

# OAK RIDGE NATIONAL LABORATORY

OPERATED BY  
UNION CARBIDE CORPORATION  
NUCLEAR DIVISION



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OAK RIDGE, TENNESSEE 37830

December 7, 1982

Mr. 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:

This letter summarizes our progress on the Containment Leak Rate Testing Investigations (Fin. No. B0489) Program for the month of November 1982.

## Technical Highlights

An evaluation of the formulation of the leak rate equation proposed by EXTRAN was initiated. The fundamental difference between the EXTRAN equation and the ANSI/ANS equation is in the determination of the temperature term. Both equations provide an approximation so an evaluation was begun to determine if the differences were significant.

Only one set of leak rate data has been used in the evaluation so far, but certain trends are observable. In every case but one the difference between the temperature terms in the two equations was approximately two percent or less. In one case the difference was almost twenty percent, but the temperature terms were so small that the twenty percent difference had a negligible effect on the leak rate. In fact, it seems that the only time a significant difference is likely to occur in the leak rates will be when the leak rates are extremely small (approaching zero). These observations are preliminary and may change as additional data are evaluated.

A search of the Nuclear Safety Information Center (NSIC) computer file has been conducted to identify the License Event Reports (LERs) pertaining to Type A leak rate tests. Copies of the LERs will be obtained soon and reviewed. An additional search of the NSIC computer file will be conducted at a later time to identify LERs pertaining to Type B and C leak rate tests.

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Due to conflicts in scheduling, one plant visit to observe leak rate testing was canceled. However, additional plants that will be conducting tests in the near future have been identified and will be used to replace any canceled visits.

On November 30, 1982, a meeting was held with Z. V. Reytblatt of EXTRAN, Inc., in Chicago, Illinois, to discuss the previously mentioned formulation of the leak rate equation and to identify areas in which he might be of some assistance. No decision has been reached regarding his assistance. Also, on December 1, 1982, a meeting was held with personnel of Wiss, Janney, Elstner, and Associates in Northbrook, Illinois, concerning their experience in leak rate testing of containments.

#### Expenditures

Expenditures under this program are shown below.

	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>
Expenditure (\$K)	0.1	2.8	0	0.1	4.0	7.2	9.0*
Cumulative (\$K)	0.1	2.9	2.9	3.0	7.0	14.2	23.2*

\*Estimated

Sincerely,



J. R. Dougan

JRD:ege

cc: D. J. Naus

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Franklin Research Center - Technical Evaluation Reports

Containment Leakage Rate Testing

Sent 12/20/82

1. Pilgrim #1
2. Haddam Neck
3. Oconee Units #1, 2, & 3
4. Duane Arnold #1
5. Oyster Creek
6. Cooper
7. 9-Mile Point #1
8. Millstone #1
9. Monticello
10. Prairie Island #1, 2
11. Humboldt Bay
12. Browns Ferry 1, 2, & 3
13. Point Beach #1 & 2

Sent

- (?) 1. H.B. Robinson #2
- ✓ 2. Dresden #2 & 3
- ✓ 3. Quad Cities #1, & 2
- ✓ 4. Zion #1 & 2
- ✓ 5. Big Rock Point
- ✓ 6. Palisades
- ✓ 7. LaCrosse
- ✓ 8. Ft. Calhoun 1
- ✓ 9. Peach Bottom 2, 3
- ✓ 10. Vermont Yankee
- ✓ 11. Kewaunee
- ✓ 12. Maine Yankee
- ✓ 13. Yankee Rowe