

OAK RIDGE NATIONAL LABORATORY

OPERATED BY
UNION CARBIDE CORPORATION
NUCLEAR DIVISION



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OAK RIDGE, TENNESSEE 37830

August 15, 1983

Gunter Arndt
Mechanical/Structural Engineering Branch
Division of Engineering Technology
NL 238
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Gunter:

I am beginning work on a draft of the final report for the leak rate evaluation program. I have enclosed a copy of my preliminary outline for your review and comment.

In the first chapter I plan to discuss briefly the background of leak rate testing and our involvement. The second chapter will contain discussions of the existing guidelines for testing; that is, Appendix J, BN-TOP-1, and ANSI/ANS-56.8-1981. Comparison of these guides will not be attempted in this chapter. Instead, the major points of each document will be presented to acquaint the reader with them. The next three chapters, which deal with the analysis of the Type A, B, and C test reports, exemption requests, and LERs, will contain discussions and comparisons of the guidelines and their support (or lack of) from the data. At this point, the existing guidelines will have been evaluated in light of industry data, which leads directly into a discussion of the proposed Appendix J revision in the sixth chapter. A comparison of the proposed Appendix J revision and ANSI/ANS-56.8-1981 will be included in this chapter. The final chapter will contain a summary of the data analysis and recommendations about Appendix J. A discussion of recommended revisions to ANSI/ANS-56.8-1981 will be presented in an Appendix.

Sincerely,

A handwritten signature in cursive script, appearing to read "J. R. Dougan".

J. R. Dougan

JRD:ege

Attachment

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PDR FOIA
REYTBLAGS-143 PDR

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PRELIMINARY CILRT OUTLINE

- I. Introduction
- II. Existing Guidelines for Testing
 - A. Appendix J
 - B. BN-TOP-1
 - C. ANSI/ANS 56.8-1981
- III. Type A Tests
 - A. Method
 - B. Pressure
 - C. Duration
 - D. Frequency
 - E. Analysis Method
 - F. Verification Test
 - G. Acceptance Criteria
 - H. Summary
- IV. Type B & C
 - A. Pressure
 - B. Temperature
 - C. Waiting Period
 - D. Frequency
 - E. Acceptance Criteria
 - F. Summary
- V. Exemption Requests and Licensee Event Reports
 - A. Type A Test Exemption Requests
 - B. Type B & C Test Exemption Requests
 - C. Licensee Event Reports
 - D. Summary
- VI. Proposed Appendix J Revision
 - A. Proposed Requirements
 - B. Conflicts with ANSI/ANS-56.8-1981
 - C. Resolution of Conflicts
- VII. Conclusion
 - Appendix A: Recommended Revisions to ANSI/ANS-56.8-1981

RES Lead:

G. A. O.

Lab Principal Investigator: J. Dougan

Lab Manager: D. Naus

1. REGULATORY PROBLEM: 10CFR 50, Appendix J needs updating and revision.
2. TECHNICAL PROBLEM: Develop technical bases for leak test criteria.
3. OBJECTIVES OF THE PROGRAM: Evaluate practicality of the containment leak testing program, and compatibility of regulatory requirements and industry testing standards.
4. HOW OBJECTIVES ARE RELATED TO SAFETY: Objectives relate to criteria and procedures for checking leaktight integrity of containment system boundary under post-LOCA conditions.
5. ATTACK OF PROBLEM: Collect field data from test reports, review work of others (EPRI, etc.), and determine whether data and history support leak test criteria.
6. WHAT HAS BEEN DONE: 66 test reports and 26 technical evaluation reports have been collected, operating data is being collected, comments from a member of public examined and rejected, reports from EPRI, Quadrex, and Berkt received for review, site visits to leak tests planned, and analyses of data begun.
7. WHAT ARE EXPECTED ACHIEVEMENTS: Report on whether test and operating data substantiate leak testing requirements, and compatibility of App. J and ANSI/ANS 56.8-1981 positions.
8. WHEN WILL IT END AND WHAT WILL BE THE FINAL PRODUCT AND THE TOTAL EXPENDITURE:
End: FY83 FINAL PRODUCT: Final report \$: 150,000 (FY)
9. HOW WILL THESE RESULTS BE APPLICABLE TO THE LICENSING PROCESS: results will influence content of 10CFR 50, App. J and its leak test criteria and the content of a proposed R.G. that will endorse ANSI/ANS 56.8 and its testing procedures.
10. ANY REMARKS THAT BEAR ON THE CONTRACT:

OPNL

TITLE: CONTAINMENT LEAK RATE TESTING

FY 82
OPERFY 83
OPERFY 84
OPER

FIN(S)

RES LEAD

PRINCIPAL INVESTIGATOR

MANAGER

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B0489

G. Arndt

Jim R. Dougan

Dan J. Naus

* (using FY82 carryover funds)

I. OBJECTIVES

Evaluate the practicality of the containment leak testing program, and compatibility of regulatory requirements and industry testing standards.

II. HOW ARE OBJECTIVES RELATED TO SAFETY? Objectives relate to criteria and procedures for checking leaktight integrity of containment system boundary under post-LOCA conditions.

III. WHAT WORK HAS BEEN COMPLETED SO FAR? GG test reports have been collected, operating data (LERS, etc.) is being collected, initial test data analyses begun, and J. Dougan visits arranged to observe tests at Sequoyah, St. Lucie, and Brown's Ferry in Dec. 1982, Jan. 1983.

IV. WHAT ARE THE EXPECTED ACHIEVEMENTS OF THIS WORK?

Report on whether test and operating data substantiate leak testing requirements, and compatibility of App J and ANSI/ANS 56.8-1981 position.

V. HOW WILL THE RESULTS BE APPLICABLE TO LICENSING PROCESS?

Results will influence content of 10-SER50 Appendix J and its leak test criteria, and the content of a proposed RG that will endorse ANSI/ANS 56.8 and its testing procedures.