ENCLOSURE 2

UNIT 1

TECHNICAL SPECIFICATION

REVISED PAGES

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3.6 REACTOR BUILDING

Applicability

Applies to the containment integrity of the reactor building as specified below.

Objective

To assure containment integrity.

Specification

3.6.1 Except as provided in 3.6.6, 3.6.8, and 3.6.12, CONTAINMENT INTEGRITY (Section 1.7) shall be maintained whenever all three of the following conditions exist:

a. Reactor coolant pressure is 300 psig or greater.

b. Reactor coolant temperature is 200°F or greater.

c. Nuclear fuel is in the core.

3.6.2 Containment integrity shall be maintained when both the reactor coolant system is open to the containment atmosphere and a shutdown margin exists that is less than that for a refueling shutdown.

3.6.3 Positive reactivity insertions which would result in a reduction in shutdown margin to less than 1% $\delta k/k$ shall not be made by control rod motion or boron dilution unless containment integrity is being maintained.

3.6.4 The reactor shall not be critical when the reactor building internal pressure exceeds 2.0 psig or 1.0 psi vacuum.

3.6.5 Prior to criticality following refueling shutdown, a check shall be made to confirm that all manual containment isolation valves which should be closed are closed and are conspicuously marked.

3.6.6 While the reactor is critical, if a reactor building isolation valve (other than a purge valve) is determined to be inoperable in a position other than the required position, the other reactor building isolation valve in the line shall be verified to be OPERABLE. If the inoperable valve is not restored within 48 hours, the OPERABLE valve will be closed or the reactor shall be brought to HOT SHUTDOWN within 6 hours and COLD SHUTDOWN within the following 30 hours.

3.6.7 The hydrogen recombiner shall be operable during REACTOR CRITICAL, HOT STANDBY and POWER OPERATION. With the hydrogen recombiner inoperable, restore the inoperable hydrogen recombiner to operable status within 7 days or be in Hot Shutdown within 6 hours.

3.6.8 While containment integrity is required (see T.S. 3.6.1), if a 48" reactor building purge valve is found to be inoperable perform either 3.6.8.1 or 3.6.8.2 below.

3.6.8.1 If inoperability is due to reasons other than excessive combined leakage, close the associated valve and within 24 hours verify that the associated valve is OPERABLE. Maintain the associated valve closed until the faulty valve can be declared OPERABLE. If neither purge valve in the penetration can be declared OPERABLE within 24 hours, be in HOT SHUTDOWN within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

3.6.8.2 If inoperability is due to excessive combined leakage (see T.S. 4.4.1.7.a), restore the leaking valve to OPERABILITY within 48 hours or perform either a or b below:

a. Manually close both associated reactor building isolation valves and meet the leakage criteria of Specification 4.4.1.7.a and perform either (1) or (2) below.

(1) Restore the leaking valve to OPERABILITY within the following 72 hours.

(2) Maintain both valves closed by administrative controls, verify both valves are closed at least once per 31 days and perform the interspace pressurization test of T.S. 4.4.1.7.1a every 3 months. In order to accomplish repairs, one containment purge valve may be opened for up to 72 hours following successful completion of an interspace pressurization test.

b. Be in HOT SHUTDOWN within 6 hours and COLD SHUTDOWN within the following 30 hours.

3.6.9 Except as specified in 3.6.11 below, the Reactor Building purge isolation valves (AH-V-1A&D) shall be limited to less than 31° and (AH-V-1B&C) shall be limited to less than 33° open, by positive means, while purging is conducted.

3.6.10 During STARTUP, HOT STANDBY and POWER OPERATION:

a. Containment purging shall not be performed for temperature or humidity control.

b. Containment purging is permitted to reduce airborne activity in order to facilitate containment entry for the following reasons:

(1) Non-routine safety-related corrective maintenance.

(2) Non-routine safety-related surveillance.

(3) Performance of Technical Specification required surveillances.

(4) Radiation Surveys.

(5) Engineering support of safety-related modifications for pre-outage planning.

(6) Purging prior to shutdown to prevent delaying of outage commencement (24 hours prior to shutdown).

c. Containment purging is permitted for Reactor Building pressure control.

d. To the extent practicable the above containment entries shall be scheduled to coincide, in order to minimize instances of purging.

3.6.11 When the reactor is in COLD SHUTDOWN or REFUELING SHUTDOWN, continuous purging is permitted with the Reactor Building purge isolation valves opened fully.

3.6.12 Personnel or emergency air locks:

a. At least one door in each of the personnel or emergency air locks shall be closed and sealed during personnel passage through these air locks.

b. One door of the personnel or emergency air lock may be open for maintenance, repair or modification provided the other door of the air lock is verified closed within 1 hour, locked within 24 hours, and verified to be locked closed monthly. Air lock doors in high radiation areas may be verified locked closed by administrative means.

c. Entry and exit is permissible to perform repairs on the affected personnel or emergency air lock components. With both air locks inoperable due to inoperability of only one door in each airlock, entry and exit is permissible for 7 days under administrative controls. With the personnel or emergency air lock door interlock mechanism inoperable, entry and exit is permissible under the control of a dedicated individual.

d. With one or more air locks inoperable for reasons other than "b" or "c" above, initiate action immediately to evaluate the overall containment leakage rate with respect to the requirements of Appendix J, verify a door is closed in the affected air lock within 1 hour, and restore the affected air lock(s) to operable status within 24 hours or the reactor shall be brought to HOT SHUTDOWN within 6 hours and COLD SHUTDOWN within the following 30 hours.

Bases

The Reactor Coolant System conditions of COLD SHUTDOWN assure that no steam will be formed and hence no pressure will build up in the containment if the Reactor Coolant System ruptures.

The selected shutdown conditions are based on the type of activities that are being carried out and will preclude criticality in any occurrence.

A condition requiring integrity of containment exists whenever the reactor coolant system is open to the atmosphere and there is insufficient soluble poison in the reactor coolant to maintain the core one percent subcritical in the event all control rods are withdrawn.

The reactor building is designed for an internal pressure of 55 psig, and an external pressure 2.5 psi greater than the internal pressure.

Due to industry reports of elastomer degradation in containment purge valve seats, unique action requirements are now designated to help preclude common mode failure of both valves in series. An increased frequency of leak rate testing is also incorporated to help assure timely discovery and resolution of any seat degradation.

An analysis of the impact of purging on ECCS performance and an evaluation of the radiological consequences of a design basis accident while purging have been completed and accepted by the NRC staff. Analysis has demonstrated that a purge isolation valve is capable of closing against the dynamic forces associated with a LOCA when the valve is limited to a nominal 30° open position.

Allowing purge operations during STARTUP, HOT STANDBY and POWER OPERATION (T.S. 3.6.10) is more beneficial than requiring a cooldown to COLD SHUTDOWN from the standpoint of (a) avoiding unnecessary thermal stress cycles on the reactor coolant system and its components and (b) reducing the potential for causing unnecessary challenges to the reactor trip and safeguards systems.

The recombiner unit is capable of controlling the expected hydrogen generation associated with 1) zirconium-water reactions, 2) radiolytic decomposition of water and 3) corrosion of metals within containment. The recombiner is designed in accordance with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA", March 1971, the acceptance criteria of the Standard Review Plan (S.R.P.) 6.2.5., and NUREG 0578, July 1979. In addition to the installed hydrogen recombiner, a second recombiner including all piping, electrical, and structural provisions is available on site.

The hydrogen mixing is provided by the reactor building ventilation system to ensure adequate mixing of the containment atmosphere following a LOCA. This mixing action will prevent localized accumulations of hydrogen from exceeding the flammable limit.

Interspace pressurization leak testing of containment purge valves is performed once every three months. The primary objective of this testing per NRC Safety Issue B-24, is to identify excessive degradation of the resilient seats in a timely manner. Upon failing the quarterly test, manual closure of the valve and retesting are performed in order to identify leakage caused by excessive seat degradation. Manual closure means closure of the valve by means other than the normal operator.

Maintaining containment air locks OPERABLE requires compliance with the leakage rate test requirements of 10 CFR 50, Appendix J (Reference 1), as modified by approved exemptions. Each air lock door has been designed and is tested to certify its ability to withstand a pressure in excess of the maximum expected pressure following a Design Basis Accident (DBA) in containment. Closure of a single door in each air lock is sufficient to provide a leak tight barrier following postulated events.

Entry and exit is allowed to perform repairs on the affected air lock component. If the outer door is inoperable, then it may be easily accessed to repair. If the inner door is the one that is inoperable, however, then a short time exists when the containment boundary is not intact (during access through the outer door). The ability to open the OPERABLE door, even if it means the containment boundary is temporarily not intact, is acceptable due to the low probability of an event that could pressurize the containment during the short time in which the OPERABLE door is expected to be open. After each entry and exit the OPERABLE door must be immediately closed. If ALARA conditions permit, entry and exit should be via an OPERABLE air lock. With both air locks inoperable due to inoperability of one door in each of the two air locks, entry and exit is allowed for use of the air locks for 7 days under administrative controls. Containment entry may be required to perform Technical Specifications (TS) Surveillances and Required Actions, as well as other activities on equipment inside containment that are required by TS or activities on equipment that support TS-required equipment. This is not intended to preclude performing other activities (i.e., non-TS-required activities) if the containment was entered, using the inoperable air lock, to perform an allowed activity listed above. This allowance is acceptable due to the low probability of an event that could pressurize the containment during the short time that the OPERABLE door is expected to be open.

With one or more air locks inoperable for reasons other than those described in 3.6.12."b" or "c," Section 3.6.12.d requires action to be immediately initiated to evaluate previous combined leakage rates using current air lock test results. An evaluation is acceptable since it is overly conservative to immediately declare the containment inoperable if both doors in an air lock have failed a seal test or if the overall air lock leakage is not within limits. In many instances (e.g., only one seal per door has failed), containment remains OPERABLE, yet only 1 hour would otherwise be provided to restore the air lock door to OPERABLE status prior to requiring a plant shutdown. In addition, even with both doors failing the seal test, the overall containment leakage rate can still be within limits.

Section 3.6.12.d requires that one door in the affected containment air lock(s) must be verified to be closed within 1 hour. Additionally, the affected air lock(s) must be restored to OPERABLE status within the 24 hour Completion Time. 24 hours is considered reasonable for restoring an inoperable air lock to OPERABLE status assuming that at least one door is maintained closed in each affected air lock.

References

(1) 10 CFR 50, Appendix J.

4.4.4. Hydrogen Recombiner System

Applicability

Applies to the testing of the hydrogen recombiner and associated controls.

Objective

To verify that the hydrogen recombiner and associated controls are operable.

4.4.4.1 Specification

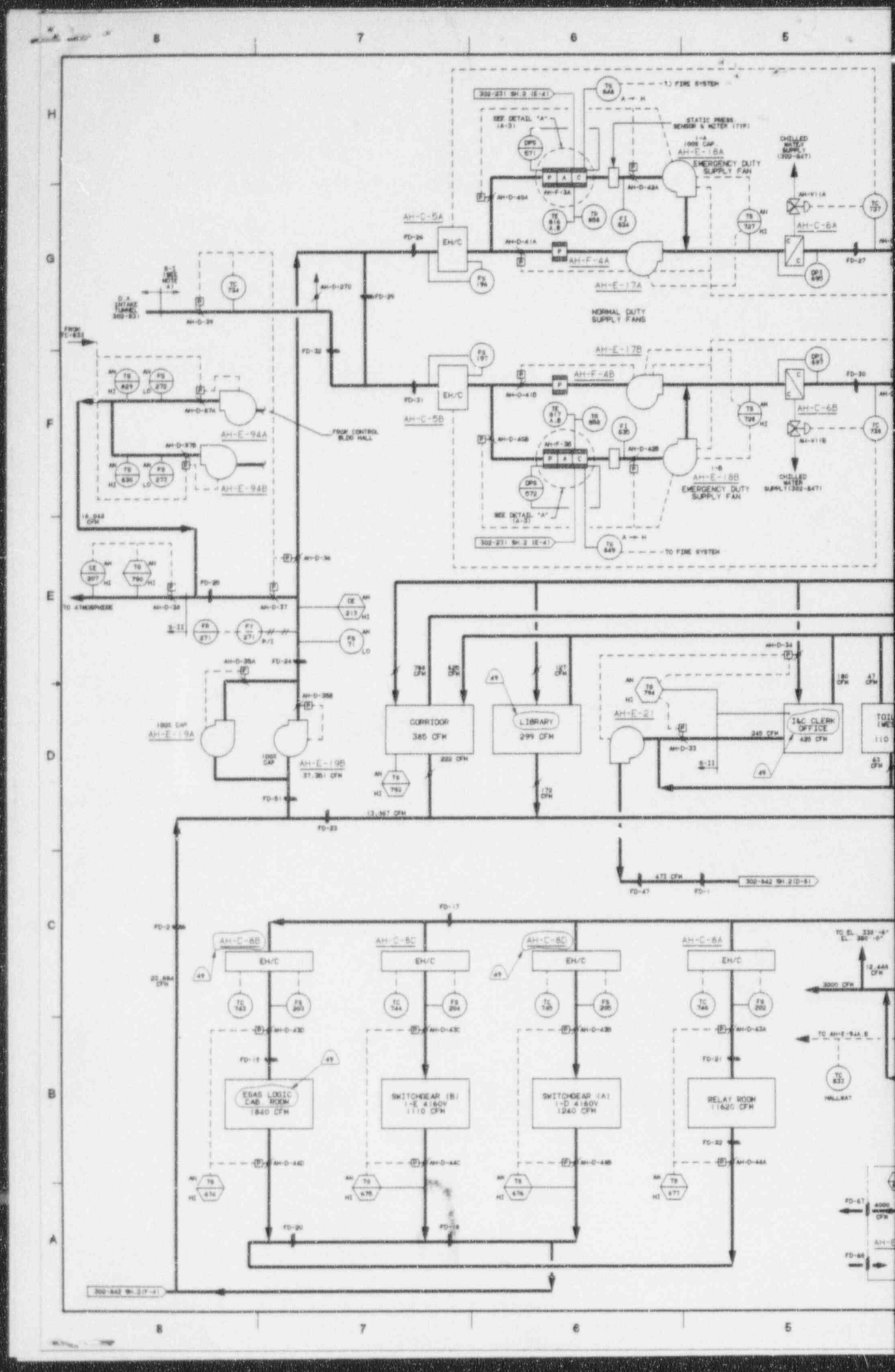
a. Perform a system functional test for the hydrogen recombiner each refueling interval by verifying that the reaction chamber gas temperature is maintained $\geq$1200°F for at least 4 hours.

b. Visually examine the hydrogen recombiner enclosure and verify there is no evidence of abnormal conditions each refueling interval.

c. Perform a resistance to ground test for each heater phase each refueling interval and verify that the resistance to ground for any heater phase is $\geq$ 10,000 ohms.

Bases

The surveillance program described above provides high assurance that the hydrogen recombiner system will be available to perform its post-LOCA function of maintaining the containment hydrogen concentration below 4.1 volume percent. This system is not credited to mitigate any accident analyzed in Chapter 14 of the TMI-1 FSAR. The frequency of the surveillance of the hydrogen recombiner system is based on the safety significance of the system. TMI-1 FSAR Section 6.5.3.1 indicates that the hydrogen recombiner system is not required until 9.8 days following a LOCA. This is adequate time to place a hydrogen recombiner in service.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AH-C-6B
AH-C-6C
AH-C-6D
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NORMAL DUTY SUPPLY FANS
CORRIDOR 385 CFM
LIBRARY 299 CFM
I&C CLERK OFFICE 425 CFM
ESAS LOGIC CAB. ROOM 1840 CFM
SWITCHGEAR (B) 1-E 4160V 1110 CFM
SWITCHGEAR (A) 1-D 4160V 1240 CFM
RELAY ROOM 11620 CFM
TO FIRE SYSTEM
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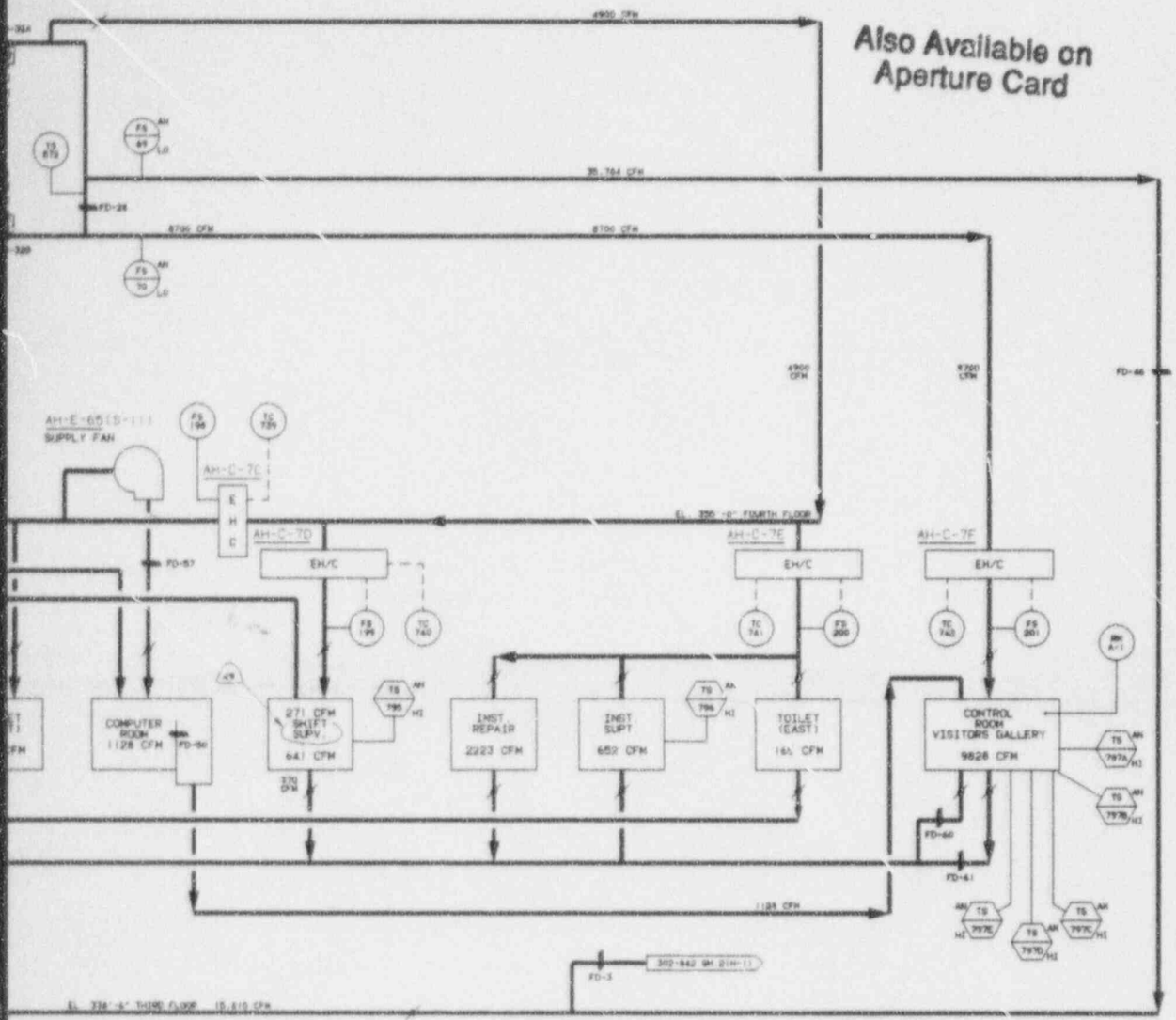
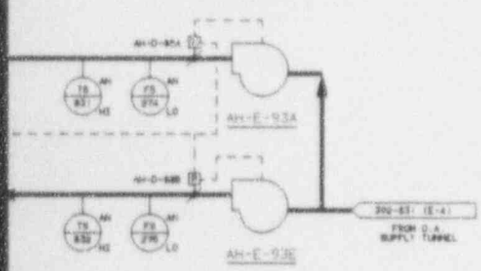
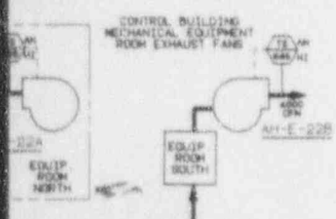
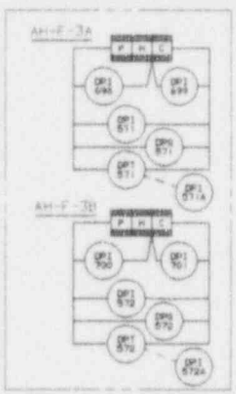




CONTROL BUILDING HALLWAY VENT.





CONTROL BUILDING UNIT HEATER SYSTEM 5 ELECTRIC UNIT HEATERS 5TH FLR AH-C-22A, 22B, 22C, 22D, 22E

DETAIL "A" (G/H-7)

NOTES:

1. VALVE POSITION SHOWN FOR REFERENCE ONLY. ACTUAL POSITIONS CONTROLLED BY PROCEDURES.
2. ALL INSTRUMENT TAG NUMBERS ARE PREFIXED BY SYSTEM DESIGNATOR UNLESS OTHERWISE NOTED.
3. THE FOLLOWING COMPONENTS ARE SEISMIC II-ANTIFALL DOWN:
   -AH-E-17A/B AND AH-F-44A/B
   -AH-C-5A/B; AH-C-7C/F; AH-C-8A/D; AH-C-9A/D
   -AH-E-21; AH-E-22A/B; AND AH-C-22A/E
   -AH-E-93A/B AND AH-E-94A/B

CAD FILE: Y1E_826_2(_1000_001-_490(
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NO.	DWG. NO.	TITLE
1	302-002	COMPONENT & SYS ID INDEX
2	302-003	SYMBOLS INSTRUMENTATION
3	302-001	SYMBOLS FLOW DIAGRAM
		REFERENCES

M. TETKOWSKI	06/30/94	GPU Nuclear / GAI
DESIGN	DATE	
CHECKED	DATE	CONTROL BUILDING AND MACHINE SHOP VENTILATION FLOW DIAGRAM
DESIGN LEADER	DATE	
ENGINEER	DATE	TMI UNIT 1
MANAGER APPROVAL	DATE	DWG. NO. 302-842 SH. 1 REV. 49
ENG. MECH.		SCALE: NONE

302-842