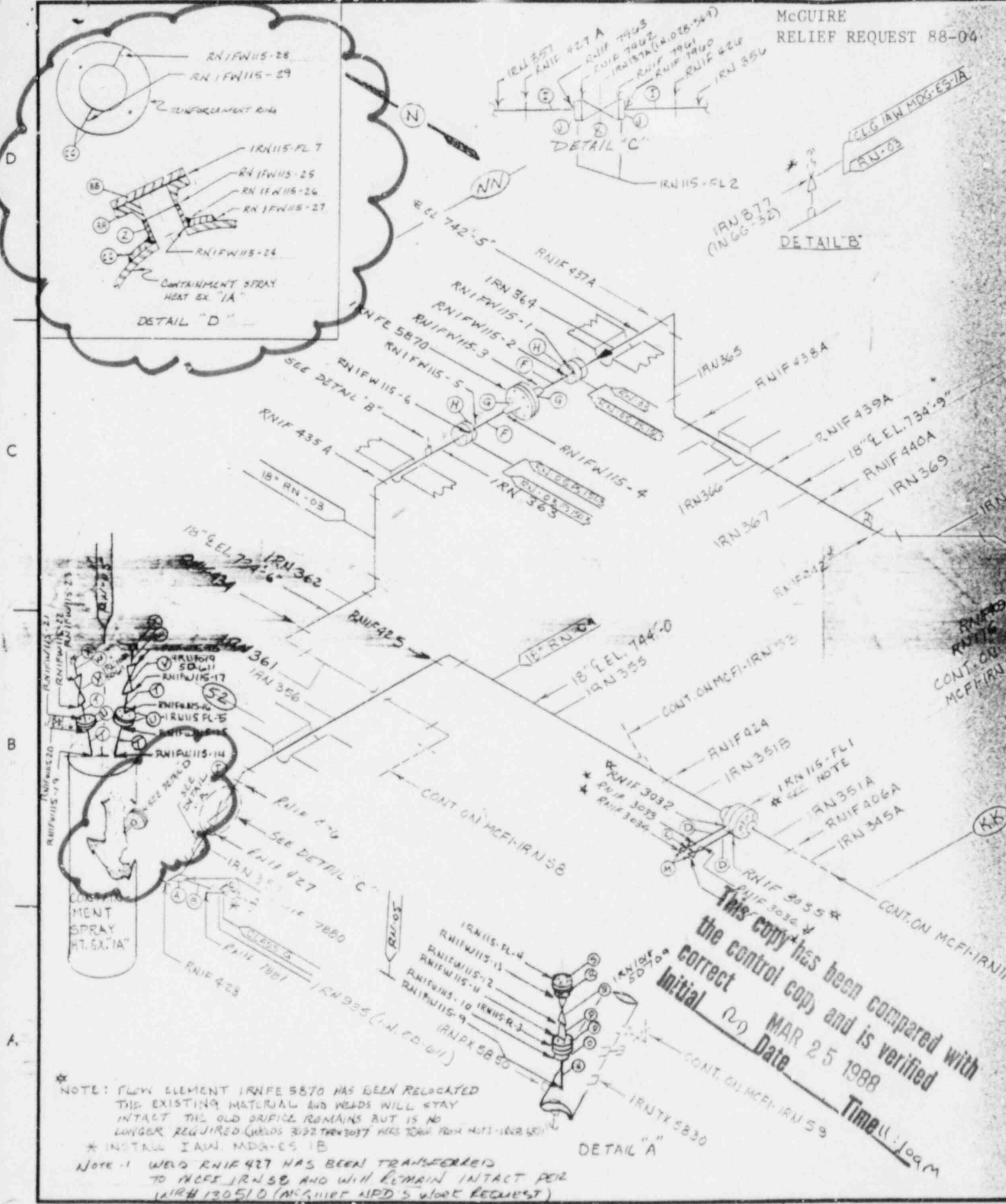
6. Implementation:

The installation of the inspection nozzle was scheduled for March 29, 1988, and was completed on April 1, 1988.

DUKE POWER COMPANY
McGUIRE NUCLEAR STATION
ATTACHMENT TO RELIEF REQUEST NO. 88-04

The alternative testing described in Section 4-A of the relief request will be accomplished by pressurizing the 6" port via a test connection as shown in the drawing, prior to the heat exchanger shell being penetrated.



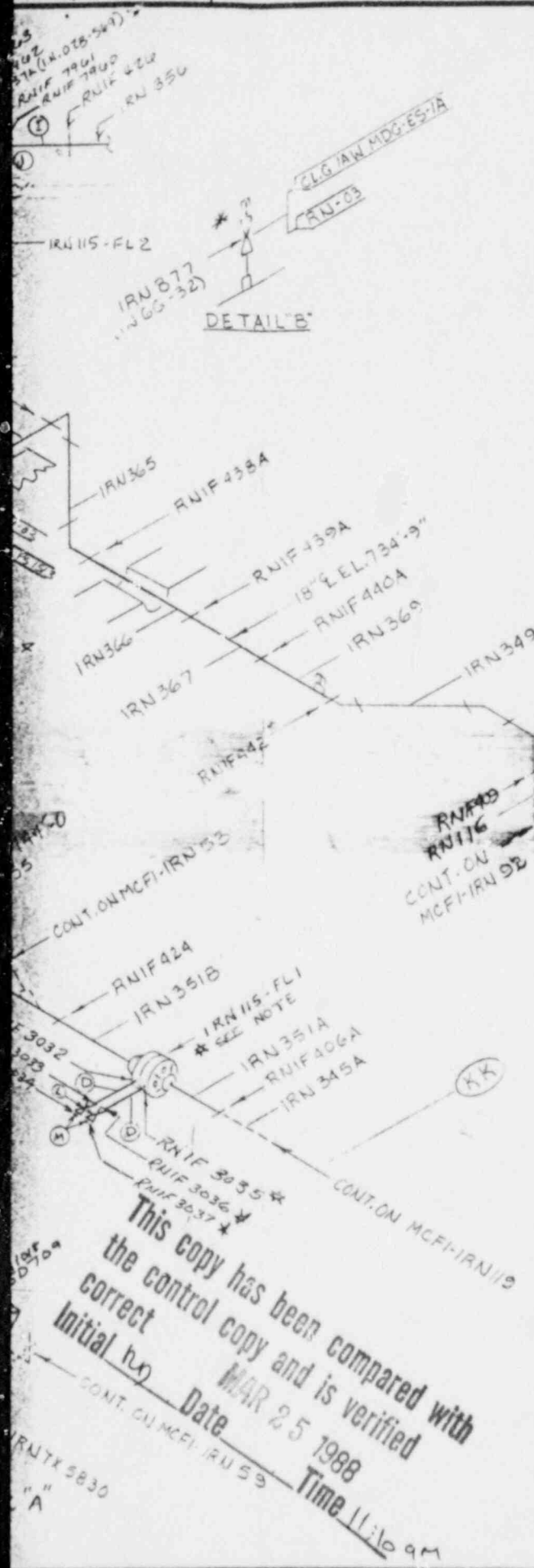


* NOTE: FLOW ELEMENT IRNFE 5870 HAS BEEN RELOCATED
THIS EXISTING MATERIAL AND WELDS WILL STAY
INTACT THE OLD DRIFILE REMAINS BUT IS NO
LONGER REQUIRED (WELDS 3032 THRU 3037 WERE TO BE FROM N.D.B-547)

* INSTALL IAW MDG-ES 1B

NOTE -1 WELD RNIF 427 HAS BEEN TRANSFERRED
TO MCFE IRN 580 AND WILL REMAIN INTACT PER
IWRH 130510 (MCGUIRE MPD'S WORK REQUEST)

This copy has been compared with
the control copy and is verified with
correct Initial *RM* Date MAR 25 1988
Time 1:09pm



REVISIONS BLOCK

GRID	REV. NO.	DESCRIPTION	ORIG. DATE	CHKD. DATE	APPROV. DATE
	0	REL FOR CONST (VN 24,148)	8-28-80	11-5-80	11-3-80
	1	REVISED TO ADD MATS (B)(C) IN 45 RNIF 7920 & 7881 (NSM MG 11833)	EPE	RJK	PPP
	2	CHANGED APPLICABLE CODE AND NOTE. RELOCATED FLOW ORIFICE IRNFE 5870. ADDED MAT D, E, F, G, H, WELDS 12018 AND FLANGE 17.1. DELETED WELD 4364. (NSM MG 11835)	6-5-87	6/9/87	6/1/87
	3	CHANGE SCHEDULE 80 TO 3D WL. CF B.O.M OF MAT F	EPP	VAR	RDT
	4	REVISED TO ADD WELLS. RNIF 7960 AND 7923. CHANGE IN OF VALVE IRN137A. (NSM MG 11835)	EPP	VAR	RDT
	5	REVISED NOTE AND TRANSFERRED MAT. LTR. ALL WELDS 1999, 360 IRNFE5870. (NSM MG 11835)	RDT	EPE	JAH
	6	REVISE TO ADD SUFFIX 'A' TO WELD RNIF 487 AND ADD NOTE 1	EPE	OK	RDT
	7	NSM MG 12115 - CORRECTED DETAIL B/C #. ADDED WELDS RNIF 1116-4 + NRU 23. MAT. (NSM MG 11835)	Var	PPP	EPE
	8	REVISED TO CHANGE VLY. R4 FROM: IRN 995 13 IRN1018, IRN 996 TO IRN1019 & IRN 997 TO IRN 1020 PER DESIGN R1 185T.	OK	PPP	EPE
	9	ADDED WELLS WELD 1999, 360 IRNFE5870. (NSM MG 11835)	RJK	OK	TGL

ITEM	SIZE	DES.	SPEC./GRADE	SPEC./GRADE	SCH./RATE	REMARKS
(C)	11" x 1/2" THK PL		SA-516/GR 70			CS/R FOR REINFORCEMENT
(BB)	6"	BAND FLANGE	SA-105			CS/R BAND FLANGE
(BA)	6"	FLANGE	SA-105	40/150"		CS/R FL/WN
(Z)	6"	PIPE	SA-106/B		40	SMLS/LEN
(X)	2"	VALVE	IRN 1020	IN SD-WI		
(X)	2"	CAP	SABZ	F304	3000"	THR'D.
(W)	2"	PIPE	SA312 TP304	SA312 TP304	80	SMLS.
(V)	2"	VALVE	IRN 1019	IN SD-WI		
(U)	2"	FLANGE	SABZ	F304	150 STD	SW RF
(T)	2"	PIPE	SA312 TP304	SA312 TP304	STD	
(S)	3"	FLANGE	SABZ/F304		150 STD	BLIND
(R)	3"	FLANGE	SABZ/F304		150 STD	RF W/L
(Q)	3"	VALVE	IRN 1018	IN SD-709		
(P)	4x3	RED CONC	SABZ/PLN		STD	
(O)	4"	FLANGE	SABZ/F304		150 STD	RF W/L
(N)	4"	PIPE	SA312/TP304	SA312/TP304	STD	
(M)	1/2"	PISTONURE ADAPTER	SA312 F304		3000"	
(L)	1/2"	VALVE	V265	IN GR 44		
(K)	18"	VALVE	IRN 137A	IN 2B 509		
(J)	18"	S.O. FLANGE	SA 105	SAW/TW 3	150"	SLIP ON
(I)	18"	PIPE	SA 106/B		STD WALL	PL END SMLS
(H)	18"	SLIP-ON FLANGE ORIFICE FLANGE	SA 182/F 304		150"	SS/R/F/SLIP-WN
(G)	18"	PIPE	SA 182/F 304		STD/300"	SS/WN
(F)	18"	PIPE	SA 312/TP 304	SA 312/TP 304	STD WALL	REN PL END
(E)	1/2"	CAP	SA-182/F 304	SA 432/F 304	2000"	FB/SW
(D)	1/2"	PIPE	SA-106/B		80	6" LN .147 WALL
(C)	2"	PIPE	SA 106		40	SMLS
(B)	2"	PIPE	SA 105		3000"	FSSW

BILL OF MATERIAL QA CONDITION I

LAST WELD NO.	DUKE POWER COMPANY		LAST FL. NO.
28	McGUIRE NUCLEAR STATION		7
NUCLEAR SAFETY RELATED <input type="checkbox"/> YES <input type="checkbox"/> NO			
PIPE SPEC:	SYS. SYMBOL:	SEC. NO.	DRAWING NO.
PS 150.3	RN	RN-03.04	MC-1418-14.42-02
APPLICABLE CODE	CLASS.	ISO NO.	REV.
ASME SEC. III	C	MCFI-IRN115	9