Docket No. 50-336
B17348

Attachment 2

Millstone Nuclear Power Station, Unit No. 2

Addendum 6 - June 30, 1998 to
Millstone Nuclear Power Station Unit No. 2
Annual Report dated February 28, 1997

June 1998

INTRODUCTION

None of the plant design changes described herein constitute, nor constituted, an unreviewed safety question per the criteria of 10CFR50.59.

PLANT DESIGN CHANGES

DCR Number	Title (FSAR Sections, Tables, and Figures Affected)
M2-96068	Revise Unit 2 Electrical Specification SP-M2-EE-0016 (8.7.3; processed with FSARCR 97-MP2-18)

CALC Number	Title (FSAR Sections, Tables, and Figures Affected)
006-ST97-C-019	Reactor Building Closed Cooling Water (RBCCW) System - Vontainment Air Recirculation (CAR) Cooler Post-Loss of Coolant Accident (LOCA) Conditions (6.5.4; processed with FSARCR 98-MP2-21)

TechEval Number	Title (FSAR Sections, Tables, and Figures Affected)
M2-EV-98-0004	Jet Impingement Effects Due to High Eneregy Line Breaks (HELB) (5.2.6, 6.1.4, T6.1-4); processed with FSARCR 98-MP2-9)

FSARCR Number	Title (FSAR Sections, Tables, and Figures Affected)
97-MP2-37	Containment Structure Isolation Valve Information (T5.2-11)
97-MP2-42	Diesel Generator (DG) System (8.3.3, 8.3.3, 8.3.4)
97-MP2-59	Primary Chemistry (T3.3-2, T4.4-2, T9.2-2)
97-MP2-76	Enclosure Building Filtration System (EBFS) Charcoal Filter Bank High Temperature Alarm Setpoint (6.7.4)
97-MP2-85	Results of Failure Mode Analysis for Suction Segment of Safety Injection (Injection & Recirculation Mode) (T6.3-6)
97-MP2-87	Control Room Air Conditioning System (T9.9-11)
97-MP2-111	Ultimate Heat Sink Temperature Measurement (9.7.2)

97-MP2-114	Azimuthal Location of Out-of-Core Nuclear Detector (F7.5-2)
97-MP2-119	Pressurizer Safety Valve Code Requirements (T1.2-1, T4.2-3, T4.3-11)
97-MP2-120	Pressurizer Level Recorders (4.3.8)
97-MP2-140	Condensate Polishing Facility (CPF) - Waste Neutralization Sump Discharge (7.5.6)
97-MP2-143	Listing of Main Feedwater Pump Casing Material and Feedwater Piping Material (T10.4-1)
97-MP2-146	Vibration Sensing Swqitch on Containment Air Receptacles (CAR Fan Units Indication in Control Room (6.5.4)
97-MP2-147	Reactor Vessel (RV) Head Decontamination System (6.1.4)
97-MP2-150	Reactor Coolant Pump (RCP) Motor Parameters (4.3.2, 4.3.3, T4.3-1, T4.3-4)
97-MP2-155	Main Steam (MS) System Cofde Requirements and Materials lof Main Steam System Valves (T10.3-1)
97-MP2-162	Reactor Coolant Pressure Regulating System and Pressurizer Level Regulating System (7.4.3, 7.4.4)
97-MP2-164	Power Range Nuclear Instrumentation (PRNI) (7.5.2)
97-MP2-172	Containment Air Recirculation (CAR) Fan Blowout Panel Gusible Link Melting Temperature (6.5.4)
97-MP2-176	System Responses to Indications from Liquid Radiation Monitors (7.5.6)
97-MP2-178	Condensate Demineralizer Waste Panel and Radioactive Waste Processing Panels (7.6.3, F7.6-12, F7.6-13, F7.6-14, F7.6-15)
97-MP2-179	Quality Assurance Requirements for Anticipated Transients Without Scram (ATWS) Mitigation System (7.9.3)
97-MP2-187	Ventilation Systems (9.9.6, 9.9.8. 9.9.12, 9.9.15, T9.9-12, F9.9-17)

97-MP2-188	Electrohydraulic Control (EHC) System for Turbine Generator (10.2.2, 10.2.3)
97-MP2-190	Containment Isolation Valve Stroke Time (5.2.8)
97-MP2-193	Structural Codes & Standards and Mechanical Penetration Materials (5.1.2, 5.2.7)
97-MP2-196	Chemical and Volume Control System (CVCS), System Operation, Shutdown (9.2.3)
97-MP2-197	Overload and Underload Interupt Interlock Setpoints for Refueling Machine Hoist (9.8.1)
97-MP2-199	Control Room Air Conditioning System (CRACS) Emergency Fresh Air Supply (9.9.10)
97-MP2-200	Calculations for Integral Leak Rate Test (ILRT) (5.2.3, 5.2.8, 5.2.9)
97-MP2-203	Reactor Protection System (RPS), Delta T Power Calculation (7.2.3, 7.2.5, T7.2-1, F7.2-1, F7.2-6, F7.2-10, F7.2-12, F7.2-13)
97-MP2-204	Auxiliary Building Foundation Mat (5.4.2)
97-MP2-207	Summary of Codes and Standards for Components of Water-Cooled Nuclear Power Units (T1.2-1)
97-MP2-208	High Pressure Safety Injection (HPSI) Pumps (1.2.7)
97-MP2-212	Auxiliary Systems (9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.10, 9.11, 9.12)
97-MP2-215	Condenser Pit Sump High Level Alarm Setpoint (10.4.5)
98-MP2-3	High Energy Line Break (HELB) Program Criteria Used Outside Containment (5.2.7, 5.4.3, 6.1.4, T6.1-4, F6.1-4, 7.10-2)
98-MP2-16	Auxiliary Building Ventilation Systems (9.9.5, 9.9.6. 9.9.8, 9.9.9)
98-MP2-23	Quench Tank Design (4.3.6, T4.3-7, F4.3-11)

98-MP2-40	Radioactive Waste Processing System Component Description (T11.1-13)
98-MP2-41	Seismic Loads on Reactor Coolant System Components for Operating Basis Earthquake (T4A-2)
98-MP2-45	Tests and Inspections, Surveillance Programs and Capsule Removal Schedule (4.6.3), T4.6-9)
98-MP2-49	Comparison with Other Plants (T1.3-1)
98-MP2-56	Chemical and Volume Control System (CVCS), System Operation, Startup (9.2.3)
98-MP2-60	Pre-Installation Seat Leakage Criteria of Butterfly Valves Used for Containment Isolation (5.2.8)
98-MP2-64	Backfill and Compaction Requirements (F2.7-2)

DCR Number	Title
M2-96068	Revise Unit 2 Electrical Specification SP-M2-EE-0016

Description of Change

DCR M2-96-068 revises Unit 2 electrical separation Specification SP-M2-EE-0016 to change minimum separation of redundant wires/devices inside control panels. FSAR Section 8.7, "Wire, Cables, and Raceway Facilities," was revised to reflect this change.

Reason for Change

DCR M2-96-068 revises sections 2.4.2, and 2.4.6 of SP-M2-EE-0016, Rev. 0, Electrical Separation Specification - Millstone Unit 2 to specify a minimum separation of 6 inches between vital redundant wires/devices inside control panels. The minimum distance is based on IEEE std 384-1981, "Standard Criteria for Independence of Class 1E Equipment and Circuits," sections 6.6.2 and 6.6.5, and IEEE std 420-1982, "Design Standards and Qualification of Class 1E Control Boards, Panels, and Racks Used in Nuclear Power Generating Stations," sections 4.3.1, 4.3.2, and 4.3.3.

Specification SP-M2-EE-0016 is based on the Architect/Engineer's original drawings for cable separation specifications issued in 1972. Revision 0 does not address current industry standards regarding separation inside control panels. The current specification requires 12 inches separation between redundant wires/devices located inside control panels. IEEE standards 384-1981 sections 6.6.2 and 6.6.5, and 420-1982 section 4.3.3 allow a minimum separation of 6 inches inside control panels.

Safety Evaluation

The independence between redundant safety related devices and between wiring remains unchanged. It does not impact the operating performance and/or functionality of existing components and/or systems. It does not alter the acceptance limits of the safety parameters of the accident analysis stated in the FSAR nor does it impact the Technical Specifications.

This activity did not change any system or equipment functionality or configuration. There was no increase in the probability of occurrence of previously evaluated accident or malfunction of equipment important to safety. There was no increase in the effects on the consequences of previously evaluated accidents or malfunctions of equipment important to safety. There was no increase in the possibility of an accident or malfunction of equipment of a different type than previously evaluated. There was no decrease in the margin of safety.

Calculation Number	Title
006-ST97-C-019, Rev. 0	Reactor Building Close Cooling Water (RBCCW) Containment Air Recirculation (CAR) Cooler Post-Loss of Coolant Accident (LOCA) Conditions

Description of Change

This calculation was performed to support revising temperature and associated saturation pressure values and text in FSAR subsection 6.5.4 regarding the RBCCW side of the CAR and cooling units (CAR) coolers to be consistent with the RBCCW peak temperature analysis.

Reason for Change

The new MP2 RBCCW peak temperature analysis revised this maximum temperature value from 210° F to 234° F. The minimum system pressure in the CAR cooler discharge piping is at least 50 psia. The saturation temperature corresponding to this operating pressure is approximately 280° F. The maximum CAR cooler RBCCW exit temperature is therefore approximately 46° F below saturation. Additionally, revisions were made to the static pressure provided by the RBCCW surge tank, if pump pressure was not present. The estimated pressure at the top RBCCW piping of the operating floor CAR coolers was 15.2 psig, from the difference in elevation between it and the low level alarm point of the surge tank. The associated saturation temperature with this static head pressure is about 250° F.

Safety Evaluation

All required functions are preserved, and the analysis shows the performance of the complete process of heat removal through service water to the ultimate heat sink. This change did not increase the potential for offsite dose releases and did not introduce malfunctions or accident types different than those previously analyzed. The configuration of CAR Cooling or the RBCCW system was not altered by this change, and no different operating sequences is anticipated that would affect the probability of analyzed events. The performance of the CAR Cooling or RBCCW safety-related equipment remains within its design envelope.

This change did not affect the probability of accidents or malfunctions important to safety and did not increase the effects of consequences of analyzed accidents and malfunctions. The increased temperatures were proven by analysis to be within the functional capability of the RBCCW and CARC systems, and within the piping design envelope. There was no significant impact on the margin of safety as defined in the Technical Specification Bases.

Technical Evaluation Number	Title
M2-EV-98-0004	Jet Impingement Effects Due To High Energy Line Breaks (HELB)

Description of Change

Technical Evaluation M2-EV-98-0004 clarifies and updates the HELB jet impingement criteria to more accurately reflect the approach used on MP2 and current NRC recommended practices. The change is limited to the shape of the jet originating from a ruptured pipe and its associated zone-of-influence. FSAR Sections 5.2.6 and 6.1.4 were changed to incorporate this revised jet impingement criteria.

Reason for Change

This technical evaluation was performed to provide improved guidance and clarification on the subject of jet impingement effects.

Safety Evaluation

The criteria clarification neither introduced an unreviewed safety question nor negatively impacted the safety-related function of any plant structures, systems, or components. In addition, no new failure modes were introduced, there is no impact on radiological dose consequences, and the overall plant safety was enhanced by the clear and technically justified definition of HELB jet impingement criteria.

FSARCR Number	Title
97-MP2-37	Containment Structure Isolation Valve Information

Description of Change

FSAR Table 5.2-11 was changed to add Note (4) to the table, for valve 2-MS-202. This note indicates that this motor operated valve (MOV) has its closing coil removed to prevent spurious closure during an Appendix R fire. This clarifies that this containment isolation valve is acceptable without remote closure capability immediately available. Changes were also made to accurately describe components as they have been originally designed and installed.

Reason for Change

The table was updated to eliminate reference to a specific section of the Appendix R analysis report since any future revisions to that report have the potential to render a specific referenced section inaccurate.

Safety Evaluation

Spurious closure of 2-MS-202 during an Appendix R fire could leave the unit without an automatic feedwater pump, but this malfunction is avoided by removal of the closing coil. The closing coil is removed after the valve has been opened during a plant startup, by qualified individuals. No special tools or procedures are required for removal. The removal is performed with the circuit deenergized so there is no risk to personnel safety, or equipment. The removed coil is controlled by the shift manager until it is restored, and the valve normal operation verified after reinstallation. These changes were editorial in nature and do not introduce the possibility of a new type of accident or malfunction different from those previously evaluated. There is no increase in the probability or consequence of occurrence of previously evaluated accidents or malfunctions of equipment important to safety. There is no decrease in the margin of safety.

FSARCR Number	Title
97-MP2-42	Diesel Generator (DG) System

Description of Change

The change revised the description of the start time for an emergency generator in FSAR Section 8.3.3.. The revised description is consistent with the requirements of Technical Specification Surveillance Requirements.

The change also revised the description of special features in FSAR Section 8.3.4. The revised description is consistent with the implementation of Plant Design Change Record (PDCR) 2-064-78. This PDCR removed the duplicate service water coolant-low flow annunciator windows concerning diesel generators from control room panel CO8, and replaced these annunciators with diesel generator trouble alarms corresponding to any actuation of an annunciator on the corresponding emergency generator local control panel.

Reason for Change

The changes were initiated to update information to be consistent with verified elements of the current licensing bases for Millstone Unit 2.

Safety Evaluation

The change in the FSAR description of the start time for an emergency generator is consistent with the start time requirements of Technical Specifications. The annunciator changes made by PDCR 2-064-78 did not change the design of the emergency generator system or the service water system. There are operating procedures for detection and response to low service water flow to an emergency generator. These changes do not introduce the possibility of a new type of accident or malfunction different from that previously evaluated. There is no increase in the probability of occurrence or consequences of previously evaluated accidents or malfunctions of equipment important to safety. There is no decrease in the margin of safety.

FSARCR Number	Title
97-MP2-59	Primary Chemistry FSAR Specifications in Tables 3.3-2, 4.4-2, and 9.2-2

Description of Change

This change modifies FSAR Tables 3.3-2, 4.4-2, and 9.2-2. The changes modify the primary coolant chemistry specifications to provide consistency with MP2 Technical Specifications, and Electric Power Research Institute (EPRI), Asea Brown Boveri - Combustion Engineering (ABB-CE), and Babcock & Wilcox International Guidelines (BWI).

Reason for Change

This change was needed to provide consistency between FSAR, chemistry procedures, Technical Specifications and industry guidelines. No physical changes to the plant are required.

Safety Evaluation

The change in chemistry specifications provides ALARA improvements while maintaining a low corrosion environment in the reactor coolant system to ensure the integrity of the Reactor Coolant System (RCS) materials of construction, reactor fuel, and the primary coolant boundary. The changes do not introduce new chemicals or processes that could influence the malfunction of equipment important to safety. Therefore the changes do not create the possibility of a malfunction of a different type than previously analyzed in the safety analysis report.

The changes minimize the corrosion rates of the RCS materials and components, and therefore, will not increase the probability of occurrence of a Loss of Coolant Accident or Steam Generator Tube Rupture. The changes to the primary chemistry specifications are safe and consistent with industry guidelines and industry operating experience.

FSARCR Number	Title
97-MP2-76	Enclosure Building Filtration System (EBFS) Charcoal Filter Bank High Temperature Alarm Setpoint

Description of Change

This change revised the description of alarm setpoint for the EBFS charcoal filter bank thermocouples in FSAR Section 6.7.4.1. The described setpoint was changed from "200° F" to "200° F or less."

Reason for Change

The change made FSAR text consistent with operating procedures for the EBFS. These procedures state that the EBFS high temperature alarms actuate at a setpoint that is less than 200° F.

Safety Evaluation

An alarm setpoint of less than 200° F provides more margin from the ignition range of charcoal temperatures. This additional margin provides additional assurance that corrective actions can be performed before there is a potential for iodine desorption or carbon ignition.

FSARCR	Title
97-MP2-85	Revision to FSAR Table 6.3-6: Results of Failure Mode Analysis for Suction Segment of Safety Injection (Injection & Recirculation Mode)

Description of Change

This FSAR change modified Table 6.3-6, page 3, "High Pressure Safety Injection (Recirculation Mode)," page 8, "Suction Segment for Safety Injection (Injection Mode), and page 9, "Suction Segment for Safety Injection (Recirculation Mode)." This table describes the results of a failure modes and effects analysis performed for the Safety Injection System.

Reason for Change

The changes were not the result of a change to the plant, but reflected changes in the FSAR content that were determined to be necessary during reviews of licensing and design bases for the ECCS. The changes consisted of editorial as well as intent changes to descriptions and procedures described in the FSAR.

Safety Evaluation

This change did not increase the consequences from any accident or malfunction nor did it reduce the margin of safety. This change brought clarity to the failure modes and effects table for the Safety Injection System, which reduces the potential for future configuation control errors.

The changes in the descriptions provided in FSAR Table 6.3-1 are consistent with existing plant configuration and procedures. The changed descriptions are consistent with accident analyses assumptions and Technical Specification requirements. The resulting FSAR changes improve the clarity of the information in FSAR Table 6.3-1.

FSARCR Number	Title
97-MP2-87	Control Room Air Conditioning System

Description of Change

Select design information concerning control room air conditioning system components was added to FSAR Table 9.9-11. The added information concerns the capacities of components, corresponding design codes or standards, and the seismic classifications of components.

Reason for Change

This and other data were previously deleted from the FSAR to allow future changes to the equipment function or design, resulting from item equivalency evaluation to be incorporated more readily when equipment is replaced. These changes to the FSAR information were justified by the fact that the information is available elsewhere in controlled documentation where it is subject to the requirements of the Design Control Manual.

During graded system reviews, a determination was made to restore select design information to the FSAR that had been previously removed. The graded system review team assessed that the restoration of this select data to Table 9.9-11 would assist in assuring continued Unit 2 compliance with the requirement of 10CFR50 Appendix A General Design Criteria 1 and 4.

Safety Evaluation

The physical plant and its operation were unchanged by the previous deletions and continue to be unchanged. The information continues to be valid. It did not require any change to the Technical Specification. No malfunctions are associated with the restored data, nor do they affect the probability or consequences of previously evaluated accidents. There was no impact on the margin of safety.

FSARCR Number	Title
97-MP2-111	Ultimate Heat Sink Temperature Measurement

Description of Change

This FSAR change added a discussion of how to ensure the ultimate heat sink temperature limit of 75° F is not exceeded. The discussion also addressed when it is necessary to compensate for instrument uncertainty and how this will be accomplished.

License Amendment Request 213 modified Technical Specification 3.7.11 by removing the reference to a monitoring location where the temperature of the ultimate heat sink is measured. This change also removed the requirement to use an average water temperature taken at the intake structure. Instead, single temperatures, taken at various plant locations, will be acceptable.

Reason for Change

The addition of this discussion, updates the FSAR to reflect Technical Specification Bases for 3.7.11. Included in the FSAR addition is a discussion of how instrument uncertainty will be addressed.

Safety Evaluation

This change did not modify the ultimate heat sink temperature limit. There is no impact on offsite doses associated with previously evaluated accident. Therefore, there is no reduction in the margin of safety for the design basis accident analysis. The license amendment did not result in a reduction of the margin of safety as defined in the Bases for Technical Specification 3.7.11.

FSARCR Number	Title
97-MP2-114	Azimuthal Location of Out-of-Core Nuclear Detector

Description of Change

This change revised FSAR Figure 7.5-2 to show that the actual azimuthal location of out-of-core detector well #4 is 25 degrees off the hot leg centerline.

Reason for Change

It was identified that the primary shield embedded piping drawing 25203-20042 Rev. 0 shows that the actual azimuthal location #4 is 25 degrees off of the hot leg centerline. This was in contrast to the previously described azimuthal location from FSAR Figure 7.5-2 of 37.5 degrees off the hot leg centerline.

Safety Evaluation

The as-built detector well location is consistent with vendor location requirements. The as-built nuclear detector well location and the corresponding FSAR text change do not introduce any credible malfunctions. These items do not add new components; and they do not modify the function of any existing components. These items do not affect the probability or consequences of a previously evaluated accident; and they do not affect the possibility of an accident of a different type than previously evaluated. They do not impact the margin of safety.

FSARCR Number	Title
97-MP2-119	Pressurizer Safety Valve Code Requirements

Description of Change

FSAR Tables 1.2-1, 4.2-3 and 4.3-11 were revised to identify that the applicable design code for the original pressurizer safety valves is ASME Section III, Class A, 1968 Edition, Addenda through Summer of 1970 with Code Case 1344-1, and to identify that the applicable design code for the spare pressurizer safety valve is ASME Section III, Class 1, 1971 Edition, Addenda through Winter 1972.

Reason for Change

The changes were made to provide consistency between the FSAR descriptions and verified licensing and design bases information.

Safety Evaluation

The FSAR change activity is consistent with verified licensing bases and design bases information. The activity does not change the physical configuration of the plant or the procedures for operation, testing, and maintenance. The activity does not change the assumptions, methods, or findings of accident analyses.

FSARCR Number	Title
97-MP2-120	Pressurizer Level Recorders

Description of Change

This change revised the description in FSAR Section 4.3.8 for the number of two-pen recorders of pressurizer level. The described number was changed from two to one.

Reason for Change

The change was made to make the FSAR description consistent with the existing design which is consistent with as-built pressurizer level loop and block diagrams. This design includes a single two-pen recorder which records the level signal from the selected control channel and the level setpoint signal. This revision corrected and clarified that there is only one two-pen recorder.

Safety Evaluation

In accordance with the as-built drawings, this change corrected an error in the FSAR description of pressurizer level control instrumentation. This change did not initiate any system change and could not directly affect the malfunctions or performance of the components or the safety systems. This correction of the FSAR did not result in any change in the design, function, or operation of pressurizer level control instrumentation.

FSARCR Number	Title
97-MP2-140	Condensate Polishing Facility (CPF) - Waste Neutralization Sump Discharge

Description of Change

This change revised the description of the components of liquid radiation monitors in FSAR Section 7.5.6 to be consistent with existing design to identify that the control room instrumentation for the CPF waste neutralization sump discharge liquid radiation monitor includes only an alarm annunciator. The revised text identifies that the control room instrumentation for each of the other liquid radiation monitors includes both an indication meter and an alarm annunciator, and also that all liquid radiation monitors identified in Section 7.5.6 have local indications of the measured level of radioactivity.

Reason for Change

The control room instrumentation for the subject radiation monitor is an alarm annunciator. As described in existing Section 7.5.6 the local control panel for the CPF includes indications of the measured level of radioactivity in discharge from the CPF waste tanks.

Safety Evaluation

A review of docketed correspondence concerning the CPF Waste Discharge System identified no plant design changes concerning control room instrumentation for the corresponding liquid radiation monitor. The conclusion is that, since the date of the original operating license, the only control room indication for this liquid radiation monitor has been and continues to be an alarm annunciator.

At the same time, existing design includes local indication instrumentation; and operating procedures for discharges from the system require manual sampling and analysis of radioactivity levels prior to starting a specific discharge. Additionally, the activity has no effect on the automatic valve closure design features or other physical characteristics of the CPF discharge system.

FSARCR Number	Title
97-MP2-143	Listing of Main Feedwater Pump Casing Material and Feedwater Piping Material

Description of Change

This change revised FSAR Table 10.4-1 to:

a) List ASTM A217, Grade C5 as the material for the main feedwater pump casing.
b) List ASTM A106 Grade B seamless carbon steel pipe as the material for certain portions of the feedwater piping and feedwater penetration piping.
c) List the design pressure and temperature of the A106 Grade C feedwater piping as 1600 psig and 400-450° F respectively; and list the design pressure and temperature of the A106 Grade B feedwater piping and penetration material as 1100 psig and 600° F respectively.

Reason for Change

During on going FSAR verifications, information in Table 10.4-1 was determined to need correction to reflect the following:

a) The main Feedwater pump casing for the plant was designed, procured and fabricated to standards required by ASME Section VIII and IX using material specified by ASTM A217, Grade C5, a chromium-molybdenum steel alloy.
b) The main feedwater piping was designed and fabricated to standards required by ANSI B31.1.0. The feedwater penetration piping was designed, procured and fabricated to standards required by ANSI B31.1.0 or B31.7 Class 2. Main feedwater piping from the main feedwater pump discharge to the feedwater control valve was designed and fabricated with ASTM A106 Grade C material. The remainder of the feedwater piping and all of the feedwater penetration piping was designed and fabricated with ASTM A106 Grade B material.
c) The feedwater piping and feedwater penetration piping were designed to standards required by ANSI B31.1.0 or B31.7 Class 2 for the pressure and temperature conditions detailed in the revised Table 10.4-1.

Safety Evaluation

The changes to the description in Table 10.4-1 were editorial in nature, as there was no physical change to any component or system in the plant. The feedwater pump casing material, feedwater piping material, and feedwater penetration materials all meet the design requirements for those systems as specified in the appropriate codes and standards. Since all design requirements are met, there are no new malfunctions or accidents and no changes to either the probabilities or consequences of currently considered malfunctions or accidents.

FSARCR Number	Title
97-MP2-146	Vibration Sensing Switch on Containment Air Receptacles (CAR) Fan Units Indication in Control Room

Description of Change

The discussion in FSAR Section 6.5.4 concerning CAR fan vibration switches was changed to generic nomenclature, location of switch was revised, and alarm vs. indicator terminology was clarified.

Reason for Change

The FSAR was changed to eliminate a name brand which requires the reader to infer its function, correct the location of the description of the switches to the fan housing, and apply the more common term, alarm, rather than indicators, to reduce possibilities of misinterpretation.

Safety Evaluation

The change reflects a field installed condition. It does not degrade the function of the CAR fans nor prevent any accident mitigating actions assumed in the loss of coolant accident or main steam line break analyses. None of the assumptions made in the analyses are altered. The change does not alter any fission product boundaries. The failure mode of the CAR fan to operate states that sufficient containment cooling is provided by three of the four CAR cooling units or by two CAR cooling units in combination with one containment spray system or by two containment spray subsystems. This failure mode analysis remains unaffected by this change.

FSARCR Number	Title
97-MP2-147	Reactor Vessel (RV) Head Decontamination System

Description of Change

The change consisted of updating FSAR 6.1.4 to reflect that the RV Head Decontamination System is no longer used.

Reason for Change

This evaluation is restricted to the effects of this FSAR changes, since there is no physical change to the plant components or to their operation, as this equipment was retired in place more than ten years ago.

Safety Evaluation

Correction to the information in the FSAR to reflect that the equipment is never used is clearly in the direction of increased safety. Neither use or non-use of the system are considered in any accident scenario and the system is not addressed in the Technical Specifications (TS). Retirement of the system therefore does not affect the safe operation of the plant. Reactor Pressure Vessel head decontamination has been and continues to be performed manually. No malfunctions are associated with the equipment, nor does it affect the probability or consequences of a previously evaluated accident. Since neither the plant nor its operation is changed, no new accident type is introduced. There is also no impact on the margin of safety as defined in any TS.

FSARCR Number	Title
97-MP2-150	Reactor Coolant Pump (RCP) Motor Parameters

Description of Change

This change revised FSAR Sections 4.3.2, 4.3.3, Tables 1.3-1, and 4.3-4 to update information on the Reactor Coolant Pump Parameters.

Reason for Change

These changes were made to incorporate data from the pump motor specifications and technical manuals in order to clarify the RCP electrical design requirements.

Safety Evaluation

The changes are clarifications and corrections. The clarifications enhance the description of the RCP electrical requirements and operating parameters. The corrections have been demonstrated to be within the design requirements of the RCPs. There is no physical change to the plant. Further there is no increase in the probability of occurrence or consequences of previously evaluated accidents or malfunction of equipment important to safety. No new accidents or malfunctions will result from this change. There is no decrease in the margin of safety.

FSARCR Number	Title
97-MP2-155	Main Steam (MS) System Code Requirements and Materials of Main Steam System Valves

Description of Change

The change to FSAR Table 10.3-1 revised the listed ASME codes and standards for the MS swing check valves, the listed ASME codes and standards for the MS swing disc valves, the identification of the ASTM material designation of the disc of the MS swing disc valves, the identification of the ASTM material designation of the plug of the MS dump to atmosphere valves, and removed a reference to FSAR Section 10.4.5.4.

Reason for Change

During the FSAR verification, it was determined that information in Table 10.3-1 should be updated to be consistent with corresponding equipment design bases documents.

Safety Evaluation

The changes made the FSAR consistent with the design specification and certified as-built material of the valves. There is no physical change to the facility and failure of the valves is an already evaluated event. This change did not affect those evaluated events. It did not create an accident of a different type than previously evaluated, and there was no increase in the probability of occurrence of a previously evaluated malfunction of equipment important to safety.

These changes represent no physical change to the plant or to its design requirements. There was no affect on the structural integrity of the ASME Code Class 1, 2, or 3 components because they still meet their design and fabrication requirements. Therefore, there was no decrease in the margin of safety.

FSARCR Number	Title
97-MP2-162	Reactor Coolant Pressure Regulating System and Pressurizer Level Regulating System

Description of Change

This change updated the FSAR Sections 7.4.3 and 7.4.4 description of the sensor inputs to the reactor coolant pressure regulating system and identifies that, along with pressurizer pressure sensors, pressurizer level sensors provide input signals to the reactor coolant pressure regulating system and revised the description of the control channels of the pressurizer level regulating system. The change to the FSAR text identifies that a high level deviation signal from the controlling channel results in a signal that energizes all pressurizer heaters. The changed text replaces text that stated that a high level signal from the controlling channel results in a signal that energizes only backup heaters. This change also revised the listing of the controls that are provided on the hot shutdown panel.

Reason for Change

The change was made to make FSAR text consistent with design drawings that were verified during the graded system review of licensing bases, design bases, and engineering design bases.

Safety Evaluation

The changes in descriptions are consistent with the as-built original design documented in verified controlled drawings. The change does not affect the design, function, or operation of the reactor coolant pressure regulating system and the pressurizer level regulating system.

FSARCR Number	Title
97-MP2-164	Power Range Nuclear Instrumentation (PRNI)

Description of Change

The description of the PRNI in FSAR section 7.5.2 was changed to eliminate ambiguity and reflect the as-built configuration. The changes provide both a more contextually correct discussion and additional information required for clarification.

Reason for Change

This change eliminated ambiguity and updated information to reflect the as-built configuration. The FSAR changes were made to be consistent with the existing design, and attain consistency with the discussion of FSAR Section 7.2, and Figure 7.2-8.

Safety Evaluation

The associated FSAR wording changes make these discussions consistent with the existing design, and consistent with the Reactor Protection System discussion of FSAR Section 7.2, and the Neutron Flux Power Range Channels drawing, Figure 7.2-8. There is no increase in the probability of occurrence of previously evaluated accidents or malfunction of equipment important to safety. There is no increase in the effects on the consequences of previously evaluated accidents or malfunctions of equipment important to safety. The changes have no impact on the margin of safety.

FSARCR Number	Title
97-MP2-172	Containment Air Recirculation (CAR) Fan Blowout Panel Fusible Link Melting Temperature

Description of Change

This change revised FSAR Section 6.5.4 to describe that the fusible links are nominally rated at 165° F ± 7% based on the UL allowable tolerance for the fusible link.

Reason for Change

During the FSAR verification, it was determined that the FSAR required updating to reflect implementation of Plant Design Change Record (PDCR) 2-074-94. The PDCR replaced and modified the fusible link release mechanisms used for mounting blowout panels in the CAR and cooling system ducting.

Safety Evaluation

The fusible links for the CAR blowout doors are rated for 165° F ± 7%. In the Loss of Coolant Accident/Main Steam Line Break sequence of events, the CAR fans are assumed to start some finite time after the containment high pressure signal is generated. That occurs in less than 10 seconds. Assuming a saturated atmosphere within the containment at that time, the containment temperature is well above 200° F. Thus, the rating of the fusible links will be exceeded well before the safety analysis credits the CAR fans. For less limiting LOCAs and steam line breaks, the containment temperature will rise slower. However, the containment high pressure signal will also be slower. The lower energy events are less likely to crush the CAR ductwork. Thus, the rating for the replaced fusible links is determined to be acceptable for the less limiting breaks as well.

This change represents no physical change to the plant. The change does not introduce the possibility of a new type of malfunction different from that previously evaluated, does not increase the probability of occurrence nor increase the consequences of a previously evaluated malfunction of equipment important to safety. The change does not decrease the margin of safety as defined in the bases of any Technical Specification.

FSARCR Number	Title
97-MP2-176	System Responses to Indications from Liquid Radiation Monitors

Description of Change

This FSAR change to Section 7.5.6 consisted of text changes describing the function and operation of the liquid radiation monitoring system, radioactive waste processing system panels, and other liquid radiation monitor conditions that result in either alarms or automatic closure of valves.

Reason for Change

In addition to conditions previously described in the FSAR, a review of verified, controlled drawings showed additional conditions concerning liquid radiation monitors that result in either alarms or automatic closure of valves.

The changes were determined necessary to be consistent with the system functions identified on the design drawings and procedures, and because the condensate demineralizer waste panel was not previously described. The plant design incorporated four liquid process panels. These panels control process liquid for their respective system.

Safety Evaluation

The changes consist of revisions to the description of the function and operation of the liquid radiation monitoring system and radioactive waste processing system panels to reflect asbuilt plant configuration. These systems are not credited in mitigating the consequences of design basis events and a failure of a component or the system could not result in plant conditions which would initiate an event. Therefore , this change has no affect on the consequences or the probability of occurrence of a previously evaluated malfunction of equipment important to safety. There was no affect on the consequences of previously evaluated accidents. This modification does not change the limiting condition of operation, surveillance requirements or basis of the liquid radiation monitoring system as described in the Technical Specification. Therefore, this change did not impact the margin of safety.

FSARCR Number	Title
97-MP2-178	Condensate Demineralizer Waste Panel and Radioactive Waste Processing Panels

Description of Change

FSAR Section 7.6.3 was changed to add the condensate demineralizer waste panel to the list of described radioactive waste processing panels. Additionally, a series of layout drawings for the same panel were added as FSAR Figures.

Reason for Change

The information concerning the condensate demineralizer waste panel was added for consistency with other FSAR descriptions, including the description of liquid radiation monitors.

Safety Evaluation Summary

The changes consist of adding information concerning a specific radioactive waste processing panel. The change does not include any physical change. The resulting description of radioactive waste processing panels are consistent with the analyzed configuration of the plant and Technical Specification requirements.

FSARCR Number	Title
97-MP2-179	Quality Assurance Requirements for Anticipated Transients Without Scram (ATWS) Mitigation System

Description of Change

This change revised the description of operation and function of the ATWS Quality Assurance (QA) requirements in the FSAR Section 7.9.3 to reflect the actual procurement, design and installation attributes of the ATWS system and revised the description of quali assurance requirements for the ATWS Mitigation System in FSAR.

Reason for Change

The change made FSAR text consistent with verified information docketed in correspondence to the NRC, dated June 27, 1988.

Safety Evaluation

This change did not implement hardware changes to the ATWS system. It did not change the design, operation or function of the ATWS system and did not affect the ability of the system to mitigate the consequences of an ATWS event. There were no physical modifications to the plant. The changes to the FSAR clarified the QA requirements of the ATWS system and described the QA attributes of the procurement, design and installation of the ATWS system to reflect the asbuilt and analyzed configuration of the plant. The facility as described reflects the configuration which is bounded by malfunctions and accidents previously considered.

This change did not impact reactor coolant system pressure safety limits, consequences of accidents or the margin of safety as defined in the basis of any Technical Specification.

FSARCR Number	Title
97-MP2-187	Ventilation Systems

Description of Change

Changes to the FSAR Section 9.9 were made to remove incorrect logic diagram, in Figure 9.9-17, more accurately describe the operation of the fuel handing, turbine building, vital switchgear and diesel generator ventilation systems and revise Table 9.9-12.

Reason for Change

These changes were made to more accurately describe the operation of the respective systems and delete certain information contained in the FSAR as this information is controlled by other plant documentation.

Safety Evaluation

The turbine building ventilation system is non-safety related and is not credited in any accident analysis. In addition, the system is not assumed to be available following a fire in the turbine building, so it would be unable to be used for smoke removal. The changes clarify the FSAR discussion concerning system operation, but do not affect the system configuration or its actual operation. The design or operation of the fuel handling building heating and ventilation and vital switchgear ventilation systems are not affected by this change. The changes clarify the FSAR discussion concerning how the system is operated and delete extraneous information, but do not affect the system configuration or its actual operation. Therefore, there is no increase in the probability or consequence of occurrence of previously evaluated accidents or malfunction of equipment important to safety. There was no decrease in the margin of safety.

FSARCR Number	Title
97-MP2-188	Electrohydraulic Control (EHC) System for Turbine Generator

Description of Change

The reference to the use of an EHC line speed matcher for synchronizing the turbine generator was deleted in FSAR Section 10.2.3.

Reason for Change

This change is a clarification to better describe in the FSAR the plant operations and configurations. The EHC line speed matcher has not been used in the turbine synchronization process. A review of current and previous operating procedures identified that the procedure for synchronizing the turbine generator with the 345kV network have not and do not include the use of the EHC line speed matcher.

Safety Evaluation

The EHC line speed matcher is not used in the turbine generator synchronization process per operating procedures. The EHC system (excluding pressure switches PS 4597A-D) is a non-safety related system. The change provides conformity to actual plant operations and configurations and does not make modifications to the current plant physical design. There is no increase in the consequences of accidents previously evaluated and no new type accident scenarios are created by this change. There is no reduction to the margin of safety.

FSARCR Number	Title
97-MP2-190	Containment Isolation Valve Stroke Time

Description of Change

This change to FSAR Section 5.2.8 removed details regarding estimates of closure times that were based on vendor design values for motor operated valves. The change added specific closure times required for valves that receive automatic containment isolation actuation signal closure signals, for the containment air purge valves in modes 5 and 6, and provides another FSAR section as a reference for main steam isolation valve closure times. The change to this sub-section makes it clear that the accident analyses do not provide stroke time requirements for individual isolation valves, but do assume system response times. Note that these system response times are given in the Technical Requirements Manual (TRM), in Section II, Part 4, Table 3.3-5. The change also clarifies that other concerns, such as the inservice test program, do impose valve stroke time requirements.

Reason for Change

This change was made to clarify details regarding motor-operated valve stroke times. The change was made to provide consistency between the FSAR description and detailed licensing design bases information, including the assumptions of design bases accident analysis.

Safety Evaluation

The revised paragraphs clarify the fact that the individual stroke times for certain motor-operated valves are not required to be limited provided the system response times are within the response times assumed in the accident analyses, and defined in the TRM. The change does not add, alter or delete previously evaluated malfunctions of equipment important to safety. The change does not affect components or equipment, and does not change test methods or acceptance criteria that would increase the probability or consequences of malfunctions or accidents. The change does not identify or create malfunctions or accidents not previously evaluated. The change does not invalidate or alter any requirements of the isolation system to meet the plant licensing and design bases for containment integrity.

FSARCR Number	Title
97-MP2-193	Structural Codes & Standards and Mechanical Penetration Materials

Description of Change

Sections 5.1 and 5.2 of the FSAR are updated to reflect actual penetration materials used in MP2 and provide provision for the use of later editions of the Codes and Material Standards, where appropriate.

The FSARCR has been restructured to address specifically the AISC and ACI Codes used in the past and to allow future codes through the Design Control process to govern the use of future code revisions.

Reason for Change

The Code Editions and Materials used in plant modifications have not consistently adhered to those listed in Sections 5.1 and 5.2 of the FSAR.

Safety Evaluation

The safety evaluation shows that the material and Code updates neither introduce an unreviewed safety question nor negatively impact the safety-related function of any plant Structures, Systems, Components. In addition, no new failure modes were introduced, there was no impact on radiological dose consequences. The plant configuration consistency was enhanced by these clarifications and updates.

FSARCR Number	Title
97-MP2-196	Chemical and Volume Control System (CVCS), System Operation, Shutdown (MP-2 FSAR Section 9.2.3.3)

Description of Change

This FSAR change to FSAR Section 9.2.3 provides an accurate description of the CVCS and control element assembly (CEA) operation during plant cooldown and shutdown operations.

Reason for Change

Plant operating procedures and the Technical Specifications require the control element drive mechanisms (CEDMs) to remain de-energized unless the reactor coolant system (RCS) boron concentration is greater than the required refueling boron concentration. Whenever the control rod drive system is energized (and the boron concentration is less than the refueling concentration), the Technical Specifications require four reactor coolant pumps to be operating, RCS temperature to be greater than 500° F, pressurizer pressure to be greater than 2000 psia, and the high power trip to be operable. The original intent of the statements which were changed was to ensure that the boron concentration was increased to the cold shutdown value before cooling down in order to ensure adequate shutdown margin was maintained throughout the plant cooldown, and to provide a source of negative reactivity which could be rapidly inserted into the core in the event of a boron dilution accident. The changes ensured that the CEDMs were de-energized during plant cooldown (thereby eliminating the uncontrolled CEA withdrawal accident from occurring), and that the RCS boron concentration was increased as needed during the cooldown to ensure that the shutdown margin requirements are satisfied.

Safety Evaluation

Replacing the existing FSAR requirements to increase the RCS boron concentration to the cold shutdown value before starting the plant cooldown and maintaining the shutdown CEAs fully withdrawn during the cooldown with the proposed requirements to insert and de-energize all CEAs before the cooldown and adding boron to the RCS as needed during the cooldown had no affect on any malfunctions of equipment important to safety. This change did not effect the ability of the reactor operator to control the reactivity condition of the core. All aspects for a misoperation of the reactivity control system (CVCS and control rod drive system) were evaluated. It was concluded that the plant has been and will continue to be operated within the Technical Specification shutdown margin requirements and the assumptions of the accident analyses.

FSARCR Number	Title
97-MP2-197	Overload and Underload Interrupt Interlock Setpoints for Refueling Machine Hoist

Description of Change

This change revised FSAR Section 9.8.1.2 description of the overload and underload interrupt interlock setpoints for the refueling machine hoist and the corresponding assumed conditions. The text was revised for consistency with the calculation of record to state that the underload setpoints include the weight of a control element assembly, and the overload setpoints do not include the weight of a control element assembly. Additionally, the revised description states that a partially dry hoist box condition is considered, and removed references to a 10% difference between the setpoints and the measured load that will result in actuation of an interrupt interlock.

Reason for Change

The change was made to make the FSAR text consistent with the overload and underload setpoints for the refueling machine as described in approved design documents and as installed by an approved work order.

Safety Evaluation

The FSAR description of the refueling machine hoist setpoints is consistent with the approved calculation of record and the implemented setpoints. These implemented setpoints are in accordance with fuel manufacturer's recommendations and are consistent with Technical Specification requirements for these setpoints. These setpoints are more conservative than the setpoints previously described in the FSAR.

The change to the underload and overload setpoints did not introduce new malfunctions or accidents. Additionally, the change in the setpoints did not increase the probability of a fuel handling accident. The change did not affect the consequences of a fuel handling accident.

FSARCR Number	Title
97-MP2-199	Control Room Air Conditioning System (CRACS) Emergency Fresh Air Supply

Description of Change

The FSARCR change to FSAR Section 9.9.10 revised the description of the CRACS to indicate that an adequate supply of air flow rate would be available.

Reason for Change

The change was made because the basis could not be determined for the outside air flow rate filtered by the control room filtration system (CRFS) during the emergency fresh air intake mode, and the actual value of this outside air flow rate may be less than that previously indicated in the FSAR. No quantitative requirement (i.e., information contained within a calculation or procedure) could be identified to support the requirement that the CRFS filter 2500 cfm of outside air during the emergency fresh air intake mode

Safety Evaluation

The functions of the CRFS are to draw and filter outside air during the emergency fresh air intake mode and to be utilized to provide fresh air to MP2 control room personnel subsequent to a MP2 loss of coolant accident (LOCA), fuel handling accident in the MP2 spent fuel pool area, MP1 LOCA, MP1 main steam line break, or MP3 LOCA. Implementation of this change does not affect the CRFS ability to perform these functions. Additionally, due to the administrative nature of the change, its implementation has no affect on malfunctions or accidents previously evaluated and could not create malfunctions or accidents of a different type than previously evaluated. The change has no affect on the margins of safety.

FSARCR Number	Title
97-MP2-200	Calculations for Integrated Leak Rate Test (ILRT)

Description of Change

This FSAR change to Section 5.2.9 replaced text that included detailed mathematical formulas. The replacement text provide brief explanations of the total time and mass point methods for calculating containment leak rate and provides references to the standards that include the applied formulas and corresponding derivations.

Reason for Change

The change clarifies the descriptions of the total time and mass point methods for calculating containment leakage rates. The extensive use of mathematical symbols and equations previously used did not aid in understanding the two calculational methods, and were determined to need revision to ensure clarity.

Safety Evaluation

The impact of these changes is strictly of an administrative nature in that no components were added, changed or removed from the associated plant systems. The change has no affect on malfunctions or accidents previously evaluated, does not identify or introduce any malfunctions or accidents not previously evaluated and does not impact margins of safety.

FSARCR Number	Title
97-MP2-203	Reac or Protection System (RPS), Delta T Power Calculation

Description of Change

This FSAR change to Sections 7.2.3, 7.2.5 and Figure 7.2-13 descriptions of the RPS, remove implications that the plant is designed or licensed to operate with less than four RCPs running. Operation with fewer than four RCPs is prohibited by Technical Specification Table 2.2-1 and existing procedures support this restriction. Additionally, this changes the description of RPS response to the loss of signal and open circuits. The additional information describes RPS design attributes in effect since 1973 and earlier.

Description of Change

The changes provide both a more contextually correct discussion and additional information required for clarification.

Safety Evaluation

The changes in section 7.2.3 and Figure 7.2-13, the calculation of delta-T power uses hot leg temperature. Delta-T power is used as an input to the Q power calculation used in various trip functions. The Th used in the RPS is the average from both loops and the switch position will not change this, consistent with Technical Specification limitations. The change to the Th selection logic has no affect on the margin of safety, since the flow dependent setpoint selector switch is maintained in the four pump position. The changes to section 7.2.5 provide additional clarifying information on RPS response design aspects in effect since 1973 and earlier. The changes were considered necessary to give an accurate understanding of these attributes. The various FSAR text and drawing changes associated with RPS discussions on thermal margin/low pressure tr and analog inputs to various trips are consistent with the existing design and Technical Specification restrictions. The RPS remains operable, even assuming a single failure. There is no impact on the margin of safety.

FSARCR Number	Title
97-MP2-204	Auxiliary Building Foundation Mat

Description of Change

FSAR section 5.4.2 was changed to clarify that the foundation mat concrete strength is 3000 psi for the auxiliary building foundation base slab and 4000 psi for the foundation mat slab for the warehouse portion of the auxiliary building.

Reason for Change

The auxiliary building is divided into two distinct parts. The concrete strengths used in the design of the foundation slabs for each part are different.

Safety Evaluation

The elevation (-) 45'-6" base slab of the auxiliary building was designed based on a concrete strength of 3000 psi to the requirements of ACI 318-63. The design margins of the Code are therefore maintained. The design precludes failure of the foundation slab and there is no effect on the design, operation or control of any plant systems or equipment relied upon to mitigate the consequences of malfunctions or accidents or to achieve safe shutdown of the plant.

FSARCR Number	Title
97-MP2-207	Summary of Codes and Standards for Components of Water-Cooled Nuclear Power Units

Description of Change

This changed FSAR Table 1.2-1 to clarify the identification of applicable codes and component classification groupings, in that the reactor coolant piping was clarified by separating the entry into two categories, corrections to Code references were made to provide consistency with actual licensing and design bases, and various editorial and typographical corrections were made.

Reason for Change

The changes were made to reflect appropriate component classifications of the actual licensing and design bases which were identified during the FSAR verification efforts.

Safety Evaluation

The changes to Table 1.2-1 provide clarification as to the applicability of codes and standards, and identify equivalency between certain codes to ensure design compliance with existing requirements. These changes did not alter the design basis, physical or functional characteristics, or margin of safety of any SSC. Therefore, no change or impact on component reliability or operation were caused by the change, and hence no affect on the facility resulted. There was no affect or impact on any equipment malfunction, failure, accident scenario, or Technical Specification margin of safety.

FSARCR Number	Title
97-MP2-208	High Pressure Safety Injection (HPSI) Pumps

Description of Change

This change to FSAR Section 1.2.7 deleted the description that indicated, during certain emergency conditions, the suction of the HPSI pumps may be manually aligned to inject subcooled water from the shutdown cooling heat exchangers into the reactor coolant system for core cooling.

Reason for Change

The FSAR described methods for providing recirculation makeup and cooling during the post-loss of coolant accident, long-term cooling recirculation phase that were not covered by approved written procedures. These methods were removed from the FSAR as they are not required to satisfy the safety analyses or any system functions. These were all abnormal means of cooldown not now covered by any approved written procedures.

Safety Evaluation

The deletion of the FSAR description of an alignment of HPSI pump suction from the discharge of shutdown cooling heat exchangers does not change Technical Specification operability requirements concerning either the emergency core cooling system or the shutdown cooling system. The changes do not affect Technical Specification requirements concerning shutdown cooling operability. shutdown cooling requirements are based on the ability to maintain two operable subsystems. The operation of either subsystem in conjunction with the safety injection tanks is capable of supplying sufficient core cooling to limit the peak cladding temperatures within acceptable limits for all postulated break sizes. The removal of the shutdown cooling operating methods, described in the FSAR, will not affect system operability as they are not used to establish operability. In addition, these methods are not used in any operating procedures. Based on this, the removal of these methods does not affect the operation or operability of the shutdown cooling system.

FSARCR Number | Title

97-MP2-212 | Auxiliary Systems

Description for Change

Various portions of FSAR Chapter 9, Section 9.2. were revised based on the boric acid concentration reduction modifications approved in License Amendments 116 and 133 and in the subsequent annual report identifying the design changes necessary for the removal of heat tracing.

The changes in section 9.3.1 clarify the use of the shutdown cooling system heat exchangers post-loss of coolant accident (LOCA). Changes in the post accident sampling system descriptions in section 9.6 remove and clarify the motive force for obtaining samples. Section 9.7.1 information was corrected regarding high level alarm setpoint. Section 9.11.3 was revised to identify the existence of backup air bottles to ensure availability of air for operating necessary but inaccessible air operated valves after a LOCA. Section 9.12 was revised to remove reference to level controllers and gauges and to a condensate storage tank makeup capability that no longer exist. Table 9.2-10 was changed, consistent with the changes in section 9.2.2 to remove identification of a heater on the boric acid storage tank which was disconnected under the design change package PDCR 2-15-88.

Reason for Change

This change was needed to clarify and correct information included in the FSAR and remove incorrect and unnecessary information.

Safety Evaluation

The identified changes provide both a more contextually correct discussion and additional information required for clarification. The changes updated information consistent with design changes identified in various annual reports and in previous design changes to non-safety related systems. There is no affect on any malfunctions or accidents, previously identified or not previously evaluated, and no impacts on margins of safety.

FSARCR Number	Title
97-MP2-215	Condenser Pit Sump High-Level Alarm Setpoint

Description of Change

The description of the high-level alarm setpoint for the condenser pit sump In FSAR Section 10.4.5 was changed from 5 inches above the sump bottom to 6 inches below the top of the sump."

Reason for Change

During FSAR verification, it was determined that the description of the condenser pit sump high level alarm setpoint should be revised to reflect the actual setpoint.

Safety Evaluation

The high level alarm setpoint for the condenser pit sump does not affect the operability or function of any safety-related equipment. Additionally, the change in the described setpoint does not change the automatic function of condenser pit sump pumps. Automatic operation of these pumps is initiated by level signals from separate level instrumentation.

FSARCR	Title
98-MP2-3	High Energy Line Break (HELB) Program Criteria Used Outside Containment

Description of Change

The updated HELB program documents the methods used for the postulation and protection of high energy pipe rupture events for all plant operating modes from power operation (Mode 1) to the safe shutdown condition (Mode 3). This change identified the design criteria utilized in the updated HELB program for evaluating pipe whip and jet impingement outside containment. In addition, this Table 6.1-4 was added to the FSAR to define the applicability of the pipe rupture criteria based on normal service temperature and pressure.

Reason for Change

This change was determined necessary to document the design criteria utilized in the updated HELB program for evaluating pipe whips and jet impingement outside containment and to adopt GL 87-11.

Safety Evaluation

This change did not adversely impact the plant in terms of safety margin or the capability to safely shutdown and maintain the plant in its hot standby condition. It did not result in either new accidents or malfunctions of equipment, and did not increase the radiological consequences of previously analyzed accidents. The only new criteria was generically reviewed and approved by the NRC per GL 87-11, based on significant interaction with the nuclear industry, and found to be beneficial in terms of overall plant safety.

FSAR Number	Title
98-MP2-16	Auxiliary Building Ventilation Systems

Description of Change

This change revised the description of the facility as contained in FSAR, Section 9.9. This section was revised to provide text clarifications, and add equipment identification numbers. The change additionally rewrote numerous subsections within these sections to clarify, define and amplify information on the radwaste ventilation system, nonradioactive system, and the fuel handling ventilation system.

Reason for Change

The changes were made to clarify and explain the design basis used in the ventilation systems serving the various areas of the auxiliary building. Clarification of pressurization design requirements was important to distinguish between maintaining the relative pressurization of potentially radioactive areas at slightly negative pressure in relation to the non-radioactive areas, and maintaining the directional air flow to and from areas of different radioactivity level within the potentially radioactive pressure boundary areas. Some changes were technical in nature, and were necessary to represent the actual plant operations.

Safety Evaluation

The changes made did not introduce any equipment malfunctions as these changes did not affect any equipment performance. The probability of occurrence of a previously evaluated accident was not increased by the change in facility and procedure descriptions and did not result in a physical modification or a procedure step change and were to systems that are located internal to the auxiliary building. The changes to the facility and procedure descriptions for the auxiliary building ventilation systems did not affect any design basis accident, or its consequences. It did not contribute to any new accidents beyond those already analyzed, nor did it impact the physical protective boundaries or degrade the performance of any safety system. Therefore, the off site dose calculations in the FSAR remain valid and the margin of safety was not impacted. The credited barriers to protect the facility in the event of radioactive release from a subsystem or component were not impacted by any of the editorial modifications.

FSAR Number	Title
98-MP2-23	Quench Tank Design

Description of Change

This change revised the description in FSAR Section 4.3.6 of the quench tank rupture disc set pressure. The described value was changed from 100 psig to 96 psig at 72° F and 89 psig at 350° F.

The change also removed descriptions in FSAR Table 4.3-7 and FSAR Figure 4.3-11 of a 16" diameter manway for the quench tank. Additionally, the change revised FSAR Table 4.3-7 in order to: (a) identify that described nozzle diameters for the quench tank are nominal values, (b) identify that the diameter of the quench tank vent line nozzle is 1-1/2" nominal rather that 1" nominal, and (c) identify that, in addition to an internal design pressure of 100 psig, the quench tank has an external design pressure of 15 psig.

Reason for Change

During the FSAR verification effort, it was determined that the FSAR description of the subject design characteristics of the quench tank required updating to reflect verified design bases information.

Safety Evaluation

The revised FSAR descriptions of quench tank design are consistent with the verified, as-built design of the quench tank. The design and function of the quench tank remain unchanged. This design includes the capability of the tank's relief valve and rupture disc to maintain tank pressure with the design limits of 100 psig.

FSAR Number	Title
98-MP2-40	Radioactive Waste Processing System Component Description

Description of Change

This change to FSAR Table 11.1-13 removed suppliers' names from the table and corrected minor typographical errors.

Reason for Change

These FSAR table changes permit item equivalency evaluations to be conducted to replace the original items.

Safety Evaluation

Independent of who the supplier is, replacement components in the plant are controlled by plant procedures, equipment specifications, design drawings, and existing equipment name plate details which ensure technical adequacy. Deleting the supplier name did not result in altering or modifying any components physically in the plant which would involve an Unresolved Safety Question.

FSAR Number	Title
98-MP2-41	Seismic Loads on Reactor Coolant System Components for Operating Basis Earthquake (OBE)

Description of Change

The FSAR change revised Table 4A-2 to accurately reflect the original design basis OBE seismic loads on the pressurizer surge line nozzle and the pressurizer support. The change also corrected a calculated vertical load on the pressurizer support.

Reason for Change

A discrepancy was identified between the design basis OBE loads presented in FSAR Table 4A-2 and those in the pressurizer specification, 18767-31-4, and in the design report, CENC-1180. The pressurizer vendor, ABB-CE, was requested to reconcile the loading discrepancies. This FSAR change resulted from that reconciliation.

Safety Evaluation

The changes ensures that FSAR Table 4A-2 is in agreement with the design specification and design report that are fully bounded by the calculated maximum loads. The change does not degrade the margin of safety for the reactor coolant pressure boundary. There is no increase in the probability of occurrence or the consequences of an accident or malfunction previously evaluated. This change does not create the possibility of a different type accident or malfunction.

FSAR Number	Title
98-MP2-45	Tests and Inspections, Surveillance Programs and Capsule Removal Schedule

Description of Change

This FSAR change updated the text in section 4.6.3 to qualify the surveillance capsules installed during the final reactor assembly operation. This change incorporated the information already reflected in the FSAR Table 4.6-9. FSAR Table 4.6-9 was updated to reflect that 10 Effective Full Power Years (EFPY) has occurred and actual data is available for the fluence. The actual fluence is less than the predicted fluence at these locations.

Reason for Change

During FSAR verification, it was determined that the information in the FSAR Section 4.6.3 required updating to verify information in Table 4.6-9, and that Table 4.6-9 should include available data from the 10 EFPY surveillances.

Safety Evaluation

These changes reflect actual values as opposed to anticipated values and did not alter the reactor coolant pressure boundary integrity. The margin for precluding reactor vessel brittle fracture was increased, due to the actual values being fully bound by the anticipated values. This change did not increase the probability nor consequences of any accident or malfunction

FSAR Number	Title
98-MP2-49	Comparison with Other Plants

Description of Change

This change revised FSAR Table 1.3-1 to include the forging material used to fabricate the reactor vessel nozzles and flanges.

Reason for Change

During the FSAR verification effort, it was determined that Table 1.3-1 should provide information on the reactor vessel nozzle and flange material

Safety Evaluation

This change made Table 1.3-1 consistent with Table 4.2-2. The material added to Table 1.3-1 is part of the original design of the plant and was previously evaluated as such. There was no physical change to the plant or the as-reviewed design. The change did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated. The change does not affect the margin of safety of any Technical Specification.

FSAR Number	Title
98-MP2-56	Chemical and Volume Control System (CVCS), System Operation, Startup

Description of Change

This change to FSAR Section 9.2.3 provides a description of the CVCS operation during plant heatup and startup operations.

Reason for Change

The change revises the description to be consistent with past and current plant operating practices. Plant operating procedures and the Technical Specifications require the control element drive mechanisms (CEDMs) to remain de-energized unless the reactor coolant system boron concentration is greater than the required refueling boron concentration. Whenever the control rod drive system is energized, the Technical Specifications require 4 reactor coolant pumps to be operating, RCS temperature to be greater than 500° F, pressurizer pressure to be greater than 2000 psia, and the high power trip to be operable.

Safety Evaluation

This change had no affect on any malfunctions of equipment important to safety. The plant continues to be operated within the Technical Specification shutdown margin requirements and the assumptions of the accident analyses. All aspects for a misoperation of the reactivity control system (CVCS and control rod drive system) were evaluated. This change did not effect the ability of the reactor operator to control the reactivity condition of the core. The reactivity condition of the core is controlled by the Technical Specification requirements to maintain adequate shutdown margin.

FSAR Number	Title
98-MP2-60	Pre-Installation Seat Leakage Criteria of Butterfly Valves Used for Containment Isolation

Description of Change

This change to FSAR Section 5.2.8 clarifies the pre-installation seat leakage test requirements and acceptance criteria of butterfly valves used for containment isolation, and notes the location of post-installation leakage limitations and testing requirements for these valves.

Reason for Change

During the FSAR verification effort, it was determined that information should be provided to show that containment isolation butterfly valve 2-FIRE-108 meets the requirements of AWWA C-504. Additionally, a subsequent review of all butterfly valves used for containment isolation concluded that all of the cast-steel valves were tested to Manufacturers Standardization Society Standard No. SP-67.

Safety Evaluation

Due to location of certain butterfly valves used for containment isolation in systems closed to the containment environment, or in double-barrier containment isolation configuration, this change cannot initiate an accident previously evaluated and identified in the FSAR. Specifically, this change does not initiate, nor increase the consequences of, a fuel handling accident in containment or a loss of coolant accident. Additionally, this change did not create an accident of a different type than those identified in the FSAR, and has no effect on the probability of occurrence or the consequences of post-installation seat leakage as maintenance and operational issues such as degradation and system isolation are independent of pre-installation testing. It did not create a malfunction of a different type than those previously considered. There was no impact on any the Technical Specifications or affect on configuration or operation because this change is associated with the testing requirements of containment isolation butterfly valves.

FSAR Number	Title
98-MP2-64	Backfill and Compaction Requirements

Description of Change

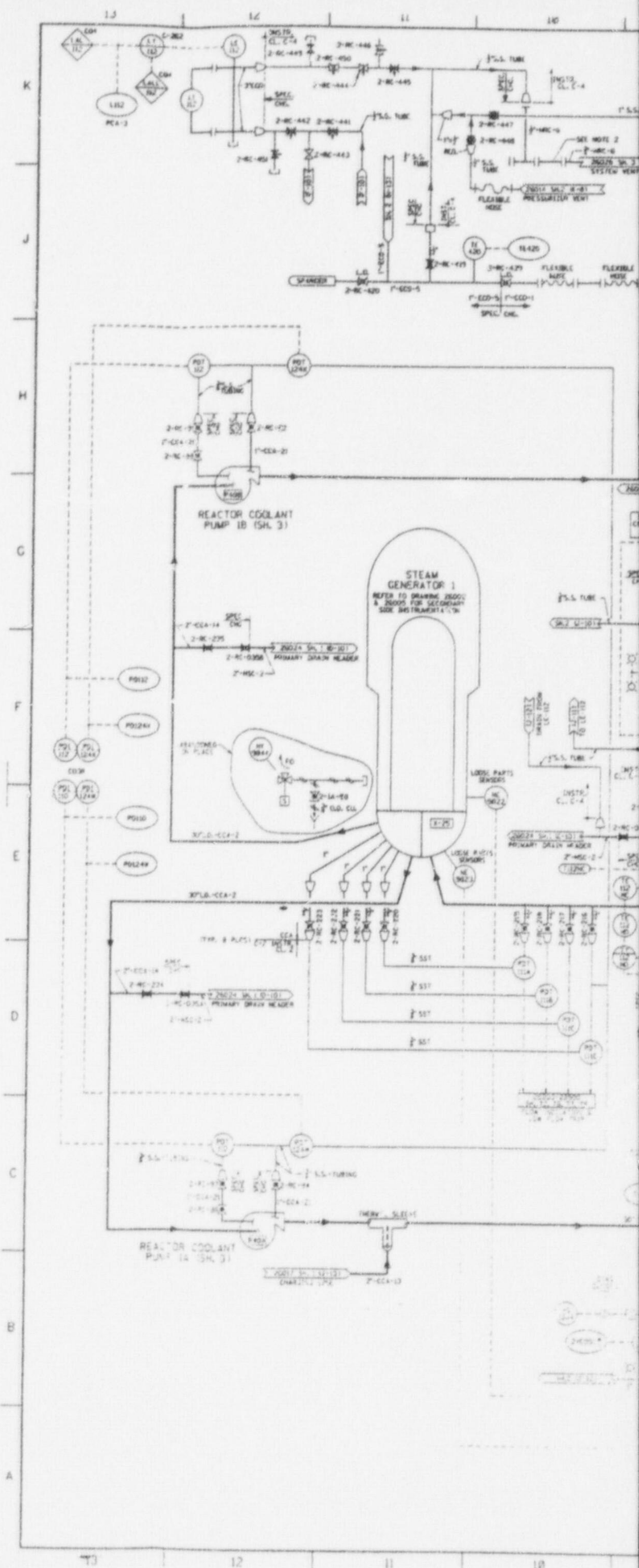
This change to FSAR Figure 2.7-2 clarifies information regarding glacial drift.

Reason for Change

During FSAR verification, it was determined that FSAR Figure 2.7-2 information on the excavation for the Refueling Water Storage Tank (RWST) should be updated to reflect reference documents.

Safety Evaluation

This change did not affect the analysis of record concerning the acceptability of the load bearing characteristics of the soil stratum under the RWST, and therefore, it did not increase the probability nor consequences of any accident or malfunction. The change did not affect the margin of safety.


STEAM GENERATOR 1
REFER TO DRAWING 26002 & 26005 FOR SECONDARY SIDE INSTRUMENTATION
REACTOR COOLANT PUMP 1B (SH. 3)
REACTOR COOLANT PUMP 1A (SH. 3)
SPARGER
LOOSE PARTS SENSORS
PRIMARY DRAIN HEADER
PRESSURIZER VENT
SYSTEM VENT
FLEXIBLE HOSE
SPEC. CHG.
S.S. TUBE
CHARGING LPX
THERM. SLEEVE
SEE NOTE 2

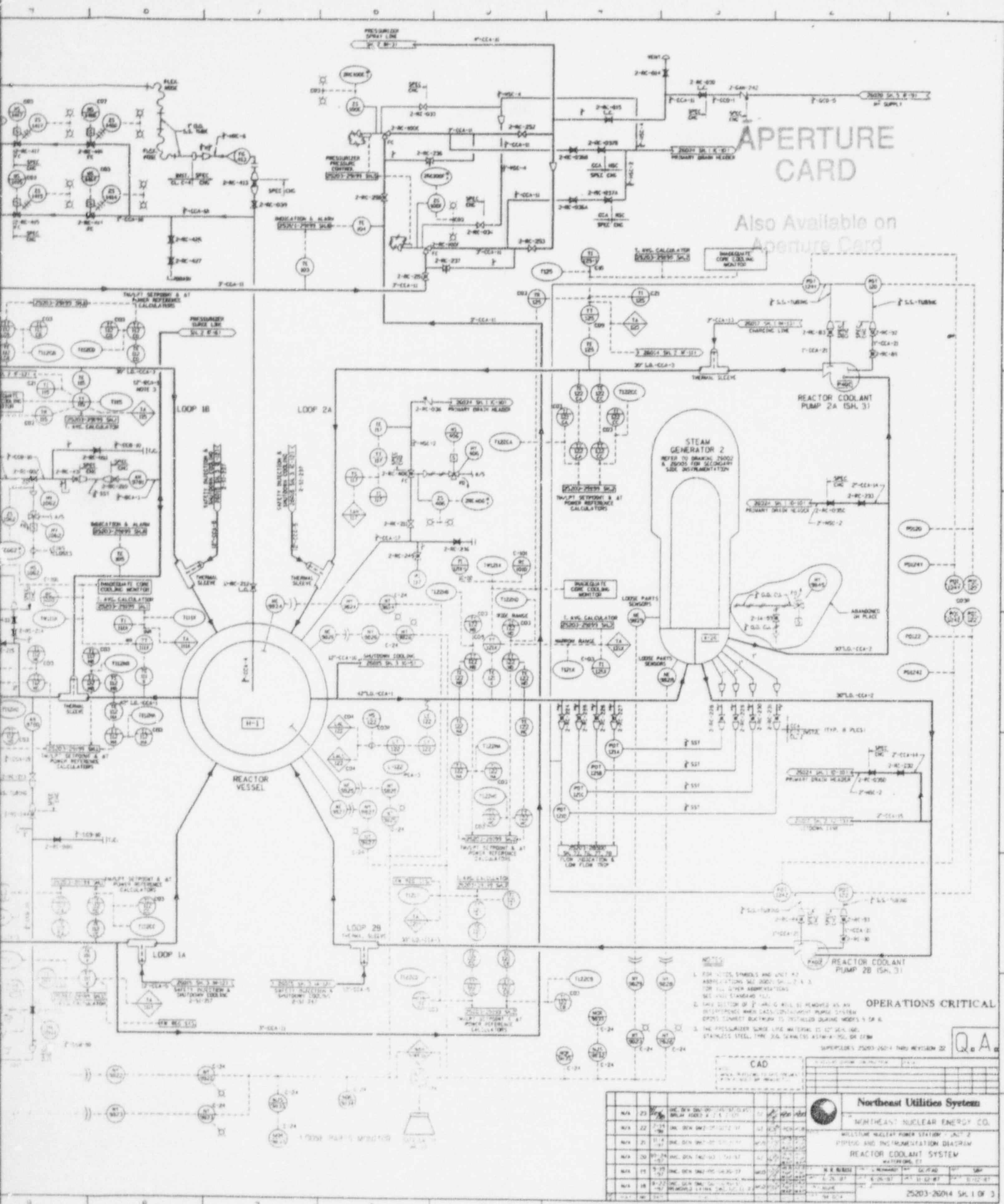


FIGURE 04.01-01 SH- 01 MAY 1998

9807240260-01

TABLE 5.2-11

CONTAINMENT STRUCTURE ISOLATION V

Pene. No.	Service	System	Pene.* Type	Pene** Category	Flow Direction	Valve Arrgt.	Type C* Testing Require-ments	Valve Identification
1	Demineralized Water	PMW	IA	N	IN	1B	Yes	2-PMW-43
							No	2-PMW-165
							Yes	2-PMW-3
2	Letdown Line To Purification Demin.	CVCS	IA	P	OUT	7	Yes	2-CH-516
							No	2-CH-006
							Yes	2-CH-089
							No	2-CH-763, 658
							No	2-CH-260, 082, 083
							No	2-CH-067
							Yes	2-CH-515
3	Reactor Coolant Charging Line	CVCS	IA	P	IN	9	No	2-CH-433, 432
							Yes	2-CH-518, 519
							Yes	2-CH-517
							No	2-CH-431
							Yes	2-CH-434

*Containment Isolation Valve Test (Type C) per 10 CFR Part 50, Appendix J.
**See Subsection 5.2.8.2.1.
***If Steam generator pressure drops to $\leq$485 psig.
****Valve tested with pressure applied opposite to that applied during LOCA.
+See Figure 5.2-8.
++1) Reactor Vessel Support Cooling Coils.
2) CEAM Coolers.
3) Quench Tank & PDT HX.
4) Valve 2-MS-202 has its closing coil removed to prevent spurious closure during an Appendix R Fire. See FSAR sect

LVE INFORMATION

Location Ref. to C.S.	Valve Size-Type-No.	Pene. Line Size	Method of Actuation	Signal	Normal Valve Position	Valve Pos. W/Pwr. Fail.	Pos. Ind.	Post. Incid. Position	
Outside	2"-Globe-1	2"	Diaphragm	CIAS	Locked Closed	Closed	Yes	Closed	(96-38) 11/97
Outside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed	
Inside	2"-Check-1						No		
Inside	3"-Globe-1	2"	Diaphragm	CIAS	Open	Closed	Yes	Closed	(96-38)
Inside	2"-Gate-1		Manual	----	Open	As Is	No	Open	
Outside	2"-Globe-1		Diaphragm	CIAS	Open	Closed	Yes	Closed	
Inside	1"-Gate-2		Manual	----	Closed	As Is	No	Closed	
Inside	3/4"-Globe-3		Manual	----	Closed	As Is	No	Closed	
Outside	3/4"-Gate-1		Manual	----	Locked Closed	As Is	No	Closed	(96-38)
Inside	3"-Globe-1		Diaphragm	SIAS	Open	Closed	Yes	Closed	
Inside	2" Spring-Check-2	2"	------	----	----	----	No	----	(96-38)
Inside	2"-Globe-2		Diaphragm	Remote	Open	Open	Yes	Open	
Inside	2"-Globe-1		Diaphragm	Remote	Closed	Closed	Yes	Closed	
Inside	2"Spring-Check-1		------	----	----	----	No	----	
Inside	2"-Gate-1		Manual	----	Locked Closed	As Is	No	Closed	(96-38)

9807240260 - 02

n 9.10.6.3, item (2), and Appendix R Compliance Report. 97-37 6/98

Pene. No.	Service	System	Pene.* Type	Pene** Category	Flow Direction	Valve Arrgt.	Type C* Testing Require-ments	Valve Identification
							Yes	2-CH-429
							No	2-CH-004, 003
							No	2-CH-001, 002, 443, 698, 697, 714
							No	2-CH-710
							Yes	2-RC-71
							No	2-CH-661
							No	2-CH-752, 753
							No	2-CH-435
4	Containment Spray Water	CSS	IA	O	IN	17A	Yes	2-CS-5A
							Yes	2-CS-4.1A
							No	2-CS-049C
							No	2-CS-049A
5	Containment Spray Water	CSS	IA	O	IN	17B	Yes	2-CS-5B
							Yes	2-CS-4.1B
							No	2-CS-101

*Containment Isolati[illegible] [illegible]alve Test (Type C) per 10 CFR Part 50, Appendix J.
**See Subsection 5.2 [illegible] 1.
***If Steam generator [illegible]essure drops to ≤485 psig.
****Valve tested with pressure applied opposite to that applied during LOCA.
+See Figure 5.2-8.
++1) Reactor Vessel Support Cooling Coils.
2) CEAM Coolers.
3) Quench Tank & PDT HX.
4) Valve 2-MS-202 has its closing coil removed to prevent spurious closure during an Appendix R Fire. See FSAR sect

LVE INFORMATION

Location Ref. to C.S.	Valve Size-Type-No.	Pene. Line Size	Method of Actuation	Signal	Normal Valve Position	Valve Pos. w/Pwr. Fail.	Pos. Ind.	Post. Incid. Position
Outside	2"-Gate-1		MOV	Remote	Open	As Is	Yes	Open
Inside	3/4"-Gate-2		Manual	----	Closed	As Is	No	Closed
Inside	3/4"-Globe-6		Manual	----	Closed	As Is	No	Closed
Outside	1"-Gate-1		Manual	----	Locked Closed	As Is	No	Closed
Inside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed
Inside	1"-Gate-1		Manual	----	Locked Closed	As Is	No	Closed
Inside	1"-Gate-2		Manual	----	Closed	As Is	No	Closed
Inside	2"-Spring Check		----	----	----	----	No	----
Inside	8"-Check-1	8"	-----	----	----	----	No	----
Outside	8"-Gate-1		MOV	CSAS	Closed	As Is	Yes	Open
Outside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed
Outside	1"-Globe-1		Manual	----	Closed	As Is	No	Closed
Inside	8"-Check-1	8"	-----	----	----	----	No	----
Outside	8"-Gate-1		MOV	CSAS	Closed	As Is	Yes	Open
Outside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed

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9807240260-03

on 9.10.6.3, item (2), and Appendix R Compliance Report.

97-37
6/98

TABLE 5.2-11

CONTAINMENT STRUCTURE ISOLATION V

Pene. No.	Service	System	Pene.* Type	Pene** Category	Flow Direction	Valve Arrgt.	Type C* Testing Require-ments	Valve Identification	
6,8	Safety Injection Low & High Pressure	SIS	IB	P	IN	10A(Pene. 6)	No	Pene. 6 2-SI-645	Pene. 8 2-SI-635
						10B(Pene. 8)	No	2-SI-646 647	2-SI-636 637
							No	2-SI-712B 712A	2-SI-713A 713B
							No		2-SI-733 041E
							No	2-SI-144	2-SI-134
							No	2-SI-143 0C?	2-SI-133 010
							No	2-SI-095 734	
							No	2-SI-41F 735, 742D	2-SI-041D 110, 742C
							No	2-SI-644	2-SI-634
							No	2-SI-648	2-SI-638
							No	2-SI-247	2-SI-237
							No	2-SI-145 146	2-SI-135 136
							No	2-SI-246	2-SI-236

*Containment Isolation Valve Test (Type C) per 10 CFR Part 50, Appendix J.
**See Subsection 5.2.8.2.1.
***If Steam generator pressure drops to $\leq$485 psig.
****Valve tested with pressure applied opposite to that applied during LOCA.
+See Figure 5.2-8.
++1) Reactor Vessel Support Cooling Coils.
2) CEAM Coolers.
3) Quench Tank & PDT HX.
4) Valve 2-MS-202 has its closing coil removed to prevent spurious closure during an Appendix R Fire. See FSAR sect

APERTURE CARD

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VE INFORMATION

Location Ref. to C.S.	Valve Size-Type-No.	Pene. Line Size	Method of Actuation	Signal	Normal Valve Position	Valve Pos. w/Pwr. Fail.	Pos. Ind.	Post. Incid. Position
Outside	6"-Globe-1	6"	MOV	SIAS	Closed	As Is	Yes	Open
Outside	2"-Globe-2		MOV	SIAS	Throttled	As Is	Yes	Open
Inside	1"-Gate-2		Manual	----	Closed	As Is	No	Closed
Outside	(Pene. 8 only) 1"-Globe-2		Manual	----	Closed	As Is	No	Closed
Outside	6"-Check-1		----	----	----	----	No	----
Outside	2"-Check-2		----	----	----	----	No	----
Outside	(Pene. 6 only) 1"-Globe-2		Manual	----	Locked Closed	As Is	No	Closed
Outside	3/4"-Globe-3		Manual	----	Closed	As Is	No	Closed
Inside	12"-Gate-1		MOV	SIAS	Open	As Is	Yes	Open
Inside	1"-Globe-1		Diaphragm	SIAS	Closed	Closed	Yes	Closed
Inside	12"-Check-1		----	----	----	----	No	----
Outside	3/4"-Globe-2		Manual	----	Open	As Is	No	Open
Inside	3/4"-Globe-1		Manual	----	Locked Open	As Is	No	Open

(96-38) 1/97

(96-38)

9807240260-04

on 9.10.6.3, item (2), and Appendix R Compliance Report.

97-37 6/98

TABLE 5.2-11

CONTAINMENT STRUCTURE ISOLATION

Pene. No.	Service	System	Pene.* Type	Pene** Category	Flow Direction	Valve Arrgt.	Type C* Testing Require-ments	Valve Identification	
							No	2-SI-706D	2-SI-706C
7	Safety Injection Low & High Pressure	SIS	IB	P	IN	10C	No	2-SI-615	
							No	2-SI-616, 617	
							No	2-SI-114	
							No	2-SI-012, 113	
							No	2-SI-041A, 107, 716, 715, 742A	
							No	2-SI-717, 718	
							No	2-SI-614	
							No	2-SI-618	
							No	2-SI-217	
							No	2-SI-115, 116	
							No	2-SI-024A, 024B	
							No	2-SI-216	
							No	2-SI-706A	
9	Safety Injection Low & High Pressure	SIS	IB	P	IN	10D	No	2-SI-625	

*Containment Isolation Valve Test (Type C) per 10 CFR Part 50, Appendix J.
**See Subsection 5.2.8.2.1.
***If Steam generator pressure drops to ≤485 psig.
****Valve tested with pressure applied opposite to that applied during LOCA.
+See Figure 5.2-8.
++1) Reactor Vessel Support Cooling Coils.
2) CEAM Coolers.
3) Quench Tank & PDT HX.
4) Valve 2-MS-202 has its closing coil removed to prevent spurious closure during an Appendix R Fire. See FSAR sec

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ALVE INFORMATION

Location Ref. to C.S.	Valve Size-Type-No.	Pene. Line Size	Method of Actuation	Signal	Normal Valve Position	Valve Pos. W/Pwr. Fail.	Pos. Ind.	Post. Incid. Position
Inside	6"-Check-1		----	----	----	----	No	----
Outside	6"-Globe-1	6"	MOV	SIAS	Closed	As Is	Yes	Open
Outside	2"-Globe-2		MOV	SIAS	Throttle d	As Is	Yes	Open
Outside	6"-Check-1		----	----	----	----	No	----
Outside	2"-Check-2		----	----	----	----	No	----
Outside	3/4"-Globe-5		Manual	----	Closed	As Is	No	Closed
Outside	1"-Gate-2		Manual	----	Closed	As Is	No	Closed
Inside	12"-Gate-1		MOV	SIAS	Open	As Is	Yes	Open
Inside	1"-Globe-1		Diaphragm	SIAS	Closed	Closed	Yes	Closed
Inside	12"-Check-1		----	----	----	----	No	----
Outside	3/4"-Globe-2		Manual	----	Open	As Is	No	Open
Inside	1"-Gate-2		Manual	----	Locked Closed	As Is	No	Closed
Inside	3/4"-Globe-1		Manual	----	Locked Open	As Is	No	Open
Inside	6"-Check-1		----	----	----	----	No	----
Outside	6"-Globe-1	6"	MOV	SIAS	Closed	As Is	Yes	Open

97-18
6/98

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9807240260-05

on 9.10.6.3, item (2), and Appendix R Compliance Report.

97-37
6/98

TABLE 5.2-11

CONTAINMENT STRUCTURE ISOLATION

Pene. No.	Service	System	Pene.* Type	Pene** Category	Flow Direction	Valve Arrgt.	Type C* Testing Require-ments	Valve Identification
							No	2-SI-626, 627
							No	2-SI-124
							No	2-SI-123, 011
							No	2-SI-722, 723, 720, 721, 742B
							No	2-SI-624
							No	2-SI-628
							No	2-SI-227
							No	2-SI-125, 126
							No	2-SI-013A, 013B
							No	2-SI-226
							No	2-SI-706B
10	Reactor Coolant Shutdown Cooling	SIS	IB	P	OUT	11	Yes	2-SI-709
							Yes	2-SI-651
							No	2-SI-101A
							No	2-SI-102A

*Containment Isolation Valve Test (Type C) per 10 CFR Part 50, Appendix J.
**See Subsection 5.2.8.2.1.
***If Steam generator pressure drops to ≤485 psig.
****Valve tested with pressure applied opposite to that applied during LOCA.
+See Figure 5.2-8.
++1) Reactor Vessel Support Cooling Coils.
2) CEAM Coolers.
3) Quench Tank & PDT HX.
4) Valve 2-MS-202 has its closing coil removed to prevent spurious closure during an Appendix R Fire. See FSAR sec

APERTURE
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LVE INFORMATION

Location Ref. to C.S.	Valve Size-Type-No.	Pene. Line Size	Method of Actuation	Signal	Normal Valve Position	Valve Pos. w/Pwr. Fail.	Pos. Ind.	Post. Incid. Position	
Outside	2"-Globe-2		MOV	SIAS	Throttled	As Is	Yes	Open	
Outside	6"-Check-1		----	----	----	----	No	----	
Outside	2"-Check-2		----	----	----	----	No	----	
Outside	3/4"-Globe-5		Manual	----	Closed	As Is	No	Closed	
Inside	12"-Gate-1		MOV	SIAS	Open	As Is	Yes	Open	
Inside	1"-Globe-1		Diaphragm	SIAS	Closed	Closed	Yes	Closed	
Inside	12"-Check-1		----	----	----	----	No	----	
Outside	3/4"-Globe-2		Manual	----	Open	As Is	No	Open	
Inside	1"-Gate-2		Manual	----	Locked Closed	As Is	No	Closed	97-48 6/98
Inside	3/4"-Globe-1		Manual	----	Locked Open	As Is	No	Open	(96-38) 1/97
Inside	6"-Check-1								
Outside	12"-Gate-1	12"	Manual	----	Locked Closed	As Is	No	Closed	(96-38)
Inside	12"-Gate-1		MOV	Remote	Closed	As Is	Yes	Closed	
Outside	1"-Gate-1		Manual	----	Locked Closed	As Is	No	Closed	(96-38)
Outside	3/4"-Globe-1		Manual	----	Locked Closed	As Is	No	Closed	

9807240260-06

on 9.10.6.3, item (2), and Appendix R Compliance Report.

97-37
6/98

Pene. No.	Service	System	Pene.* Type	Pene** Category	Flow Direction	Valve Arrgt.	Type C* Testing Require-ments	Valve Identification	
							No	2-SI-043A	
11	Safety Injection Tank Test Line	SIS	IA	N	OUT	20	Yes	2-SI-463	
12 & 13	Containment Sump Recirc. Line	SIS	Special	Special	OUT	16	No	Pene. 12 2-CS-16.1A	Pene. 13 2-CS-16.1B
14	Containment Sump to Aerated Drain Tk.	RWS	IA	O	OUT	13A	Yes	2-SSP-16.2	
							Yes	2-SSP-16.1	
							No	2-SSP-51	
							No	2-SSP-73	
15 & 16	Feedwater & Aux. Feedwater	FW	II	N	IN	15A	No	Pene. 15 2-FW-5A	Pene. 16 2-FW-5B
						for Pene. 15	No	2-FW-12A	2-FW-12B
						15B for Pene. 16	No	2-FW-16A	2-FW-16B
							No	2-FW-15A	2-FW-15B
							No	2-FW-86	2-FW-182

*Containment Isolation Valve Test (Type C) per 10 CFR Part 50, Appendix J.
**See Subsection 5.2.8.2.1.
***If Steam generator pressure drops to ≤485 psig.
****Valve tested with pressure applied opposite to that applied during LOCA.
+See Figure 5.2-8.
++1) Reactor Vessel Support Cooling Coils.
2) CEAM Coolers.
3) Quench Tank & PDT HX.
4) Valve 2-MS-202 has its closing coil removed to prevent spurious closure during an Appendix R Fire. See FSAR se

APERTURE CARD

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VALVE INFORMATION

Location Ref. to C.S.	Valve Size-Type-No.	Pene. Line Size	Method of Actuation	Signal	Normal Valve Position	Valve Pos. W/Pwr. Fail.	Pos. Ind.	Post. Incid. Position
Inside	3/4"-Globe-1		Manual	----	Locked Closed	As Is	No	Closed
Outside	2"-Gate-1	2"	Manual	----	Locked Closed	As Is	No	Closed
Outside	24"-Gate-1	24"	MOV	SRAS	Closed	As Is	Yes	Open
Outside	3"-Globe-1	3"	Diaphragm	CIAS	Closed	Closed	Yes	Closed
Inside	3"-Globe-1		Diaphragm	CIAS	Closed	Closed	Yes	Closed
Outside	3/4"-Gate-1		Manual	----	Closed	As Is	No	Closed
Outside	1"-Gate-1		Manual	----	Closed	As Is	No	Closed
Outside	18"-Stopcheck-1	18"	Air Cyl.	Remote	Open	Closed	Yes	Closed
Outside	6"-Stopcheck-1	18"	Air Cyl.	Remote	Closed	Closed	Yes	Closed
Outside	1"-Check-1		----	----	----	----	No	----
Outside	1"-Globe-1		Manual	----	Locked Closed	As Is	No	Closed
Outside	1"-Gate-1		Manual	----	Closed	As Is	No	Closed

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9807240260 - 07

tion 9.10.6.3, item (2), and Appendix R Compliance Report.

97-37 6/98

Pene. No.	Service	System	Pene.* Type	Pene** Category	Flow Direction	Valve Arrgt.	Type C* Testing Require-ments	Valve Identification	
							No	2-FW-57	2-FW-58
							No	2-FW-261A	
									2-FW-26
19 & 20	Main Steam	MSS	III	N	OUT	23	No	Pene. 19 2-MS-64A	Pene. 2 2-MS-64
							No	2-MS-371	2-MS-36
							No	2-MS-201	2-MS-20
							No	2-MS-3A	2-MS-3B
							No	2-MS-190A	2-MS-19
							No	2-MS-265B	2-MS-26
							No	2-MS-247, 248, 249, 250, 251, 252, 253, 254	2-MS-23 240, 24 242, 24 244, 24 246
							No	2-MS-65A	2-MS-65
							No	2-MS-297	2-MS-29
							No	2-MS-265A	2-MS-26
							No	2-MS-255	

*Containment Isolation Valve Test (Type C) per 10 CFR Part 50, Appendix J.
**See Subsection 5.2.8.2.1.
***If Steam generator pressure drops to $\leq$485 psig.
****Valve tested with pressure applied opposite to that applied during LOCA.
+See Figure 5.2-8.
++1) Reactor Vessel Support Cooling Coils.
2) CEAM Coolers.
3) Quench Tank & PDT HX.
4) Valve 2-MS-202 has its closing coil removed to prevent spurious closure during an Appendix R Fire. See FSAR s

APERTURE CARD

Also Available on Aperture Card

VALVE INFORMATION

Location Ref. to C.S.	Valve Size-Type-No.	Pene. Line Size	Method of Actuation	Signal	Normal Valve Position	Valve Pos. w/Pwr. Fail.	Pos. Ind.	Post. Incid. Position	
Inside	1"-GT/GB		Manual	----	Closed	As Is	No	Closed	
Outside			Manual	---	Closed		No	Closed	
Inside	3/4"-Globe-2		Manual		Closed	Closed	No	Closed	97-37 6/98
Outside	34"-Stopcheck-1	34"	Air Cyl.	MSI	Open	Closed	Yes	Closed***	
Outside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed	
Outside	4"-Gate-1		MOV	Remote(4)	Open	As Is	Yes	Open	97-37
Outside	12"-Gate-1		Manual	----	Open	As Is	No	Open	
Outside	8"-Globe-1		Diaphragm St.	Gen. Press.	Closed	Closed	Yes	Closed	
Outside	1"-Globe-1		Diaphragm	MSI	Open	Closed	Yes	Closed	
Outside	6"-Relief-8		----	----	----	----	No	----	
Outside	3"-Globe-1***		MOV	MSI	Closed	As Is	Yes	Closed	
Outside	1"-Globe-1		Manual	----	Closed	As Is	No	Closed	
Outside	1"-Gate-1		Manual	----	Open	As Is	No	Open	
Outside	(Pene. 19 only) 3/4"-Globe-1		Manual	----	Locked Closed	As Is	No	Closed	(96-38 1/97)

9807240260 - 08

ction 9.10.6.3, item (2), and Appendix R Compliance Report. 97-37

Pene. No.	Service	System	Pene.* Type	Pene* Category	Flow Direction	Valve Arrgt.	Type C* Testing Require-ments	Valve Identification	
							No		2-MS-258
							No	2-MS-41A	2-MS-41B
							No	2-MS-260A	2-MS-260B
							No	2-MS-459	2-MS-458
21	Reactor Coolant & Pressurizer Sampling	SS	IA	P	OUT	19	No	2-LRR-265	
							Yes	2-LRR-61.1	
							Yes	2-RC-45	
							Yes	2-RC-001, 002, 003	
							No	2-RC-65	
							No	2-RC-434-435	
22 & 23	Steam Generator Bottom Blowdown	SGBS	IA	N	OUT	14A	Yes	Pene. 22 2-MS-220A	Pene. 23 2-MS-220B
24	Reactor Bldg. Closed Cooling Water Inlet to Reactor Coolant Pumps and Other Components++	RBCCW	IA	N	IN	24	Yes	2-RB-30.1A	
							No	2-RB-289	

*Containment Isolation Valve Test (Type C) per 10 CFR Part 50, Appendix J.
**See Subsection 5.2.8.2.1.
***If Steam generator pressure drops to ≤485 psig.
****Valve tested with pressure applied opposite to that applied during LOCA.
+See Figure 5.2-8.
++1) Reactor Vessel Support Cooling Coils.
2) CEAM Coolers.
3) Quench Tank & PDT HX.
4) Valve 2-MS-202 has its closing coil removed to prevent spurious closure during an Appendix R Fire. See FSAR sect

APERTURE CARD

Also Available on Aperture Card

E INFORMATION

Location Ref. to C.S.	Valve Size-Type-No.	Pene. Line Size	Method of Actuation	Signal	Normal Valve Position	Valve Pos. w/Pwr. Fail.	Pos. Ind.	Post. Incid. Position	
Outside	(Pene. 20 only) 1"-Globe-1		Manual	----	Locked Closed	As Is	No	Closed	97-37 6/98 (96-38) 1/97
Outside	3/4"-Globe-1		Manual		Open				
Inside	3/4"-Globe-1		Manual		Closed	As Is	No	Closed	
Outside	3/4"-Globe-1		Manual	----	Locked Closed	As Is	No	Locked Closed	
Inside	1/2"-Check-1		----	----	----	----	No	Closed	97-98 4/98
Inside	1/2"-Globe-1	1/2"	Diaphragm	CIAS	Closed	Closed	Yes	Closed	
Outside	3/4"-Globe-1		Diaphragm	CIAS	Open	Closed	Yes	Closed	(96-38)
Inside	3/4"-Globe-3		Diaphragm	CIAS	Closed	Closed	Yes	Closed	
Inside	3/8"-Globe-1		Manual	----	Open	As Is	No	Open	
Inside	3/8"-Globe-2		Manual	----	Closed	As Is	No	Closed	
Outside	2"-Globe-1	2"	Diaphragm	Hi Rad	Open	Closed	Yes	Closed	(96-38)
Outside	8"-Gate-1	8"	MOV	Remote	Open	As Is	Yes	Open	
Outside	1"-Gate-1		Manual	----	Closed	As Is	No	Closed	

9807240260-09

n 9.10.6.3, item (2), and Appendix R Compliance Report. 97-37

TABLE 5.2-11

CONTAINMENT STRUCTURE ISOLATION VA

Pene. No.	Service	System	Pene.+ Type	Pene** Category	Flow Direction	Valve Arrgt.	Type C* Testing Require-ments	Valve Identification	
							No	2-RB-173A	
25 & 26	Reactor Bldg. Closed Cooling Water to Containment Air Recirculation Units	RBCCW	IA	N	IN	21A	No	Pene. 25 2-RB-28.1D	Pene. 26 2-RB-28.1B
							No	2-RB-282	2-RB-283
							No		2-RB-345
27 & 28	Reactor Bldg. Closed Cooling Water to Containment Air Recirculation Units	RBCCW	IA	N	IN	21B	No	Pene. 27 2-RB-28.1A	Pene. 28 2-RB-28.1C
							No	2-RB-236	2-RB-237
29	Reactor Bldg. Closed Cooling Water Outlet from Reactor Coolant Pumps and Other Components++	RBCCW	IA	N	OUT	2	Yes	2-RB-37.2A	
							No	2-RB-297A	
							No	2-RB-298	

*Containment Isolation Valve Test (Type C) per 10 CFR Part 50, Appendix J.
**See Subsection 5.2.8.2.1.
***If Steam generator pressure drops to ≤485 psig.
****Valve tested with pressure applied opposite to that applied during LOCA.
+See Figure 5.2-8.
++1) Reactor Vessel Support Cooling Coils.
2) CEAM Coolers.
3) Quench Tank & PDT HX.
4) Valve 2-MS-202 has its closing coil removed to prevent spurious closure during an Appendix R Fire. See FSAR secti

ĀPERTURE
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Also Available on
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E INFORMATION

Location Ref. to C.S.	Valve Size-Type-No.	Pene. Line Size	Method of Actuation	Signal	Normal Valve Position	Valve Pos. W/Pwr. Fail.	Pos. Ind.	Post. Incid. Position
)utside	3/4"-Globe-1		Manual	----	Open	As Is	No	Open
)utside	10"-Butteryfly-1	10"	Air Cyl.	Remote	Open	Open	Yes	Open
)utside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed
)utside	(Pene. 26 only) 1"-Gate-1		Manual	----	Closed	As Is	No	Closed
)utside	10"-Butteryfly-1	10"	Air Cyl.	Remote	Open	Open	Yes	Open
)utside	1"-Gate-1		Manual	----	Closed	As Is	No	Closed
utside	8"-Gate-1	8"	MOV	Remote	Open	As Is	Yes	Open
utside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed
utside	1"-Gate-1		Manual	----	Closed	As Is	No	Closed

9807240260 - 10

9.10.6.3, item (2), and Appendix R Compliance Report.

97-37
6/98

TABLE 5.2-11

CONTAINMENT STRUCTURE ISOLATION V

Pene. No.	Service	System	Pene.* Type	Pene** Category	Flow Direction	Valve Arrgt.	Type C* Testing Require-ments	Valve Identification	
30, 31, 32 & 33	Reactor Bldg. Closed Cooling Water From Contain. Air. Recirc. Cool.	RBCCW	IA	N	OUT	22	No	Pene. 30 2-RB-28.3D Pene. 31 2-RB-28.3B	Pene. 32 2-RB-28.3A Pene. 33 2-RB-28.3C
							No	Pene. 30 2RB-28.2D Pene. 31 2RB-28.2B	Pene. 32 2RB-28.2A Pene. 33 2RB-28.2C
34	Nitrogen Supply	NS	IA	N	IN	18	Yes	2-SI-312	
							No	2-SI-045	
35	Drain from Primary Tank	RWS	IA	O	OUT	13B	Yes	2-LRR-43.2	
							Yes	2-LRR-43.1	
							No	2-LRR-291	
							No	2-LRR-293, 295	
36	Instrument Air	IA	IA	N	IN	33	Yes	2-IA-566	
							Yes	2-IA-569	
							No	2-IA-572	
37	Instrument Air	IA	IA	N	IN	1A	Yes	2-IA-27.1	
							No	2-IA-40	
							Yes	2-IA-43	

*Containment Isolation Valve Test (Type C) per 10 CFR Part 50, Appendix J.
**See Subsection 5.2.8.2.1.
***If Steam generator pressure drops to ≤485 psig.
****Valve tested with pressure applied opposite to that applied during LOCA.
+See Figure 5.2-8.
++1) Reactor Vessel Support Cooling Coils.
2) CEAM Coolers.
3) Quench Tank & PDT HX.
4) Valve 2-MS-202 has its closing coil removed to prevent spurious closure during an Appendix R Fire. See FSAR sect

LVE INFORMATION

Location Ref. to C.S.	Valve Size-Type-No.	Pene. Line Size	Method of Actuation	Signal	Normal Valve Position	Valve Pos. w/Pwr. Fail.	Pos. Ind.	Post. Incid. Position
Outside	10"-Butterfly-1	10"	Air Cyl.	SIAS	Closed	Open	Yes	Open
Outside	6"-Butterfly-1	6"	Air Cyl.	Remote	Open	Open	Yes	Open
Outside	3/4"-Globe-1	1"	Diaphragm	CIAS	Open	Closed	Yes	Closed
Outside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed
Outside	3"-Globe-1	4"	Diaphragm	CIAS	Closed	Closed	Yes	Closed
Inside	3"-Globe-1		Diaphragm	CIAS	Closed	Closed	Yes	Closed
Outside	1"-Gate-1		Manual	----	Closed	As Is	No	Closed
Outside	3/4"-Globe-2		Manual	----	Closed	As Is	No	Closed
Outside	1/2"-Gate-1		Manual		Closed	As Is	No	Open
Inside	1/2-Check-1						No	
Inside	1/2"-Gate-1							
Outside	2"-Globe-1	2"	Diaphragm	Remote	Open	Closed	Yes	Open
Outside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed
Inside	2"-Check-1			----			No	

9807240260 - 11

on 9.10.6.3, item (2), and Appendix R Compliance Report.

97-37
6/98

Pene. No.	Service	System	Pene.* Type	Pene** Category	Flow Direction	Valve Arrgt.	Type C* Testing Require-ments	Valve Identification
38	Station Air	SA	IA	N	IN	3	Yes	2-SA-19
	Station Air	SA	IA	N	IN	3	No	2-SA-28
							Yes	2-SA-22
39	Purge Air Inlet	PA	IC	O	IN	4	Yes	2-AC-4
							Yes****	2-AC-5
							No	2-AC-21
40	Purge Air Discharge	PA	IC	O	OUT	5	Yes	2-AC-7
							Yes****	2-AC-6
							No	2-AC-31
42	Fuel Transfer Tube	FTS	Special	O	IN/OUT	8	No	N/A
							No	2-RW-280
							No	2-RW-291
							No	2-RW-31
							No	2-RW-292

*Containment Isolation Valve Test (Type C) per 10 CFR Part 50, Appendix J.
**See Subsection 5.2.8.2.1.
***If Steam generator pressure drops to ≤485 psig.
****Valve tested with pressure applied opposite to that applied during LOCA.
+See Figure 5.2-8.
++1) Reactor Vessel Support Cooling Coils.
2) CEAM Coolers.
3) Quench Tank & PDT HX.
4) Valve 2-MS-202 has its closing coil removed to prevent spurious closure during an Appendix R Fire. See FSAR sec

VE INFORMATION

Location Ref. to C.S.	Valve Size-Type-No.	Pene. Line Size	Method of Actuation	Signal	Normal Valve Position	Valve Pos. w/Pwr. Fail.	Pos. Ind.	Post. Incid. Position	
Outside	2"-Gate-1	2"	Manual	----	Closed	As Is	No	Closed	
Inside	1"-Gate-1	2"	Manual	----	Closed	As Is	No	Closed	97-37 6/98
Inside	2"-Check-1			----			No		
Outside	48"- Butterfly-1	48"	Air Cyl.	Hi CTMT Radiation	Locked Closed	Closed	Yes	Closed	(96-38) 1/97
Inside	48"- Butterfly-1		Air Cyl.	Hi CTMT Radiation	Locked Closed	Closed	Yes	Closed	(96-38)
Outside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed	
Outside	48"- Butterfly-1	48"	Air Cyl.	Hi CTMT Radiation	Locked Closed	Closed	Yes	Closed	(96-38)
Inside	48"- Butterfly-1		Air Cyl.	Hi CTMT Radiation	Locked Closed	Closed	Yes	Closed	(96-38)
Outside	3/4"-Globe-1		Manual		Closed	As Is	No	Closed	
Inside	Special Closure	36"	----	----	Closed	----	----	Closed	
Outside	36"-Gate-1		Manual	----	Closed	As Is	No	Closed	
Inside	1/2"-Gate-1		Manual	----	Locked Closed	As Is	No	Closed	(96-38)
Inside	3/4"-Globe-1		Manual	----	Locked Closed	As Is	No	Closed	
Inside	1/2"-Gate-1		Manual	----	Locked Closed	As Is	No	Closed	(96-38)

9807240260 - 12

n 9.10.6.3, item (2), and Appendix R Compliance Report. 97-37

TABLE 5.2-11

CONTAINMENT STRUCTURE ISOLATION

Pene. No.	Service	System	Pene.* Type	Pene** Category	Flow Direction	Valve Arrgt.	Type C* Testing Require-ments	Valve Identification	
43	Reactor Coolant Pump Seals Controlled Bleed Off	CVCS	IA	P	OUT	6	Yes	2-CH-506	
							Yes	2-CH-198	
							Yes	2-CH-505	
							No	2-CH-758, 768, 701	
							No	2-CH-767, 766	
							No	2-CH-744	
47, 69 70, 71	Pressure Monitoring		IA	Special	IN/OUT	30	No	Pene. 47 2-AC-97 Penn. 69 2-AC-99	Pene. 70 2-AC-98 Pene. 71 2-AC-96
51	Waste Gas Header	RWS	IA	N	OUT	12	Yes	2-GR-11.2	
								2-GR-11.1	
							No	2-GR-63	
49	Fire Protection	Fire	IA	N	IN	34	Yes	2-Fire-108	
							No	2-Fire-125	
							Yes	2-Fire-109	

*Containment Isolation Valve Test (Type C) per 10 CFR Part 50, Appendix J.
**See Subsection 5.2.8.2.1.
***If Steam generator pressure drops to ≤485 psig.
****Valve tested with pressure applied opposite to that applied during LOCA.
+See Figure 5.2-8.
++1) Reactor Vessel Support Cooling Coils.
2) CEAM Coolers.
3) Quench Tank & PDT HX.
4) Valve 2-MS-202 has its closing coil removed to prevent spurious closure during an Appendix R Fire. See FSAR sec

ALVE INFORMATION

Location Ref. to C.S.	Valve Size-Type-No.	Pene. Line Size	Method of Actuation	Signal	Normal Valve Position	Valve Pos. W/Pwr. Fail.	Pos. Ind.	Post. Incid. Position	
Inside	3/4"-Globe-1	3/4"	Diaphragm	CIAS	Open	Closed	Yes	Closed	
Outside	3/4"-Globe-1		Diaphragm	CIAS	Open	Closed	Yes	Closed	
Outside	3/4"-Globe-1		Diaphragm	CIAS	Closed	Closed	Yes	Closed	(96-38) 1/97
Outside	3/4"-Globe-3		Manual	----	Locked Closed	As Is	No	Closed	
Outside	3/4"-Globe-2		Manual	----	Locked Open	As Is	No	Open	(96-38)
Outside	3/4"-Gate-1		Manual	----	Locked Closed	As Is	No	Closed	(96-38)
Outside	1/2"-Globe-1	1/2"	Manual	----	Open	As Is	Yes	Open	
Outside	3"-Globe-1	3"	Diaphragm	CIAS	Open	Closed	Yes	Closed	
Inside	3"-Globe-1								
Outside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed	
Outside	6" Butterfly		Manual	----	Locked Closed	As Is	No	Closed	(96-38)
Outside	1" Gate		Manual	----	Locked Closed	As Is	No	Closed	(96-38)
Inside	6" Check		----	----	Closed	As Is	No	Closed	

9807240260 - 13

ion 9.10.6.3, item (2), and Appendix R Compliance Report.

97-37
6/98

Pene. No.	Service	System	Pene.* Type	Pene** Category	Flow Direction	Valve Arrgt.	Type C* Testing Require-ments	Valve Identification	
53	Reactor Bldg. Closed Cooling Water Inlet to Reactor Coolant Pumps and Other Components++	RBCCW	IA	N	IN	24	Yes	2-RB-30.1B	
							No	2-RB-291	
							No	2-RB-173B	
54	Reactor Bldg. Closed Cooling Water Outlet from Reactor Coolant Pumps and Other Components++	RBCCW	IA	N	OUT	2	Yes	2-RB-37.2B	
							No	2-RB-300	
							No	2-RB-299A	
85	Containment Leak Rate Pressurization		IA	O	IN/OUT	29	No	N/A	
							No	SF-01	
							No	2-AC-107	
61 & 86	Containment Air Sample	CAS	IC	O	OUT	26	Yes	Pene. 61 2-AC-12	Pene. 86 2-AC-47
							Yes	2-EB-88	2-EB-89

*Containment Isolation Valve Test (Type C) per 10 CFR Part 50, Appendix J.
**See Subsection 5.2.8.2.1.
***If Steam generator pressure drops to ≤485 psig.
****Valve tested with pressure applied opposite to that applied during LOCA.
+See Figure 5.2-8.
++1) Reactor Vessel Support Cooling Coils.
2) CEAM Coolers.
3) Quench Tank & PDT HX.
4) Valve 2-MS-202 has its closing coil removed to prevent spurious closure during an Appendix R Fire. See FSAR sect

E INFORMATION

Location Ref. to C.S.	Valve Size-Type-No.	Pene. Line Size	Method of Actuation	Signal	Normal Valve Position	Valve Pos. w/Pwr. Fail.	Pos. Ind.	Post. Incid. Position
utside	6"-Gate-1	6"	MOV	Remote	Open	As Is	Yes	Open
utside	1"-Gate-1		Manual	----	Closed	As Is	No	Closed
utside	3/4"-Globe-1		Manual	----	Open	As Is	No	Open
utside	6"-Gate-1	6"	MOV	Remote	Open	As Is	Yes	Open
utside	1"-Gate-1		Manual	----	Closed	As Is	No	Closed
utside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed
nside	6"-Blind Flange-1		----	----	----	----	No	----
utside	6"-Spectical Flange-1	6"	----	----	----	----	No	----
utside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed
utside	1-1/2"-Butterfly-1		Diaphragm	CIAS	Open	Closed	Yes	Closed
nside	1-1/2"-Butterfly-1	1"	Diaphragm	CIAS	Open	Closed	Yes	Closed

9.10.6.3, item (2), and Appendix R Compliance Report.

97-37
6/98

TABLE 5.2-11

CONTAINMENT STRUCTURE ISOLATION V

Pene. No.	Service	System	Pene.* Type	Pene** Category	Flow Direction	Valve Arrgt.	Type C* Testing Require-ments	Valve Identification	
							No	2-AC-101	2-AC-102
62 & 87	Containment Air Sample	CAS	IC	O	IN	28	Yes	Pene. 62 2-AC-54	Pene. 87 2-AC-55
							Yes	2-AC-15	2-AC-20
							No	2-AC-103	2-AC-104
67	Refueling Water Purification	RPCS	IA	O	OUT	27A	Yes****	2-RW-232	
							Yes	2-RW-21	
							No	2-RW-158	
68	Refueling Water Purification	RPCS	IA	O	IN	27B	Yes****	2-RW-154	
							Yes	2-RW-63	
							No	2-RW-159	
82	Hydrogen Purge	HC	IA	O	OUT	25A	Yes	2-EB-91	
							Yes	2-EB-92	

*Containment Isolation Valve Test (Type C) per 10 CFR Part 50, Appendix J.
**See Subsection 5.2.8.2.1.
***If Steam generator pressure drops to ≤485 psig.
****Valve tested with pressure applied opposite to that applied during LOCA.
+See Figure 5.2-8.
++1) Reactor Vessel Support Cooling Coils.
2) CEAM Coolers.
3) Quench Tank & PDT HX.
4) Valve 2-MS-202 has its closing coil removed to prevent spurious closure during an Appendix R Fire. See FSAR sect

ĀPERTURE
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VE INFORMATION

Location Ref. to C.S.	Valve Size-Type-No.	Pene. Line Size	Method of Actuation	Signal	Normal Valve Position	Valve Pos. W/Pwr. Fail.	Pos. Ind.	Post. Incid. Position	
Outside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed	
Inside	1/2" Check-1	1"	----	----	----	----	No	----	
Outside	1-1/2"-Butterfly-1		Diaphragm	CIAS	Open	Closed	Yes	Closed	
Outside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed	
Inside	4"-Gate-1	4"	Manual	----	Locked Closed	As Is	No	Closed	(96-38) 1/97
Outside	4"-Gate-1		Manual	----	Locked Closed	As Is	No	Closed	(96-38)
Outside	3/4"-Gate-1		Manual	----	Locked Closed	As Is	No	Closed	(96-38)
Inside	4"-Gate-1	4"	Manual	----	Locked Closed	As Is	No	Closed	(96-38)
Outside	4"-Gate-1		Manual	----	Locked Closed	As Is	No	Closed	(96-38)
Outside	3/4"-Gate-1		Manual	----	Locked Closed	As Is	No	Closed	(96-38)
Inside	6"-Butterfly-1	6"	Air Cyl.	CIAS & Hi CTMT Radiation	Closed	As Is	Yes	Closed	
Outside	6"-Butterfly-1		Diaphragm	CIAS & Hi CTMT Radiation	Closed	Closed	Yes	Closed	

9807240260 - 15

n 9.10.6.3, item (2), and Appendix R Compliance Report. 97-37 6/98

Pene. No.	Service	System	Pene.+ Type	Pene** Category	Flow Direction	Valve Arrgt.	Type C* Testing Require-ments	Valve Identification	
							No	2-EB-86	
							No	2-EB-120	
83	Hydrogen Purge	HC	IA	O	OUT	25B	Yes	2-EB-100	
							Yes	2-EB-99	
							No	2-EB-121	
65 & 72	Steam Generator Blowdown Sample	SGBS	IA	N	OUT	14B	Yes	Pene. 65 2-MS-191A	Pene. 72 2-MS-191B
88 & 89	Post-Incident Containment Hydrogen Sample	CAS	IC	O	OUT	32	No	Pene. 88 2-EB-122	Pene. 89 2-EB-123
							Yes	PSE-8627	PSE-8628
							Yes	2-AC-51	2-AC-46
63 & 64	Ctmt. Pressure Test Conn.	ILRT	IC	O	OUT	31	Yes	Pene. 63 2-AC-114	Pene. 64 2-AC-112
							Yes	2-AC-117	2-AC-116
		ILRT	IC	O	OUT	31	No	1"-Blind Flange TC	1"-Blind Flange TC

*Containment Isolation Valve Test (Type C) per 10 CFR Part 50, Appendix J.
**See Subsection 5.2.8.2.1.
***If Steam generator pressure drops to ≤485 psig.
****Valve tested with pressure applied opposite to that applied during LOCA.
+See Figure 5.2-8.
++1) Reactor Vessel Support Cooling Coils.
2) CEAM Coolers.
3) Quench Tank & PDT HX.
4) Valve 2-MS-202 has its closing coil removed to prevent spurious closure during an Appendix R Fire. See FSAR sect

ÄPERTURE
CARD

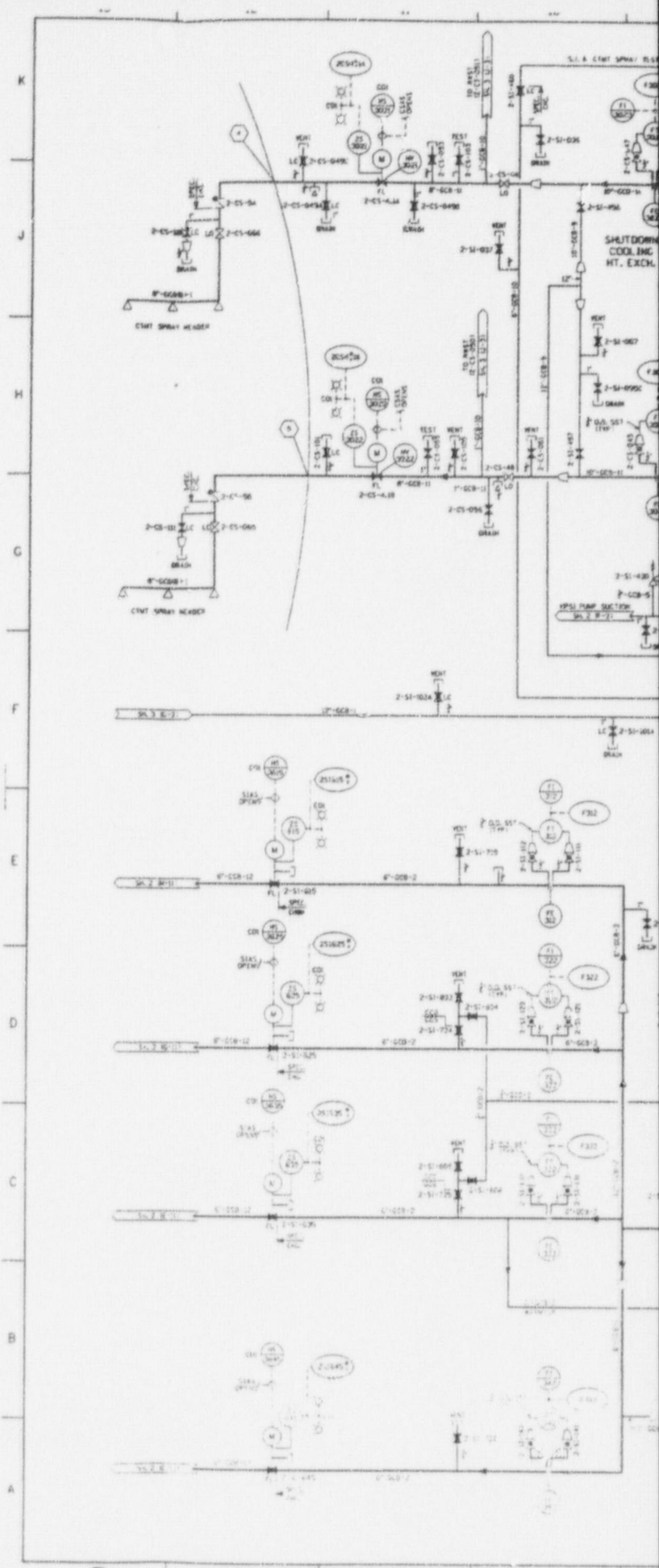
Also Available on
Aperture Card

VE INFORMATION

Location Ref. to C.S.	Valve Size-Type-No.	Pene. Line Size	Method of Actuation	Signal	Normal Valve Position	Valve Pos. W/Pwr. Fail.	Pos. Ind.	Post. Incid. Position	
Inside	3/4"-Gate-1		Manual	----	Closed	As Is	No	Closed	
Outside	3/4"-Globe-1		Manual	----	Locked Closed	As Is	No	Closed	(96-38) 1/97
Inside	6"-Butterfly-1	6"	Air Cyl.	CIAS & Hi CTMT Radiation	Closed	As Is	Yes	Closed	
Outside	6"-Butterfly-1		Diaphragm	CIAS & Hi CTMT Radiation	Closed	Closed	Yes	Closed	
Outside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed	
Outside	1/2"-Globe-1	1/2"	Diaphragm	CIAS	Open	Closed	Yes	Closed	
Outside	3/4"-Globe-1		Manual	----	Closed	As Is	No	Closed	
Inside	Rupture Disk		Manual				No		97-37 6/98
Outside	1"-Globe-1	1"	Manual	----	Closed	As Is	No	Closed	
Outside	1"-Globe-1	1"	Manual	----	Closed	As Is	No	Closed	
Inside	1"-Globe-1		Manual	----	Closed	As Is	No	Closed	
Outside	1"-Blind Flange-2	1"	----	----	----	----	No	----	97-37

9807240260 - 16

on 9.10.6.3, item (2), and Appendix R Compliance Report. 97-37



SHUTDOWN
COOLING
HT. EXCH.
CTMT SPRAY HEADER
CTMT SPRAY HEADER
DRAIN
VENT
TEST
HPSI PUMP SUCTION

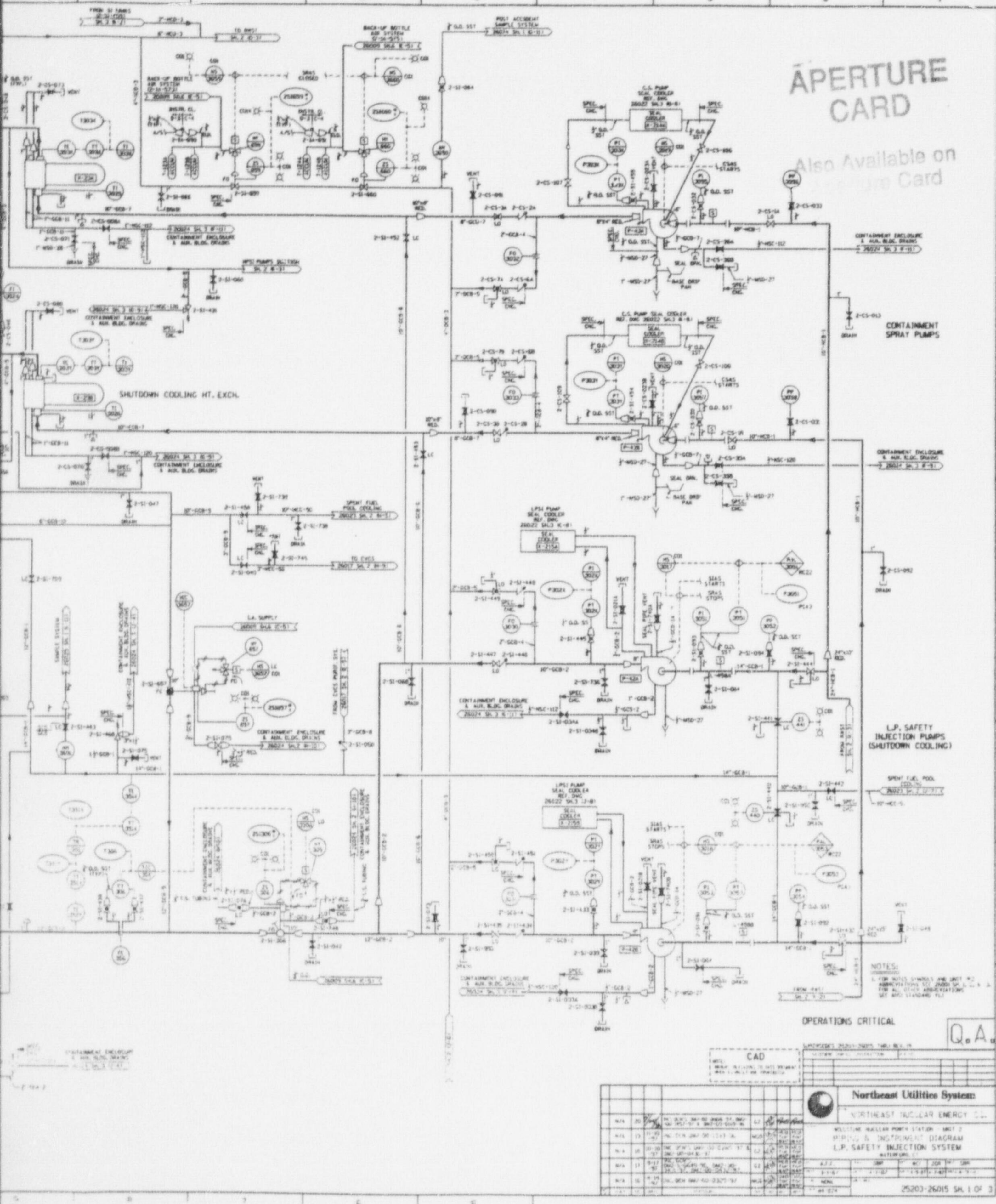
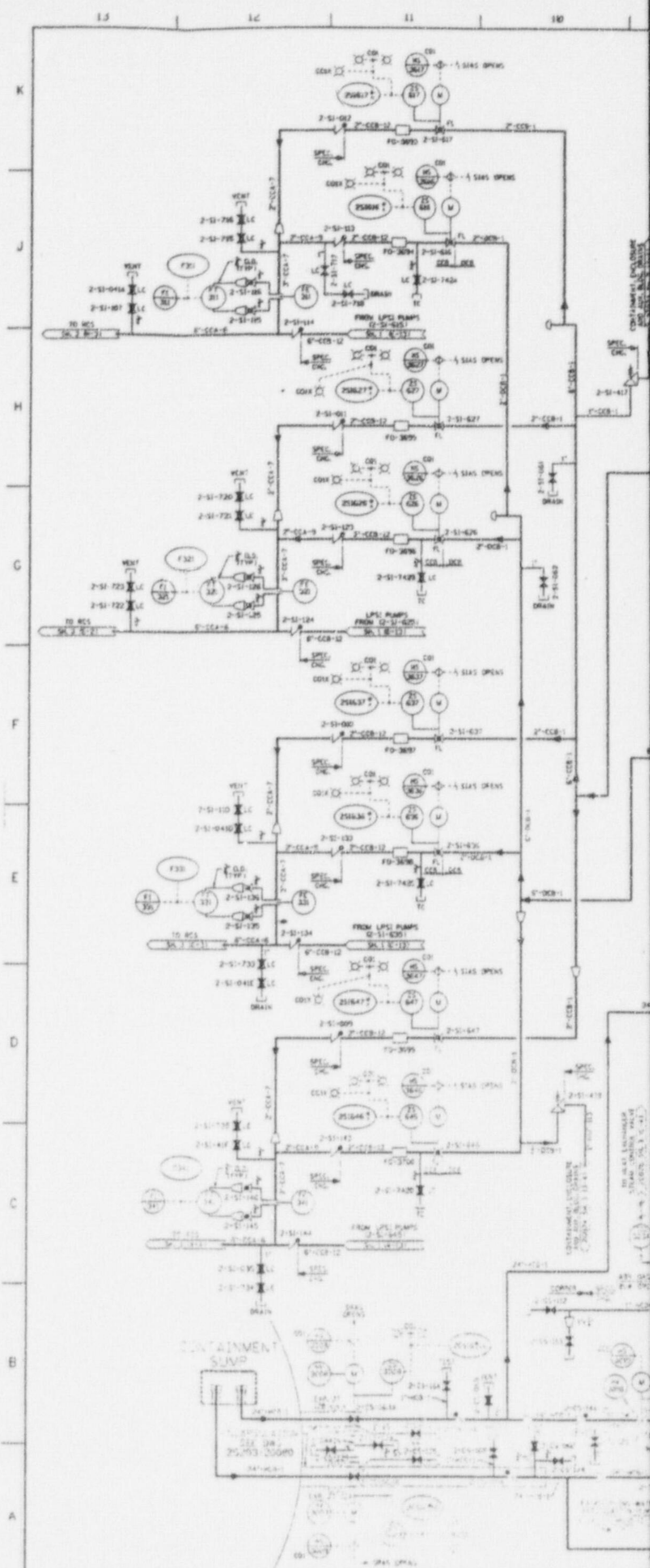


FIGURE 06.01-01 SH- 01 MAY 1998

9807240260 - 17


CONTAINMENT SUMP
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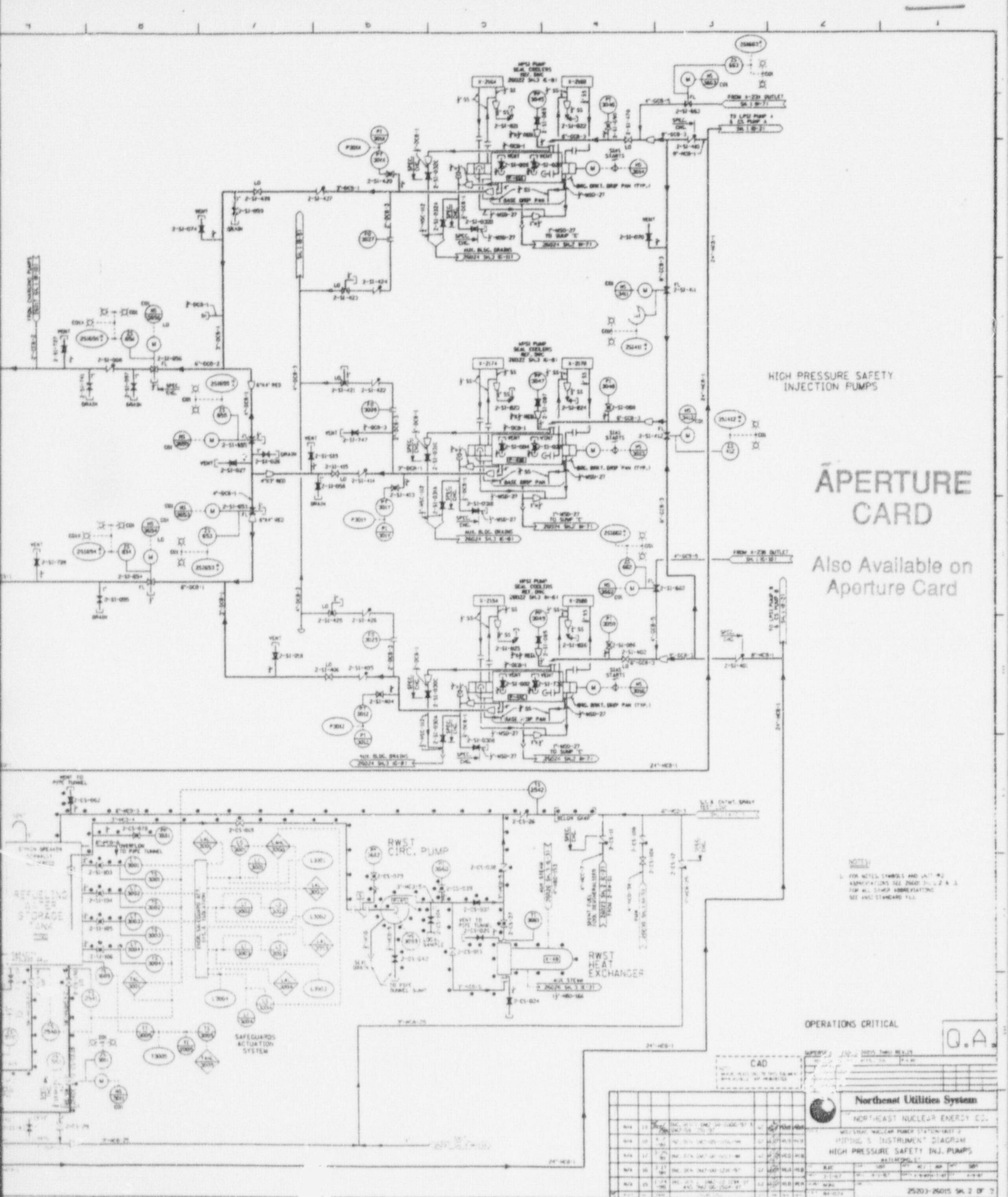
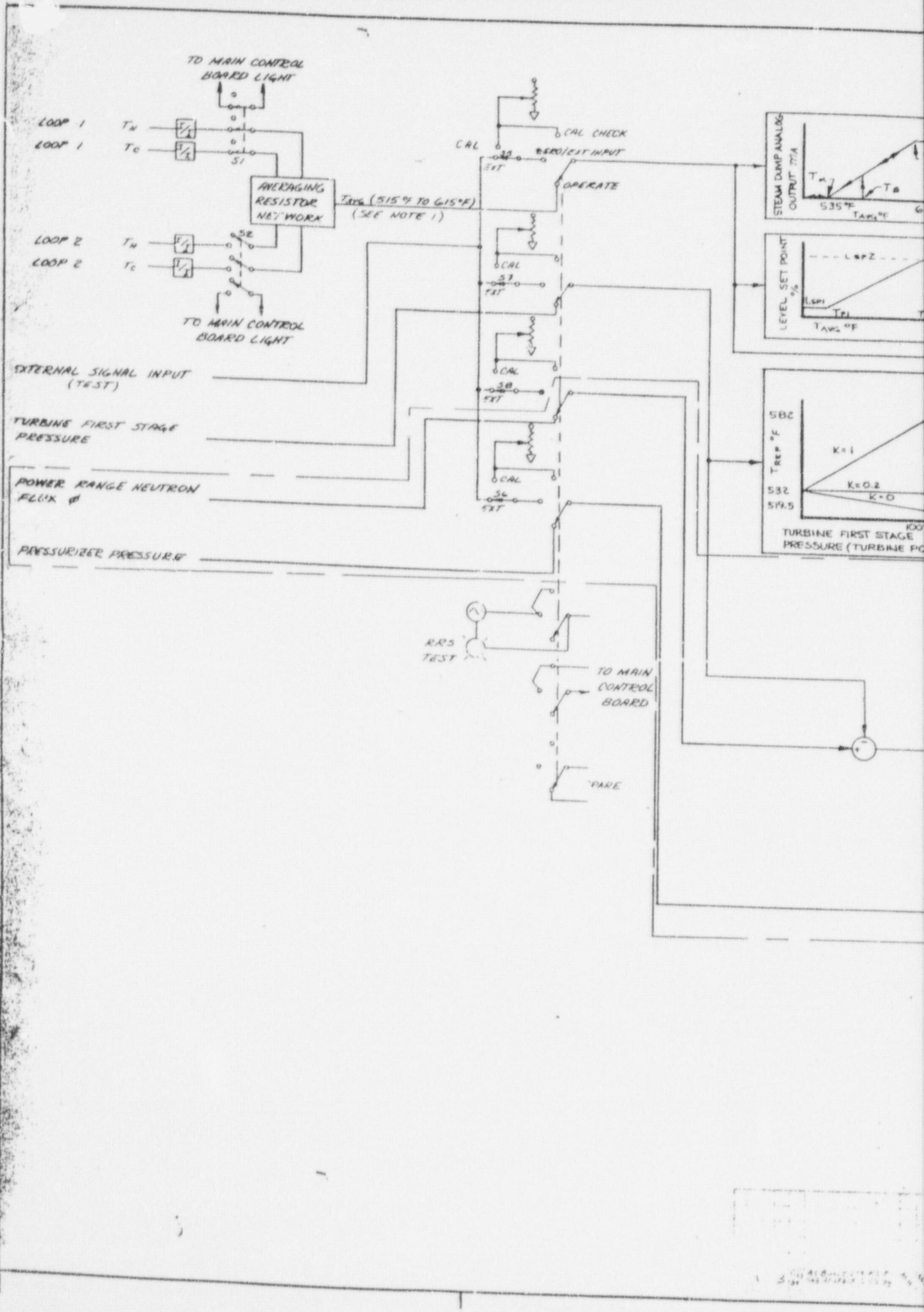
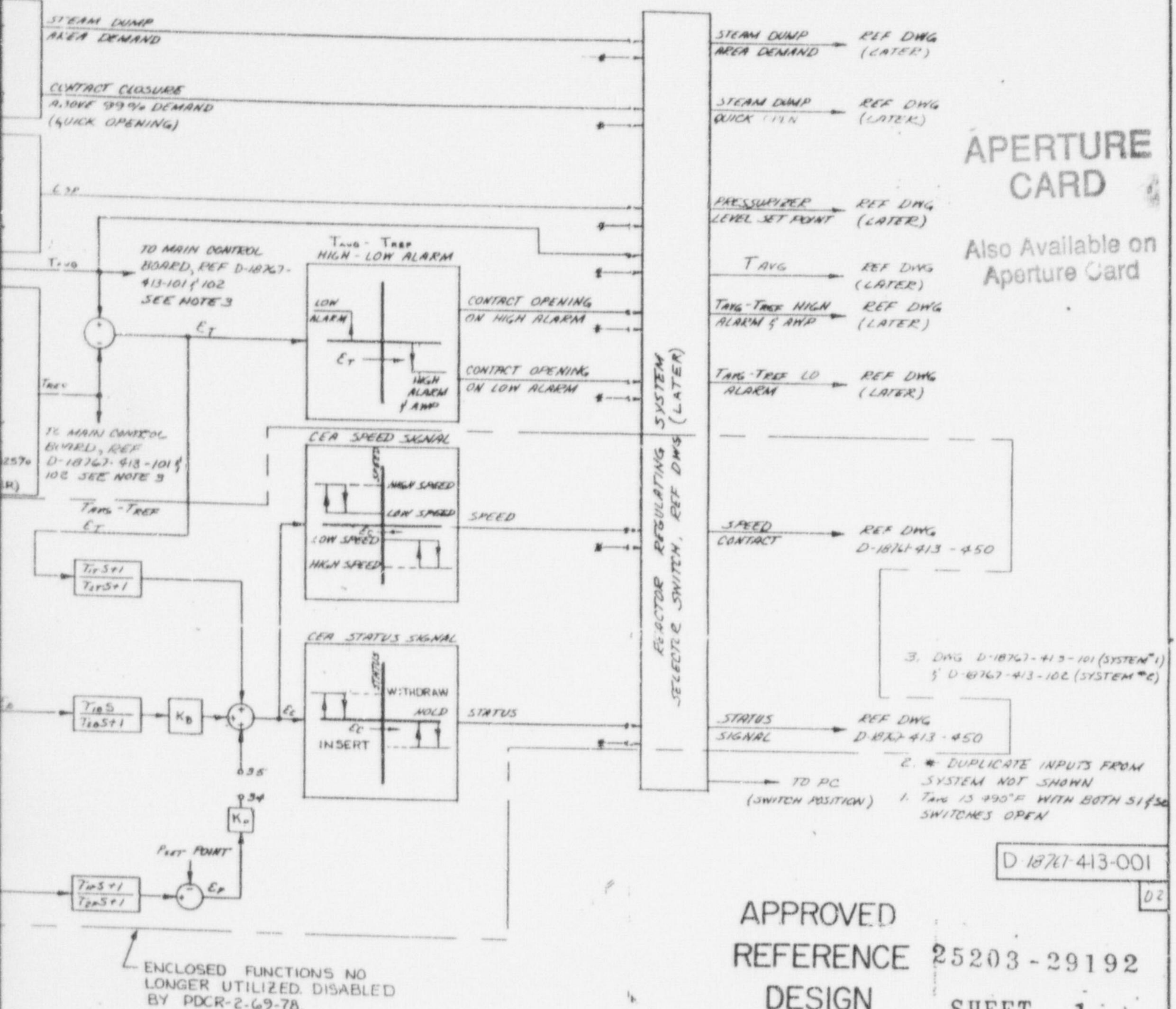


FIGURE 06.01-01 SH- 02 MAY 1998

9807240260 - 18



TO MAIN CONTROL BOARD LIGHT
LOOP 1
LOOP 1
LOOP 2
LOOP 2
S1
S2
AVERAGING RESISTOR NETWORK
TAVG (515°F TO 615°F)
(SEE NOTE 1)
TO MAIN CONTROL BOARD LIGHT
CAL
CAL CHECK
ZERO/EXT INPUT
OPERATE
EXT
CAL
S7
EXT
CAL
S8
EXT
CAL
S6
EXT
EXTERNAL SIGNAL INPUT
(TEST)
TURBINE FIRST STAGE PRESSURE
POWER RANGE NEUTRON FLUX
PRESSURIZER PRESSURE
RRS TEST
TO MAIN CONTROL BOARD
SPARE
STEAM DUMP ANALOG OUTPUT
535°F
TAVG °F
LEVEL SET POINT %
TAVG °F
582
532
519.5
K=1
K=0.2
K=0
TREF °F
TURBINE FIRST STAGE
PRESSURE (TURBINE PO



APERTURE CARD

Also Available on Aperture Card

D-18767-413-001

02

APPROVED REFERENCE DESIGN

25203-29192

SHEET 1

THIS DWG SUPERSEDES 25203-29192 SH. 21F

FOR INFORMATION ONLY

NON Q.A.

COMPONENT CODE # 91-2352-5800

MILLSTONE NUCLEAR POWER STATION-UNIT NO. 2

NORTHEAST UTILITIES

7604-M805-1-3

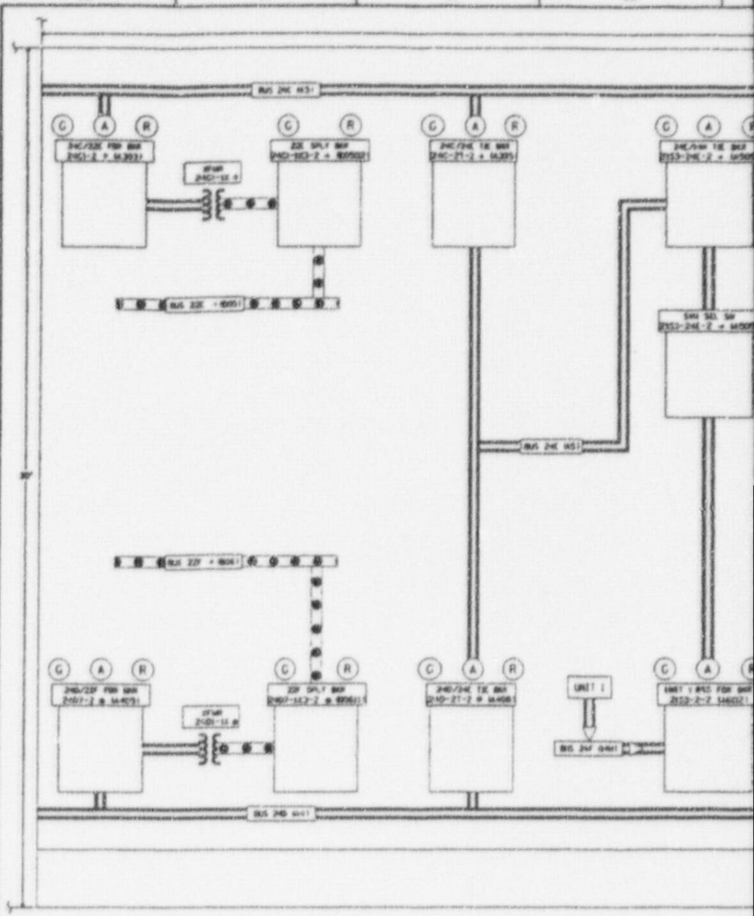
REACTOR REGULATING SYSTEM BLOCK DIAGRAM

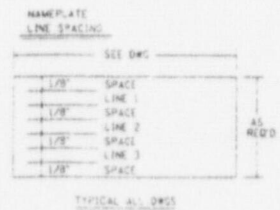
COMBUSTION ENGINEERING, INC.
NUCLEAR POWER DEPARTMENT
WINDSOR, CONNECTICUT

D-18767-413-001 02

FIGURE 07.04-01 SH- 01 MAY 1998

9807240260 - 19





NOTES

1. NAMEPLATES THAT ARE RED, GREEN OR BLUE HAVE WHITE LETTERS.
2. • - INDICATES AN 1/8" RED DOT (TRAIN A), EXCEPT FOR CAUTION LABELS
   • - INDICATES AN 1/8" YELLOW DOT (TRAIN B)
   • - INDICATES AN 1/8" BLACK DOT.
3. LETTER SIZES AND DEVICE NUMBERS ARE NOT SHOWN TO SCALE.

MIMIC LEGEND

BLUE

BLACK

BLACK/YELLOW

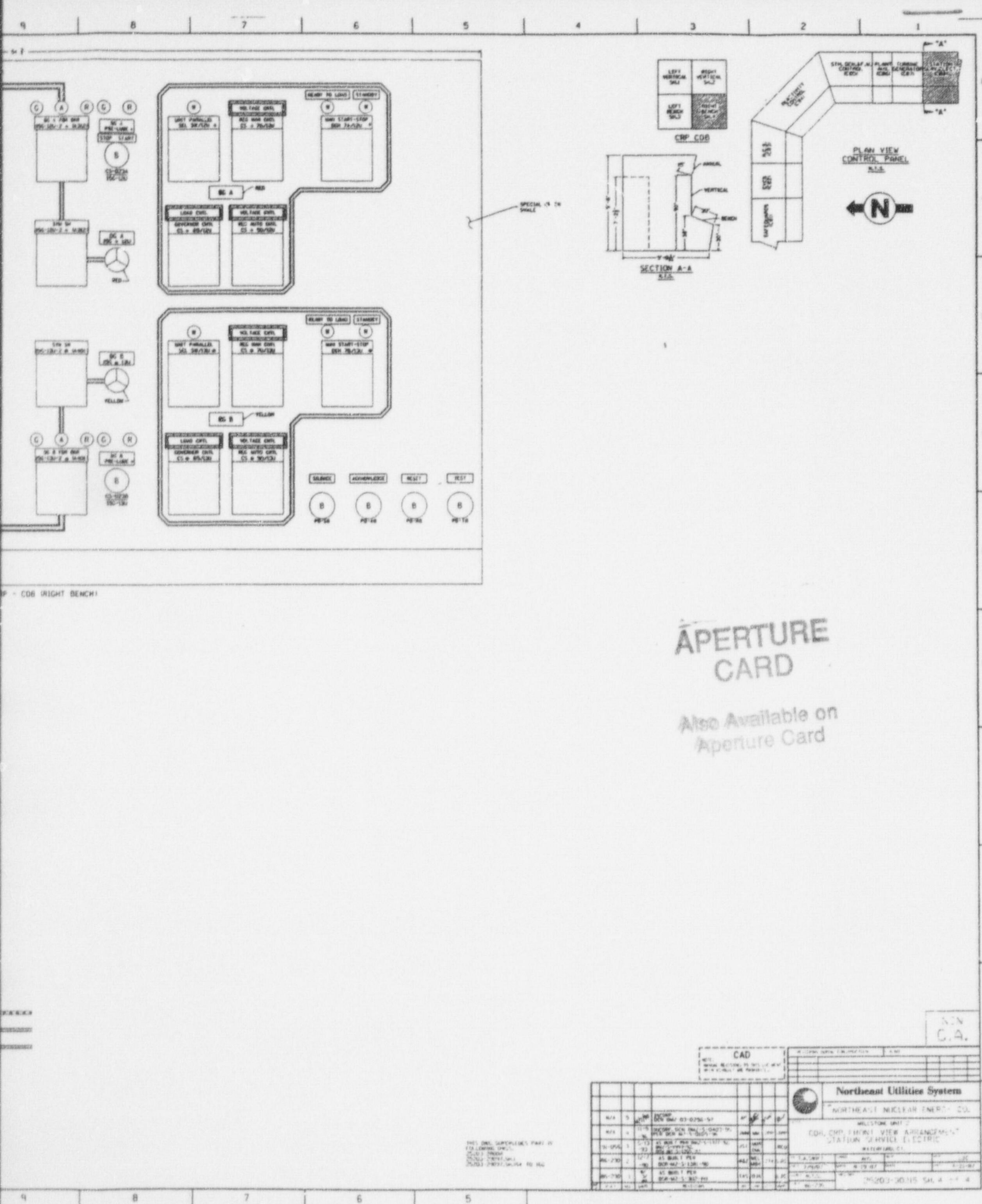
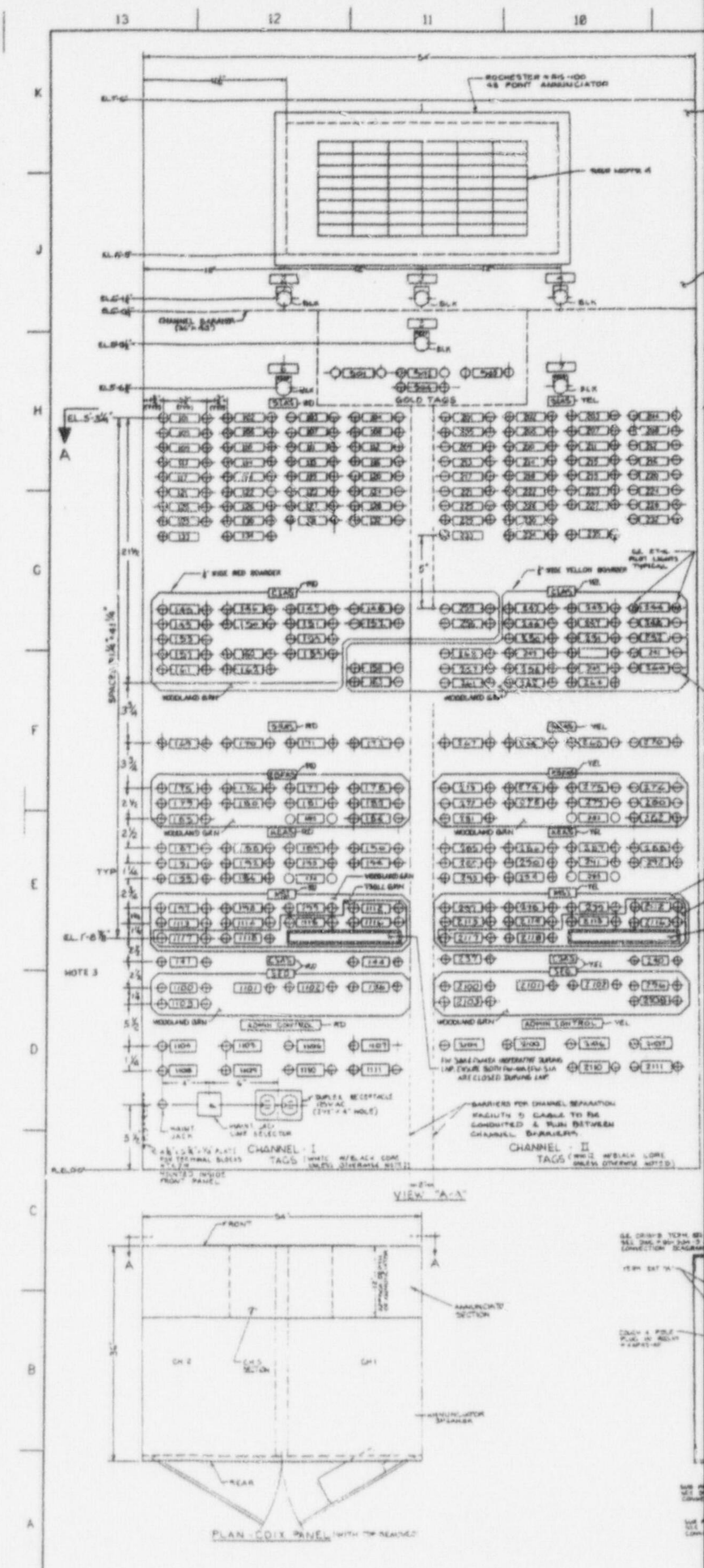


FIGURE 07.06-08 SH- 04 MAY 1998

9807240260 - 20



13
12
11
10
K
J
H
G
F
E
D
C
B
A
GOLD TAGS
WOODLAND GRN
HOTE 3
CHANNEL - I
CHANNEL - II
VIEW "A-A"
FRONT
REAR
PLAN - CDIX PANEL

NORM. VITAL ANNUNCIATOR SECTION

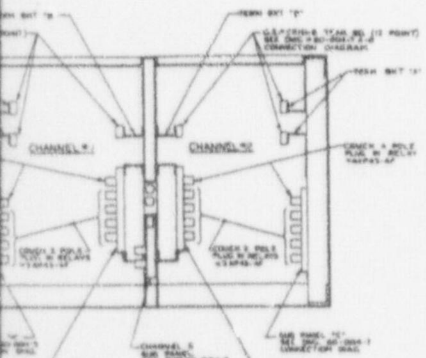
CRITICAL GREEN SHALE

TOTHING-SIZED PLUG CAPS IN ALL UNUSED HOLES IN PANEL FACE. CAPS MUST BE PAINTED TO MATCH PANEL.

APERTURE CARD

Also Available on Aperture Card

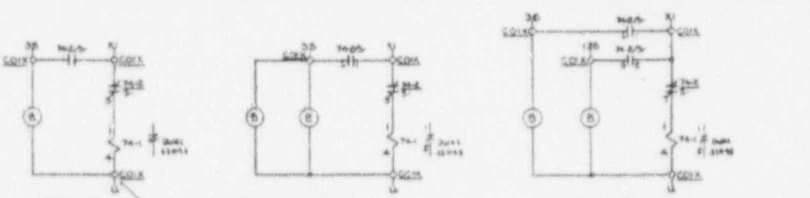
ITEM/DETAIL #	DEVICE NO.	DESCRIPTION	SCHEME NO.	SCHEMATIC DWG. NO.	ITEM/DETAIL #	DEVICE NO.	DESCRIPTION	SCHEME NO.	SCHEMATIC DWG. NO.	ITEM/DETAIL #	DEVICE NO.	DESCRIPTION	SCHEME NO.	SCHEMATIC DWG. NO.
[illegible]	[illegible]	CTMT AIR RECIRC COOLER INLET VLV	[illegible]	[illegible]	[illegible]	P-5B	SERVICE WTR PUMP B	[illegible]	[illegible]	[illegible]	[illegible]	SERVICE WATER PUMP C	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	SERVICE WATER PUMP A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	VITAL SWGR RM CLG FAN	[illegible]	[illegible]	[illegible]	[illegible]	CHARGING PUMP A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	MAIN FEED PUMP A	[illegible]	[illegible]	[illegible]	P-41A	CTMT SPRAY PUMP A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	MAIN FEEDWATER TO STM GEN NO. 2	[illegible]	[illegible]	[illegible]	AC-3	PURGE SUPPLY TO EB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CHARGING PUMP A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CONTROL ROOM FILTER FAN	[illegible]	[illegible]	[illegible]	[illegible]	CONTROL ROOM FILTER FAN	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1101	[illegible]	D G REMOTE CONTROL	[illegible]	32041 SH. A	1		ALARM ANNUNCIATOR		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1102/A	[illegible]	D G BKR	[illegible]	32041 SH. 1	2		ALARM ANN. RESET		
										3		ALARM ANN. FUNCTIONAL TEST		
										4		ALARM ANN. ACKNOWLEDGE		
										5		CHANNEL 3 TEST		
										6		CHANNEL 1 TEST		
										7		CHANNEL 2 TEST		
										2100A	HF38B	DG VENT FAN B	[illegible]	32023 SH. [illegible]
										2101	[illegible]	D G REMOTE CONTROL	[illegible]	[illegible]
										2102/A	[illegible]	D G BKR	[illegible]	32041 SH. 1



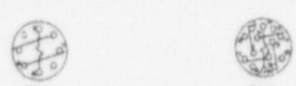
SECTION A-A
(INTERNAL A/B PANEL LAYOUT)

REFERENCE DWGS:
25203-32004 SH. 1 THRU 3 - NAMEPLATE ENGRAVINGS ENG SAFETY EQUIP PNL (C01X)

NOTES
1. CONTACT NOS ARE TYPICAL SEE DWGS 32045 FOR CONTACT WIRING
2. DESCRIPTIONS GIVEN ARE NOT ACTUAL NAMEPLATE ENGRAVINGS
3. DIMENSIONS ARE APPROX SEE F.P. 7604-E46-2
4. REFERENCE DWG 51000 SH. 10 FOR WINDOW ENGRAVING
5. THE SAFETY EQUIPMENT STATUS PANEL MUST BE ASSEMBLED, WIRED & TESTED IN STRICT ACCORDANCE WITH BECHTEL SPEC 7604-E-14
6. REFER TO EMD DWG 50-004-1 THRU 4 FOR FABRICATION DETAILS
7. REFER TO EMD DWG 50-004-5 THRU 9 FOR ELECTRICAL CONNECTION DIAGRAM
8. CAUTION LABEL BLK/YEL BORDER



DETAIL "A" DETAIL "B" DETAIL "C"



74-1
COUCH 2CP RELAY OR DEUTSCH 2AP X1596

74-2
COUCH TYPE AC RELAY

CIRCUIT DETAILS

THIS DWG SUPERCEDES DWG. 25203-39030 SH. 5

REDRAWN FROM SAME NAMED DWG. NO. REV. 11

CAD

Q.A.

Northeast Utilities System

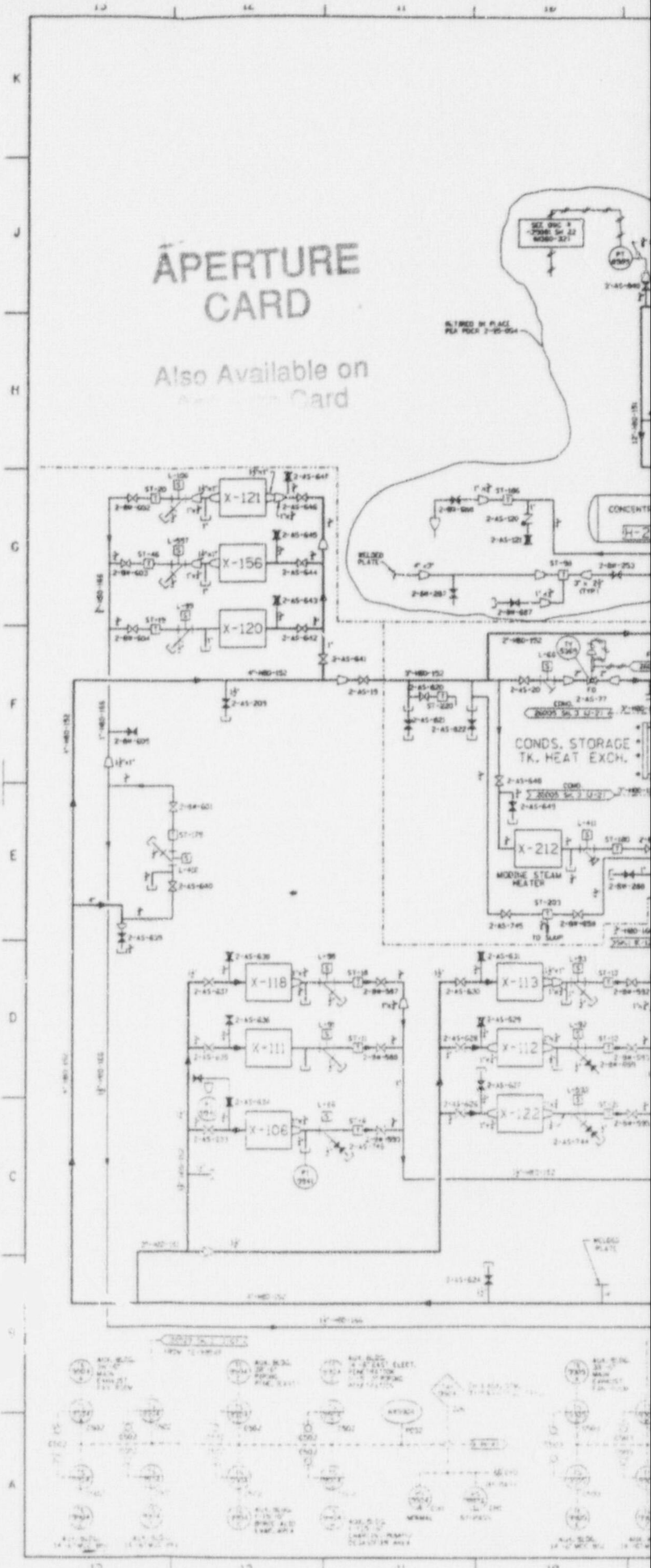
NORTHEAST NUCLEAR ENERGY CO.

MILLSTONE UNIT 2
ENGINEERED SAFETY EQUIPMENT STATUS PANEL LAYOUT (C01X)
WATERFORD CT.

25203-30071

FIGURE 07.06-11 SH- 01 MAY 1998

9807240260 - 21


X-121
X-156
X-120
CONDS. STORAGE
TK. HEAT EXCH.
X-212
MODINE STEAM
HEATER
X-118
X-111
X-106
X-113
X-112
X-122
WELDED
PLATE
13
12
11
10

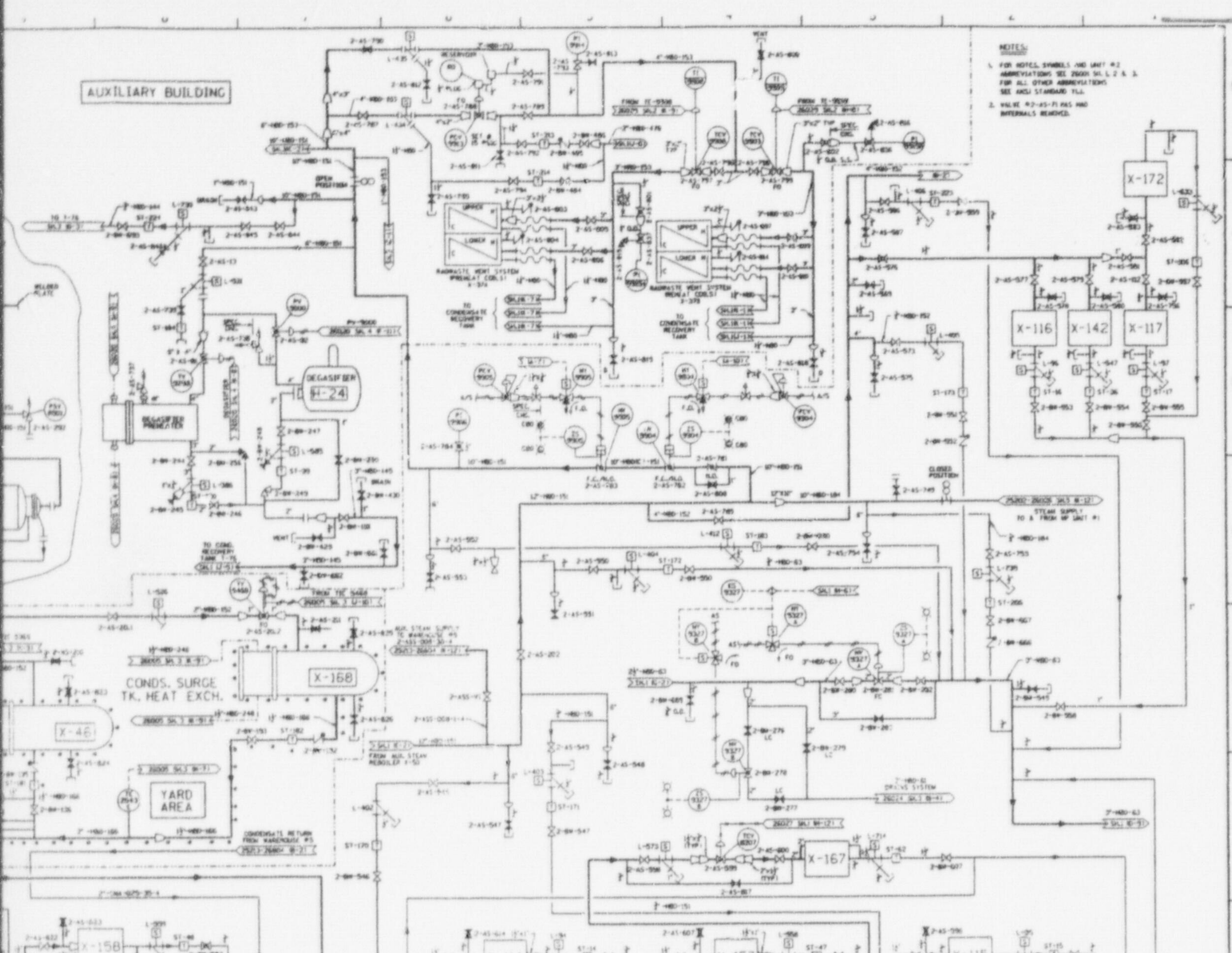


FIGURE 07.10-01 SH- 01 MAY 1998

9807240260-22

43-MSS 15G-12U   43-MSS 15G-13U

CONTACT HANDLE END	CONT. Nº	POSITION COS	POSITION D/G
1 1C 2C 2	1	X	
	2		X
3 3C 4C 4	3	X	
	4		X
5 5C 6C 6	5	X	
	6		X
7 7C 8C 8	7	X	
	8		X

MAINTAINED CONTACTS SBI SEL. SW.
KEY OPERATED, KEY REMOVABLE
IN LOCAL POSITION ONLY.
(TWO DIFFERENT KEYS ARE REQU'D FOR DIESELS H7A & H7B)

FIGURE 1

43-MSS3 15G-12U   43-MSS3 15G-13U   (G.E. 16SBIBB226SAM2Y)

CONTACT HANDLE END	CONT. Nº	POSITION MAINT.	POSITION NORMAL
1 1C 2C 2	1	X	
	2		X
3 3C 4C 4	3	X	
	4		X

MAINTAINED CONTACTS SBI SEL. SW.
KEY OPERATED (SAME KEY FOR FIG. 1)
KEY REMOVABLE IN NORMAL POSITION
ONLY. - SEE NOTE # 2

FIGURE 5

DGH7A 15G-12U   DGH7B 15G-13U

CONTACT HANDLE END	CONT. Nº	POSITION START	POSITION AUTO	POSITION STOP
1 1C 2C 2	1			X
	2		X	X
3 3C 4C 4	3			X
	4		X	X

16SBMB3D41S1S2
SPRING RETURN TO AUTO
CONTROL SWITCH

FIGURE 6

43-SLST 15G-12U   43-SLST 15G-13U

CONTACT HANDLE END	CONT NO	POSITION SLOW START	POSITION NORMAL
1 1C 2C 2	1	X	
	2		X
3 3C 4C 4	3	X	
	4		X
5 5C 6C 6	5	X	
	6		X

MAINTAINED CONTACT SBI SEL. SW.
KEY OPERATED
KEY REMOVABLE IN NORMAL POSITION

FIGURE 8

CS-65 15G-12U   CS-65 15G-13U
CS-70 15G-12U   CS-70 15G-13U

CONTACT HANDLE END	CON… Nº
1 1C 2C 2	1
	2
3 3C 4C 4	3
	4
5 5C 6C 6	5
	6
7 7C 8C 8	7
	8
9 9C 10C 10	9
	10
11 11C 12C 12	11
	12

SBM. SPRING RETUR…

FIGURE…

43-UPS 15G-12U   43-UPS 15G-13U

CONTACT HANDLE END	CON… Nº
1 1C 2C 2	1
	2
3 3C 4C 4	3
	4

SBI SPRING RE…
CONTROL SW.

FIGUR…

CONTACT HANDLE END	CON… Nº
1 1C 2C 2	1
	2
3 3C 4C 4	3
	4

SBI SPRING RET…
CONTROL SW.

FIG…

NOTES

1. FOR ST… LOCATIO…
2. SWITCH… 21 & 15…

-90 CS-90
G-12U 15G-13U

POSITION		
WER	N	RAISE
		X
	X	
X		
		X
	X	
X		
		X
	X	
X		
		X
	X	
X		

TO NORMAL CONTR. SW.

CS-65A CS-65A
15G-12U 15G-13U

CS-70A CS-70A CS-90A CS-90A
15G-12U 15G-13U 15G-12U 15G-13U

CONTACT HANDLE END	CONT. Nº	POSITION LOWER	N	RAISE
1 1C 2C 2	1	X		
	2		X	
3 3C 4C 4	3			X
	4	X		
5 5C 6C 6	5		X	
	6			X
7 7C 8C 8	7	X		
	8		X	
9 9C 10C 10	9			X
	10	X		
11 11C 12C 12	11		X	
	12			X

SBM SPRING RETURN TO NORMAL CONTR. SW.

FIGURE 2A

(11PS: UNIT PARALLEL SW.)

POSITION		
OFF	NORMAL	UNIT PARALLEL
		X
	X	X
		X
	X	X

RN TO NORMAL

4

43-VRMS 43-VRMS
15G-12U 15G-13U

CONTACT HANDLE END	CONT. Nº	POSITION AUTO	MANUAL
1 1C 2C 2	1	X	
	2		X
3 3C 4C 4	3	X	
	4		X
5 5C 6C 6	5	X	
	6		X
7 7C 8C 8	7	X	
	8		X

G.E. 16SB1DB2035SM3
MAINTAINED CONTACT
SELECTOR SWITCH

FIGURE 3

APERTURE CARD

Also Available on Aperture Card

POSITION		
START	AUTO	STOP
X		
X	X	
X		
X	X	

RN TO AUTO

E 7

9807240260 - 23

DARD NOTES SYMBOLS & EQUIP. INDEX SEE DWG # 25203-30028.

DESIGNATED 15G-12U ARE FACILITY
3U ARE FACILITY 22.

REDRAWN FROM SAME NNECO DWG. NO. REV. 2

CAD

NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

Q.A.

REVISIONS DURING CONSTRUCTION P.A.*

P.A.*	NO.	DATE	REVISIONS	BY	CHK	APP	APP
N/A	4		INCORP. DCN DM2-00-0256-97	DSJ			
N/A	3	12-3-97	INCORP. DCN(S) DM2-S-0520-94, DM2-S-0541-94, DM2-S-0545-94 & DM2-00-0356-97	DSJ	GFD	RWD	JB

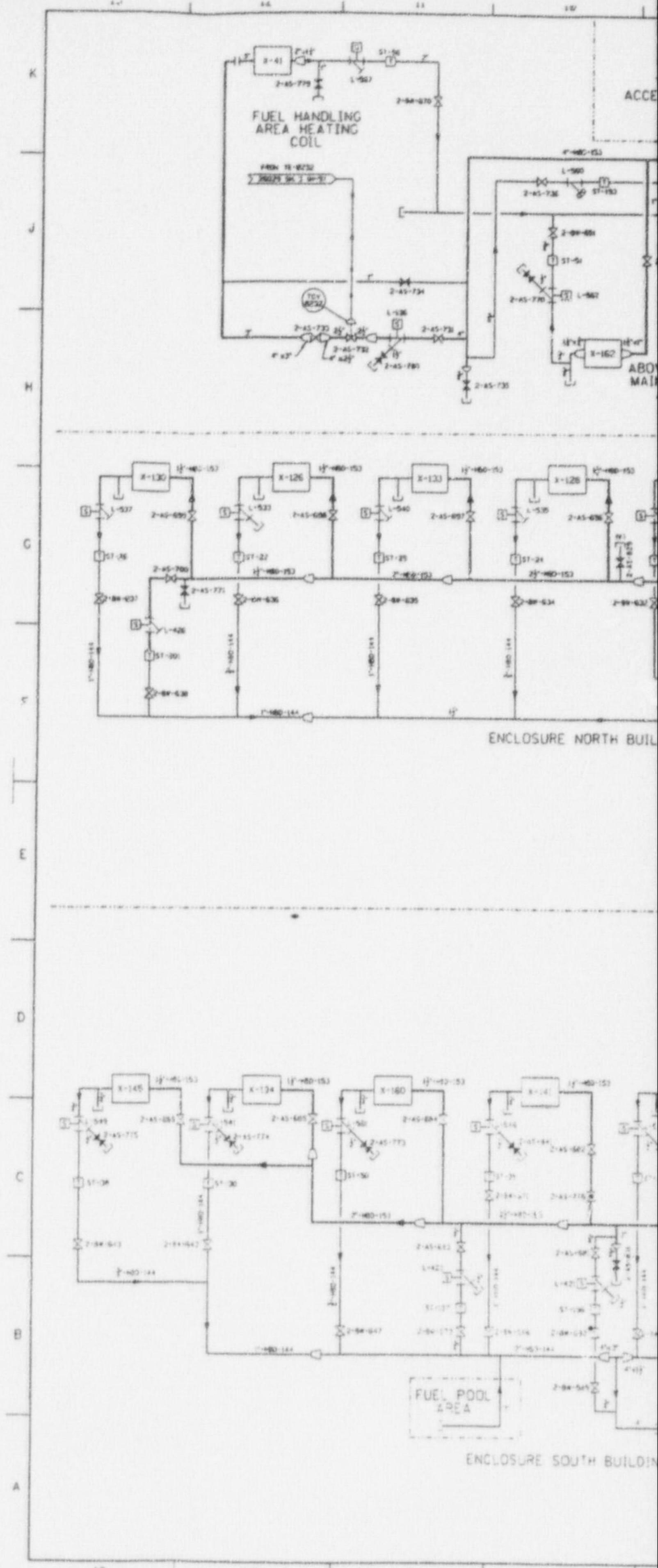
Northeast Utilities System
FOR NORTHEAST NUCLEAR ENERGY CO.

TITLE MILLSTONE UNIT 2
DIESEL GENERATOR (H7A) & (H7B)
SWITCH DEVELOPMENT
WATERFORD, CT.

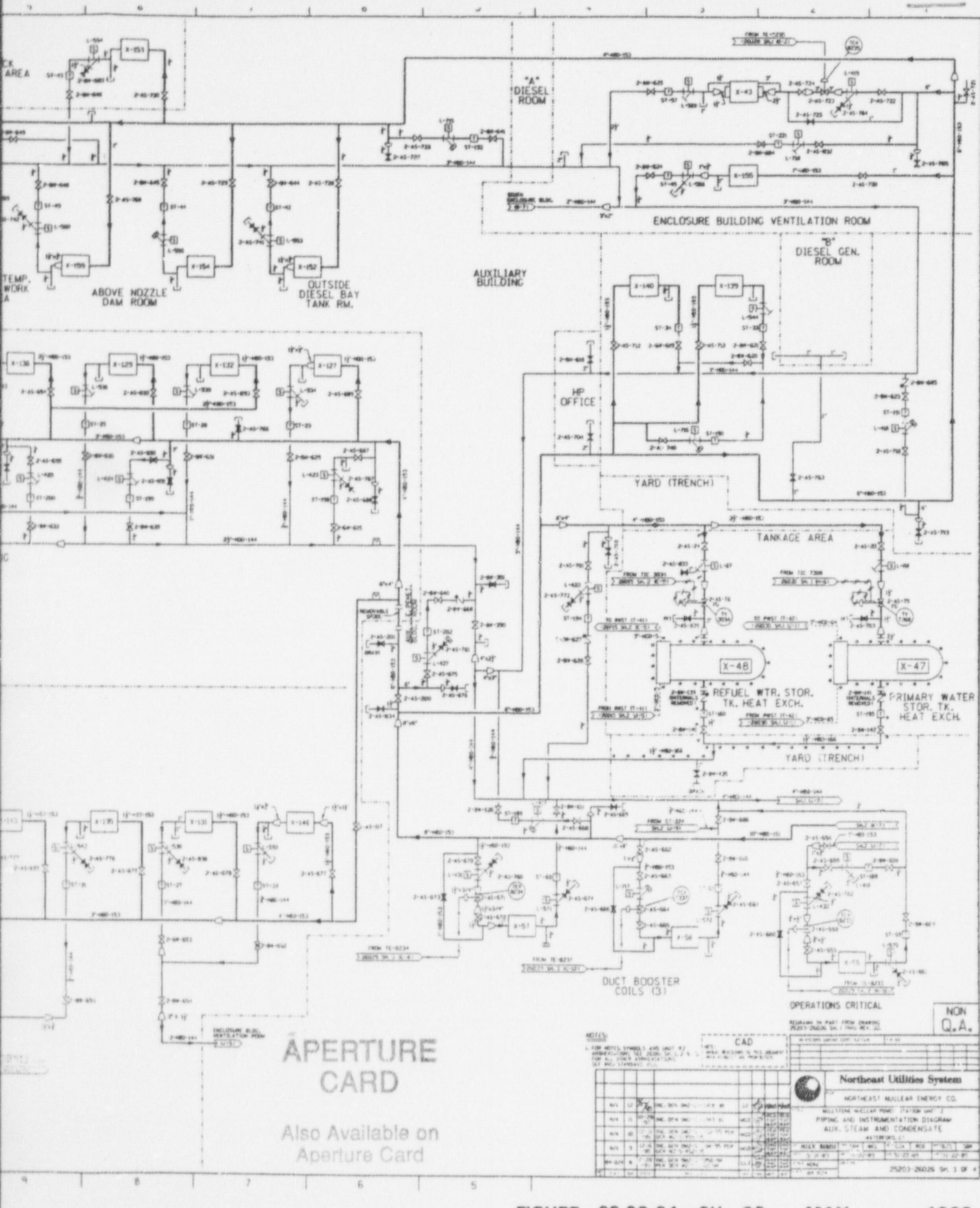
BY DSJ	CHKD. GFD	APP RWD	APP JB
DATE 12/2/97	DATE 12-3-97	DATE 12-3-97	DATE 12-3-97

SCALE N/A DWG NO. 25203-32041 SH. A
P.A.* N/A

FIGURE 08.03-02 SH- 0A MAY 1998



FUEL HANDLING
AREA HEATING
COIL
ENCLOSURE NORTH BUIL
FUEL POOL
AREA
ENCLOSURE SOUTH BUILDIN



APERTURE CARD

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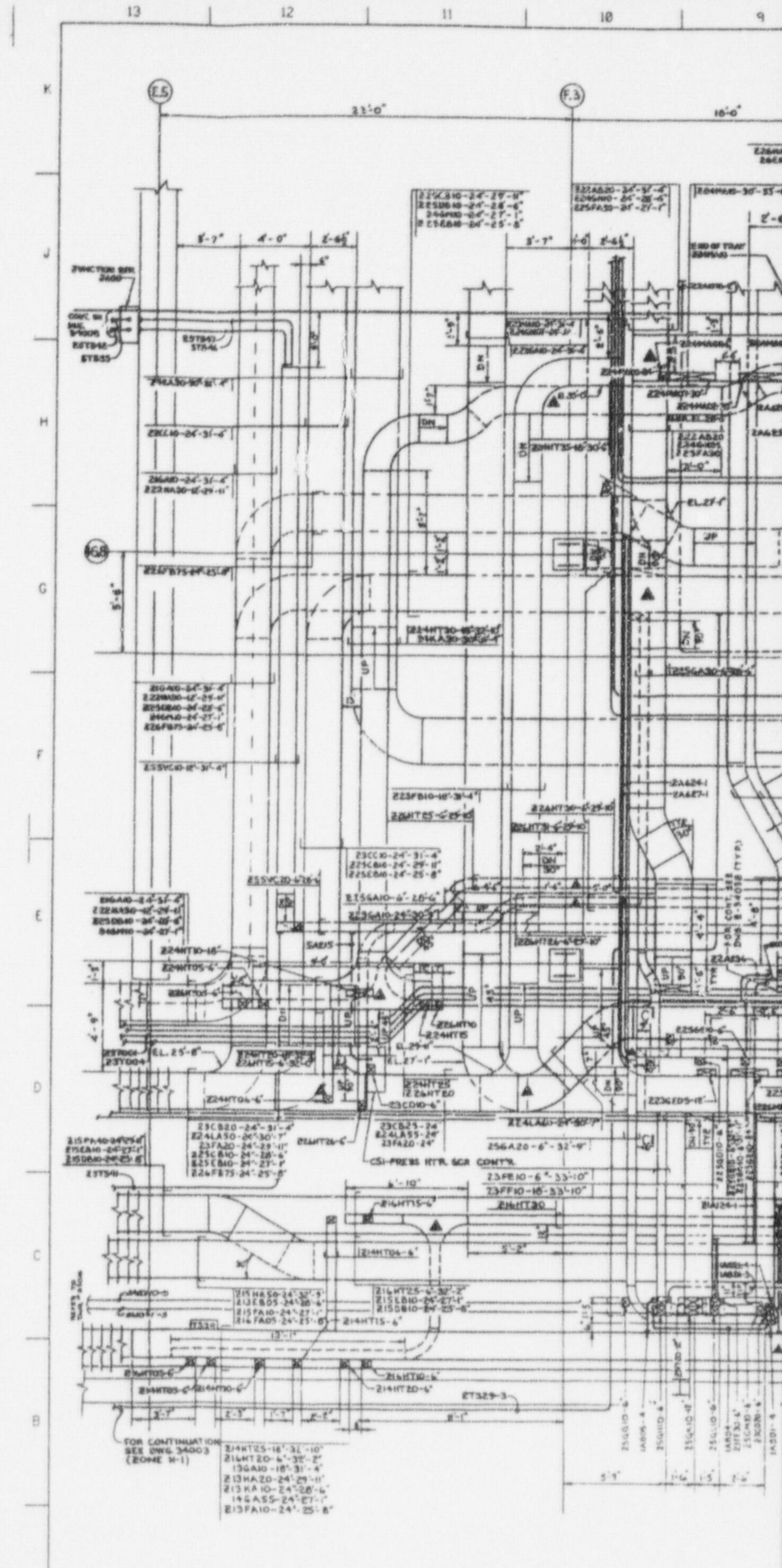
FIGURE 08.03-04 SH- 02 MAY 1998

9807240260 - 24


13
12
11
10
9
K
J
H
G
F
E
D
C
B
A
JUNCTION BOX
CSI-PRESS HTR. SCR CONTR.
FOR CONTINUATION SEE DWG 34003 (ZONE H-1)

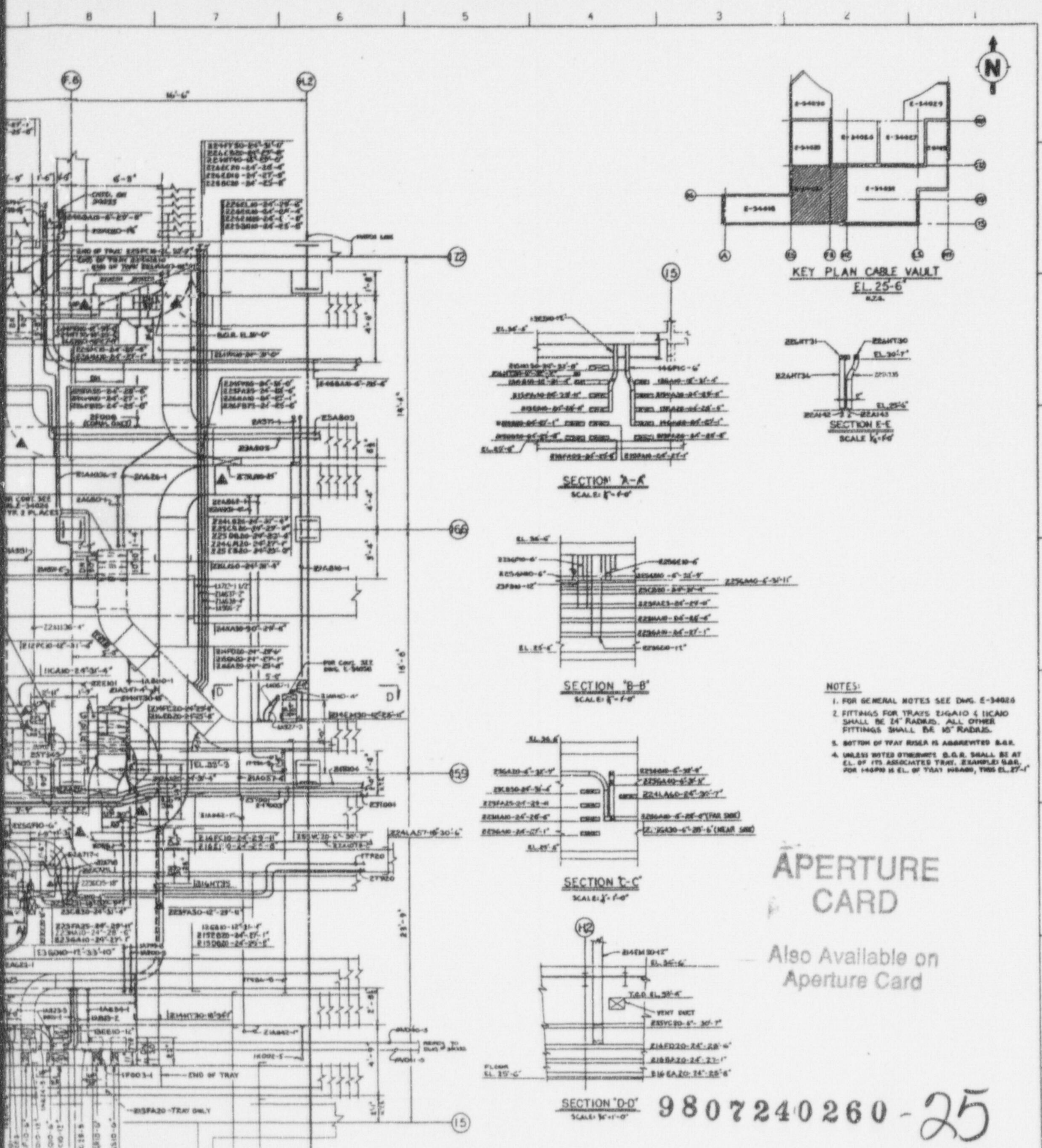
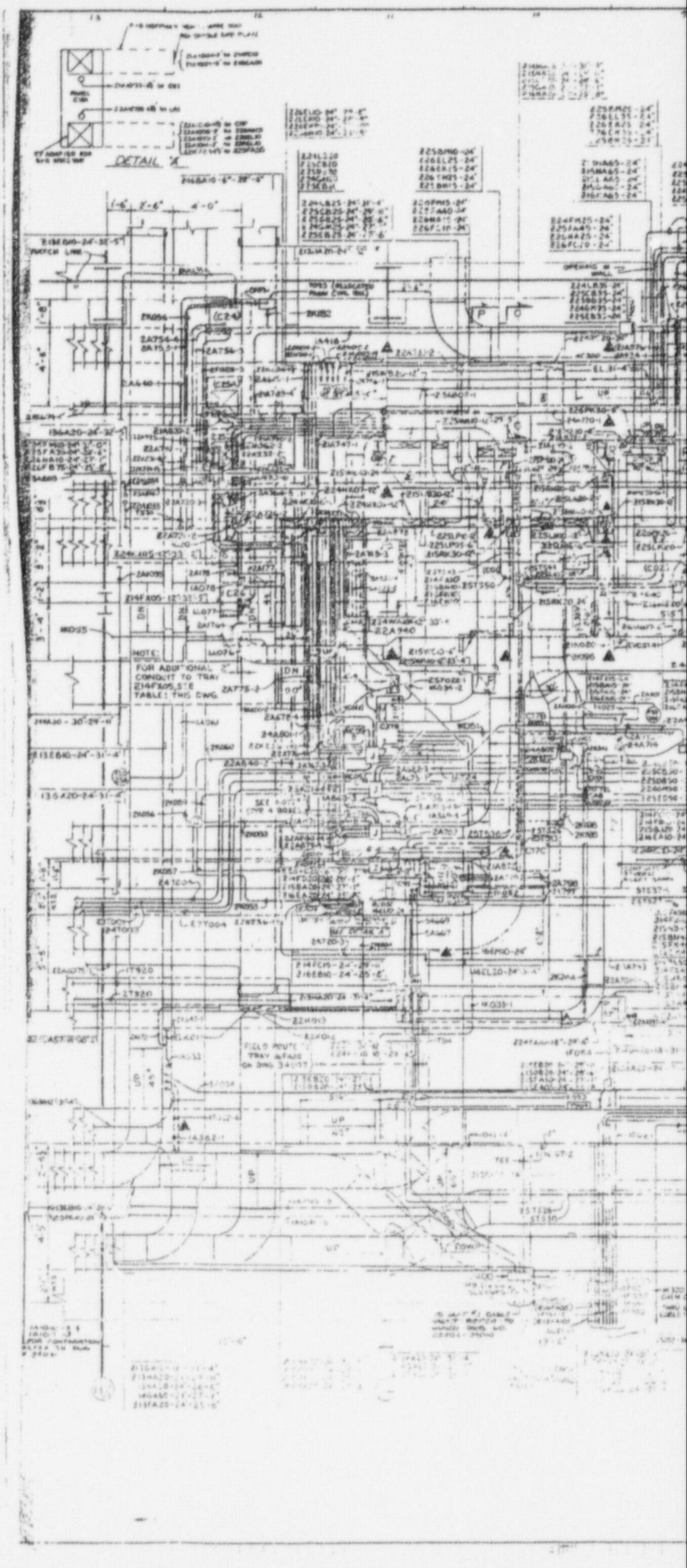
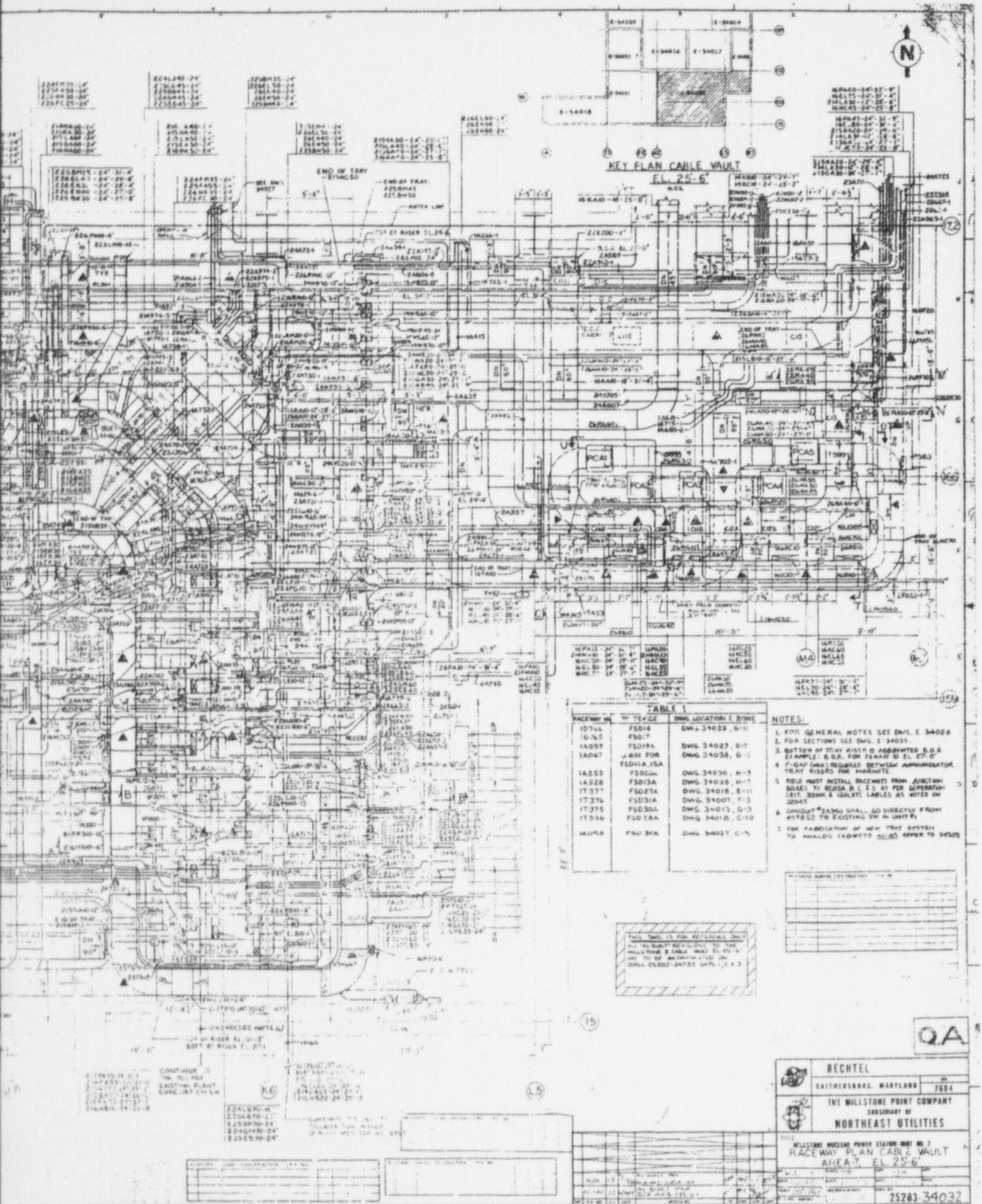


FIGURE 08.07-01 SH- 02 MAY 1998

APERTURE
CARD

Also Available on
Aperture Card





RACEWAY NO.	?? DEVICE	DWG LOCATION & ZONE
1D766	FSD18	DWG 34028, G-11
1D765	FSD17	
1A059	FSD19A	DWG. 34027, D-7
1A067	J-BOX FOR FSD14A, 15A	DWG. 34038, G-5
1A253	FSD20A	DWG. 34036, H-9
1A528	FSD13A	DWG. 34038, H-7
1T377	FSD27A	DWG. 34018, E-11
1T376	FSD31A	DWG. 34007, F-3
1T375	FSD30A	DWG. 34013, G-3
1T556	FSD28A	DWG. 34018, C-10
1A058	FSD 34A	DWG. 34027, C-5

Table: TABLE 1

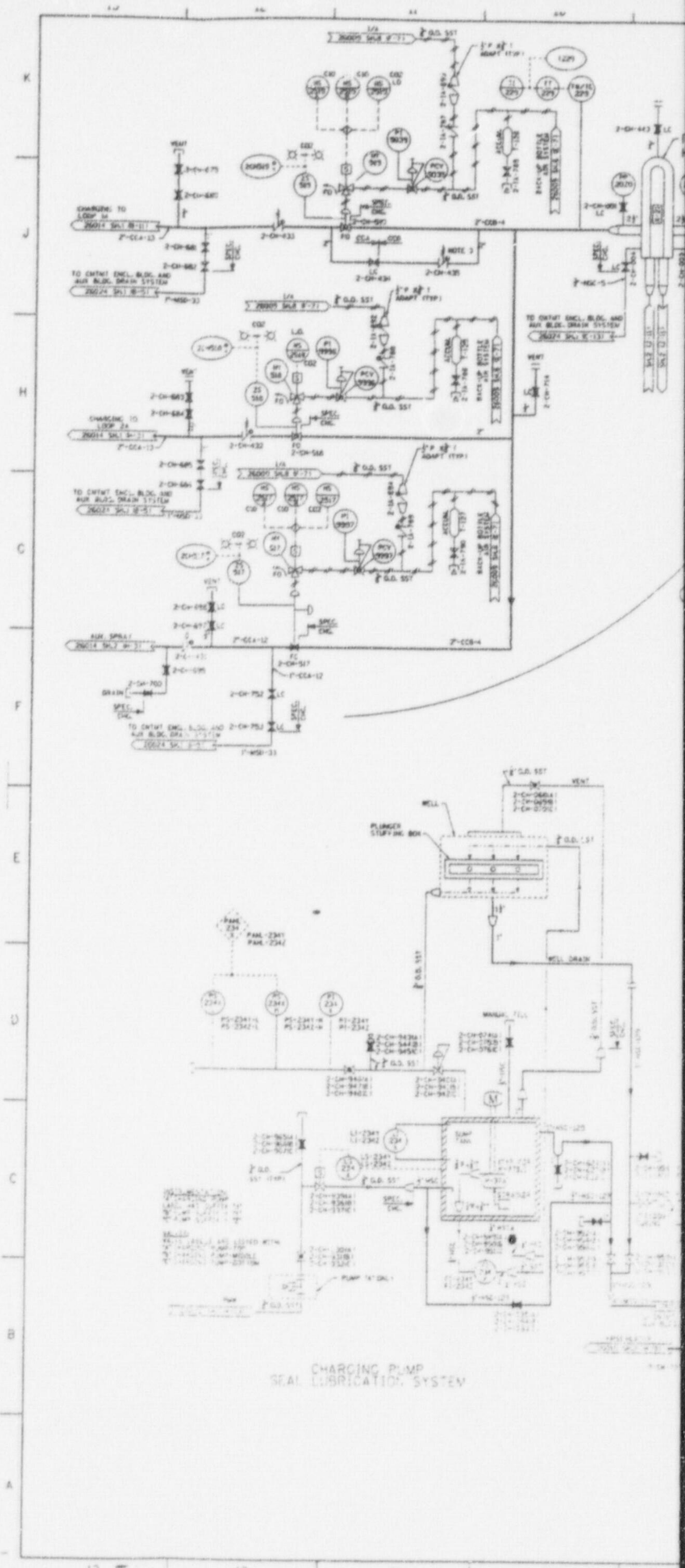
NOTES:

1. FOR GENERAL NOTES SEE DWG. E 34026
2. FOR SECTIONS SEE DWG. E-34035.
3. BOTTOM OF TRAY RISER IS ABBREVIATED B.O.R. EXAMPLE: B.O.R. FOR 26KAI0 IS EL 27'-0"
4. 1"-GAP (MIN.) REQUIRED BETWEEN ANNUNCIATOR TRAY RISERS FOR MARINITE.
5. FIELD MUST INSTALL RACEWAYS FROM JUNCTION BOXES TO RC05A, B, C & D AS PER SEPERATION CRIT. 3300I, & ISOLATE CABLES AS NOTED ON 32045
6. CONDUIT #2A340 SHALL GO DIRECTLY FROM #STB52 TO EXISTING SW IN UNIT #1
7. FOR FABRICATION OF NEW TRAY SYSTEM TO ANALOG CABINETS A1-A5 REFER TO 34325

BECHTEL
GAITHERSBURG, MARYLAND 7604
THE MILLSTONE POINT COMPANY
SUBSIDIARY OF
NORTHEAST UTILITIES
MILLSTONE NUCLEAR POWER STATION UNIT NO. 2
RACEWAY PLAN CABLE VAULT
AREA-7, EL. 25'-6"
25203-34032

FIGURE 08.07-01 SH- 03 MAY 1998

9807240260-26


CHARGING TO LOOP 2A
TO CNTMT ENCL. BLDG. AND AUX BLDG. DRAIN SYSTEM
PLUNGER STUFFING BOX
WELL
VENT
DRAIN
WELL DRAIN
MANUAL FILL
SUMP TANK
CHARGING PUMP
SEAL LUBRICATION SYSTEM

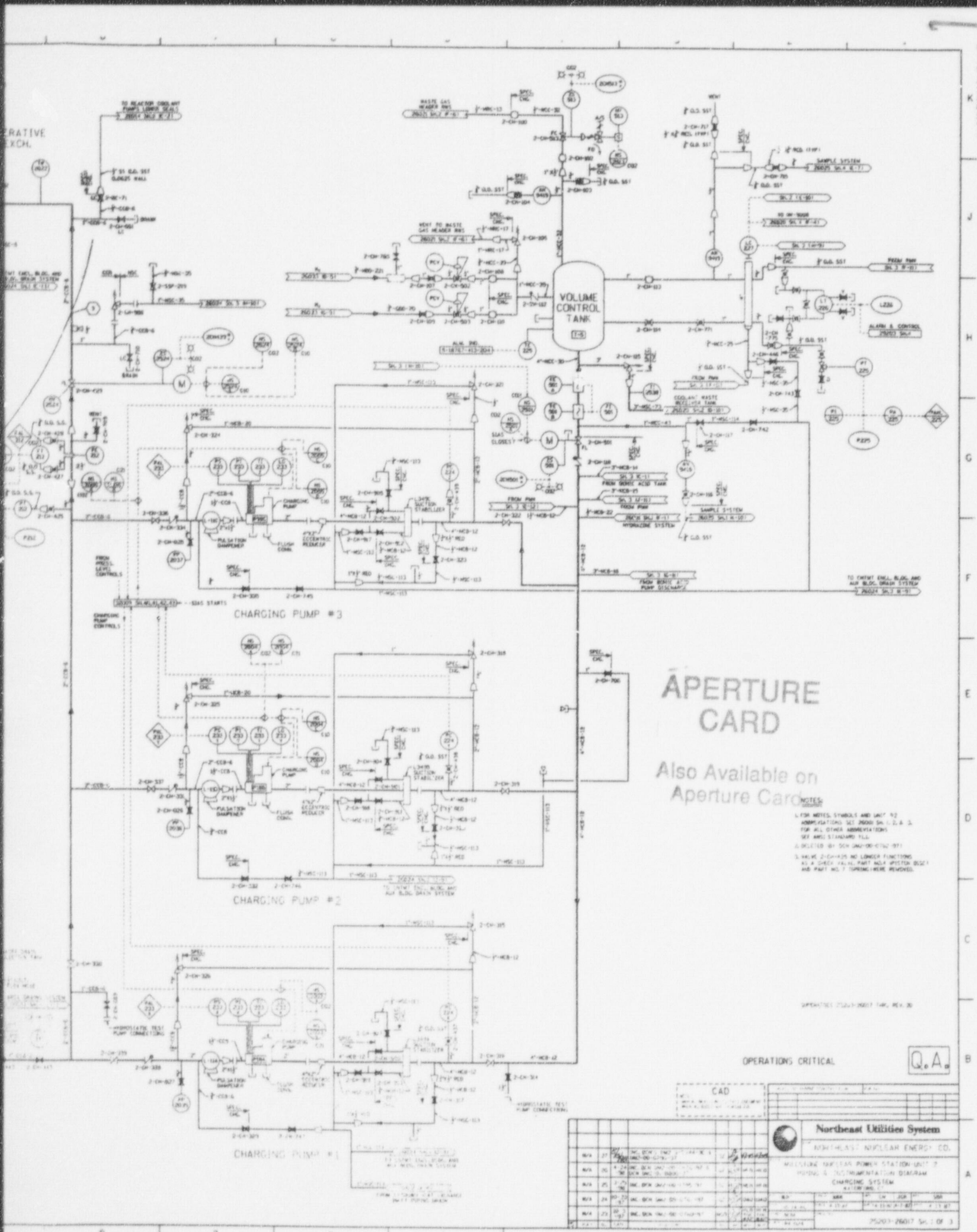


FIGURE 09.02-02 SH- 01 MAY 1998

9807240260 - 27

APERTURE CARD

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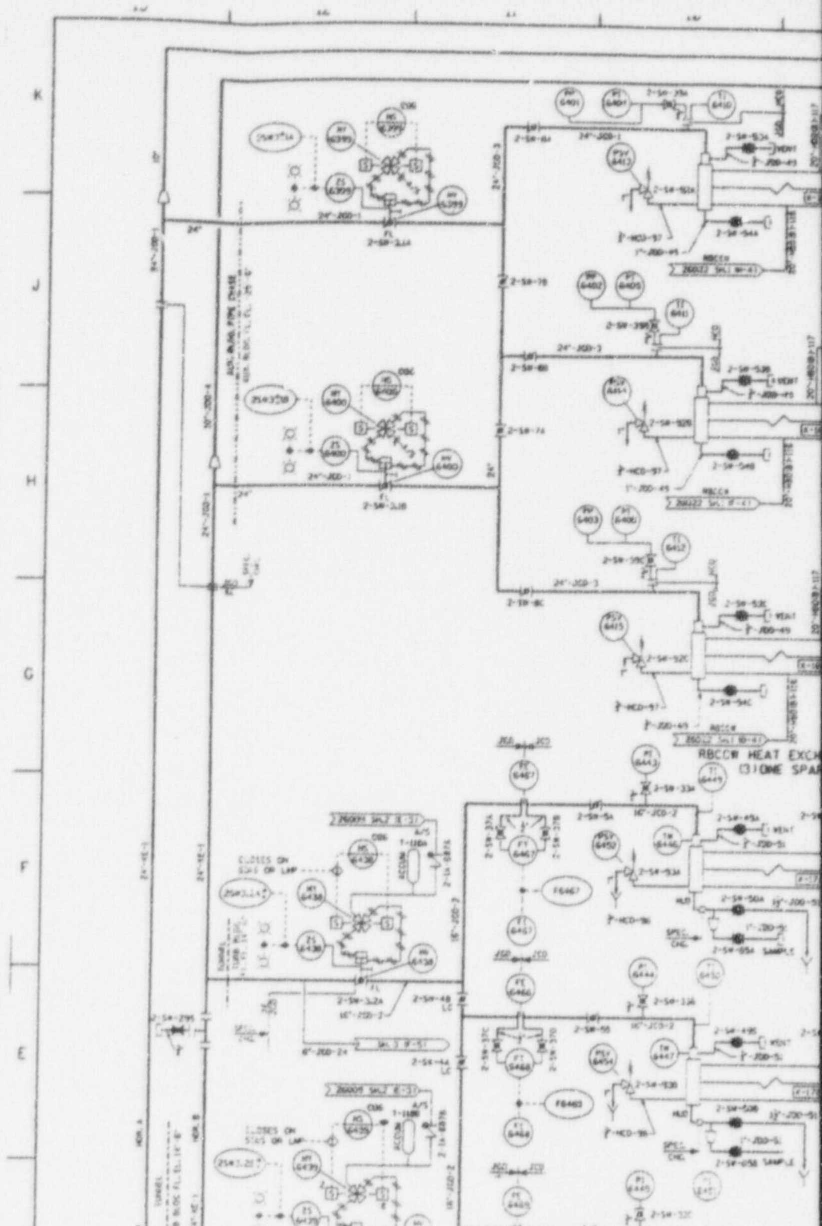


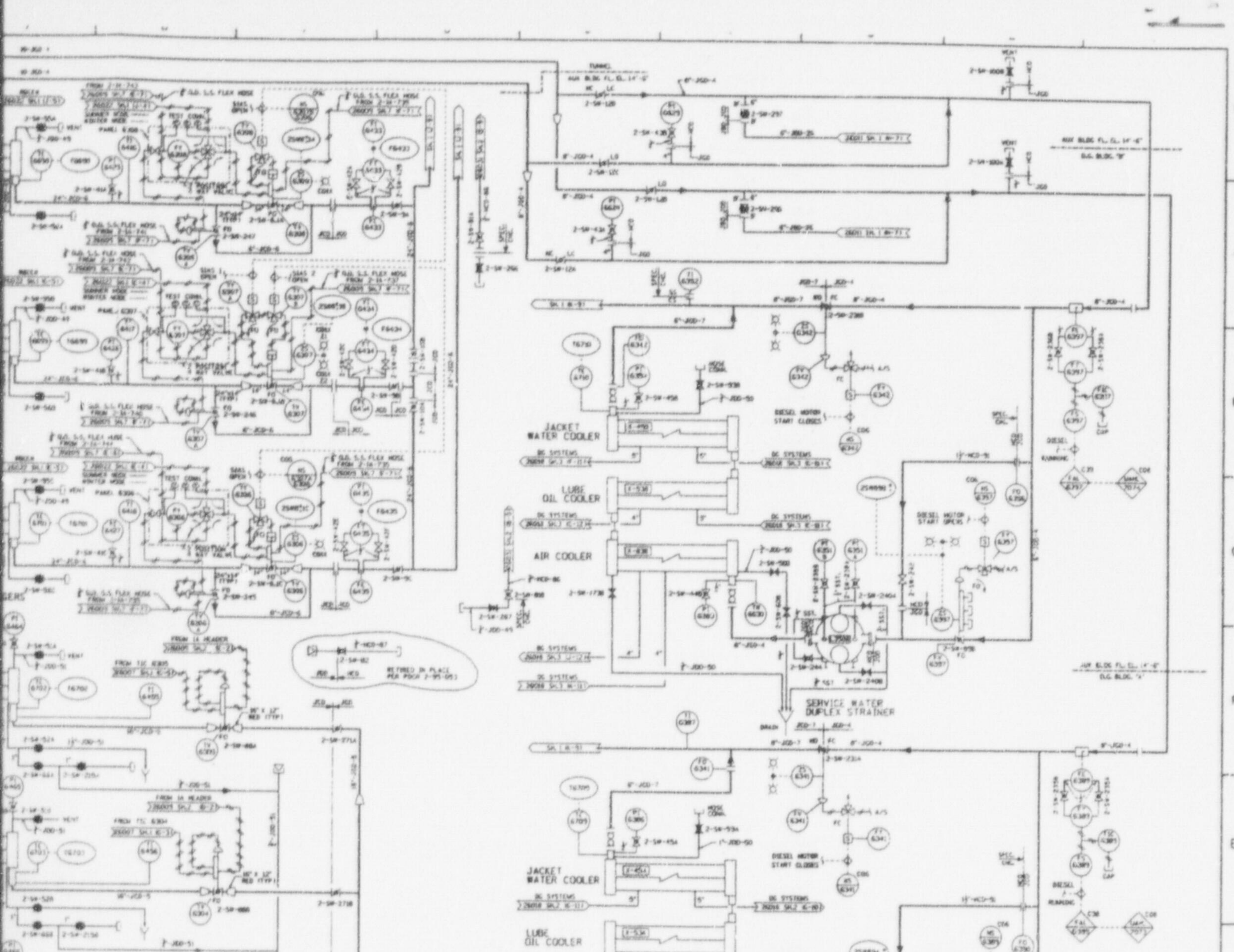
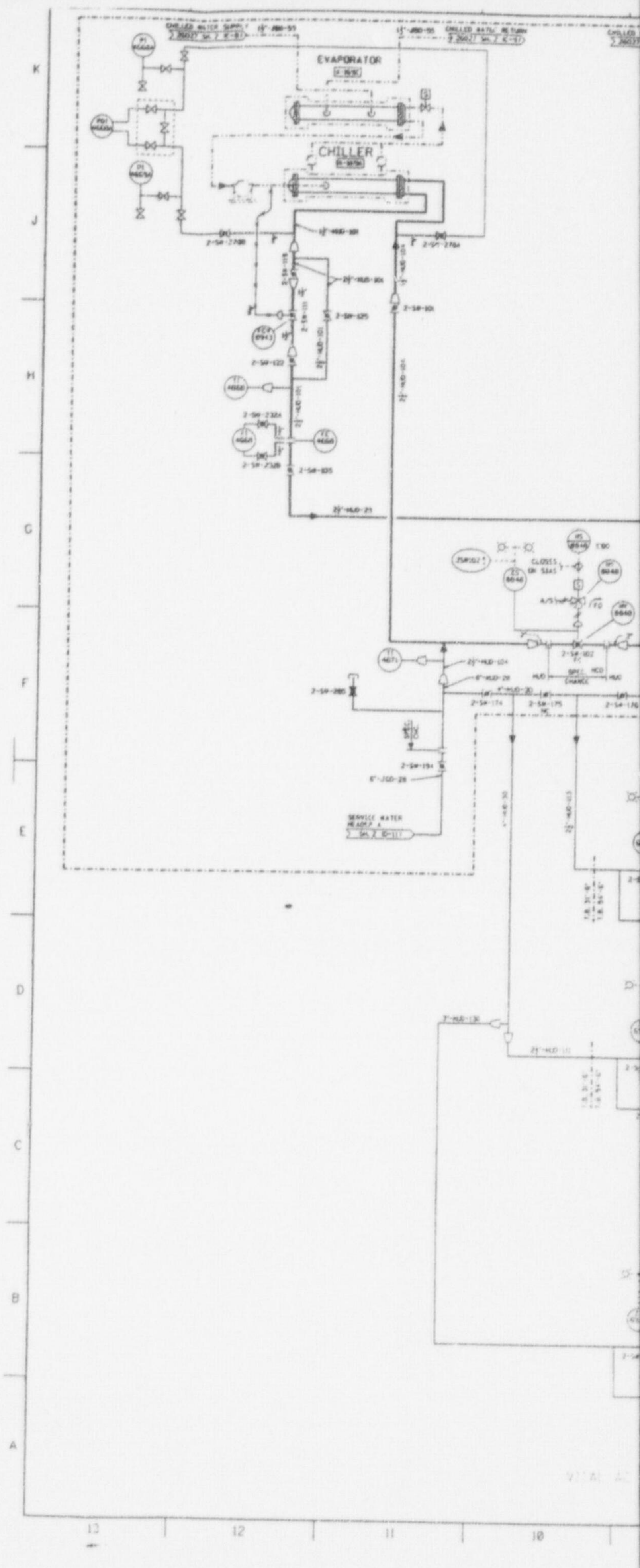
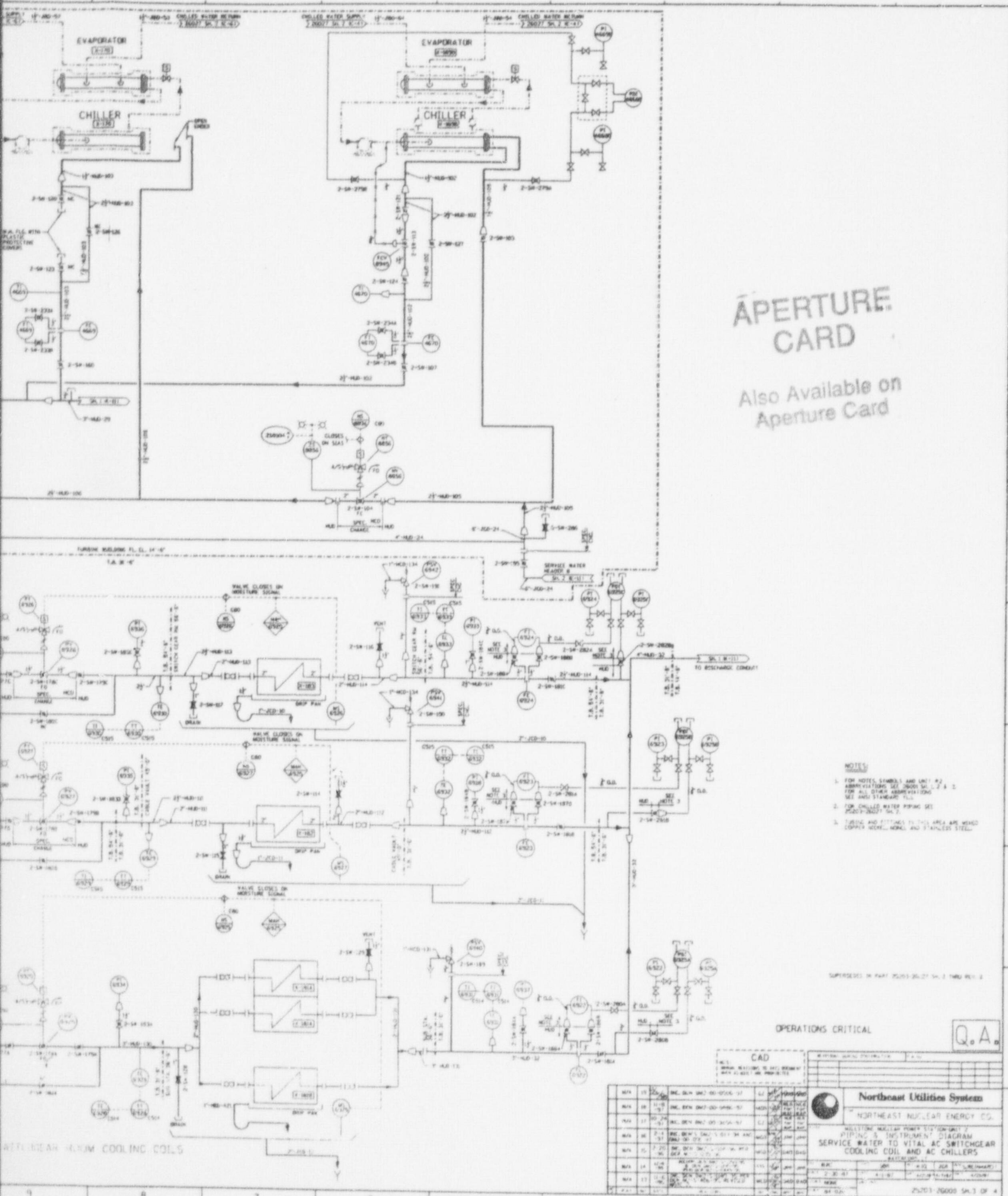


FIGURE 09.07-01 SH- 02 MAY 1998

9807240260 - 28


EVAPORATOR
CHILLER
SERVICE WATER HEADER A



APERTURE CARD

Also Available on Aperture Card

FIGURE 09.07-01 SH- 03 MAY 1998

9807240260 - 29

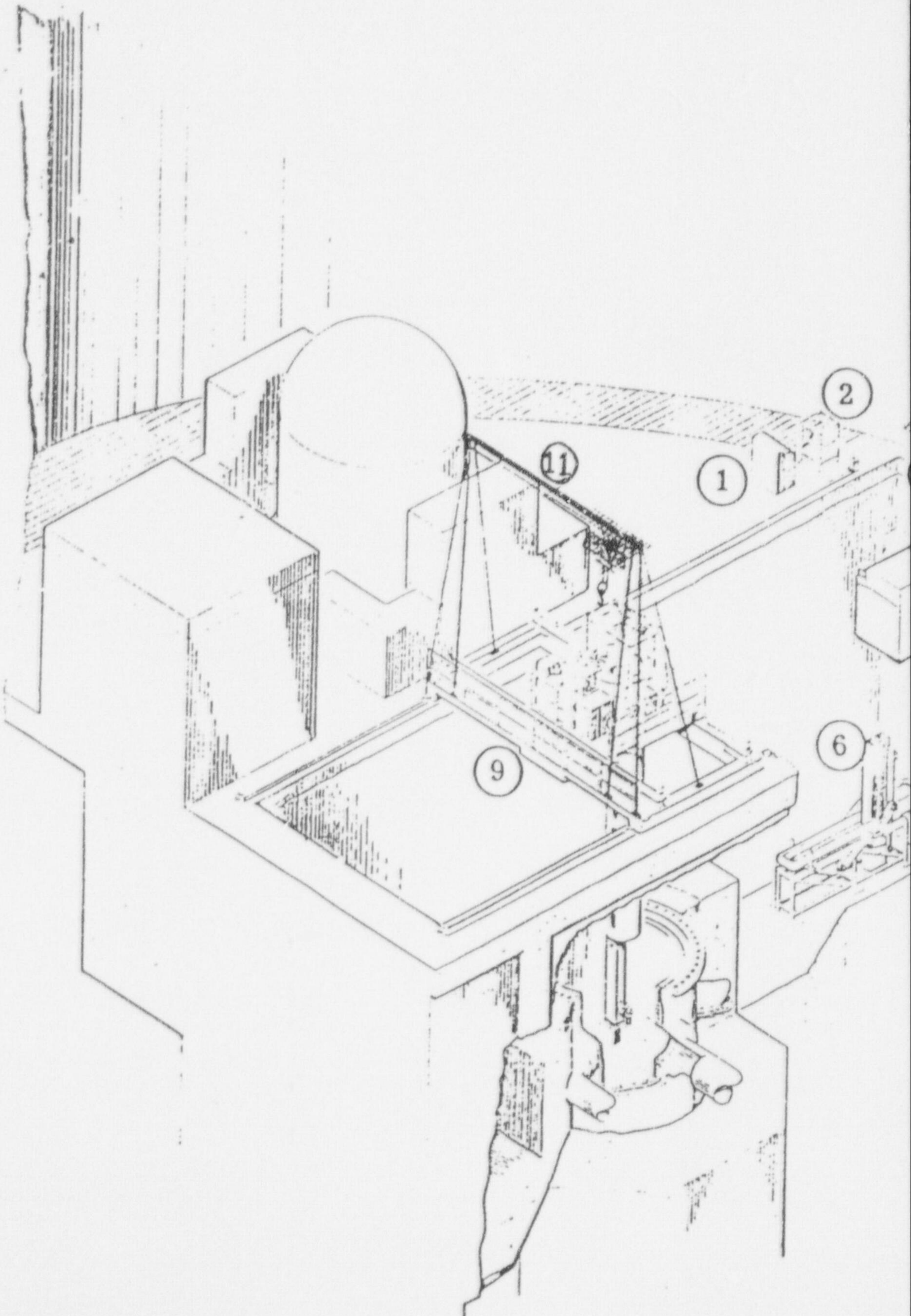
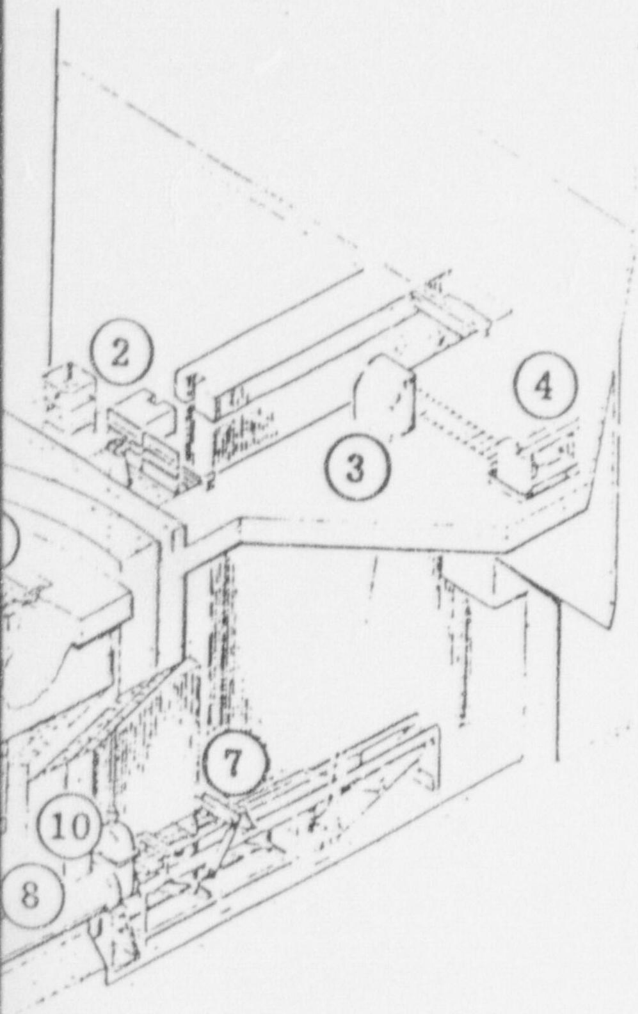


FIGURE 9.8
REFUELING EQUIPMENT



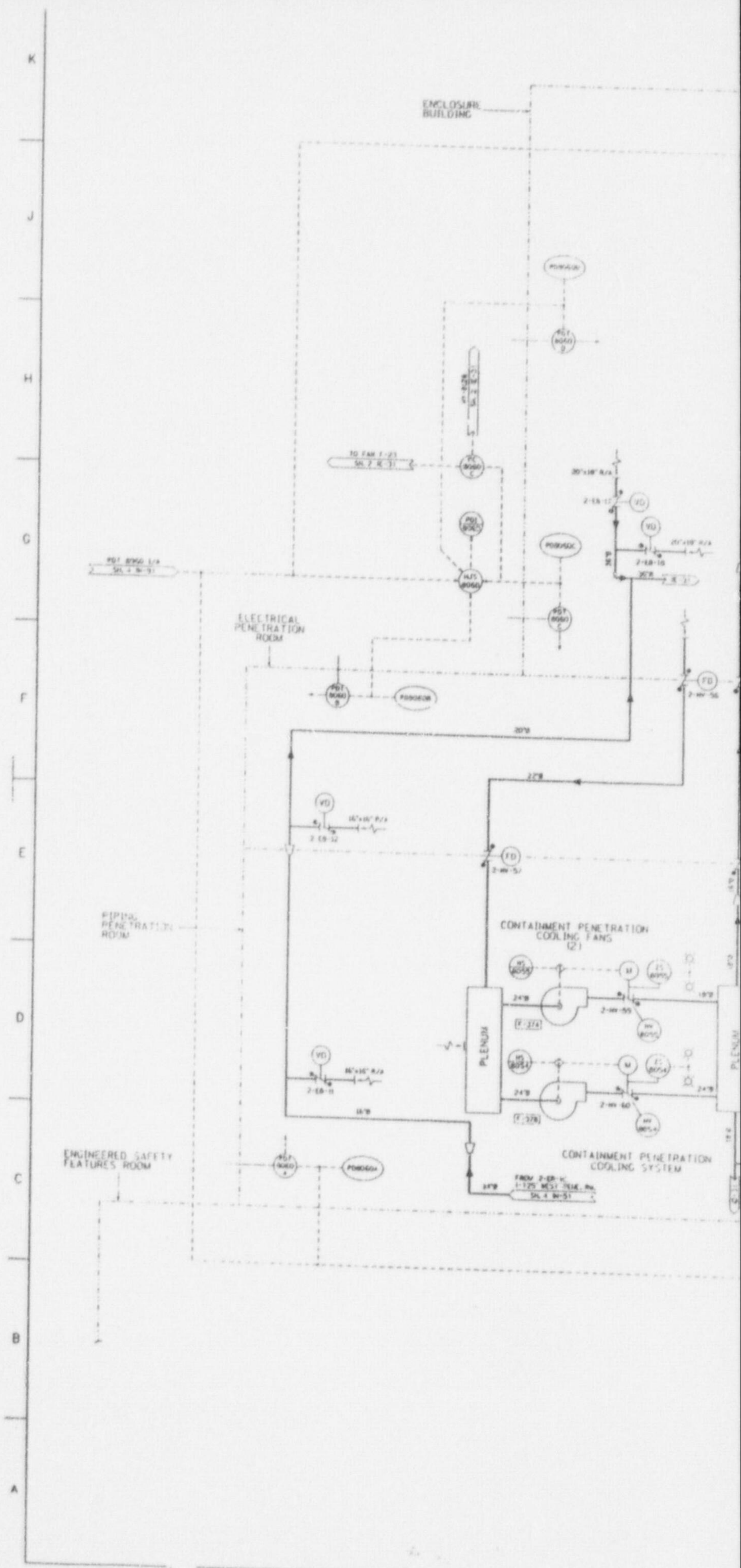
APERTURE
CARD

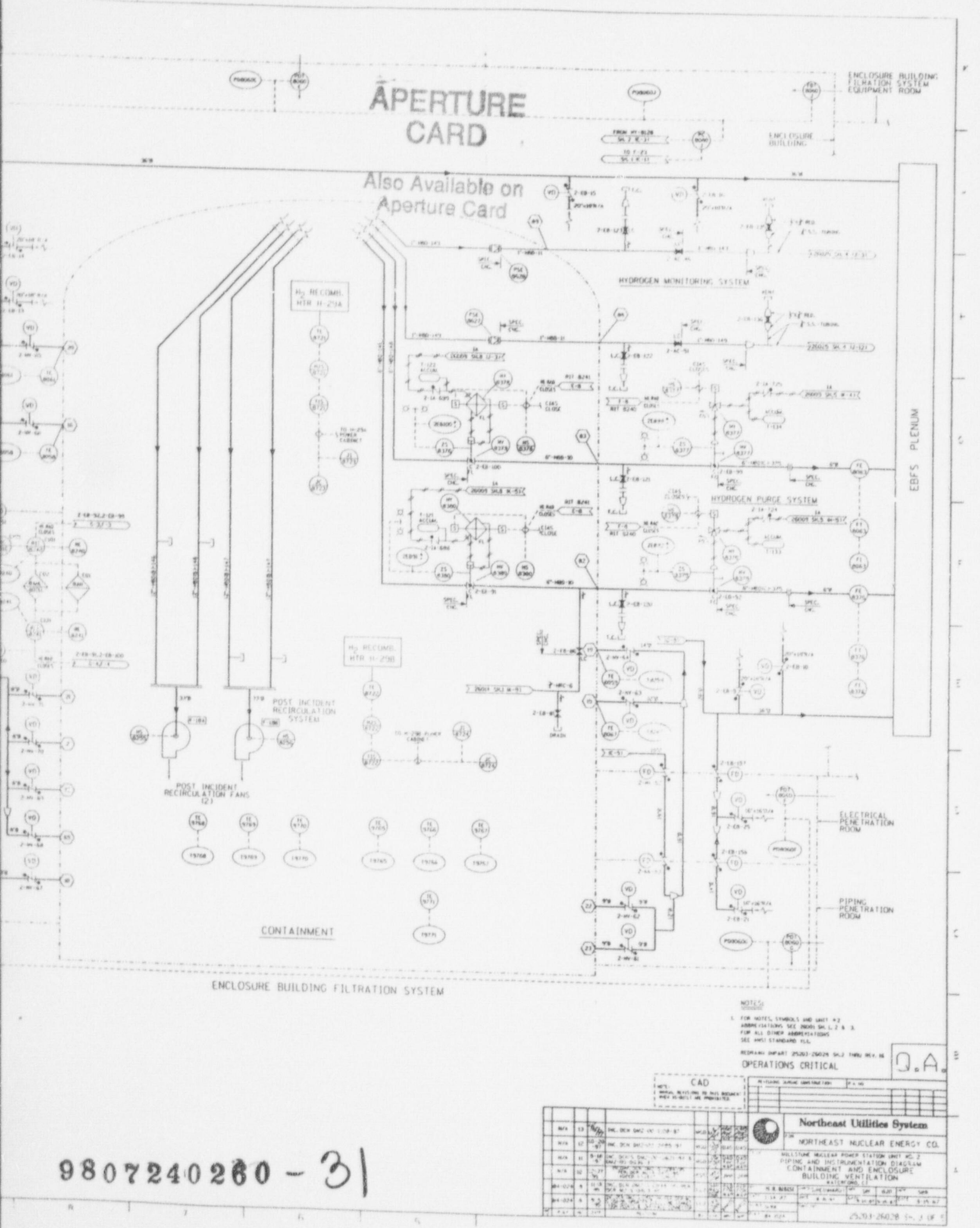
Also Available on
Aperture Card

1. TRANSFER MACHINE AND CEA CONSOLE
2. HYDRAULIC POWER PACKAGE
3. TRANSFER MACHINE CONSOLE
4. TRANSFER MACHINE WINCH ASS'Y
5. CEA CHANGE MECHANISM
6. FUEL CARRIAGE
7. UPENDER
8. TRANSFER TUBE
9. REFUELING MACHINE
10. ISOLATION VALVE
11. AUXILIARY HOIST

D
RRANGEMENT

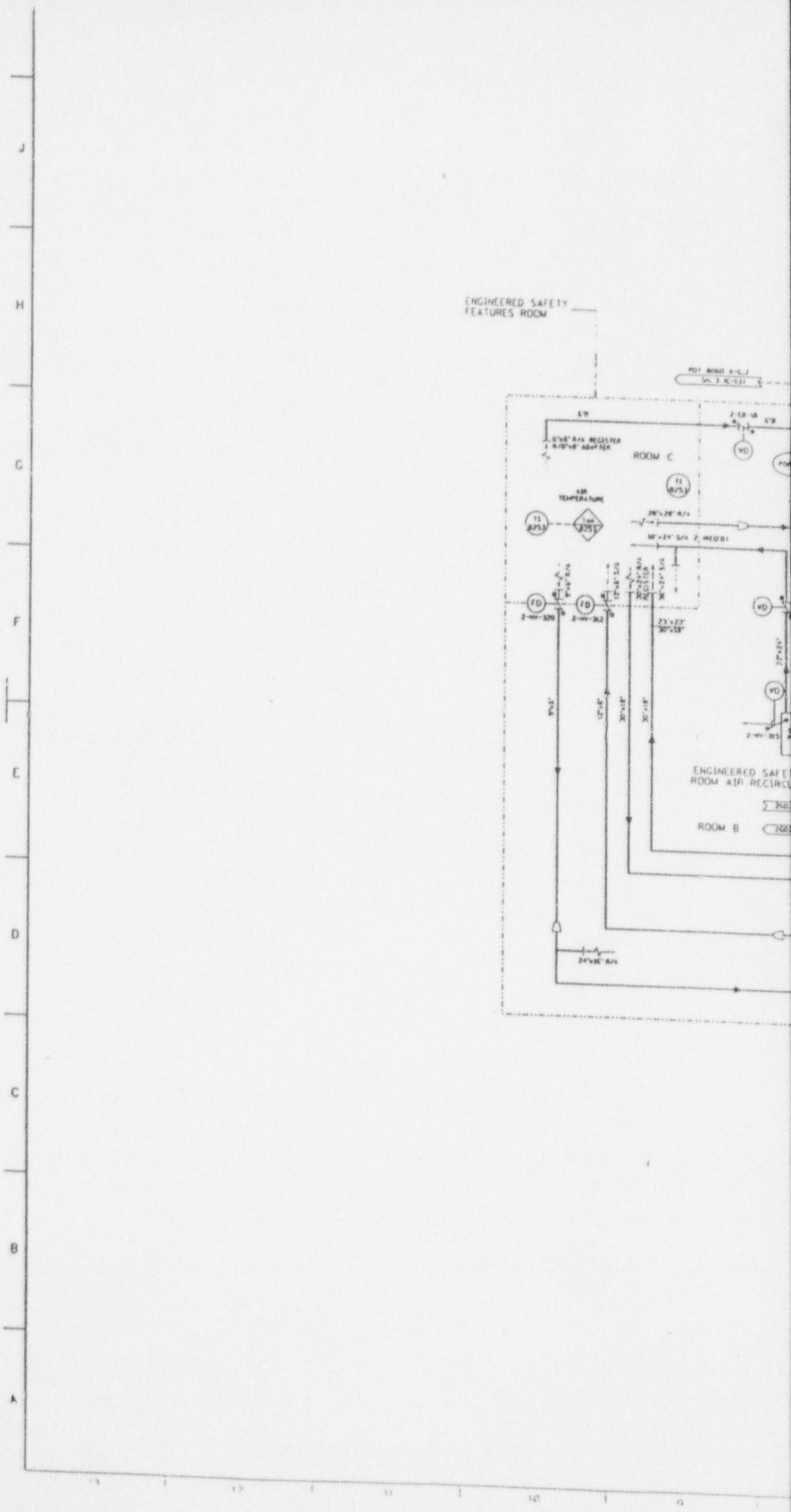
9807240260 - 30


ENCLOSURE BUILDING
ELECTRICAL PENETRATION ROOM
PIPING PENETRATION ROOM
ENGINEERED SAFETY FEATURES ROOM
CONTAINMENT PENETRATION COOLING FANS (2)
PLENUM
PLENUM
CONTAINMENT PENETRATION COOLING SYSTEM



9807240260 - 31

FIGURE 09.09-02 SH- 02 MAY 1998



ENGINEERED SAFETY
FEATURES ROOM
ROOM C
AIR
TEMPERATURE
ENGINEERED SAFET
ROOM AIR RECIRCU
ROOM B
J
H
G
F
E
D
C
B
A

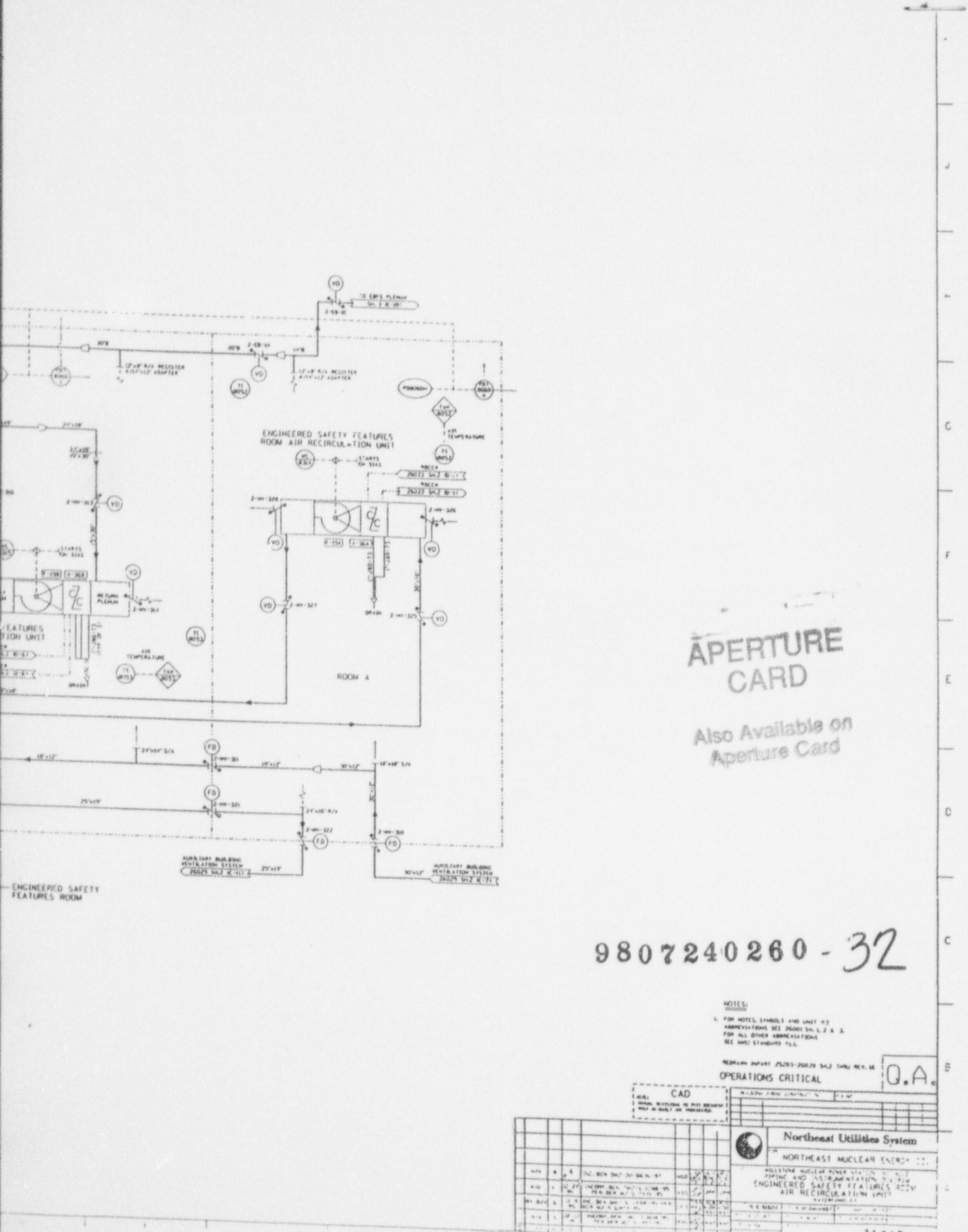
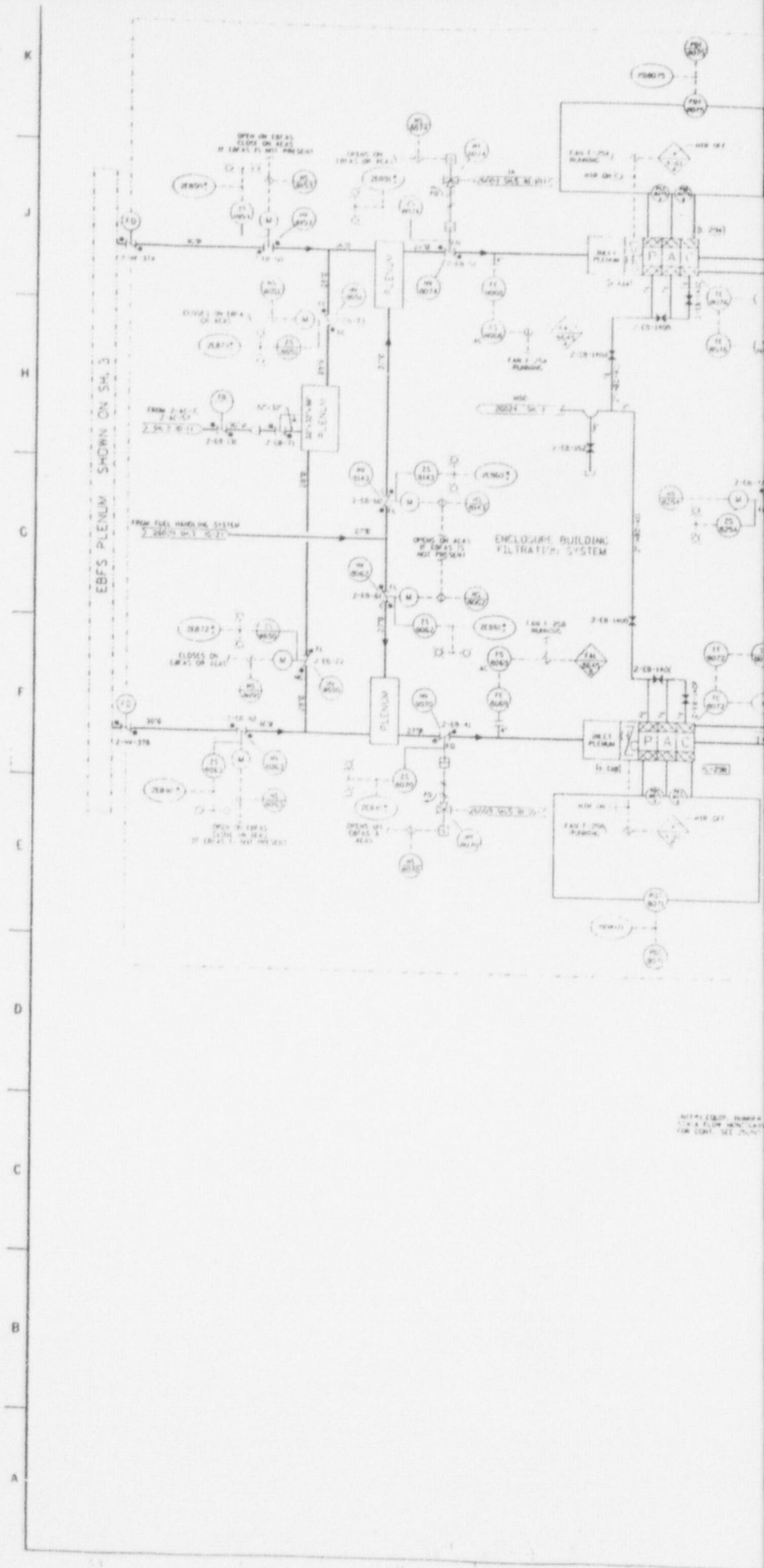


FIGURE 09.09-02 SH- 03 MAY 1998


EBFS PLENUM SHOWN ON SH. 3
ENCLOSURE BUILDING
FILTRATION SYSTEM
PLENUM
FROM FUEL HANDLING SYSTEM
K
J
H
G
F
E
D
C
B
A

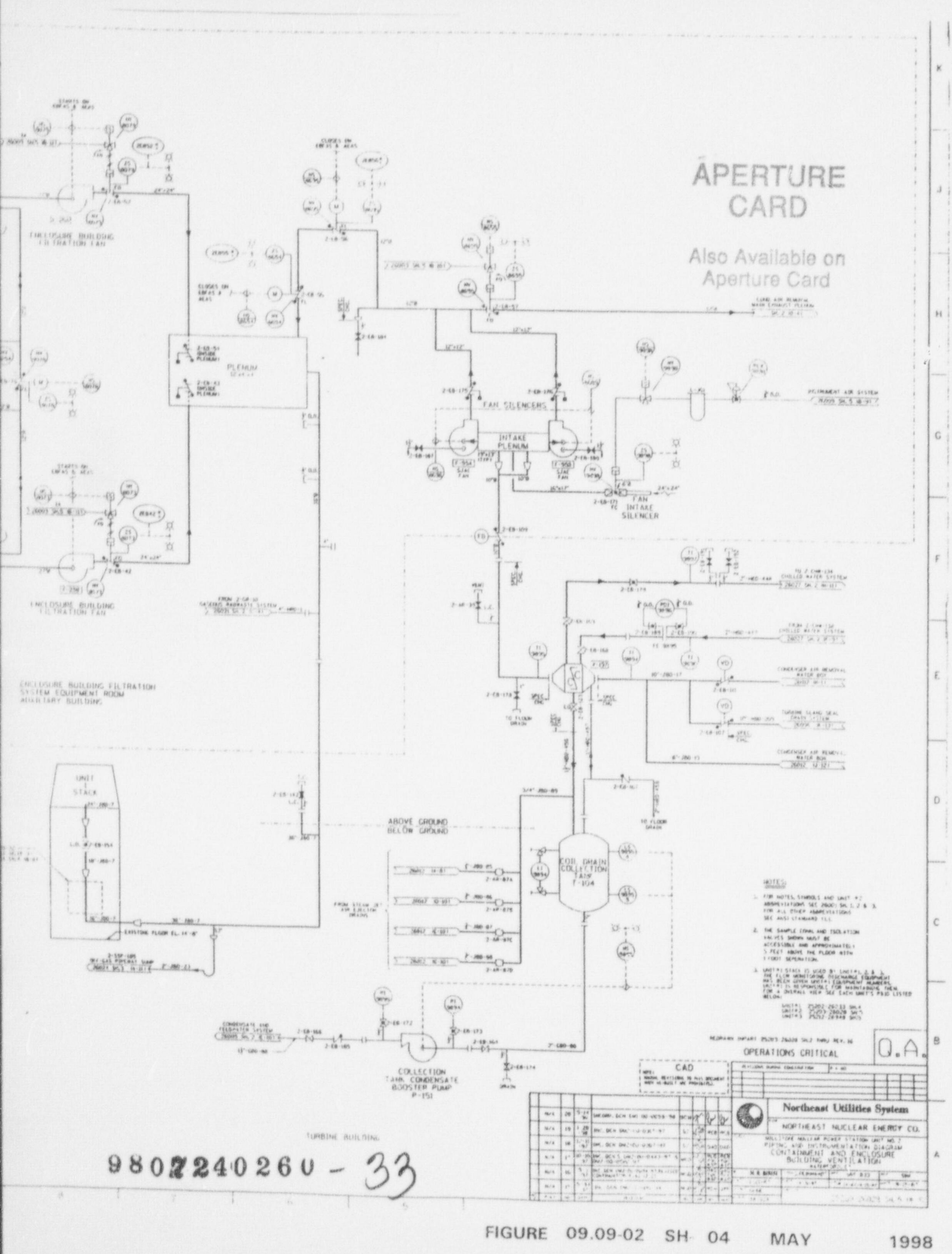
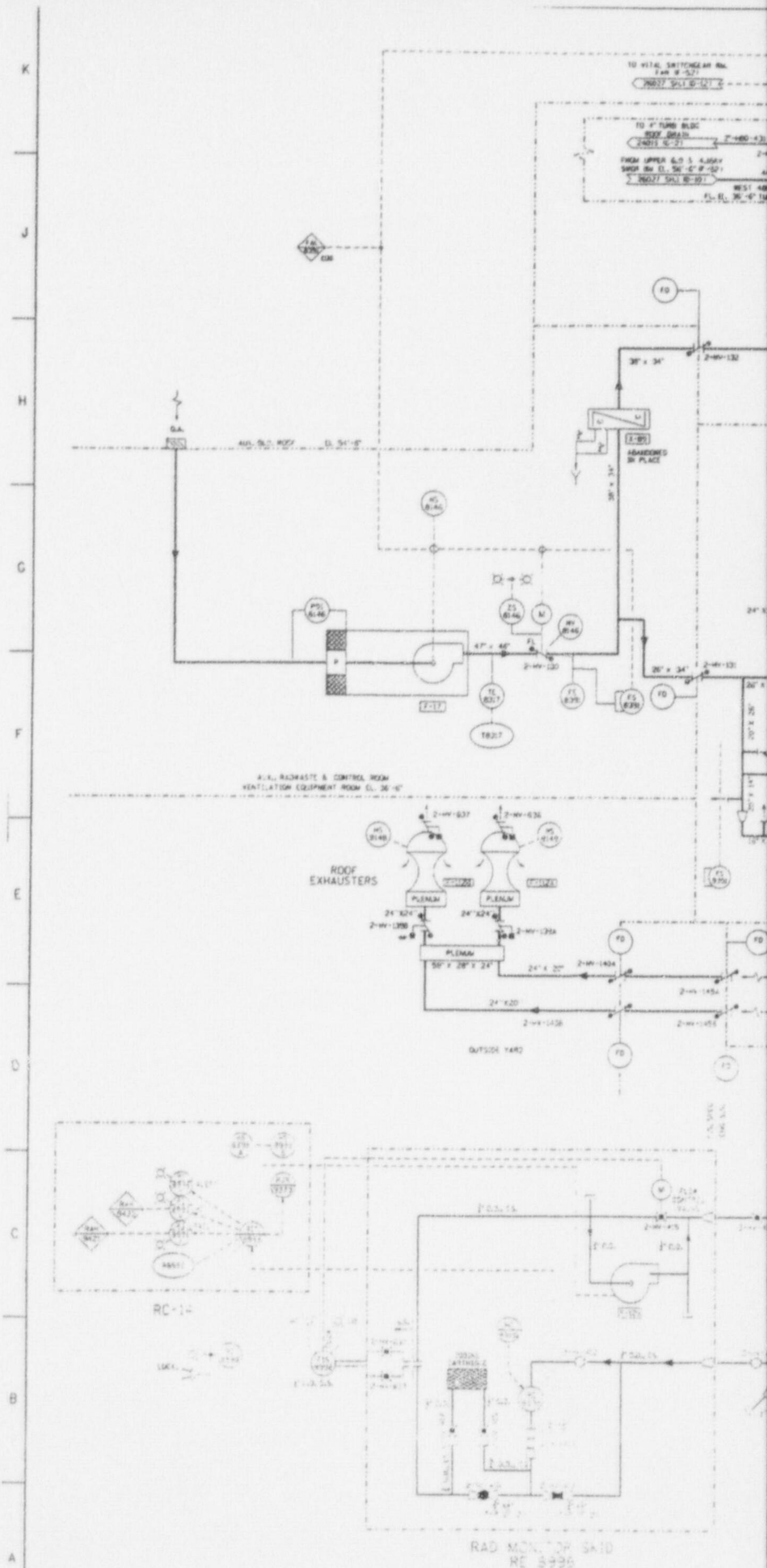


FIGURE 09.09-02 SH 04 MAY 1998



ROOF EXHAUSTERS
PLENUM
OUTSIDE YARD
RC-14
RAD MONITOR SKID

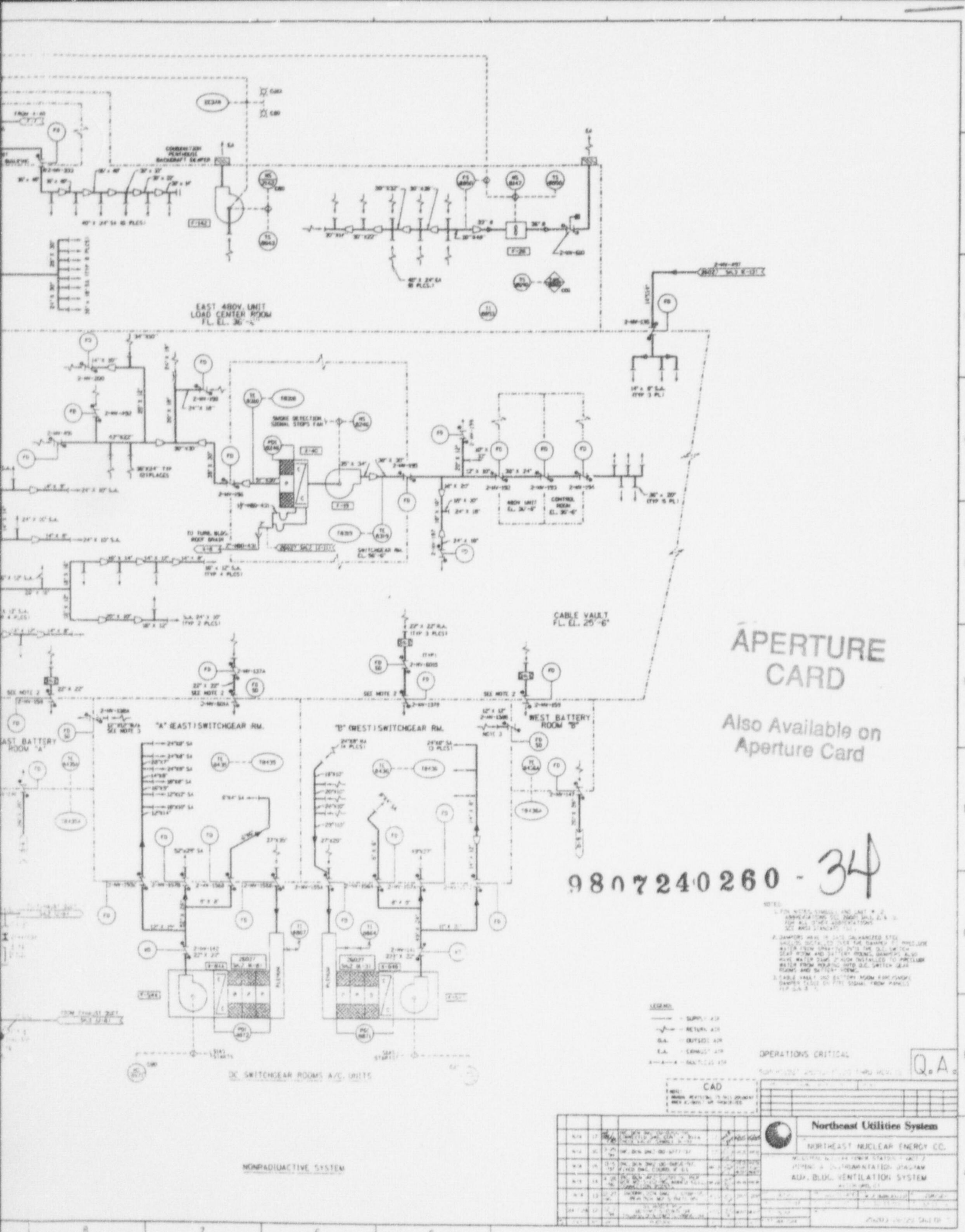
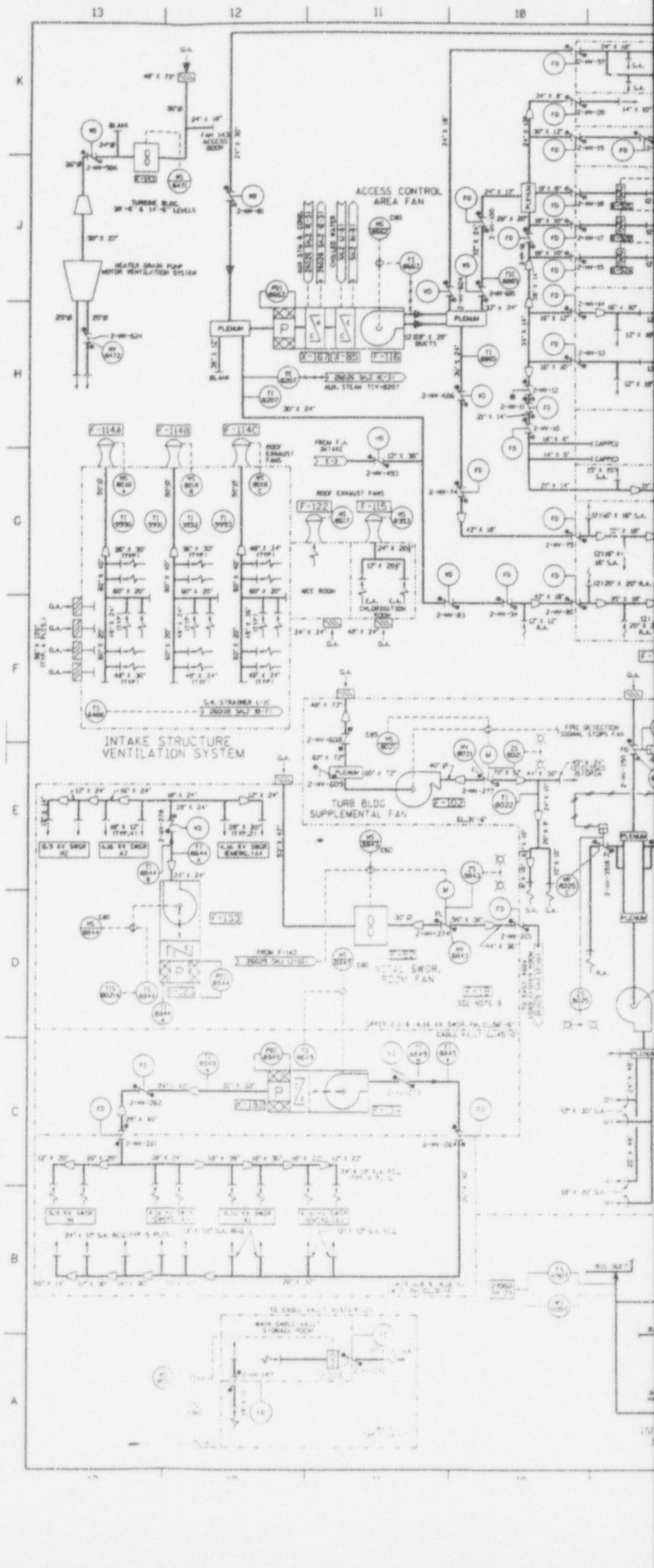


FIGURE 09.09-03 SH- 01 MAY 1998



13
12
11
10
K
J
H
G
F
E
D
C
B
A
ACCESS CONTROL
AREA FAN
HEATER DRAIN PUMP
MOTOR VENTILATION SYSTEM
PLENUM
F-114A
F-114B
F-114C
ROOF EXHAUST FANS
F-122
F-115
MCC ROOM
CHLORINATION ROOM
INTAKE STRUCTURE
VENTILATION SYSTEM
TURB BLDG
SUPPLEMENTAL FAN
F-102
F-133
VITAL SWGR.
ROOM FAN

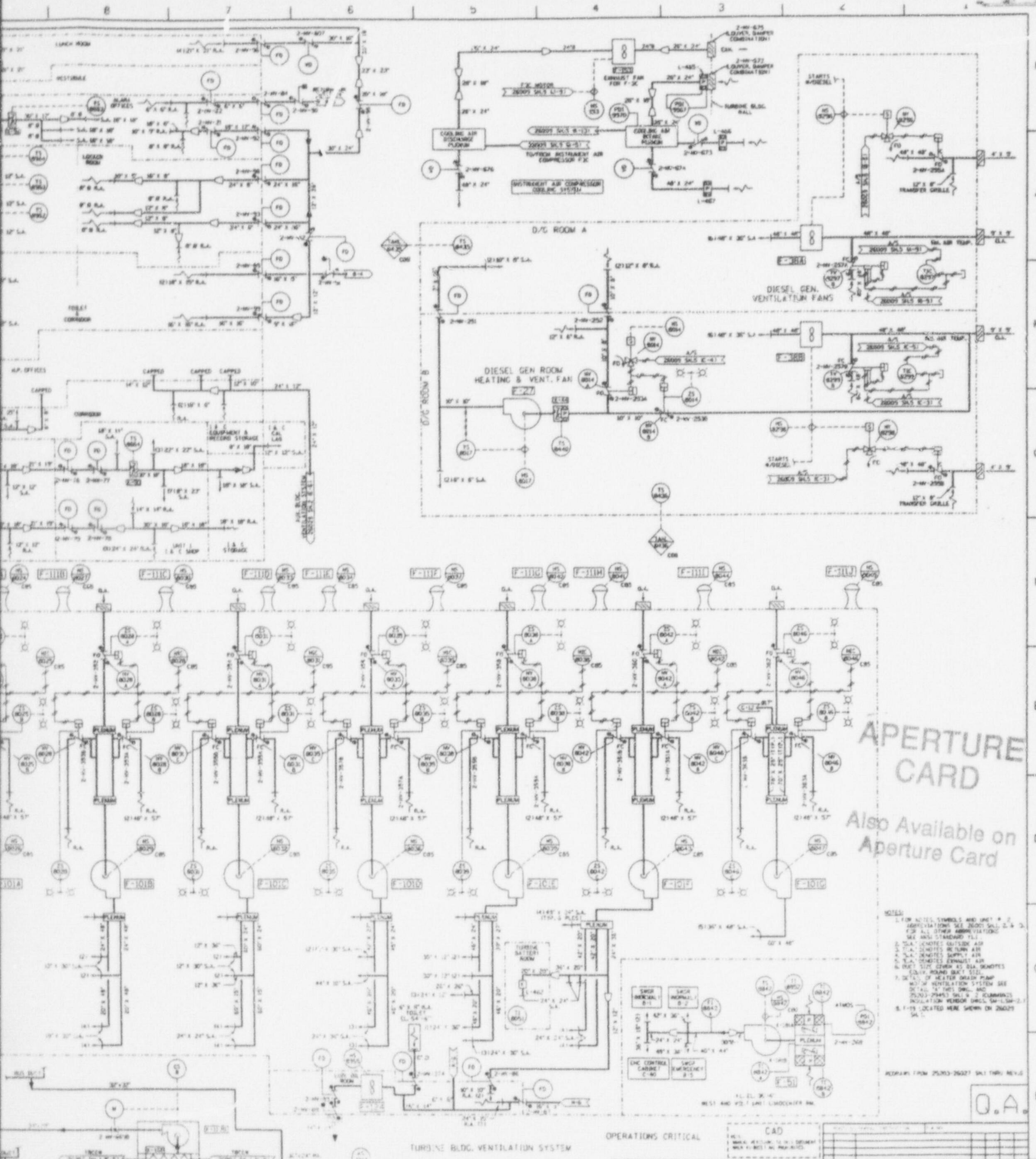
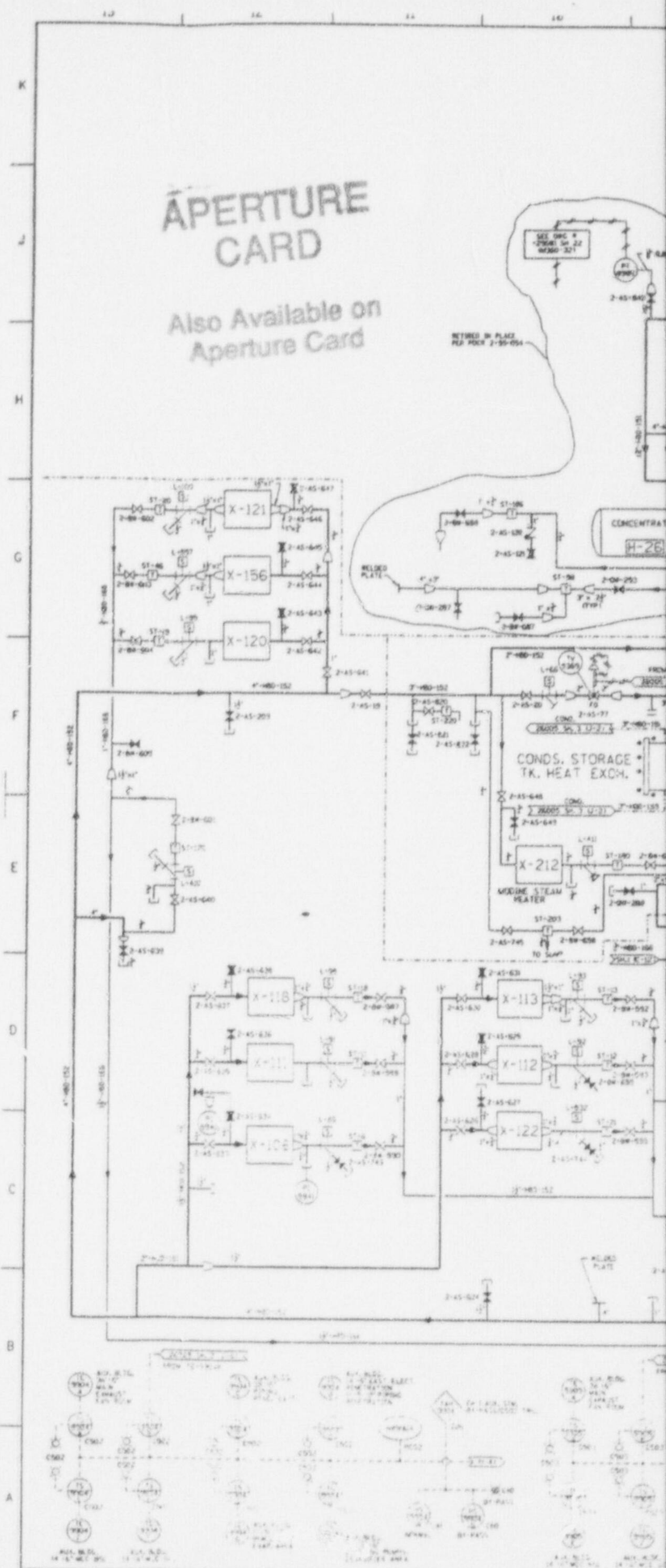


FIGURE 09.09-04 SH- 01 MAY 1998

9807240260-35



APERTURE CARD
Also Available on Aperture Card
X-121
X-156
X-120
CONCENTRAT
H-26
CONDS. STORAGE
TK. HEAT EXCH.
X-212
MODINE STEAM HEATER
X-118
X-108
X-113
X-112
X-122

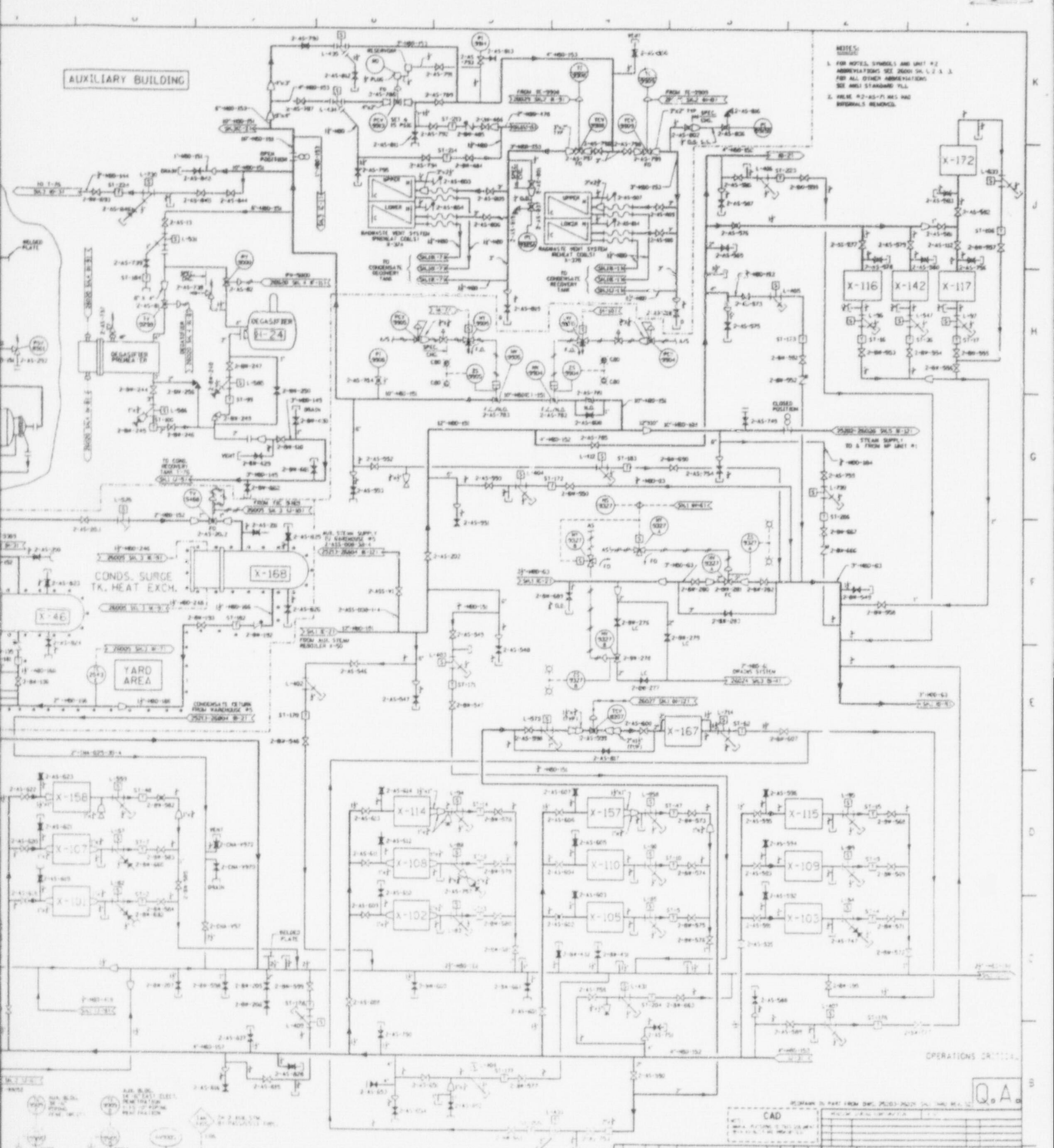
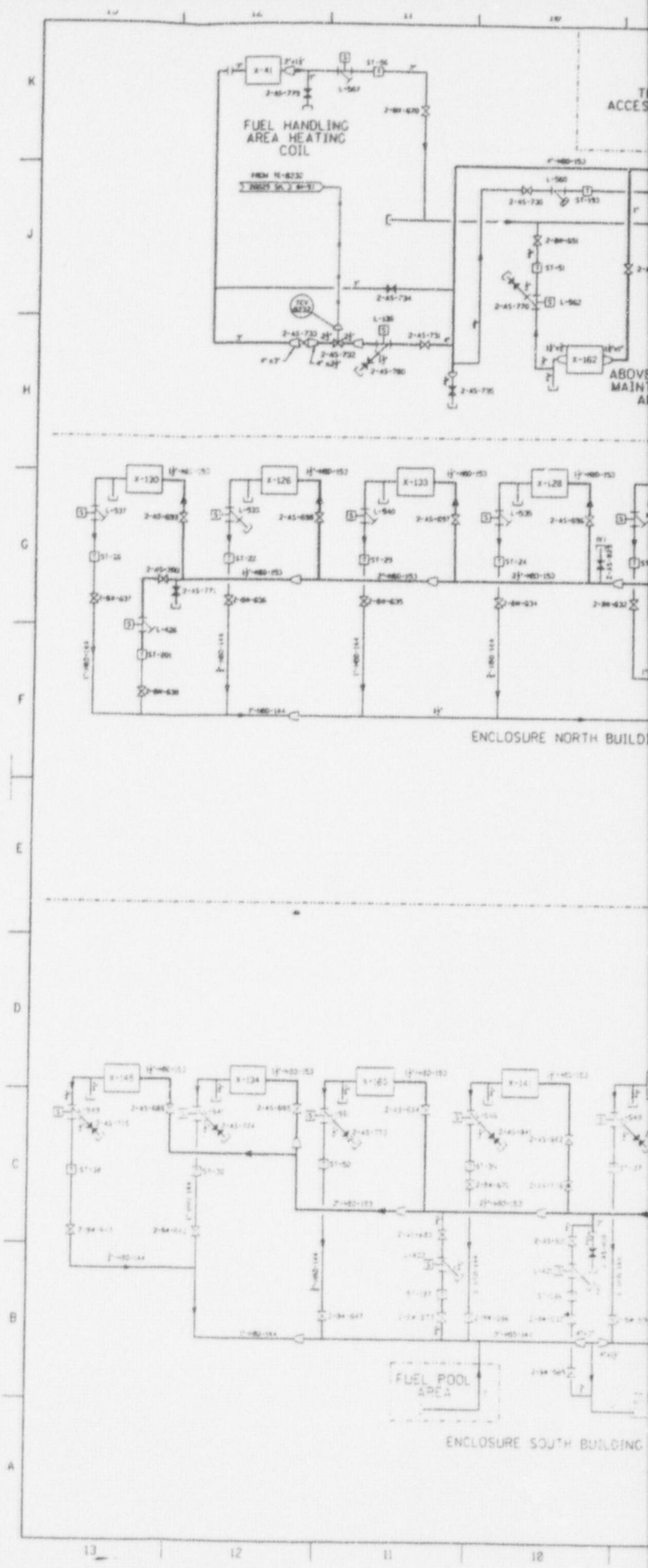


FIGURE 09.13-01 SH- 02 MAY 1998

9807240260 - 36



FUEL HANDLING AREA HEATING COIL
X-41
X-130
X-126
X-133
X-128
X-162
ENCLOSURE NORTH BUILDI
X-145
X-134
FUEL POOL AREA
ENCLOSURE SOUTH BUILDING

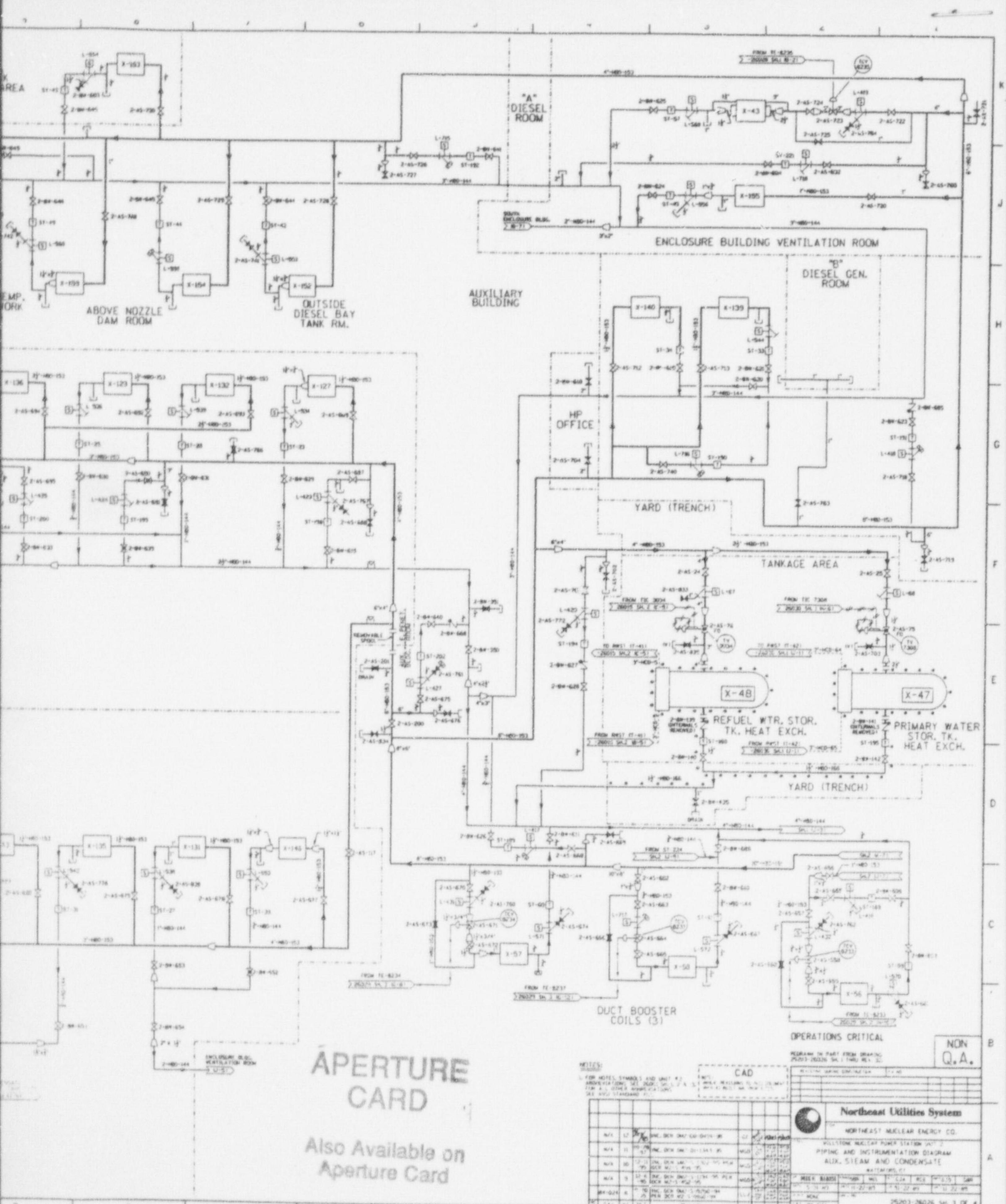
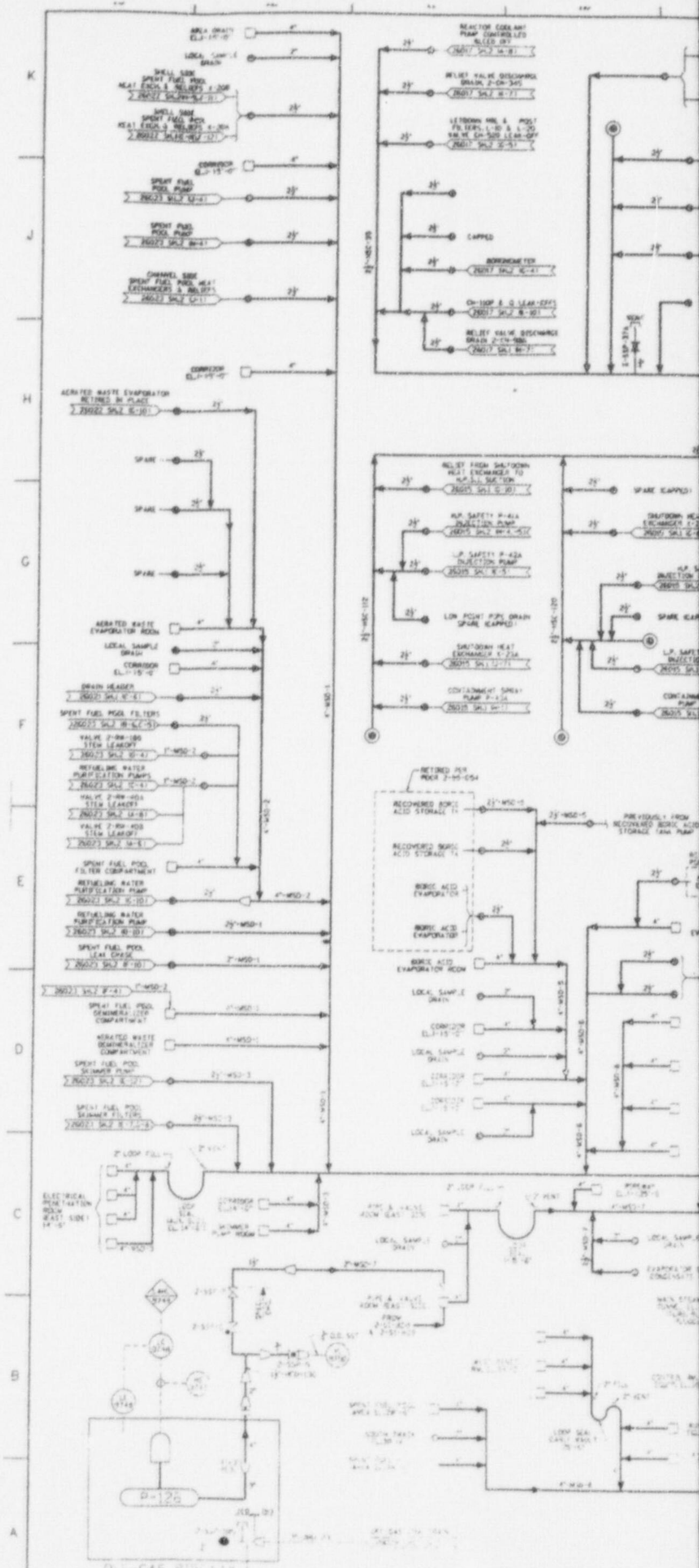


FIGURE 09.13-01 SH- 03 MAY 1998

9807240260 - 37



K
J
H
G
F
E
D
C
B
A
13
12
11
10
AERATED WASTE EVAPORATOR RETIRED IN PLACE
SPARE
SPARE
SPARE
AERATED WASTE EVAPORATOR ROOM
SPENT FUEL POOL FILTERS
SPENT FUEL POOL FILTER COMPARTMENT
REFUELING WATER PURIFICATION PUMP
SPENT FUEL POOL LEAK CHASE
AERATED WASTE DEMINERALIZER COMPARTMENT
SPENT FUEL POOL SKIMMER PUMP
SPENT FUEL POOL SKIMMER FILTERS
ELECTRICAL PENETRATION ROOM (EAST SIDE)
CAPPED
BORONOMETER
LOW POINT PIPE DRAIN SPARE (CAPPED)
RETIRED PER
RECOVERED BORIC ACID STORAGE TK
BORIC ACID EVAPORATOR
BORIC ACID EVAPORATOR ROOM
LOCAL SAMPLE DRAIN
P-126
OFF-GAS PIPEWAY SUMP PUMP

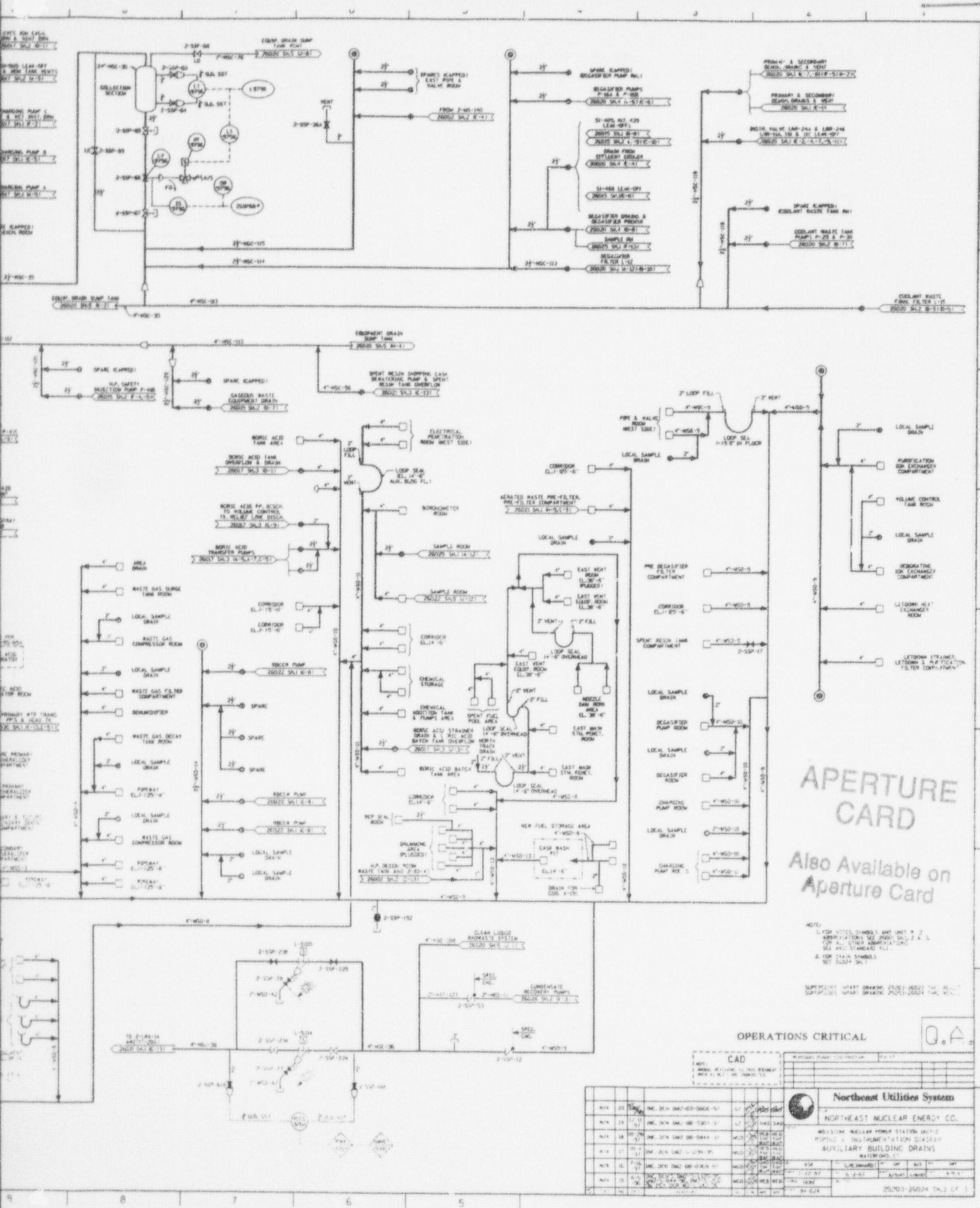
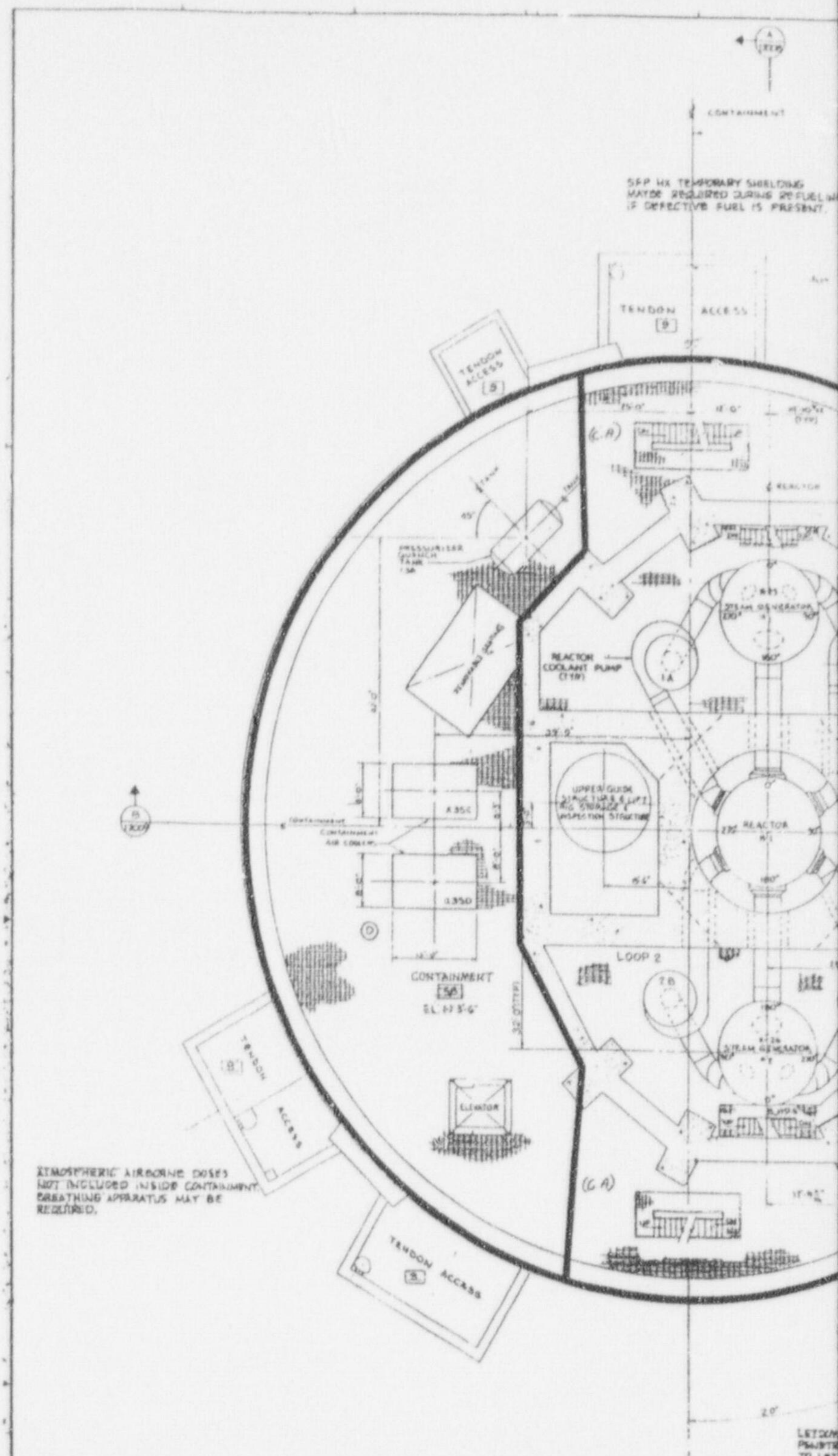


FIGURE 11.01-03 SH- 03 MAY 1998

9807240260- 38


CONTAINMENT
TENDON ACCESS
REACTOR COOLANT PUMP
STEAM GENERATOR
REACTOR
LOOP 2
CONTAINMENT
ELEVATOR
ATMOSPHERIC AIRBORNE DOSES NOT INCLUDED INSIDE CONTAINMENT. BREATHING APPARATUS MAY BE REQUIRED.

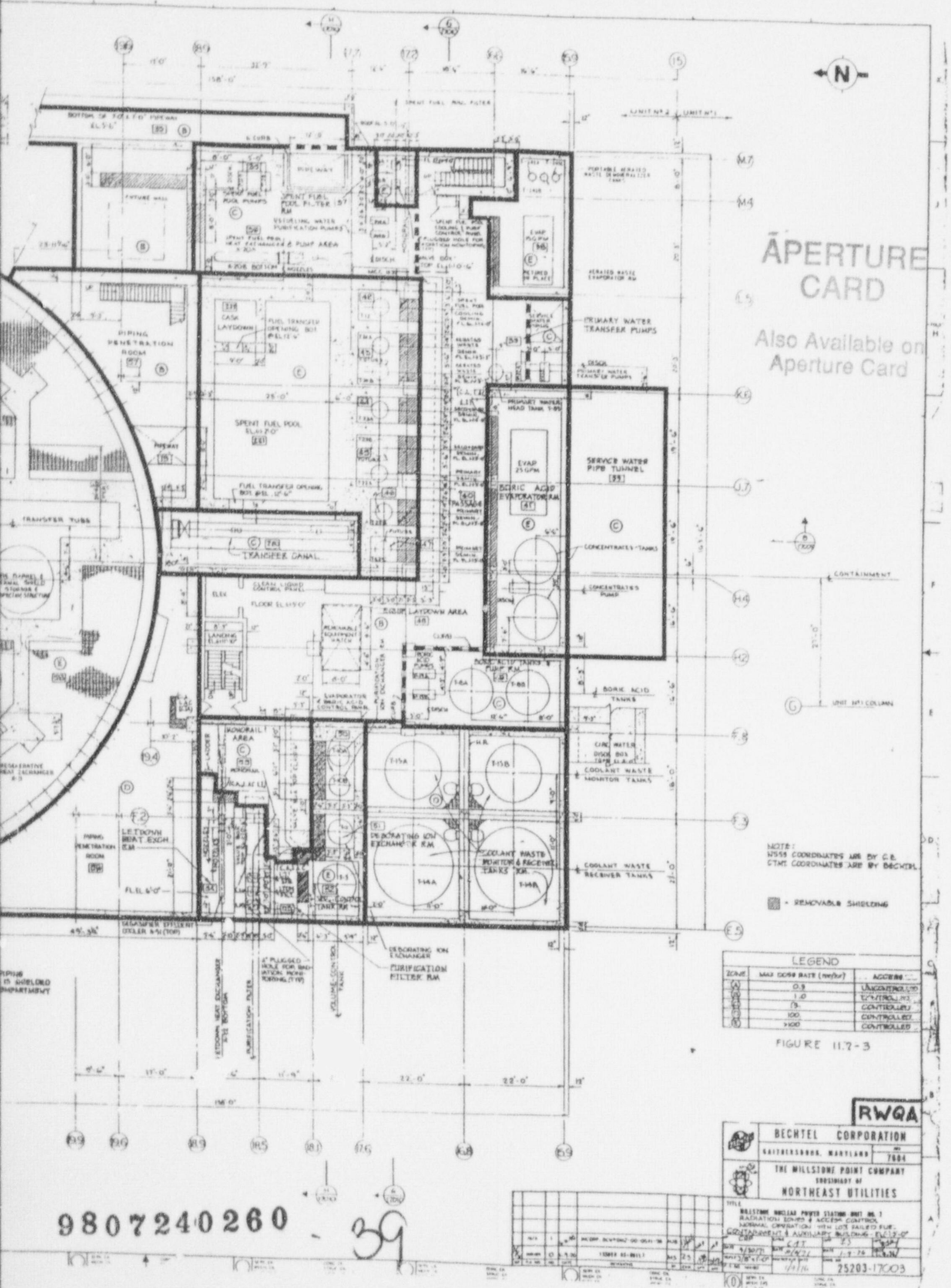


FIGURE 11.02-03 SH- 01 JUNE 1998