

TECHNICAL SPECIFICATION CHANGE REQUEST  
Susquehanna Steam Electric Station

Unit 1 Change  Unit 2 Change  Unit 1 & Unit 2 Change

Originating Group or Section Design Modification Group - Nuclear Design

Portions of Technical Specifications Affected Table 3.6.3-1

Description of Change or Deviation Add six new containment isolation valves

Justification for Technical Specification Change (Provide Reference Specs., dwgs., or other documentation) DCP 89-3018A "Addition of New Containment Radiation Monitoring Sample Lines"

Part I Origination

Submitted by JESCH + RC Coker Date 3/19/90  
(Group Supervisor)

Approved by J. Butler Date 3/22/90  
(Cost Area Head)

Part II Approval

Approved by R. Szabo Date 3/22/90  
for (Licensing Group Supervisor)

Approved by Wm. M. ... Date 3/23/90  
(Manager-Nuclear Plant Engineering)

Approved by H. G. Stanley per telecon w/ H. G. ... PORC Mtg. No. 90-046 Date 4/5/90  
(Superintendent-SSES)

Reviewed by SRC Wm. R. ... Date 04/09/90  
(Secretary-SRC)

Approved by ... Date 4-15-90  
(Vice President-Nuclear Operations)

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R41-4

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(Manager-Nuclear Plant Engineering)

Approved by [Signature] FORC Mtg. No. 90-046 Date 4-5-90  
(Superintendent-SSES)

Reviewed by SRC \_\_\_\_\_ Date \_\_\_\_\_  
(Secretary-SRC)

Approved by \_\_\_\_\_ Date \_\_\_\_\_  
(Vice President-Nuclear Operations)

PROPOSED CHANGE TO TECHNICAL SPECIFICATIONS  
SAFETY IMPACT ASSESSMENT

TECHNICAL SPECIFICATION CHANGE NOTICE: TS-209

PREPARED BY: *A. E. Schlander*

DATE: 3/14/90

SUPERVISOR APPROVAL: *H. R. Clark*

DATE: 3/19/90

TECHNICAL ASSESSMENT: Addition of CRM Containment Penetrations

Assessment Purpose: To assess the addition of six new process penetrations to the SSES primary containment.

Design Purpose: To separate the Containment Radiation Monitors (CRM's) from the Hydrogen/Oxygen Analyzers and the Post Accident Sampling System. This will ultimately allow the post-accident systems to function without challenging the leak-tight integrity of the CRM's. The CRM's have become severe maintenance problems since fixes were installed to make them leak-tight.

FSAR Analysis: This change has essentially no impact on FSAR analyses. The solenoid actuated containment isolation valves will not have their power connected by the proposed modification. This work will be done later in accordance with DCP 89-3108B. The attached 50.59 evaluation contains more details.

Technical Analysis: The proposed Technical Specification change identifies the addition of non-powered automatic containment isolation valves. The design of the solenoid valves is such that inadvertent opening is impossible without the application of electrical power. The penetrations are further isolable by manual block valves located inboard of the inboard isolation valve. This will permit the future installation of electrical power and associated valve testing without jeopardizing primary containment integrity in any operating condition.

Conclusion: The proposed change to the Technical Specifications presents no reduction of established safety margins and should be submitted as written.

TABLE 3.6.3-1 (continued)  
PRIMARY CONTAINMENT ISOLATION VALVES

<u>VALVE FUNCTION AND NUMBER</u>	<u>MAXIMUM ISOLATION TIME (Seconds)</u>	<u>ISOLATION SIGNAL(s)</u>
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a. Automatic Isolation Valves (Continued)

<u>Containment Radiation Detection System</u>		
SV-157100 A,B	N/A	(f)
SV-157101 A,B	N/A	(f)
SV-157102 A,B	N/A	(f)
SV-157103 A,B	N/A	(f)
SV-157104	N/A	(f)
SV-157105	N/A	(f)
SV-157106	N/A	(f)
SV-157107	N/A	(f)

ADD TO PAGE 3/4.6-22

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(f) Solenoid valves not capable of being opened due to the absence permanently installed electrical power.

of

SAFETY EVALUATION COVERSHEET

No. DCP 89-3018A

UNIT # 1

PMR# 89-3018

PROCEDURE # \_\_\_\_\_

OTHER \_\_\_\_\_

SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2  
PENNSYLVANIA POWER & LIGHT COMPANY  
ALLENTOWN, PENNSYLVANIA

<input checked="" type="radio"/>	3-16-90	<i>[Signature]</i>	<i>[Signature]</i>	90-046 #5/90

REV.    DATE            PREPARED BY            ACCEPTED BY\*/DATE            PORC APPROVED/MTG#

\*This signature of the Responsible Supervisor indicates acceptance of the safety evaluation and confirms that interfaces with other disciplines, functional groups, etc. have been considered and have been incorporated into the evaluation as necessary. The Responsible Supervisor must be designated on NDI-QA-9.1.1C.

A copy of the APPROVED Safety Evaluation must be forwarded to the Manager, Nuclear Licensing.

I. System/Procedure/Experiment Identification.

System 157/Addition of New CRM Sample Lines (89-3018A)

II. Description of Proposed Action. (Include a discussion of the possible hazards.)

Persistent operational and maintenance problems have occurred with the existing containment atmospheric radiation monitoring system (CRM). This modification is the first stage in providing a replacement system, and will install new CRM sample lines and isolation valves from existing unused containment penetrations. An outage is required for this modification.

Design Description

The existing CRM panels share sample lines with the H2/O2 analyzers. Two new CRM panels and a wetwell sample rack will be installed by later DCP's. These new panels and rack will have their own dedicated sample lines with redundant containment isolation valves which will be designed to close on process signals of 1.72 psig in the drywell or -38 inches of reactor water level.

All new sample lines installed in this modification will have manual 1" full port valves provided on them to facilitate LLRT testing and isolation for system maintenance. The installation configuration is shown in attached Figures 1-3.

The piping is designed to Seismic Category I requirements, up to the first anchor point past the "Q" boundary at the outboard end of the second containment isolation valve. The design meets the requirements of ASME Section III 1971 ed. through winter 1972 addenda and all pipe supports are designed in accordance with ANSI B31.1 (1973 edition). The design meets all the requirements of Section 3.2 of the SSES FSAR, including the requirements of Table 3.2.-3.

Two sample lines will be routed inside containment to obtain atmosphere samples. Each of the new CRM panels (to be installed by DCP 89-3018B) will draw a sample from its own line, which will be 1" HCB class piping. Each CRM panel will have a sample return line to the containment of the same pipe size and class as the sample piping. Each sample and return line will have two containment isolation valves installed outboard of the containment penetration. The valves will be 1" Class IE process solenoid valves arranged in conformance with detail "q" of Figure 6.2-44g of the FSAR.

The rack used to take grab samples of the wetwell atmosphere will be installed on reactor building elevation 670' at azimuth 320 by DCP 89-3019. The sample and return lines for this rack will be designed to the same standards and configurations as the CRM sample lines.

## Leak Rate Testing

One of the conditions of all operating licenses as specified in 10CFR50.54(o) is that primary containments shall meet the containment leakage test requirements specified in Appendix J of 10CFR50. These test requirements provide for tests of the leak-tight integrity of the primary containment plus systems and components that penetrate primary containment, and establish the acceptance criteria for such tests.

Section IV (A) of Appendix J (Containment Modification) specifies that: "Any major modification, replacement of a component which is part of the primary reactor containment boundary, or resealing a seal-welded door, performed after the preoperational leakage rate test shall be followed by either a Type A, Type B, or Type C test, as applicable for the area affected by the modification. The measured leakage from this test shall be included in the report to the Commission required by V.A.". It is the interpretation of the design team, verified by Licensing, in conversations with the NRC (ref PLI-63112 attached), that the modifications herein proposed require Type B tests of all penetrations subsequent to modification. Acceptable Type B tests are given in Section III.B of Appendix J, a copy of which is attached as Figure 4.

The results of these Type B tests for leakage must be added to the results of the previous Type A (ILRT) test run during the last outage and the totals compared to allowables. These results must be sent, just as in the case of the ILRT, to the Commission in a summary technical report as specified in 10CFR50.4, approximately three months after the conduct of the tests.

Initial and periodic Type C testing of the isolation valves will be performed in accordance with the technical specifications.

### Penetration NDE

Section 3.8.2 of the SSES FSAR governs ASME class MC steel components of the containment. The entire length of any penetration sleeve is considered an MC component and, as such, is designed in accordance with Subsection NE of the ASME Boiler & Pressure Vessel Code, Section III. Applicable reference codes for the penetrations are: R.G. 1.57, ASME Boiler and Pressure Vessel Code (1971 with addenda through Winter 1972).

For nuclear class I flued head penetrations, the stress calculations are performed according to the requirements of Article NB-3200 of the ASME B&PV Code, Section III for design, normal, upset, emergency and faulted conditions. Class II flued heads require calculation to faulted conditions. Welding shall conform to the requirements of Subsection NE, Section III, ASME B&PV code, with all pressure boundary welds being full penetration welds of double welded, bevel type, using qualified welders. The penetrations will be postweld heat treated in accordance with Article NE-4000 of Section III (ASME B&PV).

Pressure retaining welds will be examined in accordance with Article NE-5000 of Section III of the ASME code, and will comply with R.G. 1.19. The penetrations will be pneumatically tested to 1.15 times the design accident pressure in accordance with NE-6000. Piping will be tested as required by the ASME code to which it is designed.

III. Does the proposed action increase the probability of occurrence or the consequences of an accident or malfunction of equipment related to safety, as previously evaluated in the FSAR? (Include specific reference to FSAR sections that are applicable.)

                          X    
YES                    NO

Provide a discussion of the basis and criteria used in arriving at the above conclusion.

This modification installs piping into penetrations similar or identical to designs already in place in the plant. It is designed to requirements enveloping all design basis accidents and malfunctions for the SSES containment. While in an absolute sense, the addition of any amount of additional equipment can be said to increase the microscopic-scope probability of occurrence of an accident, the addition of this equipment does not increase the probability of an accident by an amount greater than the uncertainty in the original accident probability analyses and thus no licensing-basis recognizable change in probability can be said to have occurred due to this modification. (Reference NSAC-125).

There is no specific condition of this modification or its location on containment that would affect any accident analysis evaluated in the FSAR and the small size (1") line is represented by numerous other cases in the containment design that have been thoroughly evaluated previously.

IV. Does the proposed action create a possibility for an accident or malfunction of a different type than any evaluated previously in the FSAR? (Include reference to specific FSAR sections applicable.)

                          X    
YES                    NO

Provide a discussion of the basis and criteria used in arriving at the above conclusion.

As discussed in Section III, nothing in the design of this modification is different from existing Susquehanna containment design or design practice. No features of the design or the locations for installation have been identified by any design criterion that would indicate the existence of any mechanism for creation of an accident or malfunction of a different type than previously analyzed in the FSAR.





VII. Does the proposed action create the need to make an application for amendment to the license other than to Appendix A?

\_\_\_\_\_  
YES      X    
          NO

Provide a discussion of the basis and criteria used in arriving at the above conclusion.

This modification encompasses no change in any plant design or activity that would require an amendment to the operating license.

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3/6/

3. DRAWING NO. E 106 262

8. IOCM NO. 89-3018A

4. SHEET NO. 1 5. REVISION 32

7.

**SSES-UNIT I**

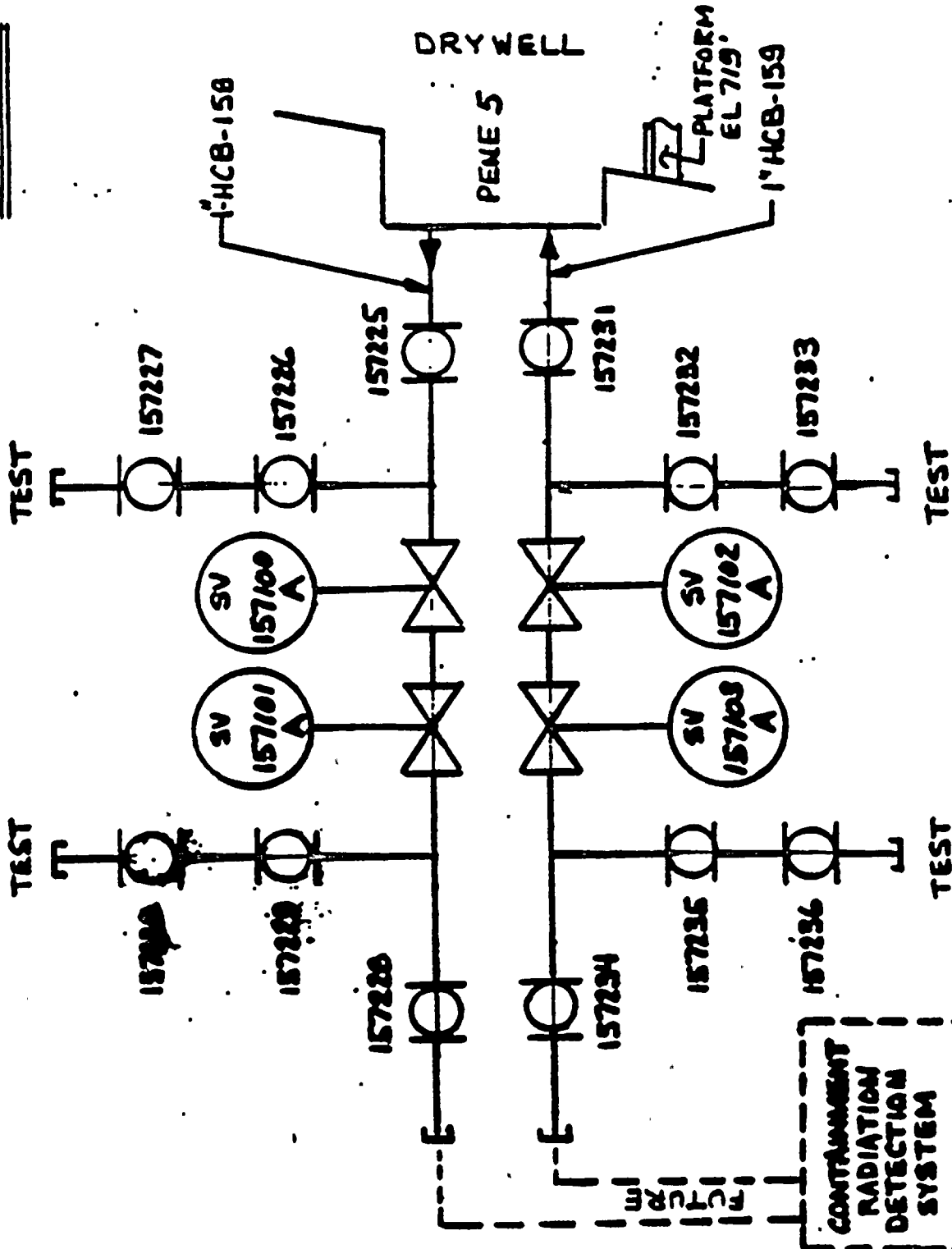
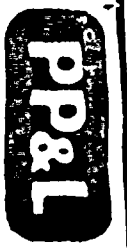


Figure 1



INTERIM DRAWING CHANGE  
NOTICE  
(CONTINUATION SHEET)

1. PAGE 3 OF 4  
2. DATE 2.5.90

3. DRAWING NO. E 106 262  
4. SHEET NO. 1 5. REVISION 92

6. ICGN NO. 89-3018A

SSSES-UNIT

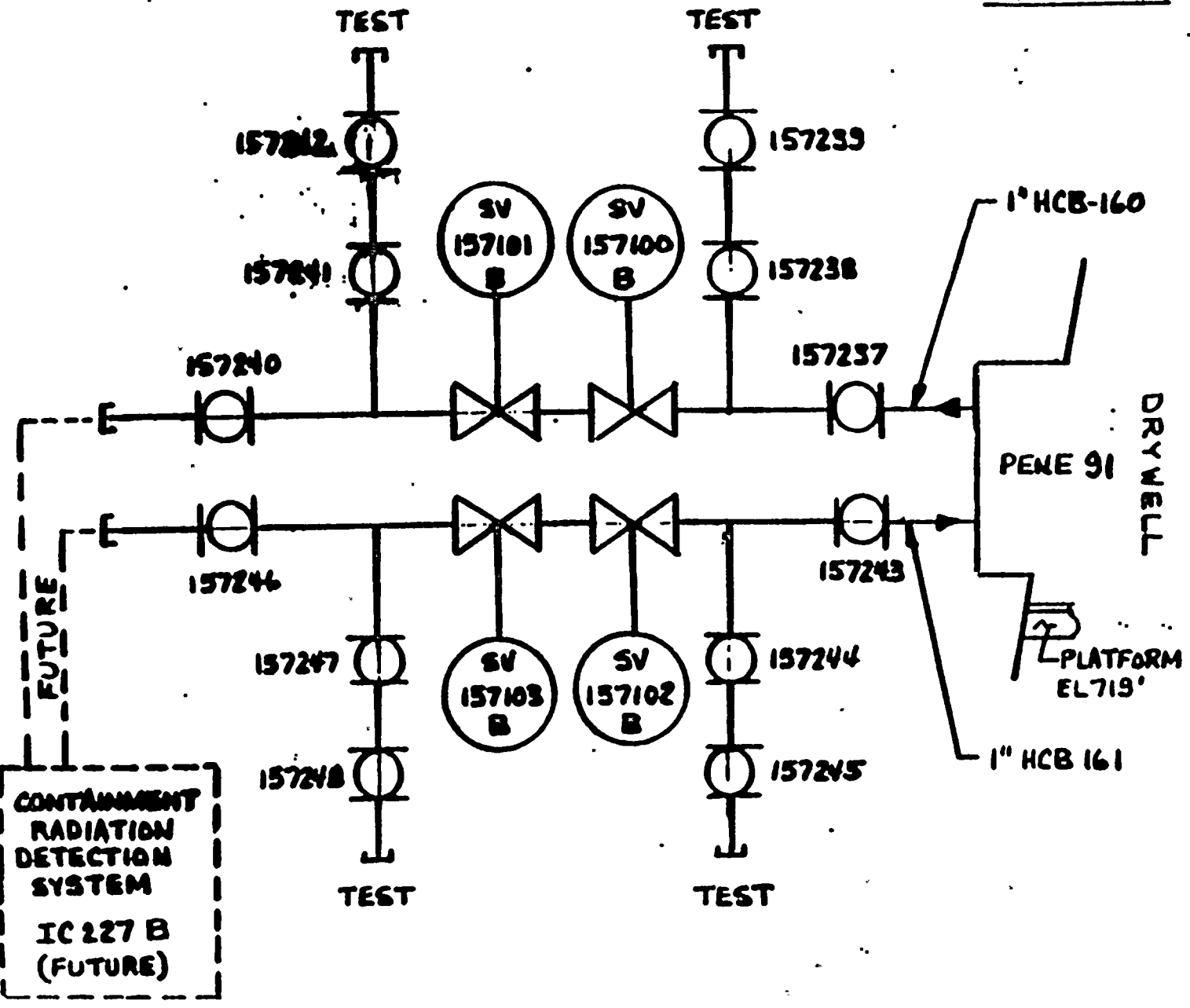


Figure 2

MM-00-18.2.78 REV. 2 (10-84)

JES 2/16/90 Page 3 of 4 B.F. 10

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INTERIM DRAWING CHANGE  
NOTICE  
(CONTINUATION SHEET)

1. PAGE 4 OF 4  
2. DATE 2-5-90

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4. SHEET NO. 1 5. REVISION 32

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SSSES - UNIT 1

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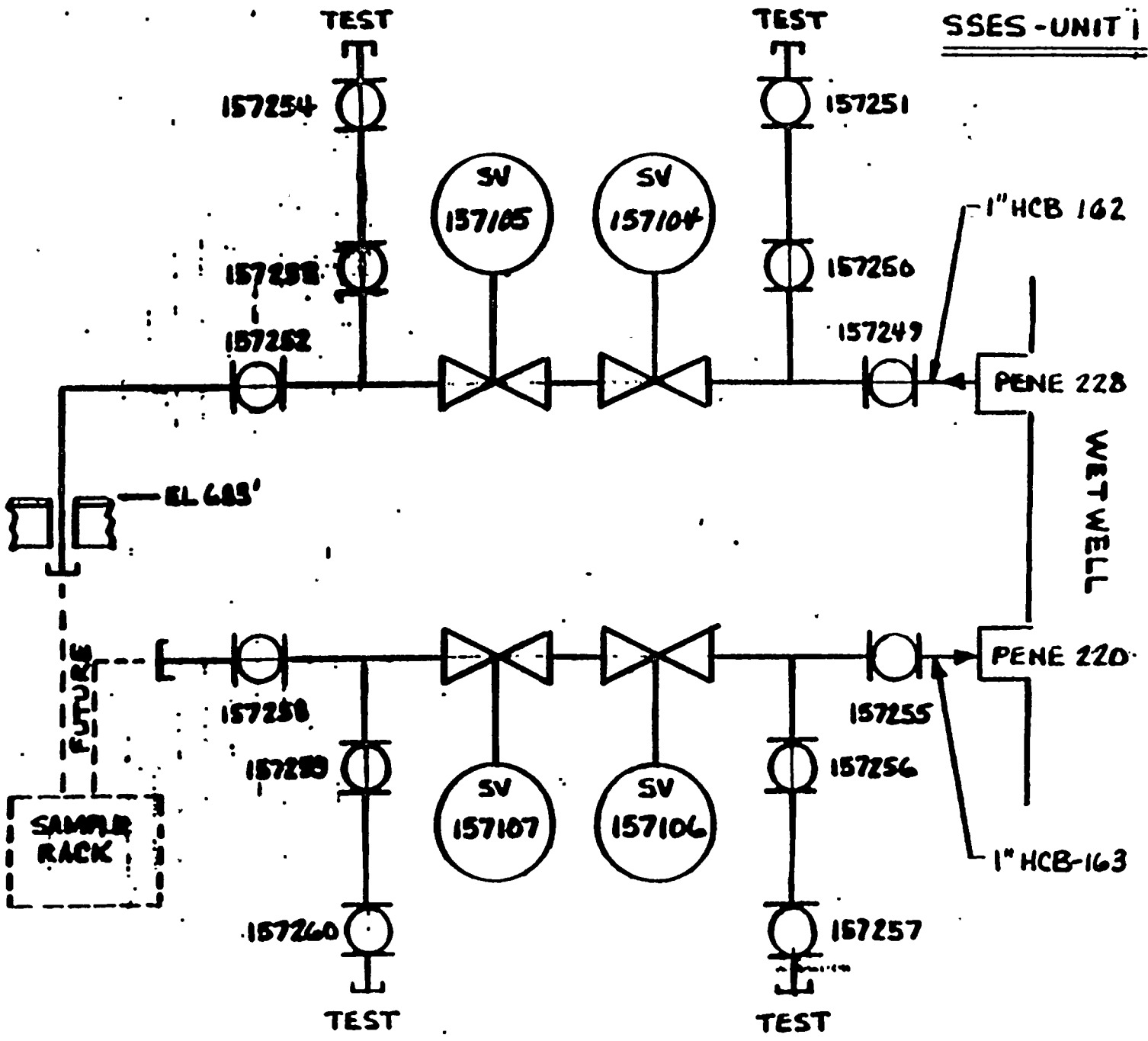


Figure 3

MOI-DA-18.2.78 REV. 2 (10-84)

JES 3/1/90 Page 0 of 4 9.610

Type B tests-1. Test methods. Acceptable means of performing preoperation and periodic Type B tests include:

(a) Examination by halide leak-detection method (or by other equivalent test methods such as mass spectrometer) of a test chamber, pressurized with air, nitrogen, or pneumatic fluid specified in the technical specifications or associated bases and constructed as part of individual containment penetrations.

(b) Measurement of the rate of pressure loss of the test chamber of the containment penetration pressurized with air, nitrogen, or pneumatic fluid specified in the technical specifications or associated bases.

(c) Leakage surveillance by means of a permanently installed system with provisions for continuous or intermittent pressurization of individual or groups of containment penetrations and measurement of rate of pressure loss of air, nitrogen, or pneumatic fluid specified in the technical specification or associated bases through the leak paths.

2. Test pressure. All preoperational and periodic Type B tests shall be performed by local pneumatic pressurization of the containment penetrations, either individually or in groups, at a pressure not less than Pa.

3. Acceptance criteria. (See also Type C tests.) (a) The combined leakage rate of all penetrations and valves subject to Type B and C tests shall be less than 0.60 La, with the exception of the valves specified in III.C.3.

(b) Leakage measurements obtained through component leakage surveillance systems (e.g., continuous pressurization of individual containment components) that maintains a pressure not less than Pa at individual test chambers of containment penetrations during normal reactor operation, are acceptable in lieu of Type B tests.

Figure 4  
Excerpt from 10CFR50  
Appendix J

March 5, 1990

C. H. Ballard, A1-2

SUSQUEHANNA STEAM ELECTRIC STATION  
 DCP 89-3018 LEAK TESTING  
PLI-63112 FILE A17-6

The purpose of this letter is to document, per your request, information provided verbally to you by my staff approximately one week ago. The spare penetrations which will be used to support DCP 89-3018 may be Type B tested in accordance with 10CFR50 Appendix J. It is acceptable to test these penetrations as part of ILRT testing in the future. With regard to the new containment isolation valves being installed under DCP 89-3018, Type C tests are required to be performed.

The above interpretations are based on discussions with Mr. J. Kudrick of NRC at the PP&L/NRC quarterly meeting held on February 22, 1990.

  
 J. M. Kenny

cc: C. T. Coddington	A2-4
D. P. Parsons	A1-2
R. R. Sgarro	A2-4
D. J. Walters	A2-4
SRMS Corresp. File	A6-2

RRS:2tah  
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**Take Care**