

PHILADELPHIA ELECTRIC COMPANY

NUCLEAR GROUP HEADQUARTERS

March 12, 1993

955-65 CHESTERBROOK BLVD.

Docket No. 50-353

WAYNE, PA 19087-5691

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(215) 640-6000

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Subject: Limerick Generating Station, Unit 2
Relief Request for Performing System Pressure Tests

Gentlemen:

Attached for review and approval is Relief Request No. RR-13 for the Limerick Generating Station (LGS), Unit 2, American Society of Mechanical Engineers (ASME) Section XI, 1986 Edition, Class 2 and Class 3 pressure retaining components. Relief is requested from the ASME Section XI, 1986 Edition, requirements for system pressure tests for various pressure retaining components, including piping, pumps, and valves. The details and justifications for relief for the various Class 2 and Class 3 components are explained in the attached relief request. This same relief request was submitted for LGS, Unit 1, as documented in our letter dated January 24, 1992.

If you have any questions or require additional information, please do not hesitate to contact us.

Very truly yours,

G. A. Hunger, Jr.

G. A. Hunger, Director
Licensing Section
Station Support Department

Attachment

cc: T. T. Martin, Administrator, Region I, USNRC w/attachment
T. J. Kenny, USNRC Senior Resident Inspector, LGS w/attachment

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RELIEF REQUEST NO. RR-13

I. IDENTIFICATION OF COMPONENTS

Class 2 (exempt and non-exempt) pressure retaining components within the pressure retaining boundary of pressure vessels, piping, pumps, and valves, Examination Category C-II, Item Numbers C7.10 through C7.80 inclusive.

Class 3 (exempt and non-exempt) pressure retaining components within the pressure retaining boundary, Examination Categories D-A, D-B, and D-C, Item Number D1.10, D2.10, and D3.10, respectively.

The specific Class 2 and 3 components covered by this relief request are detailed in Table(s) RR-13-1.1 through RR-13-1.11.

II. CODE REQUIREMENTS FROM WHICH RELIEF IS REQUESTED

ASME Section XI 1986 Edition, Examination Category C-II requires the pressure retaining components within each system boundary be subject to the system pressure tests of IWC-5000 and visually (VT-2) examined.

ASME Section XI 1986 Edition, Examination Categories D-A, D-B, and D-C require the pressure retaining components within each system boundary be subject to the system pressure tests of IWD-5000 and visually (VT-2) examined.

The required system pressure tests shall be performed during the first inservice inspection interval in accordance with Table IWC-2500-1 or Table IWD-2500-1, as applicable.

Relief is requested from meeting the subject pressure test requirements for the specific components listed in Table RR-13-1.1 through RR-13-1.11 due to hardship imposed by plant design and/or redundant testing. Individual test requirements, for which relief is requested, are detailed in the Tables.

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III. BASIS FOR RELIEF

Pressure testing in accordance with some or all of the requirements of IWC-5000 or IWD-5000, as applicable, for the affected components is impractical due to plant/system design and/or redundant test requirements as detailed in Table(s) RR-13-1.1 through RR-13-1.11.

In all cases, plant modification to facilitate the required testing represents undue hardship and/or alternate testing provides adequate assurance of pressure boundary integrity.

IV. ALTERNATE PROVISIONS

Any alternate test provisions, where practical, are as proposed in Table(s) RR-13-1.1 through RR-13-1.11.

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Table RR-13-1.1

I. Identification of Components

Class 2 Service Air piping, HBB-266 between and including valves 15-2139 and 15-2140.
(Ref. P & ID: ISI-M-15, Sht 29)

II. Code Requirement From Which Relief Is Requested

IWC-5221, System pressure test during system functional/in-service tests and,
IWC-5222, System hydrostatic test

III. Basis For Relief

10CFR50 Appendix J Local Leak Rate Testing (LLRT) meets the intent of the ASME requirement.

During normal plant operation, Service Air Header pressure is approximately 100-110 psig. HBB-266 is isolated from the Service Air header by normally closed valves 15-2138 and 15-2139 outside containment and 15-2140 and 15-2212 inside containment.

Although Local Leak Rate tests use a lower pressure (44 psig) than normal Service Air pressure, they offer the following advantages over system pressure tests:

- 1) LLRTs are performed more frequently than periodic system pressure tests and the ten year hydrostatic test.
- 2) LLRTs have the ability to quantify leakage which is not feasible with VT-2 inspections on air systems.
- 3) LLRTs conservatively test some unclassified piping and includes through valve leakage which would not be identified in a VT-2 inspection.

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IWC-5210(b) allows for air tests which permit location and detection of through-wall leakages. In the event the LLRT fails to meet its acceptance criteria, further testing would be performed to determine the location of the leaks, appropriate corrective maintenance would be performed, and an appropriate retest would be performed.

IV. ALTERNATE PROVISIONS

10CFR50 Appendix J Local Leak Rate Testing (LLRT) will be utilized to meet the ASME Section XI IWC-5000 pressure testing requirements.

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Table RR-13-1.2

I. Identification of Components

Class 3 Nuclear Boiler Vessel instrumentation tubing to drywell pressure instrumentation outboard of HV-42-247A, B, C, and D. (Ref P & ID: ISI-M-42, Sht 3, ISI-M-59, Sht 3, ISI-M-57, Sht 4).

II. Code Requirement From Which Relief Is Requested

IWD-5221, System Inservice Test and
IWD-5223, System Hydrostatic Test

III. Basis For Relief

Normal Drywell pressure is less than 1 psig. The pressurizing fluid is nitrogen gas. A VT-2 inspection looking for a nitrogen gas leak with less than 1 psig driving pressure would be inconclusive.

LGS Technical Specifications require channel checks every 12 hours to verify drywell pressure instrumentation operability. This is performed by verifying proper pressure readings. A significant tubing leak will cause an improper reading, and will be corrected and retested. The tubing and components are also included in the Integrated Leak Rate Test (ILRT) boundary.

IV. ALTERNATE PROVISIONS

LGS Technical Specification operability checks and Integrated Leak Rate Testing provide assurance of component integrity and will be utilized to satisfy ASME Section XI requirements.

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Table RR-13-1.3

I. Identification of Components

Class 2 RCIC Turbine Exhaust Vacuum Breaker lines HBB-201 and HBB-245 between and including valves HV-49-2F084, HV-49-2F080, HV-49-2F060 and 49-2F001.

(Ref. P & ID: ISI-M-49, Sht 2)

Class 2 RCIC Vacuum Pump Exhaust to Suppression Pool, HBB-250 between 49-2F023 and HV-49-2F002, 49-2038 and 49-2F055. (Ref. P & ID: ISI-M-49, Sht 2).

II. Code Requirement From Which Relief Is Requested

IWC-5221, System pressure test during system functional/in-service tests and,
IWC-5222, System hydrostatic test

III. Basis For Relief

10CFR50 Appendix J Local Leak Rate Testing (LLRT) meets the intent of the ASME requirement.

During LLRTs, the subject piping is pressurized to 44 psig, a substantially higher pressure than that developed during a periodic system functional test. As such, the LLRT offers the following advantages over system pressure tests:

- 1) LLRTs are performed more frequently than periodic system pressure tests and the ten year hydrostatic test.
- 2) LLRTs have the ability to quantify leakage which is not feasible with VT-2 inspections on this essentially gas-filled piping.
- 3) LLRTs conservatively include through valve leakage which would not be identified in a VT-2 inspection.

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IWC-5210(b) allows for air tests which permit location and detection of through-wall leakages. In the event the LLRT fails to meet its acceptance criteria, further testing would be performed to determine the location of the leaks, appropriate corrective maintenance, and an appropriate retest would be performed.

IV. ALTERNATE PROVISIONS

10CFR50 Appendix J Local Leak Rate Testing (LLRT) will be utilized to meet the ASME Section XI IWC-5000 pressure testing requirements.

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Table RR-13-1.4

I. Identification of Components

Class 2 HPCI Turbine Exhaust Vacuum Breaker lines HBB-208 and HBB-244 between and including valves HV-55-2F095, HV-55-2F093, HV-55-2F072, and 55-2F021. (Ref P & ID: ISI-M-55, Sht 2)

II. Code Requirement From Which Relief Is Requested

IWC-5221, System pressure test during system function/in-service tests and,
IWC-5222, System hydrostatic test.

III. Basis For Relief

10CFR50 Appendix J Local Leak Rate Testing (LLRT) meets the intent of the ASME requirement.

During LLRTs, the subject piping is pressurized to 44 psig, a substantially higher pressure than that developed during a system functional test. As such, the LLRT offers the following advantages over system pressure tests:

- 1) LLRTs are performed more frequently than periodic system pressure tests or the ten year hydrostatic test.
- 2) LLRTs have the ability to quantify leakage which is not feasible with VT-2 inspection on this essentially gas-filled piping.
- 3) LLRTs conservatively include through valve leakage which would not be identified in a VT-2 inspection.

IWC-5210(b) allows for air tests which permit location and detection of through-wall leakages. In the event the LLRT fails to meet its acceptance criteria, further testing would

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be performed to determine the location of the leaks, appropriate corrective maintenance, and an appropriate retest would be performed.

IV. ALTERNATE PROVISIONS

10CFR 70 Appendix J Local Leak Rate Testing (LLRT) will be utilized to meet the ASME Section XI IWC-5000 pressure testing requirements.

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Table RR-13-1.5

I. Identification of Components

Class 3 Containment Atmospheric Control tubing to suppression pool pressure and level instrumentation outboard of SV-57-201. (Ref P & ID: ISI-M-57, Sht 4, ISI-M-52, Sht 3)

II. Code Requirement From Which Relief Is Requested

IWD-5221, System Inservice Test and
IWD-5223, System Hydrostatic Test.

III. Basis For Relief

Normal suppression pool pressure is less than 1 psig. The pressurizing fluid is nitrogen gas. A VT-2 inspection looking for a nitrogen gas leak with less than 1 psig driving pressure would be inconclusive.

LGS Technical Specifications require monitoring suppression pool pressure every 12 hours to verify proper pressure. Additionally, Technical Specifications require channel checks every 24 hours to verify operability of the suppression pool level indicators. This is performed by verifying proper level readings. A significant tubing leak will give an improper reading, and will be corrected and retested. Also, the tubing and components are included in the Integrated Leak Rate Test (ILRT) boundary.

IV. ALTERNATE PROVISIONS

LGS Technical Specification suppression pool instrumentation operability checks and Integrated Leak Rate Testing provide assurance of component integrity and will be utilized to satisfy ASME Section XI requirements.

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Table RR-13-1.6

I. Identification of Components

Class 2 Post-LOCA Recombiner piping HBB-228 and HBB-227 between and including "A" Recombiner and valves HV-57-261 and HV-57-262. HBB-226 and HBB-224 between and including "B" recombinder and valves HV-57-263 and HV-57-264. (Ref P & ID: ISI-M-57, Sht 4 & 5)

Class 2 hydrogen/oxygen sampling lines HCB-216 & HCB-217, between connections on the Combustible Gas Analyzer Package 2OS205, and valves SV-57-259, SV-57-241, SV-57-242 & SV-57-247B, SV-57-243, SV-57-244 & SV-57-246B, and SV-57-245(HCB-217). HCB-216 & HCB-217, between connections on the Combustible Gas Analyzer Package 2OS206, and valves SV-57-284 & SV-57-246A, SV-57-286 & SV-57-247A, SV-57-295, SV-57-290 & SV-2090, and SV-57-285(HCB-217). (Ref. P & ID: ISI-M- 57, Shts 4, 5, 6).

II. Code Requirement From Which Relief Is Requested

IWC-5221, System pressure test during system functional/in-service tests and,
IWC-5222, System hydrostatic test

III. Basis For Relief

System Contaminated Pipe Inspection (CPI) meets the intent of the ASME requirement.

During normal plant operation, this piping is either isolated or exposed to less than 1 psig (normal containment pressure). During CPI testing associated with the Leak Reduction Program (UFSAR 6.2.8), this piping is pressurized to 44 psig. CPIs for this system are performed similar to 10CFR50 Appendix J Local Leak Rate Testing and, as such, offer the following advantages over system pressure tests:

- 1) CPIs are performed more frequently than periodic system pressure tests and the ten year hydrostatic tests.

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- 2) CPis have the ability to quantify leakage which is not feasible with a VT-2 inspection on this air filled piping.
- 3) CPis conservatively include through valve leakage which would not be identified in a VT-2 inspection.

IWC-5210(b) allows for air tests which permit location and detection of through-wall leakages. In the event the CPI fails to meet its acceptance criteria, further testing would be performed to determine the location of the leaks, appropriate corrective maintenance, and an appropriate retest would be performed.

IV. ALTERNATE PROVISIONS

System Contaminated Pipe Inspection (CPI) will be utilized to meet the ASME Section XI IWC-5000 pressure testing requirements.

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Table RR-13-1.7

I. Identification of Components

Class 2 Containment Atmospheric Control System piping as illustrated in figures RR-13-1.7a & b.

II. Code Requirement From Which Relief Is Requested

IWC-5221, System pressure test during system functional/in-service tests and,
IWC-5222, System hydrostatic test.

III. Basis For Relief

10CFR50 Appendix J Local Leak Rate Testing (LLRT) meets the intent of the ASME requirement.

The LLRT offers the following advantages over system pressure tests:

- 1) LLRTs are performed more frequently than periodic system pressure tests.
- 2) LLRTs have the ability to quantify leakage which is not feasible with VT-2 inspection on this essentially gas-filled piping.
- 3) LLRTs conservatively include through valve leakage which would not be identified in a VT-2 inspection.

IWC-5210(b) allows for air tests which permit location and detection of through-wall leakages. In the event the LLRT fails to meet its acceptance criteria, further testing would be performed to determine the location of the leaks, appropriate corrective maintenance and an appropriate retest would be performed.

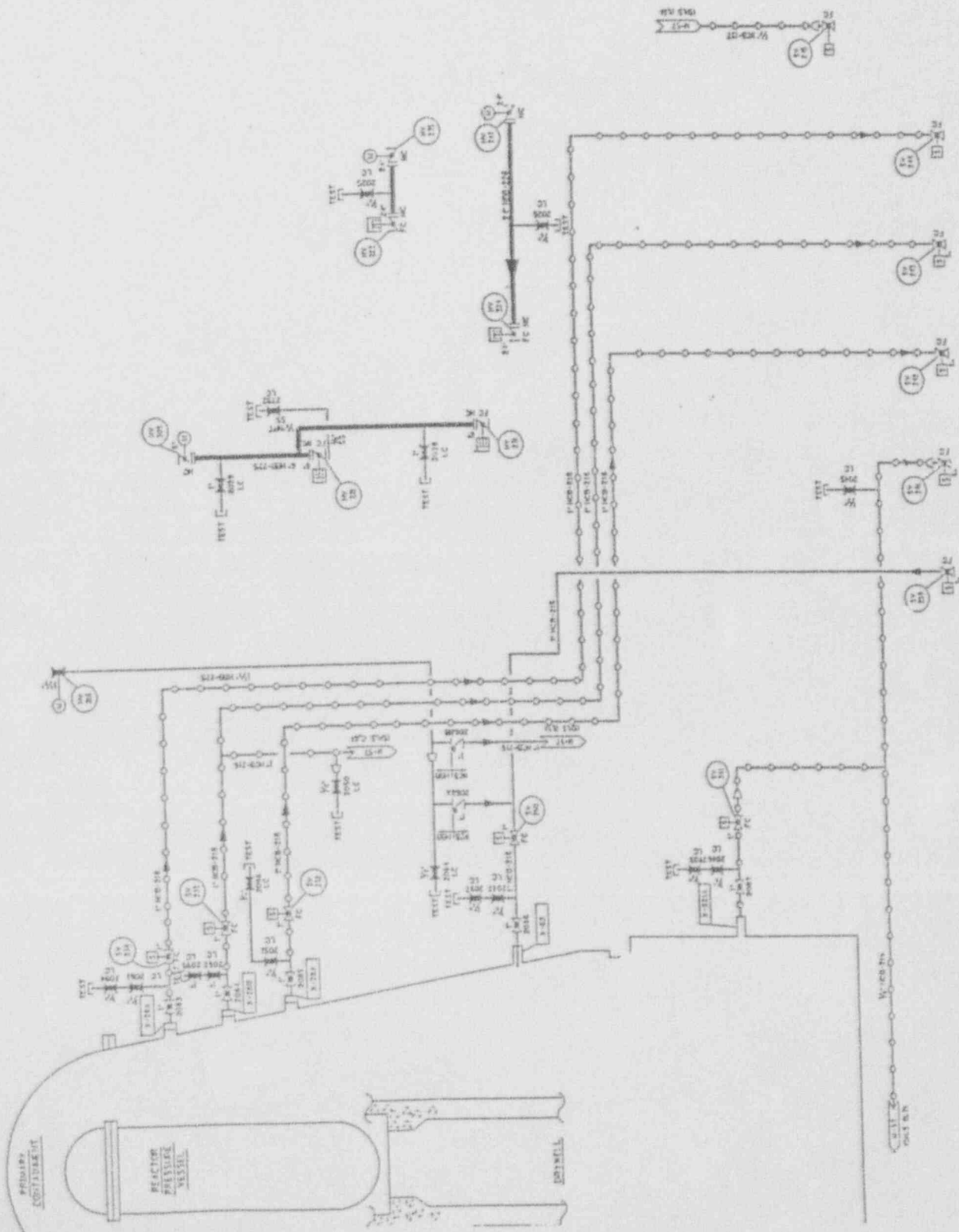
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IV. ALTERNATE PROVISIONS

10CFR50 Appendix J Local Leak Rate Testing (LLRT) will be utilized to meet the ASME Section XI IWC-5000 pressure testing requirements.

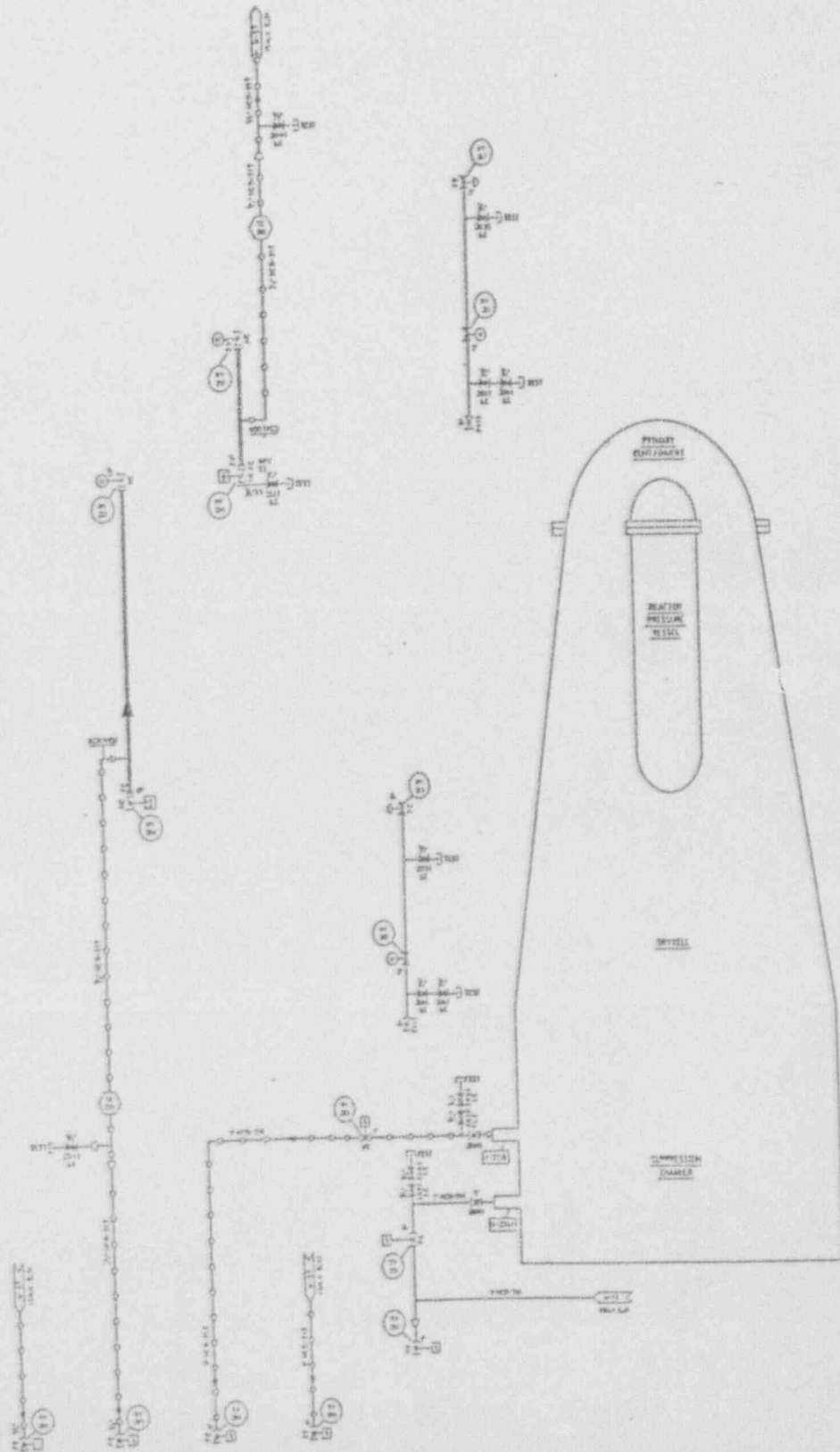
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Figure RR-13-1.7a
(Ref P & ID: ISI-M-57, Sht 4)



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Figure RR-13-1.7b
(Ref P & ID: ISI-M-57, Sht 5)



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Table RR-13-1.8

I. Identification of Components

Class 2, Primary Containment Leak Testing lines HCB-222 between and including valves 60-2050, 60-2057, and 60-2058; HCB-222 between and including valves 60-2051, 60-2070, and 60-2071; and HCB-222 between and including valves 60-2127, 60-2073, and 60-2128. (Ref P & ID: ISI-M-60, Sht 2)

II. Code Requirement From Which Relief Is Requested

IWC-5221, System pressure test during system functional/in-service tests and,
IWC-5222, System hydrostatic test.

III. Basis For Relief

10CFR50 Appendix J Local Leak Rate Testing (LLRT) meets the intent of the ASME requirement.

During normal plant operation, this piping is not pressurized and is isolated by locked valves. During the LLRT the piping is pressurized to 44 psig. This piping is also pressurized during LLRTs. LLRTs offer the following advantages over system pressure tests:

- 1) LLRTs are performed more frequently than periodic system pressure tests.
- 2) LLRTs have the ability to quantify leakage which is not feasible with a VT-2 inspection on this air filled piping.
- 3) LLRTs conservatively include through valve leakage which would not be identified in a VT-2 inspection.

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IWC-5210(b) allows for air tests which permit location and detection of through-wall leakages. In the event the LLRT fails to meet its acceptance criteria, further testing would be performed to determine the location of the leaks, appropriate corrective maintenance, and an appropriate retest would be performed.

IV. ALTERNATE PROVISIONS

10CFR50 Appendix J Local Leak Rate Testing (LLRT) and Integrated Leak Rate Test (ILRT) will be utilized to meet the ASME Section XI IWC-5000 pressure testing requirements.

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Table RR-13-1.9

I. Identification of Components

Class 2 Plant Process Radiation Monitoring System piping HCB-228, between and including valves 26-2009, 26-2011, SV-26-290A & B, and 26-2010, 26-2012, SV-26-290C & D. (Ref. P & ID: ISI-M-26, Shis 7 & 8)

II. Code Requirement From Which Relief Is Requested

IWC-5221, System pressure test during system functional/in-service tests and,
IWC-5222, System hydrostatic test

III. Basis For Relief

10CFR50 Appendix J Local Leak Rate Testing (LLRT) meets the intent of the ASME requirement.

During LLRTs, the subject piping is pressurized to 44 psig, a substantially higher pressure than that developed during a system pressure test. As such, the LLRT offers the following advantages over system pressure tests:

- 1) LLRTs are performed more frequently than periodic system pressure tests and the ten year hydrostatic test.
- 2) LLRTs have the ability to quantify leakage which is not feasible with VT-2 inspections on air systems.
- 3) LLRTs conservatively test some unclassified piping and includes through valve leakage which would not be identified in a VT-2 inspection.

IWC-5210(b) allows for air tests which permit location and detection of through-wall leakages. In the event the LLRT fails to meet its acceptance criteria, further testing would

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be performed to determine the location of the leaks, appropriate corrective maintenance would be performed, and an appropriate retest would be performed.

IV. ALTERNATE PROVISIONS

10CFR50 Appendix J Local Leak Rate Testing (LLRT) will be utilized to meet the ASME Section XI IWC-5000 pressure testing requirements.

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Table RR-13-1.10

I. Identification of Components

Class 2 Primary Containment Instrument Gas System piping, as follows:

HCB-224 piping and components at penetration X-3D, between and including valves HV-59-251B and 59-2111.

HCB-224 piping and components at penetration X-27A, between and including valves HV-59-251A and 59-2129.

HCB-210 piping and components at penetration X-3B, between and including valves HV-59-229B and 59-2005B.

HCB-210 piping and components at penetration X-40H, between and including valves HV-59-229A and 59-2005A.

Tubing and components from and including valves XV-59-241A, B, C, D, & E; to penetrations X-35C, D, E, F, & G respectively.

HCB-210 piping and components at penetration X-35B, between and including valves HV-59-231 and 59-2056.

HCB-209 piping and components at penetration X-40F, between and including valves HV-59-202 and HV-59-201.

HCB-210 piping and components at penetration X-218, between and including valves HV-59-235 and 59-2001. (Ref. P & ID: ISI-M-59, Sht 3).

II. Code Requirement From Which Relief Is Requested

IWC-5221, System pressure test during system functional/in-service tests and,
IWC-5222, System hydrostatic test

III. Basis For Relief

10CFR50 Appendix J Local Leak Rate Testing (LLRT) meets the intent of the ASME requirement.

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Although Local Leak Rate tests use a lower pressure (44 psig) than normal Containment Instrument Gas pressure, they offer the following advantages over system pressure tests:

- 1) LLRTs are performed more frequently than periodic system pressure tests and the ten year hydrostatic test.
- 2) LLRTs have the ability to quantify leakage which is not feasible with VT-2 inspections on air systems.
- 3) LLRTs conservatively test some unclassified piping and includes through valve leakage which would not be identified in a VT-2 inspection.

IWC-5210(b) allows for air tests which permit location and detection of through-wall leakages. In the event the LLRT fails to meet its acceptance criteria, further testing would be performed to determine the location of the leaks, appropriate corrective maintenance would be performed, and an appropriate retest would be performed.

IV. ALTERNATE PROVISIONS

10CFR50 Appendix J Local Leak Rate Testing (LLRT) will be utilized to meet the ASME Section XI IWC-5000 pressure testing requirements.

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Table RR-13-1.11

I. Identification of Components

Class 3 Primary Containment Instrument Gas System, HCC-234 piping and components: between and including valves 59-2111, 59-2131E & 59-2131K, and PSV-41-2F013E, & -K; between and including valves 59-2129, 59-2131H, 59-2131M, 59-2131S, and PSV-41-2F013H, -M, -S. (Ref P & ID: ISI-M-59, Sht 3; ISI-M-41, Sht 5).

II. Code Requirement From Which Relief Is Requested

IWD-5221, System pressure test during system inservice tests and,
IWD-5223, System hydrostatic test

III. Basis For Relief

Testing similar to 10CFR50 Appendix J Local Leak Rate Testing (LLRT) meets the intent of the ASME requirement.

During each refueling outage, Containment Leakage Check examinations are performed on this piping at operating pressure. Additionally, during surveillance testing of the ADS accumulator system, conducted each refueling outage in accordance with UFSAR, para. 5.2.2.10, the portion of piping and components between and including valves 59-2023E, -H, -K, -M, & -S; 59-2131E, -H, -K, -M, & -S; and PSV-41-2F013E, -H, -K, -M, & -S are tested in a manner similar to 10CFR50 Appendix J Local Leak Rate Testing. These tests offer the following advantages over system pressure tests:

- 1) Testing is performed more frequently than periodic system pressure tests and the ten year hydrostatic tests.
- 2) The tests have the ability to quantify leakage which is not feasible with a VT-2 inspection on this air filled piping.

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- 3) The tests conservatively include through valve leakage which would not be identified in a VT-2 inspection.

In the event the above testing fails to meet its acceptance criteria, further testing would be performed to determine the location of the leaks, appropriate corrective maintenance, and an appropriate retest would be performed.

IV. ALTERNATE PROVISIONS

Local Leak Rate Testing and Containment Leak Check examinations will be utilized to meet the ASME Section XI IWD-5000 pressure testing requirements.