

MAY 10 1984

Mr. J. LaGrone, Manager  
Oak Ridge Operations Office  
U. S. Department of Energy  
P. O. Box E  
Oak Ridge, Tennessee 37830

Dear Mr. LaGrone:

FY 1984 NUCLEAR REGULATORY RESEARCH ORDER NO. 60-84-204 FOR OAK RIDGE NATIONAL LABORATORY

Please authorize Oak Ridge National Laboratory to execute the program described in the enclosed NRC Order.

If this meets with your approval, it is requested that acceptance be indicated on the enclosed form and the original be sent to the NRC Office of Resource Management and one copy returned to this office.

Sincerely,

Original signed by G. A. Arlotto

Guy A. Arlotto, Director  
Division of Engineering Technology  
Office of Nuclear Regulatory Research

Enclosures:

1. NRC Order
2. Add'l Terms & Conditions

cc w/enclosures:

R. W. Barber, DOE/EP

D. Naus, ORNL

DISTR

Subj

Circ

Chron

Riggs:rdg

A. Puglise, ORM

G. Arndt, DET

A. Eiss, DET

Wylbur

M. Slater, PP&C

FOIA-85-143-

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PDR FOIA  
REYTBLA85-143 PDR

OFFICE	RES:FP&C	RES:FP&C	RES:DET	RES:DET	RES:DET	RES:DET	RES:PPCS
NAME	Riggs	Batson/Hayes	Arndt	Richardson	Eiss / Shao	Arlotto	DiDespici
DATE	5/1/84	5/8/84	5/3/84	5/1/84	5/4/84	5/4/84	5/1/84

## STANDARD ORDER FOR DOE WORK

60-84-204

DATE

MAY 10 1984

ISSUED TO (DOE Office)

Oak Ridge Operations Office

ISSUED BY (NRC Office)

Division of Engineering  
Technology

ACCOUNTING CITATION

APPROPRIATION SYMBOL

31X0200.604

BLR NUMBER

60190101

FIN NUMBER

B0489-4

PERFORMING ORGANIZATION AND LOCATION

Oak Ridge National Laboratory

WORK PERIOD THIS ORDER

FIXED ☐ESTIMATED ☒

FROM

10/1/83

TO

9/30/84

FIN TITLE

Containment Leak Rate Testing Investigations

## OBLIGATION AVAILABILITY PROVIDED BY:

A. THIS ORDER

\$

-0-

B. TOTAL OF ORDERS PLACED PRIOR TO THIS DATE WITH THE PERFORMING ORGANIZATION UNDER THE SAME "APPROPRIATION SYMBOL" AND THE FIRST FOUR DIGITS OF THE "BLR NUMBER" CITED ABOVE

\$

n/a

C. TOTAL ORDERS TO DATE

(TOTAL A &amp; B)

\$

n/a

D. AMOUNT INCLUDED IN "C" APPLICABLE TO THE "FIN NUMBER" CITED IN THIS ORDER.

\$

-0-

## FINANCIAL FLEXIBILITY:

☐ FUNDS WILL NOT BE REPROGRAMMED BETWEEN FINIS. LINE D CONSTITUTES A LIMITATION ON OBLIGATIONS AUTHORIZED.☒ FUNDS MAY BE REPROGRAMMED NOT TO EXCEED  $\pm 10\%$  OF FIN LEVEL UP TO \$50K. LINE C CONSTITUTES A LIMITATION ON OBLIGATIONS AUTHORIZED.

STANDARD TERMS AND CONDITIONS PROVIDED DOE ARE CONSIDERED PART OF THIS ORDER UNLESS OTHERWISE NOTED.

## ATTACHMENTS.

THE FOLLOWING ATTACHMENTS ARE HEREBY MADE A PART OF THIS ORDER:

- ☐
- STATEMENT OF WORK
- 
- ☒
- ADDITIONAL TERMS AND CONDITIONS
- 
- ☐
- OTHER

## SECURITY:

- ☒
- WORK ON THIS ORDER IS NOT CLASSIFIED.
- 
- ☐
- WORK ON THIS ORDER INVOLVES CLASSIFIED INFORMATION. NRC FORM 187 IS ATTACHED.

## REMARKS

ISSUING AUTHORITY  
SIGNATURE *[Signature]* 5/4/84  
Guy A. Arlotto, Director  
TITLE Division of Engineering Technology  
Office of Nuclear Regulatory Research

## ACCEPTING ORGANIZATION

SIGNATURE

TITLE

DATE

April 11, 1984

CONTAINMENT LEAK RATE TESTING INVESTIGATIONS

FIN: B0489

Additional Terms and Conditions

1. NUREG/CR-3549, Evaluation of Containment Leak Rate Testing Criteria, was published in March 1984 by ORNL. Using funds remaining in FIN B0489, ORNL is requested to provide expert representation capable of discussing in detail this NUREG as follows:

Number of Representatives: 2

Number of meetings: 2 (one ACRS, one unspecified)

Duration of each meeting: 1 full day (ACRS); 2 full days for other

Location of each meeting: Washington, D.C.

Meeting dates: Not yet finalized

2. The objective of item #2 is to provide sufficient input for the NRC staff to determine whether, and under what conditions, a containment integrated leak rate test can account for ambient diurnal effects on some basis other than running the test for a full 24 hour period.

After deducting from remaining funds the amount necessary to provide for item #1 above, ORNL is requested to provide answers to the questions listed below. Documentation should also be provided of the database and techniques used. If any answers are unattainable, the reasons should be provided.

Questions

1. Which Type A tests exhibited diurnal effects and on what basis was this determination made?
2. For those tests that exhibited diurnal effects, was there some deficiency in the test program (instrumentation, procedures, etc.) that led to the diurnal effects?
3. What, if anything, could have been done before or during the test to eliminate, reduce, or account for the effects of perturbations in the containment environment on the measured leak rate (do not include analysis techniques)?
4. Can certain containment types be declared immune to diurnal effects (e.g., dual containments) or others (e.g., free-standing steel) particularly susceptible to diurnal effects?
5. Do measured air mass oscillations due to diurnal effects affect the calculated UCL leak rate so that the UCL is always a conservative measure of actual leak rate, or could actual leak rate possibly exceed UCL?
6. Is this a function of the magnitude of the measured air mass oscillations?
7. Do temperature changes appear to lag pressure changes in the containment during a test exhibiting diurnal effects?
8. What are the variations of RTD measurements, spatially and temporally, during tests exhibiting diurnal effects?
9. How do the EPRI reduced duration criteria handle diurnal effects?