TABLE 3.6-1 (Continued)

SECONDARY CONTAINMENT BYPASS LEAKAGE PATHS

PENETRATION		RELEASE LOCATION	
X-84A	Pressurizer Relief Tank Gas Sample	Auxiliary Area	
X-85A	Excess Letdown Heat Exchanger	Auxiliary Area	
X-90	Control Air	Auxiliary Area	
X-93	Accumulator Sample	Auxiliary Area	
X-94ABC	Radiation Sample	Auxiliary Area	
X-95ABC	Radiation Sample	Auxiliary Area	
X-96C	Hot Leg Sample	Auxiliary Area	
X-98	ILRT	Auxiliary Area	
X-110	UHI	Auxiliary Area	R1
X-114	Ice Condenser	Auxiliary Area	
X-115	Ice Condenser	Auxiliary Area	
X-400	Hydrogen Purge	Auxiliary Area	
X-99	Hydrogen Analyzer	Auxiliary Area	
X-100	Hydrogen Analyzer	Auxiliary Area	
X-92A, B	Hydrogen Analyzer	Auxiliary Area	

ENCLOSURE 2

PROPOSED TECHNICAL SPECIFICATION CHANGE

SEQUOYAH NUCLEAR PLANT UNIT 2

DOCKET NO. 50-328

(TVA-SQN-TS-87-46)

DESCRIPTION AND JUSTIFICATION FOR
THE REVISION OF TABLE 3.6-1,
"BYPASS LEAKAGE PATHS TO THE
AUXILIARY BUILDING"

ENCLOSURE 2

Description of Change
Tennessee Valley Authority proposes to modify the Sequoyah Nuclear Plant (SQN) unit 2 technical specifications to revise Table 3.6-1, "Bypass Leakage Paths to the Auxiliary Building," to add four potential bypass leakage paths associated with the hydrogen analyzer system. Also, two entries in the table are revised for clarification.

Reason for Change
During the review of a design change notice (DCN) issued to enhance the hydrogen analyzer calibration process, it was discovered that the current system design contained a potential pathway for the release of radionuclides to the environment following a postulated loss of coolant accident (LOCA). Previously, the hydrogen analyzer system was considered a closed system outside containment with respect to containment isolation. This classification was identified to NRC in a January 2, 1987 submittal on SQN containment isolation design and in proposed technical specification change 87-33, which was submitted September 17, 1987. An earlier enhancement engineering change notice (ECN), however, had initiated a modification that moved the system calibration panels from the annulus to the Auxiliary Building. This was done for radiological and access considerations during the calibration of the analyzers, and because of the environmental qualifications of the equipment located in the annulus. This established an indirect release path to the Auxiliary Building and the environment through the system interface with the essential control air system. A direct release path to the Auxiliary Building and the environment was established on the train B analyzer because its calibration panel was moved outside the Auxiliary Building Secondary Containment Enclosure (ABSCE).

This design inadequacy is documented in Condition Adverse to Quality Reports SQP871611 and SQP871650. The deficiency was also reported to NRC in Licensee Event Report (LER) 327/87077. As was stated in the LER, preliminary evaluations of the radiological consequences of the potential bypass leakage to the environment have been performed. These evaluations indicated that the potential increases in both onsite and offsite doses would not have had significant safety consequences during power operation.

Modifications to the unit 2 hydrogen analyzer system are being performed to eliminate the potential bypass leakage paths to the environment. In order to comply with specification 3.6.4.1 for operable hydrogen analyzers, the modifications for the hydrogen analyzer will be completed prior to entering mode 2. These modifications were initiated by ECNs 7332 and 7333. After the modifications are completed, the potential for bypass leakage to the Auxiliary Building inside the ABSCE will still exist. It is these potential bypass leakage paths that are added to the technical specification table.

In addition to the change described above, the table entries for penetrations X-94 and X-95 are revised to clarify that each penetration has three lines passing through it.

Justification for Change
Figures 1 and 2 show the train A and B hydrogen analyzer system configurations that contained the potential bypass leakage path to the environment. After a postulated LOCA, the inboard containment isolation

valves (CIVs) would have been open because they were fail-open air-operated valves, and the control air would have been isolated during the accident. If the hydrogen analyzer was in the "analyze" mode, the electrically operated solenoid valve on the reagent-gas line would have been open as designed. If the failure of one train of essential control air was also postulated, the pressure in the control air line (reagent gas) supplying the hydrogen analyzer could have fallen below containment pressure, allowing the potential bypass leakage to the environment through the essential control air system. The train B analyzer also contained additional potential bypass leakage paths to the environment because some of its components were located outside the ABSCE.

Figures 3 and 4 show the modified hydrogen analyzer system configurations for trains A and B. ECN 7332 replaced the inboard CIVs with electrically operated fail-closed solenoid valves. The valves are TVA class B, qualified to operate in a harsh environment for 30 days, and leak tested in accordance with existing procedures.

ECN 7333 modifies the portion of the hydrogen analyzer system located in the Auxiliary Building to eliminate potential bypass leakage paths to the environment. For both trains, the analyzer will be disconnected from the essential control air system. Bottled air will be used as the reagent-gas supply. All bottles used for this function will have documentation to show class B equivalence.

Also, the reagent-gas pressure switch will be reconfigured for both trains to provide automatic closure of the reagent-gas solenoid valve on a low-pressure signal. This ensures that the potential leakage path is isolated with sufficient line pressure remaining to prevent outleakage through the reagent-gas solenoid valve. Because these components are located in a seismically qualified structure and the pipe is equivalent to class B, failure of the piping between the solenoid valve and the bottled air source is not considered credible.

Additionally, for the train B analyzer, the reagent-gas solenoid valve is relocated to inside the ABSCE boundary. This valve will meet the intent of class B. This valve is normally closed, but is opened during analyzer calibration and operation. This valve will be designated as an outboard CIV and tested as such in the appropriate procedures. Administrative controls will be used to ensure that sufficient gas pressure is available to prevent outleakage through the train B calibration-gas CIV. These controls will also ensure an adequate reagent-gas volume is available for the operation of the analyzers after an accident. The administrative controls will rely on procedural operator inspections and manual transfer of supply bottles. Transfer of the supply bottles will not result in a loss of gas pressure because of the use of a supply manifold with multiple isolatable bottles.

A solenoid valve is also added to the line for train B calibration gas. It too will be inside the ABSCE boundary. The valve will meet the intent of TVA class B. This valve is normally closed, but will be opened during calibration of the analyzer. This valve is also designated as an outboard CIV and tested accordingly. To ensure that a proper gas seal is available for this valve, the zero gas solenoid valve will be changed to a normally open, fail-open valve. Administrative controls will again be used to ensure sufficient gas pressure is available to prevent outleakage through the calibration-gas CIV.

For the train A analyzer, the solenoid valves on the lines for reagent and calibration gas are designated as CIVs and tested accordingly. These valves do not require a gas seal on the outboard side because the valves are located within the ABSCE boundary; and any leakage would be processed by the Auxiliary Building Gas Treatment System (ABGTS). However, to ensure an adequate supply of reagent gas to the train A analyzer, similar administrative controls will be used for transferring supply bottles to the analyzer.

Test connections are added to both trains as shown in the figures for the testing of the CIVs. Test connection valves between the CIVs will be class B. They will be normally locked closed and added to the appropriate plant procedures for tracking locked closed test connections. Test connections outside the CI's do not form part of the containment isolation pressure boundary. These outer test connection valves will also be locked closed to ensure the system seal.

As was previously discussed, preliminary evaluations have indicated that the radiological consequences of the potential bypass leakage to the environment would not have been significant during power operation. Additionally, the transfer of the potential leakage paths from the environment to inside the ABSCE will be an improvement in the potential radiological consequences of the postulated LOCA.

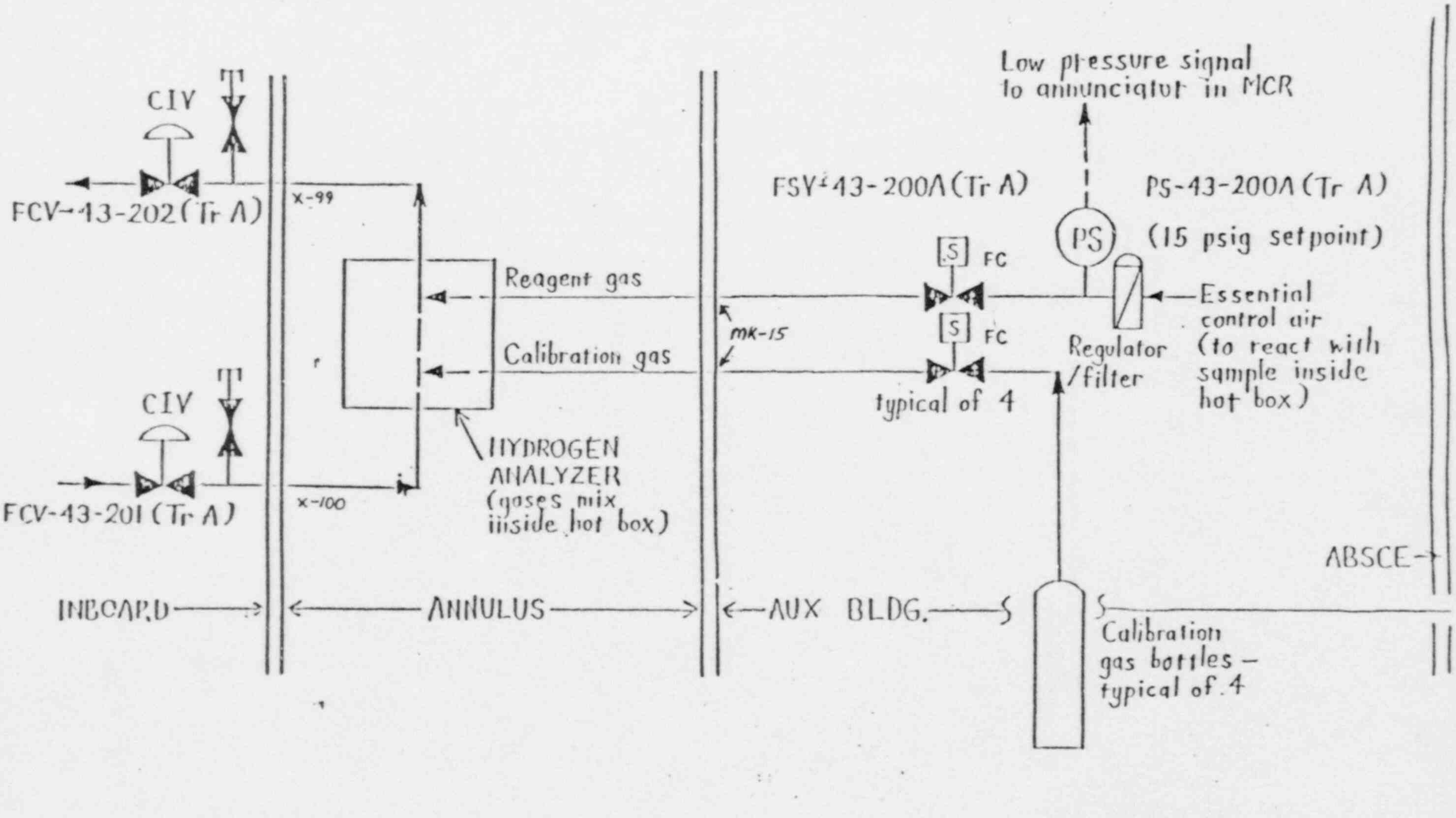
The offsite dose analysis of record (Final Safety Analysis Report, section 15.5.3) is not affected by moving the potential release point of the hydrogen analyzer system from the annulus to the ABSCE. This is because the total primary containment leakage remains unchanged, as do the assumptions that 75 percent of the leakage is to the annulus and 25 percent of the leakage is to the Auxiliary Building within the ABSCE. The change in potential release points only changes the allowable leakage for each individual penetration.

In summation, some of the modifications described above have been performed to the unit 2 hydrogen analyzer system to ensure that the system meets containment isolation requirements. The remaining modifications also eliminate potential bypass leakage paths to the environment, ensuring compliance with containment bypass leakage requirements. Potential leakage paths to the ABSCE will still exist and are included in the technical specifications. Inclusion of these potential leakage paths in the table ensures that they are adequately tested in accordance with 10 CFR 50 Appendix J and specification 3.6.1.2.

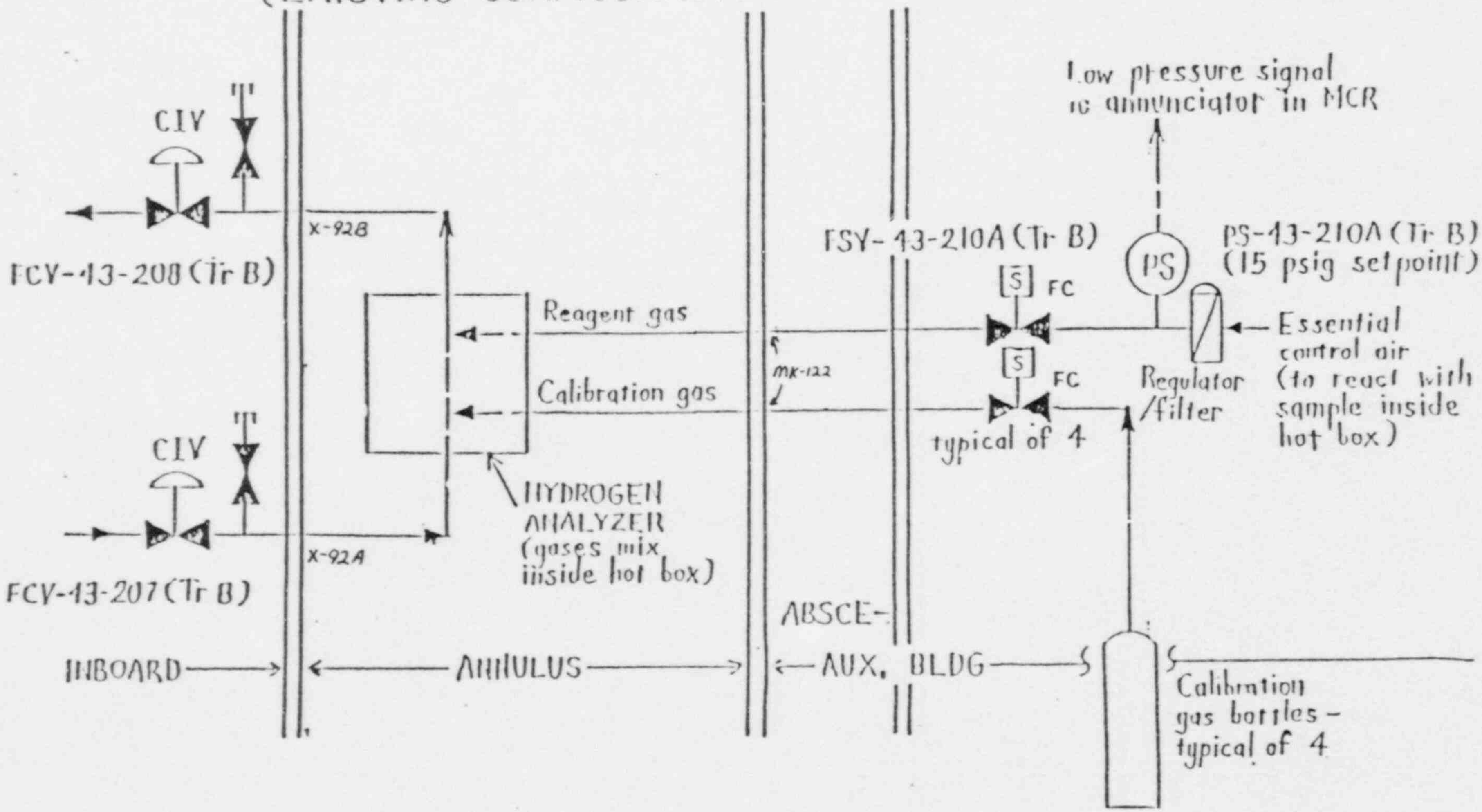
The revisions made to table entries X-94 and X-95 are made for clarification. The insertion of commas into the entries more clearly identifies that each penetration has three lines passing through it.

TS 87-46 Figure 1

HYDROGEN ANALYZER SYSTEM SCHEMATIC
(EXISTING CONFIGURATION FOR TRAIN A)

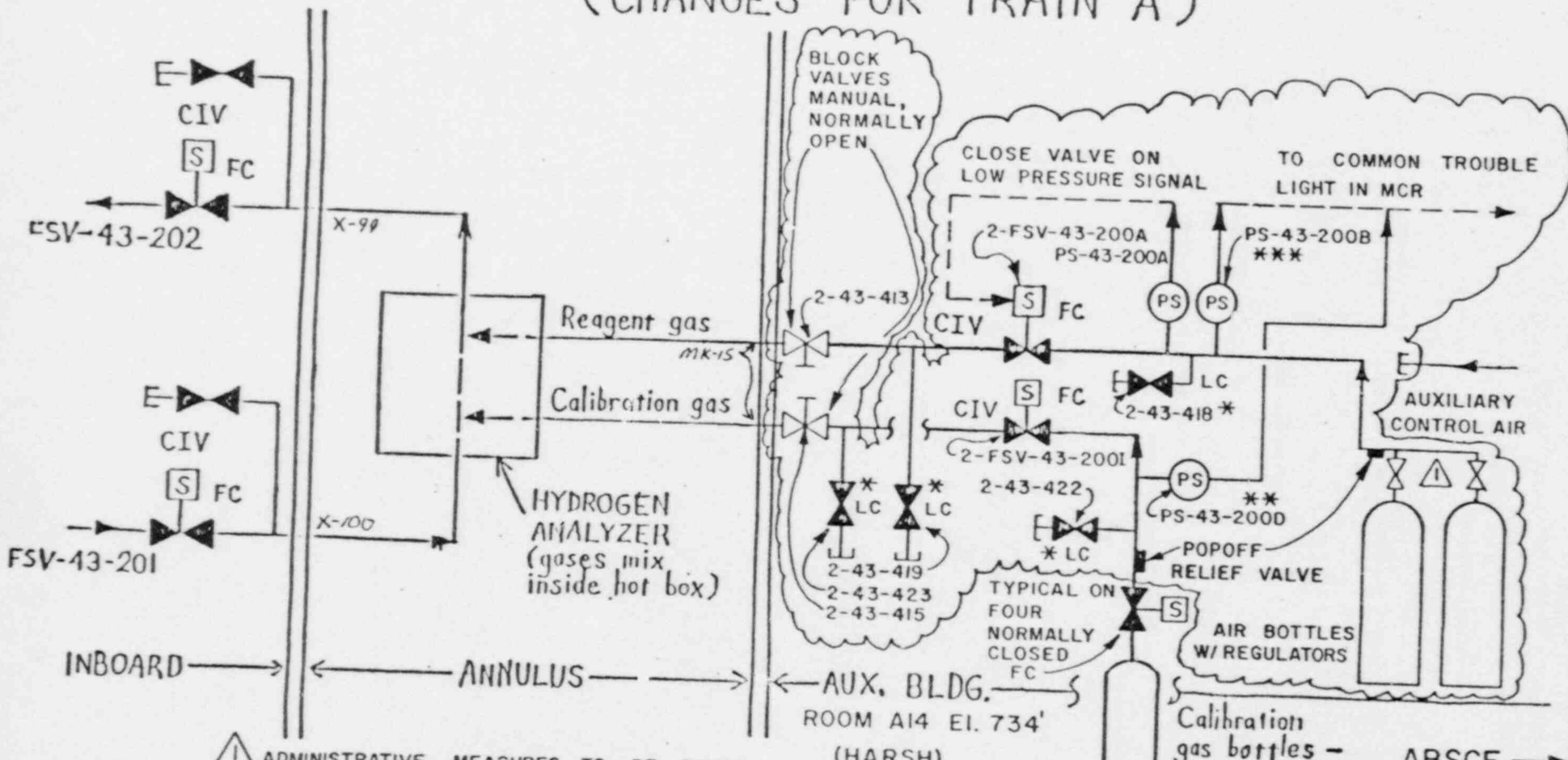


HYDROGEN ANALYZER SYSTEM SCHEMATIC
(EXISTING CONFIGURATION FOR TRAIN B)



TS 87-46
Figure 3

HYDROGEN ANALYZER SYSTEM SCHEMATIC (CHANGES FOR TRAIN A)



1 ADMINISTRATIVE MEASURES TO BE TAKEN TO ENSURE CONSTANT PRESSURE TO PANEL

* TEST -CONNECTIONS

** REPIPED FROM ZERO GAS BOTTLE LINE DOWNSTREAM OF WHERE 4 CAL GAS BOTTLES TEE

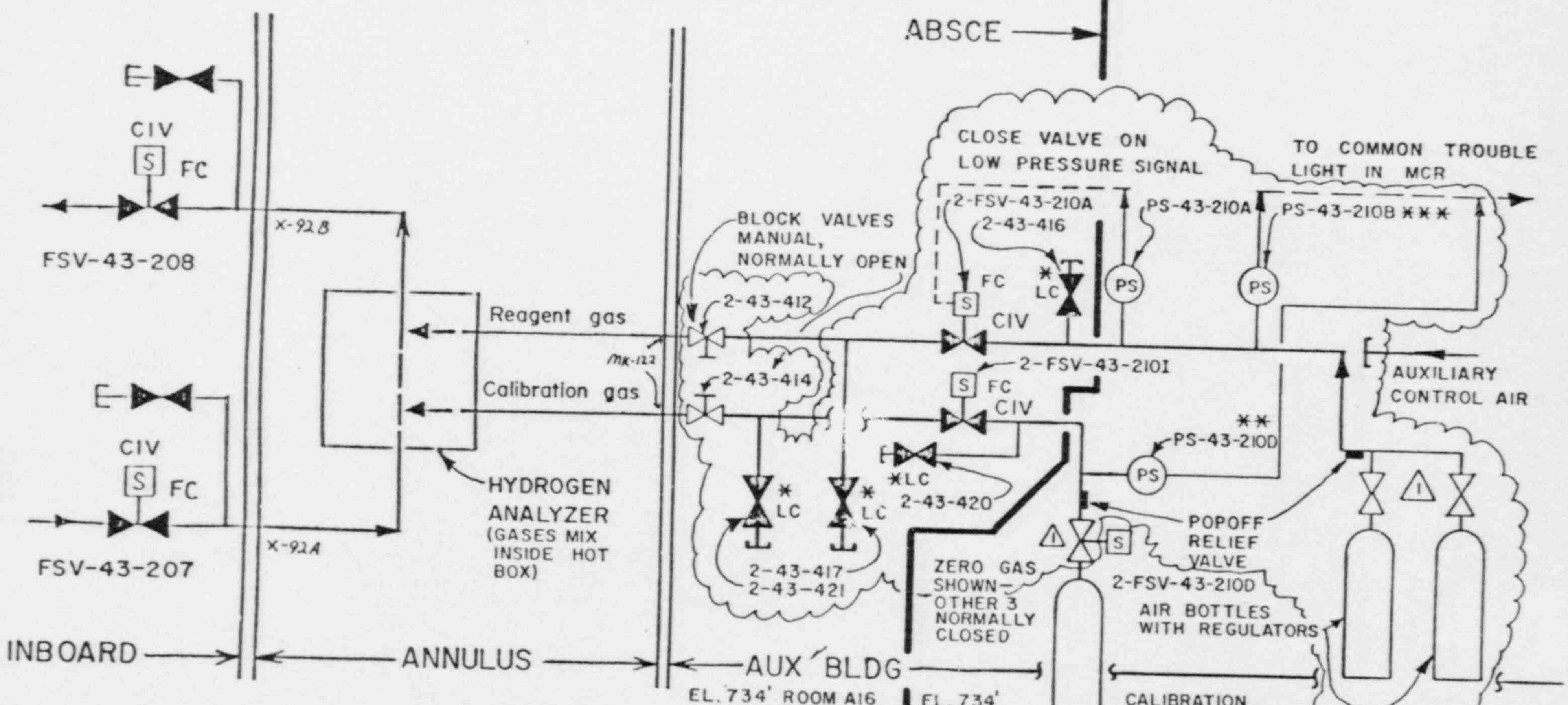
*** REPIPED FROM 8% (SPAN) BOTTLE TO REAGENT GAS LINE

ZERO GAS		2-FSV-43-200D
1%	H_2	2-FSV-43-200H
4%	H_2	2-FSV-43-200E
8%	H_2 (SPAN)	2-FSV-200B

(ITEMS WITH BUBBLE TO BE ADDED)

TS 87-46
Figure 4

HYDROGEN ANALYZER SYSTEM SCHEMATIC
(CHANGES FOR TRAIN B)



CALIBRATION GAS BOTTLES- TYPICAL OF 4

1% H_2 2-FSV-43-210H

4% H_2 2-FSV-43-210E

8% H_2 2-FSV-43-210B

⚠ ADMINISTRATIVE MEASURES TO BE TAKEN TO ENSURE CONSTANT PRESSURE TO PANEL

* TEST CONNECTIONS

** REPIPED FROM ZERO GAS BOTTLE LINE DOWNSTREAM OF WHERE 4 CAL GAS BOTTLES TEE

*** REPIPED FROM 8% (SPAN) BOTTLE TO REAGENT GAS LINE

(ITEMS WITHIN BUBBLE TO BE ADDED)

ENCLOSURE 3

PROPOSED TECHNICAL SPECIFICATION CHANGES

SEQUOYAH NUCLEAR PLANT UNIT 2

DOCKET NO. 50-328

(TVA-SQN-TS-87-46)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS

ENCLOSURE 3

Significant Hazards Evaluation

TVA has evaluated the proposed technical specification change and determined that it does not represent a significant hazards consideration based on criteria established in 10 CFR 50.92(c). Operation of SQN in accordance with the proposed amendment will not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated. The addition of the hydrogen analyzer system bypass penetrations to table 3.6-1 ensures that the penetrations are properly tested in accordance with surveillance requirement 4.6.1.2.e. This testing does not affect the probability or consequences of previously evaluated accidents. The hydrogen analyzer system is not required to mitigate design basis events, but is used to provide post-LOCA information to the operator in compliance with NUREG-0737. The hydrogen analyzer system does not contribute to the probability of an accident. The modifications made to the system eliminate potential leakage paths from containment to the environment. The remaining potential bypass leakage paths are into the ABSCE and are included in table 3.6-1 as such. Eliminating the leakage paths to the environment will decrease the consequences of an accident. The offsite dose analysis of record (Final Safety Analysis Report, section 15.5.3) is not affected by moving the potential release point of the hydrogen analyzer system from the annulus to the ABSCE. This is because the total primary containment leakage remains unchanged, as do the assumptions that 75 percent of the leakage is to the annulus and 25 percent of the leakage is to the Auxiliary Building. The change in potential release points only changes the allowable leakage for each individual penetration. The change does not impact systems or components used to mitigate postulated accidents. The addition of commas to two of the table entries is for clarification only, and does not alter the probability or consequences of previously evaluated accidents.

2. Create the possibility of a new or different kind of accident from any previously analyzed. The inclusion of the hydrogen analyzer system bypass penetrations in table 3.6-1 identifies the penetrations as being within the scope of surveillance requirement 4.6.1.2.e. The leak rate testing required by this surveillance does not create the possibility of a new type of accident. The changes made to the hydrogen analyzer system do not affect the function or operation of the system. The changes are made to eliminate potential leakage paths from containment to the environment. The change does not adversely affect other systems. The addition of commas to two of the table entries is for clarification. Therefore, no new accident scenarios are created.

3. Involve a significant reduction in a margin of safety. The proposed change ensures that the hydrogen analyzer system bypass penetrations are routinely tested under the requirements of surveillance requirement 4.6.1.2.e. This testing ensures that the plant is bounded by the offsite dose analysis of record. As described above, the offsite dose analysis of record is not affected by the proposed change; and the margin of safety as defined by the technical specification bases is not changed. The modifications to the hydrogen analyzer system eliminate a potential bypass leakage path to the environment and bring the system into compliance with containment isolation requirements. Any leakage will be into the ABSCE where it is processed by ABGTS. The technical specification change is made to reflect the potential bypass leakage paths to the Auxiliary Building. Because the potential for unprocessed bypass leakage is eliminated, the actual margin of safety is increased. The addition of commas to the two tables is for clarification. This clarification will not reduce the margin of safety.