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Dr. Raymond W. Waldo
Station Manager
San Onofre

May 9, 2002

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555-0001

Subject: **Docket Nos. 50-361 and 50-362**
Licensee Event Report No. 2002-002
San Onofre Nuclear Generating Station, Units 2 and 3

Gentlemen:

This submittal provides a Licensee Event Report (LER) for an occurrence involving the Technical Specification surveillance for boundary valves in the "Train A" Emergency Boric Acid and Auxiliary Feedwater System flow path; and manual valves in the backup nitrogen supply line to the Component Cooling Water System surge tank. While this occurrence is applicable to both Units 2 and 3, a single report for Unit 2 is being submitted in accordance with Section 5.2.7(8) of NUREG 1022, Revision 2. This condition did not affect the health and safety of either plant personnel or the public.

Any actions listed are intended to ensure continued compliance with existing commitments as discussed in applicable licensing documents; this LER contains no new commitments. If you require any additional information, please so advise.

Sincerely,

Raymond Waldo

LER No. 2002-002

cc: E. W. Merschoff, Regional Administrator, NRC Region IV
C. C. Osterholtz, NRC Senior Resident Inspector, San Onofre Units 2 & 3

P.O. Box 128
San Clemente, CA 92672-0128
949-368-8725/PAX 88725
Fax 949-368-6183
waldorw@songs.sce.com

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LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

APPROVED BY OMB NO. 3150-0104 EXPIRES MM-YYYY

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If a document used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
San Onofre Nuclear Generation Station (SONGS) Unit 2	05000-361	1 of 10

TITLE (4)

Boric Acid, AFW Boundary Valve, and CCW backup nitrogen valves Omitted from TS Surveillances.

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									SONGS Unit 3	05000-362
02	08	2002	2002	002	00	05	09	2002	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	1
POWER LEVEL (10)	100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)

	20.2201(b)		20.2203(a)(3)(i)	50.73(a)(2)(i)(C)	50.73(a)(2)(vii)
	20.2201(d)		20.2203(a)(3)(ii)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(A)
	20.2203(a)(1)		20.2203(a)(4)	50.73(a)(2)(ii)(B)	50.73(a)(2)(viii)(B)
	20.2203(a)(2)(i)		50.36(c)(1)(i)(A)	50.73(a)(2)(iii)	50.73(a)(2)(ix)(A)
	20.2203(a)(2)(ii)		50.36(c)(1)(ii)(A)	50.73(a)(2)(iv)(A)	50.73(a)(2)(x)
	20.2203(a)(2)(iii)		50.36(c)(2)	50.73(a)(2)(v)(A)	73.71(a)(4)
	20.2203(a)(2)(iv)		50.46(a)(3)(ii)	50.73(a)(2)(v)(B)	73.71(a)(5)
	20.2203(a)(2)(v)		50.73(a)(2)(i)(A)	50.73(a)(2)(v)(C)	OTHER
	20.2203(a)(2)(vi)	X	50.73(a)(2)(i)(B)	50.73(a)(2)(v)(D)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
R. W. Waldo, Plant Manager, Nuclear Generation	949-368-6255

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On 3/12/2002, SCE recognized that the Emergency Boric Acid Flow Path surveillance procedure did not include Volume Control Tank (VCT) isolation valves as part of the 31 day surveillance (SR) required by SR 3.1.9.3 and SR 3.1.10.4. Subsequently, SCE recognized that the procedures for performing 31-day flow path surveillances for the CCW and Aux Feedwater Systems (SRs 3.7.7.2 and 3.7.5.1 respectively) also omitted several valves. In each case, the affected valves are located in branch or support system lines and are not in the direct system flow paths. Because the omitted valves should have been included in the SR procedures, SCE is reporting this occurrence in accordance with 10CFR50.73(a)(2)(i)(B). Due to the passage of time, SCE did not determine the cause of this occurrence.

SCE will revise the appropriate procedures for the Boric Acid, Component Cooling Water and Auxiliary Feedwater systems to include the omitted valves. SCE will review similar surveillance procedures for other systems to ensure the associated surveillance procedures included all TS required components for each flow path.

The position of all of the affected valves is controlled by plant procedures. None of the affected valves were mispositioned. There was no safety significance to this event.

Plant: San Onofre Nuclear Generating Station, Units 2 and 3
Event Date: February 08, 2002

	Unit 2	Unit 3
Reactor Vendor	Combustion Engineering	Combustion Engineering
Mode	1 - power operation	1 - power operation
Power (percent)*	99.9	99.8

Background on CVCS System:

When the plant is in Modes 1 through 4, Technical Specification (TS) 3.1.9, "Boron Injection Systems – Operating," requires that "two Reactor Coolant System (RCS) boron injection flow paths to be operable with the contents of the Boric Acid Makeup (BAMU) tanks in accordance with the Licensee Control Specification (LCS)." TS 3.1.10, "Boration Systems – Shutdown," requires one RCS boron injection flow path to be operable when in Modes 5 and 6. Once every 31 days, the associated surveillance requirements (SR) 3.1.9.3 and SR 3.1.10.4 require Southern California Edison (SCE) to "verify that each flow path is operable and that each valve (manual, power operated or automatic, that is not locked, sealed, or otherwise secured) in the required flow paths is in its correct position."

In August 1996, SCE implemented new TS by means of the Technical Specification Improvement Program (TSIP). TS SR 4.1.2.2.b and TS SR 4.1.2.1.b were transferred to the improved TS on August 5, 1996, and renumbered to SR 3.1.9.3 and SR. 3.1.10.4. Before TSIP, the Bases for Boration System TS did not include any details about SRs TS 3/4.1.2.2 and 3/4.3.1.2.1. During the TSIP conversion, clarifying details were added to the Bases for TS 3.1.9 and 3.1.10 to indicate that a boron injection flow path is not operable if it is not capable of performing its boron injection function in response to a Safety Injection Actuation Signal (SIAS). The Bases for SR 3.1.9.3 and 3.1.9.4 state "In the response to an actual or simulated SIAS the charging pumps start, the Volume Control Tank (VCT) is isolated, and the charging pumps take suction from the operable BAMU tank(s) and Refueling Water Storage Tank."

TS 3.3.6, "Engineered Safety Features Actuation System (ESFAS) Logic and Manual Trip," requires SIAS to be operable in Modes 1 through 4. The TS and its associated Bases clarify that only the capability to manually actuate SIAS in Mode 4 is required. Automatic SIAS actuation capability in Mode 4 is not required. The Bases for TS 3.3.5, "ESFAS Instrumentation" also states "the Pressurizer Pressure - Low trip and the SIAS function may be simultaneously bypassed when RCS pressure is below 400 psia, when neither the reactor trip nor an inadvertent SIAS actuation are desirable and these functions are no longer needed to protect the plant."

FV9253 is a pneumatically operated valve located between the boric acid blending tee and the VCT (see attached figure). During normal operation, boric acid from the BAMU tanks can be blended with primary makeup water and pumped through FV9253 into the VCT and then into the RCS by the charging pumps. FV9253 is powered from ESF "Train A" loadcenter and closes on a SIAS to ensure an in-progress RCS dilution event is terminated. This valve also closes on loss of AC power and SIAS to prevent diversion of concentrated boric acid from the RCS. Loss of control power to either FV9253 or FV0210Y will close both valves and prevent them from being reopened until control power is restored.

Thus, when the plant is in Modes 1, 2, 3 or Mode 4 at or above 400 psia, these specifications require FV9253 to be able to close in response to a SIAS and isolate the VCT. In Mode 4 below 400 psia,

FV9253 is required to close on a manual SIAS to isolate the VCT. In Modes 5 and 6, either FV9253 or the combination of HV9257 and FV0210Y are required to be closed to isolate the VCT.

Description of the Event:

In January 2002, SCE was performing the Emergency Operating Instructions (EOIs) biannual review. During this review, SCE decided to proceduralize use of FV9253 instead of FV0210Y for isolating the VCT for the "Train A" Emergency Boric Acid flow path {CB} (See Figure 1 and the Additional Information section below). An Action Request (AR 020101598) was generated to change the abnormal operating instruction (AOI) to match the changes to the EOIs.

On February 7, 2002, during the review and approval of the AOI (SO23-13-11) and the Boric Acid flow path surveillance procedure (SO23-3-3.1), SCE recognized that the Boric Acid flow path surveillance procedure would also require revision to match the EOI and AOI. On February 8, 2002, AR 020200426 was opened noting FV9253 was not included in the SR procedure. Subsequently, on March 12, 2002 (discovery date), SCE recognized that the Bases for SR 3.1.9.3 and 3.1.9.4 (to isolate the VCT in the response to an actual or simulated SIAS) require FV9253 or the combination of HV9257 and FV0210Y to be closed to preclude an emergency boric acid flow path diversion. This would require valve FV9253 or the combination of HV9257 and FV0210Y to be included in the 31-day SR 3.1.9.3 and SR 3.1.10.4 for the "Train A" flow path (procedure SO23-3-3.1). Note that the surveillance testing to comply with SR 3.1.9.4 (24 month SR) had correctly included FV9253 (procedure SO23-3-3.12).

While completing the corrective actions discussed below, SCE discovered that other manually operated valves had been omitted from other similar flow path verification procedures and were not locked sealed or otherwise secured in position (see Figures 2 and 3 and the Additional Information section below):

System	Tech Spec	SR Procedures	Valves not in SR Procedure
Auxiliary Feedwater (AFW)	3.7.5.1	SO23-3-3.16	MU047, MU052, MU087, MU057, MU055
Component Cooling Water (CCW)	3.7.7.2	SO23-3-3.18 & SO23-3-3.27	MU732, MU733, & Backup Nitrogen bottle block valves

Because these valves {ISV} were not included in the applicable SR procedures, SCE is reporting these occurrences in accordance with 10CFR50.73(a)(2)(i)(B) as a condition prohibited by the plant's TS.

Cause of the Event:

As originally drafted (11/21/80), the Boric Acid Flow Path surveillance procedure did include valves FV0210Y, HV9257, and FV9253. Shortly before issuance of the Unit 2 low power license (2/19/82), they were removed from the procedure. Due to the passage of time, SCE did not determine why the valves were removed from the procedure.

SCE has not yet determined why the AFW {BA} and CCW {CC} system valves were not included in the appropriate procedures. SCE will document the results of this cause evaluation in our corrective actions program.

Corrective Actions:

- On February 8, 2002, the Monthly Boric Acid Flow Path surveillance procedure was revised to require verification of VCT isolation valve FV9253 during Modes 1 through 4.
- The Boric Acid Flow Path surveillance procedure will be revised to require verification of the valve(s) that isolate VCT when the BAMU "Train A" flow path is used during Modes 5 and 6.
- The Bases to SR 3.1.10.4 will be revised to remove the requirements for automatic VCT isolation from a SIAS.
- The Component Cooling Water (CCW) surveillance procedure will be updated to include valves MU732, MU733 and the nitrogen bottles block valves in the back-up nitrogen supply line to the CCW surge tank.
- A review of other ESF flow path surveillance's (Emergency Core Cooling System, Containment Spray System, AFW System, CCW System) will be conducted to ensure the associated surveillance procedures includes all TS required components for each flow path.
- Manual valves MU047, MU052, MU087, MU057 and MU055 from the Auxiliary Feedwater System minimum flow line to the Chemical Feed will be added to the locked valve program.

Safety Significance:

Boric Acid System: The omission of valve FV9253 in the surveillance procedure would not have prevented plant operators from borating the RCS when needed. Valve FV9253 is exercised several times daily to provide primary water addition and blending to reduce the boron concentration in the VCT and ultimately the RCS. Operation of FV9253 is controlled in accordance with procedure SO23-3-2.2, "Makeup Operations." Closure indication for FV9253 is confirmed following manipulation and additionally checked twice per shift during control board walkdown as part of the turnover process. This shiftly confirmation of valve position is much more frequent than the 31-day frequency specified by SR 3.1.9.3. The ability of the valve to isolate in response to SIAS was being correctly verified in accordance with SR 3.3.6.2.

Auxiliary Feedwater System: SCE does not manipulate valves MU047, MU052, MU087, MU057 and MU055 during plant operation. Instead, these valves are used for chemical additions performed during outages. Valve position verification is independently performed in accordance with procedure SO123-III-2.12.23. Additionally, the Action Request System (MOSAIC) had no occurrences of mispositioning of these valves.

Component Cooling Water: Although not being surveilled, closure of either of the common nitrogen manual valves (MU732 or MU733) would cause low surge tank pressure which would be noted by operations personnel during the shiftly rounds and which would alarm in the control room. Therefore, misposition of either valve would be self-revealing. Nitrogen bottle block valve positions are independently verified to be open during CCW check valve testing during refueling outages (procedure SO23-3-31.3). Daily operator rounds and weekly surveillance's on the backup nitrogen system verify that the system pressure is within

the required limits. The individual block valves are opened and closed when a nitrogen bottle is replaced. Additionally, the Action Request System (MOSAIC) had no occurrences of mispositioning of these valves.

Therefore, omission of these valves from the applicable surveillance procedures had no safety significance.

SCE also evaluated this occurrence using the NRC's current Significant Determination Process as documented in MC0609 and 0612, Appendix E Examples 4.12 and 4.13. The occurrence was determined to be an "insignificant procedural error" not affecting operability since, as described above, there were no mispositioned valves within the last three years and consequently is below the significance of that associated with green SDP findings.

Additional Information:

Auxiliary Feedwater System:

The AFW System consists of two motors driven AFW pumps and one steam turbine driven pump configured into three trains. Each motor driven pump provides 100% of AFW flow capacity; the turbine driven pump provides 100% of the required capacity to the steam generators as assumed in the accident analysis. The pumps are equipped with independent recirculation lines to prevent pump operation against a closed system.

A minimum flow line tapped from the recirculation line of each Auxiliary Feedwater Pump is used to pass condensate through chemical feeder W-011 of the Auxiliary Feedwater Chemical Addition System. The chemical feeder is put into service to batch feed solutions of hydrazine and ammonia when the Auxiliary Feedwater Chemical Addition System is manually operated. After passing through the chemical feeder, the condensate flow is re-injected further downstream into each auxiliary feedwater line. Valves MU047, MU052, MU087, MU057, and MU055 are manually operated valves in the Auxiliary Feedwater pump miniflow lines which are maintained closed to prevent the diversion of Aux Feedwater flow.

Component Cooling Water System:

The CCW System provides a heat sink for the removal of process and operating heat from safety related components during a Design Basis Accident (DBA) or transient. The Backup Nitrogen Supply (BNS) system is an independent, safety related, Seismic Category I source of pressurized nitrogen to prevent high-point voiding by maintaining the CCW critical loops water-solid during Design Basis Event mitigation.

BNS system OPERABILITY ensures that both CCW surge tanks will be pressurized for at least seven days following a Design Basis Event without bottle changeout or Operator action (post accident high radiation area). The BNS system is required to be OPERABLE whenever the associated train of CCW is required to be OPERABLE.

The bases for TS SR 3.7.7.2 states that verification of the correct alignment for manual, power operated, and automatic valves in the CCW flow path is required to provide assurance that the proper flow paths exist for CCW operation. While the BNS system valves are not in the direct CCW flow path, BNS system Operability is a requirement for CCW system Operability. Therefore, BNS valve positions should be verified as part of the 31 day CCW flowpath verification surveillance.

Previous Similar Events:

- On November 2, 2000, LER 2-2000-012 reported that closing 2HV9200 in Mode 4 during the cycle 10 refueling outage may not have maintained the two boration flow paths required by TS 3.1.9. That LER concerned application of the Limiting Condition for Operation (LCO) itself and corrective actions were focused on the LCO requirements relative to HV9200. The event reported herein concerns performance of the associated SRs. Therefore, corrective actions for LER 2-2000-012 could not have prevented this event.

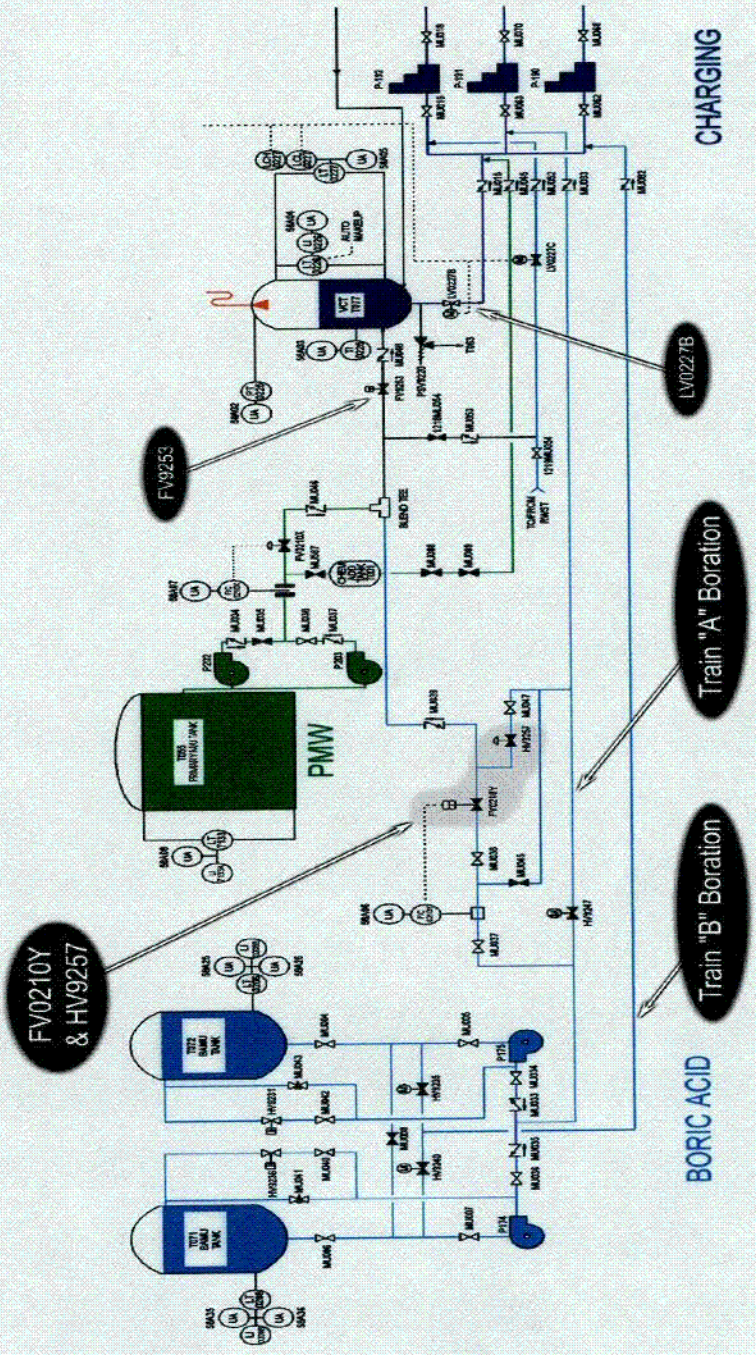
- On June 23, 2000, SCE reported an occurrence involving verbatim application of TS Bases to the performance of a TS SR. The Bases to SR 3.6.6.1.1 noted the requirement of verification of valve position, "through a system walk-down." However, the methods of verification in the procedure (SO123-O-23.1) allowed verification of valve position by a control board indicator walk-down. This condition does not involve the same underlying concern or reason as this event and the corrective actions taken could not have prevented the event reported herein.

- There were two previous opportunities for SCE to recognize the issue reported herein:

  On October 15, 1984, (revision 8) the VCT Outlet Valve, LV0227B was added to the surveillance procedure with a note that required it to be closed for Boric Acid Injection via the gravity feed flow paths. Operator training for this system indicates that if LV0227B is not closed, the VCT overpressure would backseat "Train B" (gravity feed) check valve (MU082) which would prevent "Train B" from supplying boric acid to the RCS.

  During the implementation of the TSIP SRs, SCE identified several reportable conditions pertaining to the new surveillance requirements (see LER 2-1997-001, Rev. 3, "Surveillances Not Current Upon Improved Technical Specification Implementation"). Corrective actions associated with the reported events included a TS Self Assessment that reviewed each TS SR to verify that both the current surveillance procedure and the current test of record met, verbatim, the TS requirements. It appears that this review also did not recognize that the automatic or manual isolation of the VCT for a "Train A" Boric Acid flow path required additional valves to be verified.

Figure 1


CHARGING
LV0227B
FV9253
Train "A" Boration
PMW
Train "B" Boration
FV0210Y & HV9257
BORIC ACID

C01

Figure 2 – Aux Feedwater System (Part)

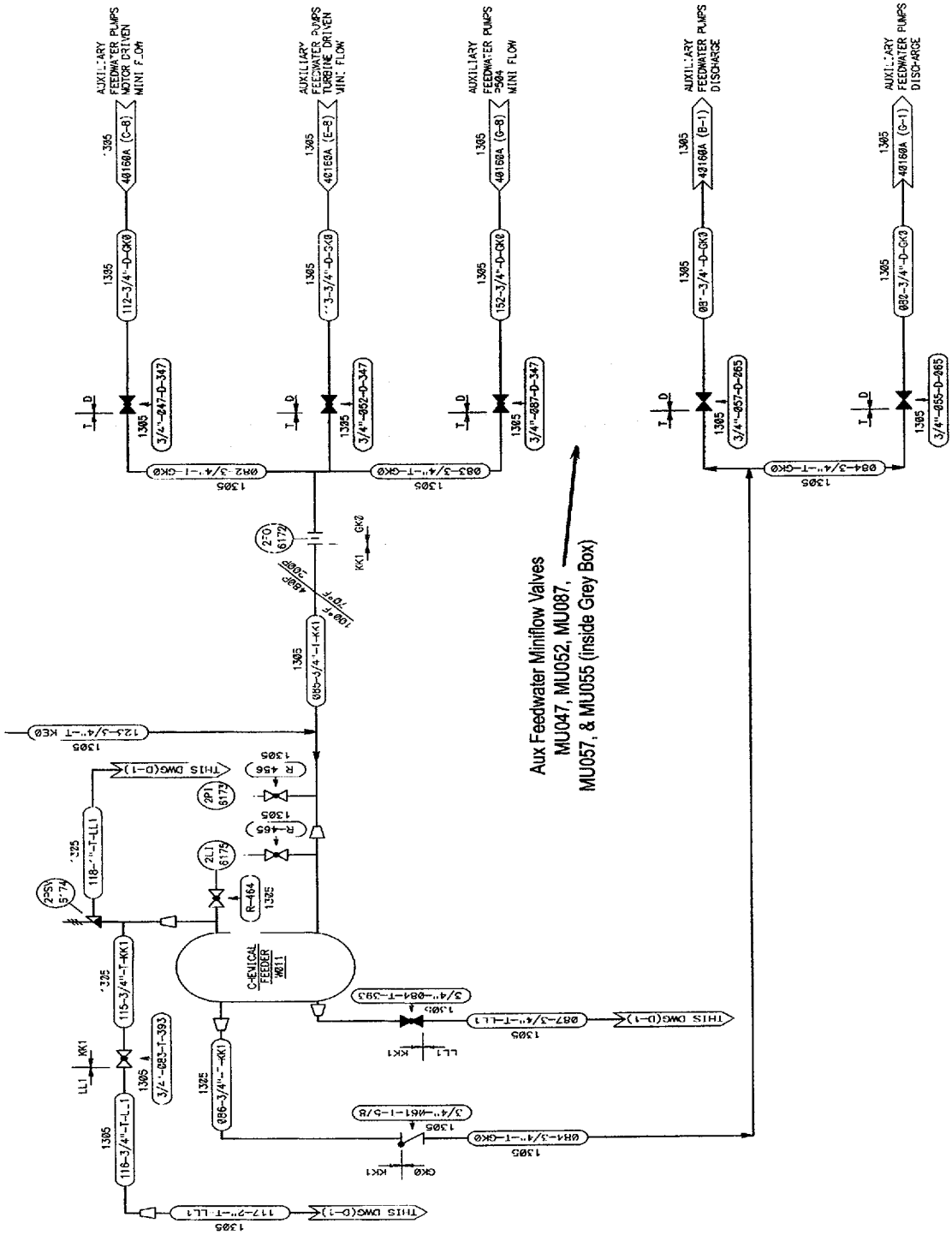


Figure 3a – CCW System (Part)

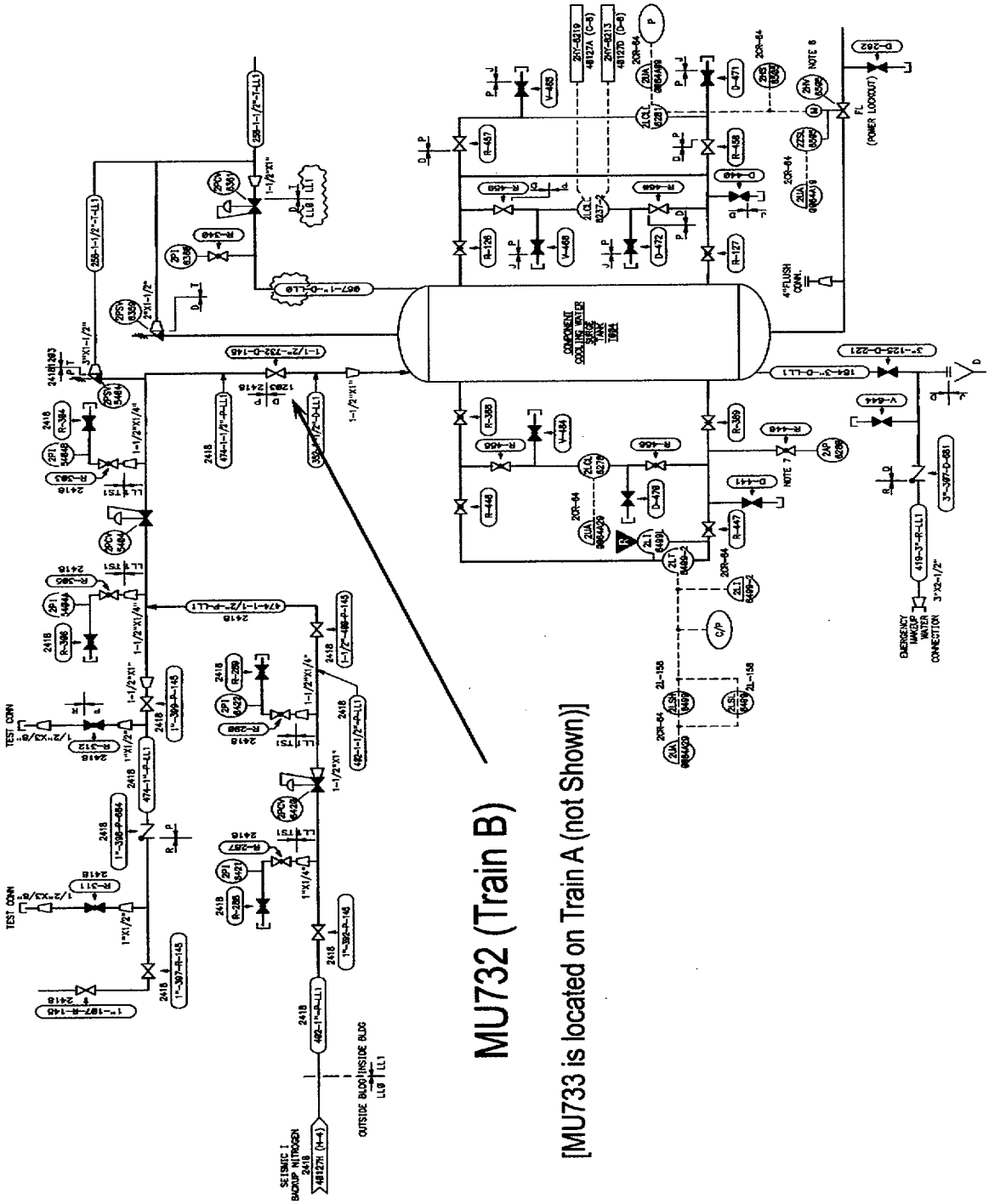


Figure 3b – CCW System (Part)