

February 12, 1993

LICENSEE: TOLEDO EDISON COMPANY
 FACILITY: DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1
 SUBJECT: SUMMARY OF MEETING HELD ON JANUARY 15, 1993
 TO DISCUSS CONTAINMENT PENETRATION BELLOWS TESTS

On January 15, 1993, NRC staff members met at Rockville, Maryland, with employees of Toledo Edison Company (TE) to discuss containment penetration bellows tests at Davis-Besse in response to NRC Information Notice 92-20. A list of attendees is included as enclosure 1. The handout used at the meeting is included as enclosure 2.

The licensee discussed background information, its proposed testing program, and a proposed exemption request. Following the licensee's presentation, the NRC staff stated that it would like TE to perform some measurement tests that would confirm the need for an exemption. The NRC staff also requested TE to provide a description of their crack measurement leakage determination method including a discussion of uncertainties with any exemption request that is submitted. TE stated that they would consider the NRC requests for additional information, and would be submitting an exemption request fairly soon.

original signed by

Jon B. Hopkins, Sr. Project Manager
 Project Directorate III-3
 Division of Reactor Projects III/IV/V
 Office of Nuclear Reactor Regulation

Enclosures:
 As stated

cc w/enclosure:
 See next page

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OFFICE	PDIII-3:LA:DRPW	PDIII-3:PM:DRPW	PDIII-3:PD:DRPW
NAME	PKreutzer	JBHopkins/Jbh/et	JHannon
DATE	2/12/92	2/12/92	2/12/92

OFFICIAL RECORD

DOCUMENT NAME: g:\davisbes\dl0115.mts

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ATTENDEES

January 15, 1993

<u>NAME</u>	<u>ORGANIZATION</u>
J. Hopkins	NRC
E. Caba	TE
J. Cunnings	TE
J. Hannon	NRC
R. Barrett	NRC
R. Schrauder	TE
P. Smith	TE
M. Schreiber	TE
J. Kudrick	NRC
J. Pulsipher	NRC

Toledo Edison
Meeting with NRC
on
Davis-Besse Response
to
Information Notice 92-20
Containment Penetration
Bellows

January 15, 1993

Purpose

- Present Activities Since November 19, 1992 Meeting
- Summarize Relevant Information
- Present Basis for Planned Exemption Request

BACKGROUND

- IN 92-20 identifies containment bellows LLRT problems at Quad Cities (March 1992)
 - * Bellows plies may be in contact restricting flow
- Davis-Besse bellows from same manufacturer (different design than Quad Cities)
- Similar LLRT test method
- LLRT required during 8RFO (non-ILRT outage)
- No bellows integrity problem based on five past ILRTs and LLRTS

BACKGROUND

- Davis-Besse Orientation
 - * Large steel containment with Shield Building
 - * Emergency Ventilation System
 - * No unfiltered leakage path from bellows
 - * 4 penetrations; 2 bellows per penetration
 - * Penetration location presents difficult access
 - * Limited access except during refueling outages
 - * High Pa (38 psig)
- Consistent ILRT Performance
- No leakage detected by current test method

SUMMARY OF ACTIVITIES SINCE NOVEMBER 19, 1992 MEETING

- Investigate Planned Validation During Plant Operation
- Gain Better Understanding of Quad Cities Problem
- Conclusions
 - * Current Test Method Detects Leakage
 - * No Credible Mechanisms to Challenge La Between ILRTS

QUAD CITIES EXPERIENCE

- Excessive Bellows Leakage discovered during ILRT
- Modification Work during outage on attached valve and adjacent penetration
- Pre- and Post- mod LLRTs indicated an increase in Measured Leakage
- Special LLRT
- Flaws Mapped
- Bellows was replaced
- Metallurgical Exam of Bellows
 - * Flaws initiated by Transgranular Stress Corrosion Cracking (TGSCC)
 - * Contaminants of indeterminant origin
- Crack Growth Evaluation
 - * TGSCC Flaw Growth Rate
 - * Critical Crack Size
- Comparison of estimated/measured leakage
- Special He and Air tests on Bellows at Dresden

LEAKAGE DETECTION CAPABILITY

- CECO Helium Test
 - * Two tests; one air, one helium
 - * Indicates if air flow between plies to external leaks are obstructed
 - * Results compare favorably with expect result for He
- Based on this test NRC concluded that current test method can detect leakage
- Demonstrated that test can detect leakage

CURRENT PLANS

- Request Exemption from Appendix J
 - * Type B Leakage Quantification

BASIS FOR EXEMPTION

- Underlying Purpose of Appendix J Satisfied
 - * Assure that L_a is not exceeded
 - * Periodic Surveillance identifies the need for Corrective Actions
- Purpose Satisfied by Current Test Method
 - * No credible mechanism to exceed L_a
 - * Detect significant leakage

NO MECHANISM TO EXCEED La

- Large Margin between As-Found ILRTs and La
- Metallurgical Exams concluded TGSCC was mechanism which initiated flaws
- Evidence suggests flaws were opened by refueling outage work
- TGSCC due to presence of contaminants of indeterminate origin
- Manifested as pits on inside bellows
- Leakage first detected at Quad Cities at 5 years
- No leakage detected in 15 years at DBNPS
 - * Mechanism not active or slow
 - * Leakage would be detected by current test
- Slow Crack growth rate
- Margin to Critical Flaw Size
- Margin to La could accommodate many flaws

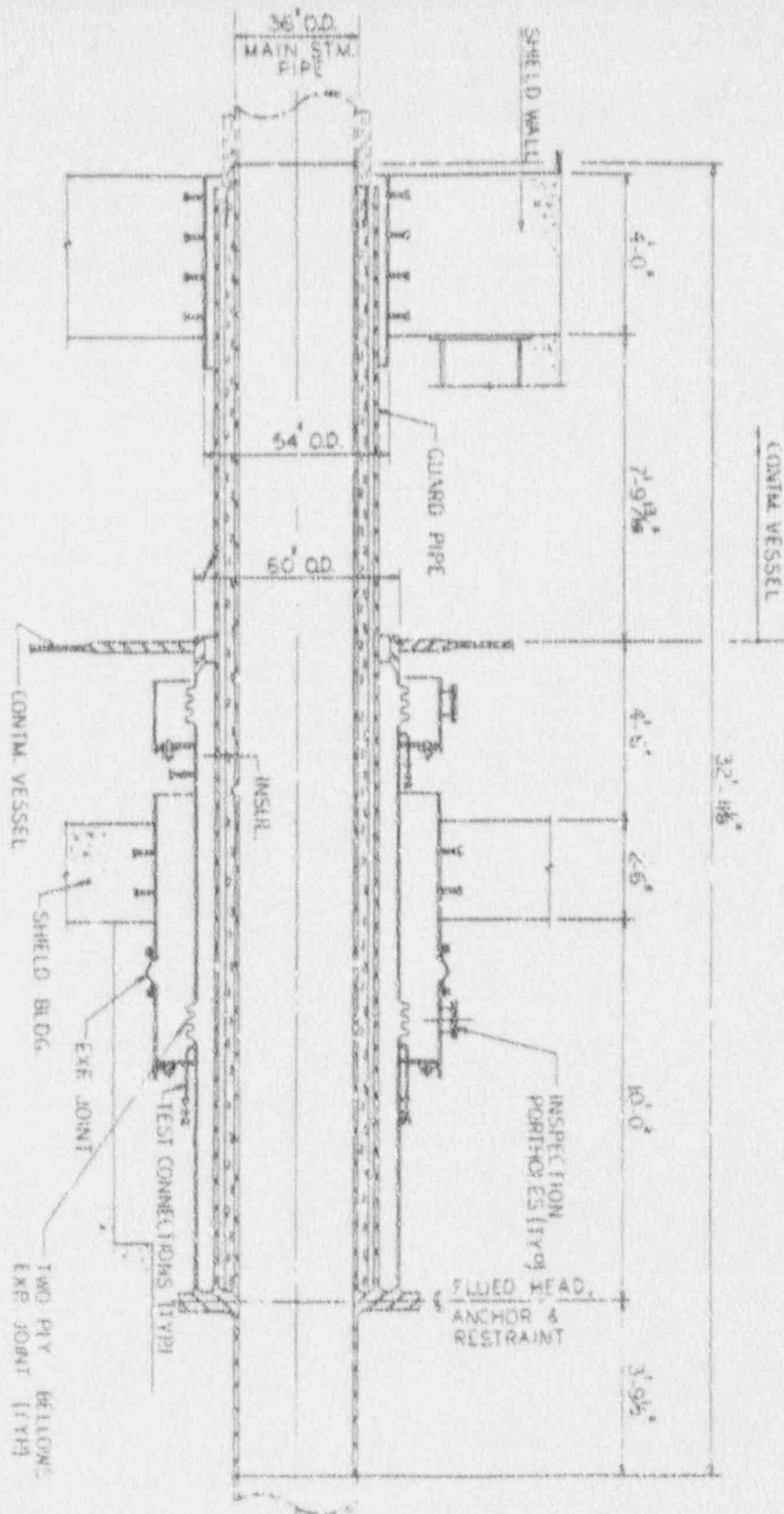
DBNPS PROPOSED TESTING PROGRAM

- Establish threshold leak rate for current test of 0.5 scfh
- If 0.5 scfh exceeded
 - * repeat test with suitable trace gas
 - * sniff bellows exterior
- If exterior leakage detected
 - * sniff interior of bellows
- If both interior/exterior leakage detected
 - * Remove protective shroud
 - * Measure and map cracks
- Evaluate
 - * Current and projected leakrate
 - * Structural Assessment
 - * If projected leakrate exceeds 0.15 L/s revisit with NRC prior to restart

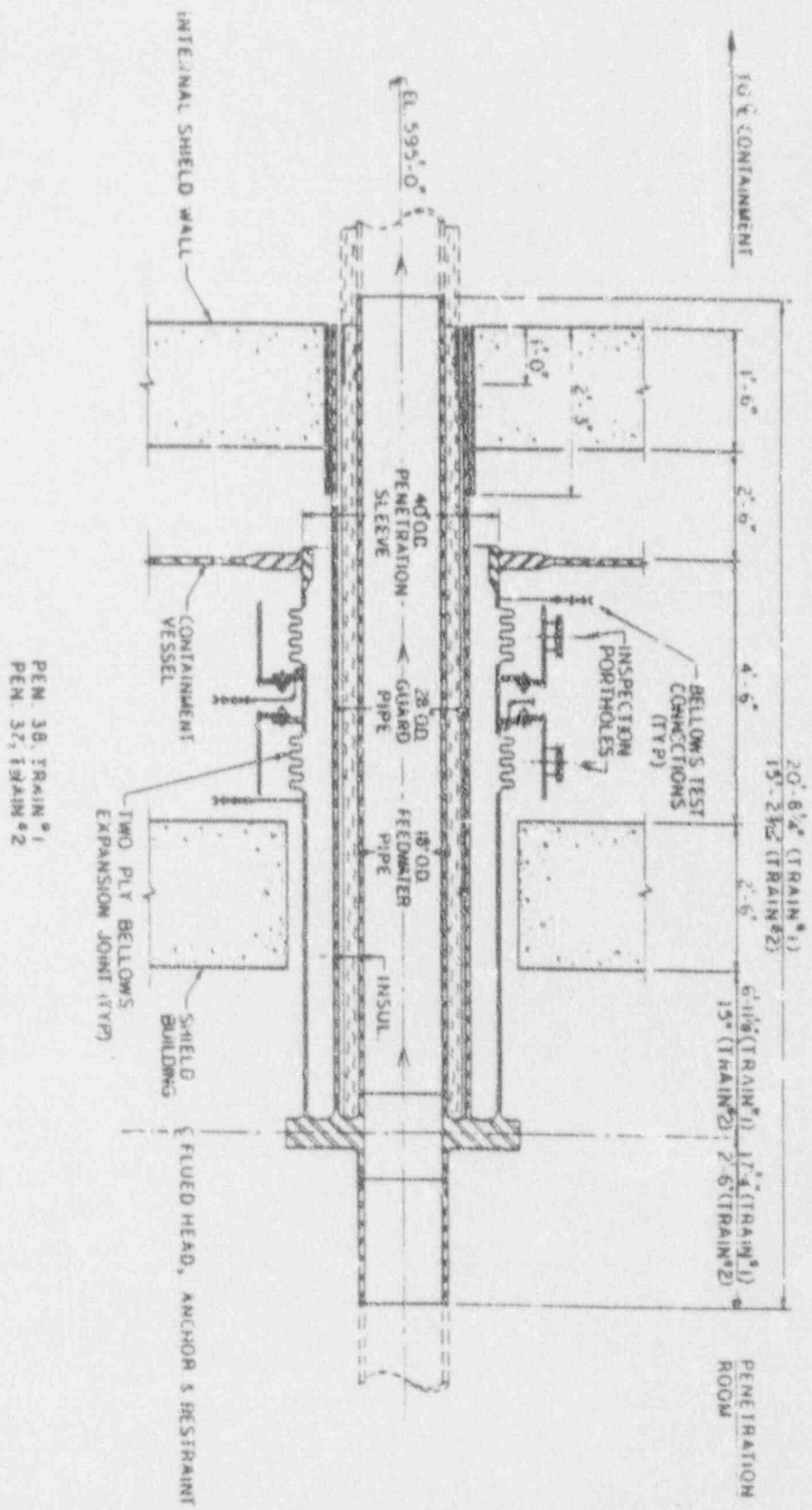
SUMMARY

- Underlying Purpose satisfied by current test
 - * Progressive actions based on test results
 - * No credible mechanisms to challenge La

MAIN STEAM LINE CONTAINMENT PENETRATION
PENETRATION 39 & 40



DAVIS-BESSE NUCLEAR POWER STATION
MAIN STEAM LINE CONTAINMENT VESSEL
PENETRATION DETAILS
FIGURE 3-67
REVISED 11/79



DAVIS-BESSE NUCLEAR POWER STATION
MAIN FEEDWATER LINE CONTAINMENT VESSEL
PENETRATION DETAILS
FIGURE 3-B-8