NRC FORM 173 (2-78) U.S. NUCLEAR REGULATORY COMMISSION

STANDARD ORDER FOR DOE WORK

ORDER NUMBER: 20-80-9

DATE: 10/11/79

ISSUED TO: (DOE Office) Brookhaven Area Office

ISSUED BY: (NRC Office) Office of Nuclear Reactor Regulation

ACCOUNTING CITATION

APPROPRIATION SYMBOL: 31X0200.200

B&R NUMBER: SEE BELOW

FIN NUMBER: SEE BELOW

PERFORMING ORGANIZATION AND LOCATION: Brookhaven National Laboratory

FIN TITLE: Mark I Containment Analysis (A-3108)
Mark I Containment Implementation (A-3337)

WORK PERIOD - THIS ORDER

FIXED ☐	ESTIMATED ☒
FROM: 10/1/79	TO: 9/30/80

OBLIGATION AVAILABILITY PROVIDED BY:

A. THIS ORDER	$ 180,000
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 "B&R NUMBER" CITED ABOVE	$ 100,000
C. TOTAL ORDERS TO DATE (TOTAL A & B)	$ 280,000
D. AMOUNT INCLUDED IN "C" APPLICABLE TO THE "FIN NUMBER" CITED IN THIS ORDER.	$ SEE BELOW

FINANCIAL FLEXIBILITY:

☐ FUNDS WILL NOT BE REPROGRAMMED BETWEEN FINS. LINE D CONSTITUTES A LIMITATION ON OBLIGATIONS AUTHORIZED.

☐ FUNDS MAY BE REPROGRAMMED NOT TO EXCEED ± 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:

After signature. please send a copy of this Order to:

M. Paulette Triplett. NRR, P-428

FIN	B&R	FY-80 FUNDS
A-3108	20-19-06-21	70 K
A-3337	20-19-01-03	110 K

ISSUING AUTHORITY

SIGNATURE: M. Paulette Triplett /M Paulette Triplett

TITLE: Fiscal Assistant 10/24/79

ACCEPTING ORGANIZATION

SIGNATURE

TITLE

DATE

NRC FORM 173 (2-78)

SCOPE OF WORK

MARK I CONTAINMENT ASSESSMENT

TECHNICAL ASSISTANCE

General

a. This program will provide for the evaluation of the application of experimental and analytical programs related to suppression pool hydrodynamic loads. In application of the experimental programs, specific emphasis will be placed on the examination of the validity of applying test data from scale models to the prototype.

b. To act as consultants to the NRC in the area of suppression pool hydrodynamics.

c. To conduct analytical and computer studies, as necessary, related to suppression pool dynamic loadings and other containment phenomena.

Task I: Safety Evaluation Report

This task involves the completion of the generic Mark I Safety Evaluation Report, which documents the technical bases for the Long Term Program suppression pool hydrodynamic load definition techniques. This will include the resolution of staff comments on initial drafts of the report. This report will be directly applicable to licensing actions on each of the plants identified in Table 1.

Task II: Confirmatory Testing and Analyses

This task involves the review and evaluation of confirmatory testing and analyses performed to support the proposed Mark I load definition techniques. Specifically, this task includes the following:

a. Compressibility Effects - the results of analytical studies to assess the influence of compressibility on scaled pool swell tests.

b. Condensation Oscillations - the results of confirmatory tests to ascertain the uncertainty in the condensation oscillation loading functions.

Task III: Plant Unique Analyses

This task involves the review and evaluation of the application of the generic Mark I load definition techniques to the individual plant-unique analyses. Specifically, this task will include the following:

a. Review Plan - based on the formats of the first few plant-unique analyses and on the NRC acceptance criteria, a review plan will be formulated to assure consistent and timely evaluations of all of the Mark I plant-unique analyses.

b. Plant-Specific Loads - any suppression pool hydrodynamic loads that are defined for a specific Mark I configuration will be evaluated separately.

c. Plant-Specific Evaluation Reports - following the reivew of each Mark I plant-unique analysis, a summary evaluation report for that specific plant will be prepared, describing the conclusions made regarding the plant-specific load definition and degree of conformance with the NRC generic criteria. These reports will be directly applicable to licensing actions on each of the plants identified in Table 1.

Task IV: Program Activities

This task includes on-call assistance, attendance at meetings as DOR consultants, and miscellaneous monitoring activities not specifically addressed by Tasks I through III.

Table 1

Mark I Containment Plants

Facility Name	Docket No.
Browns Ferry Unit No. 1	50-259
Browns Ferry Unit No. 2	50-260
Browns Ferry Unit No. 3	50-296
Brunswick Unit No. 1	50-325
Brunswick Unit No. 2	50-324
Cooper Station	50-298
Dresden Unit No. 2	50-237
Dresden Unit No. 3	50-249
Duane Arnold	50-331
Fitzpatrick	50-333
Fermi Unit No. 2	50-341
Hatch Unit No. 1	50-321
Hatch Unit No. 2	50-366
Hope Creek Unit No. 1	50-354
Hope Creek Unit No. 2	50-355
Millstone Unit No. 1	50-245
Monticello	50-263
Nine Mile Point Unit No. 1	50-220
Oyster Creek	50-219
Peach Bottom Unit No. 2	50-277
Peach Bottom Unit No. 3	50-278
Pilgrim Unit No. 1	50-293
Quad Cities Unit No. 1	50-254
Quad Cities Unit No. 2	50-265
Vermont Yankee	50-271

MARK I ASSESSMENT

MILESTONE AND DECISION POINTS

		1979			1980								
		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Task I	Safety Evaluation Report	———	———	——— V									
Task II	Confirmatory Tests and Analyses												
A.	Compressibility Effects	———	———	——— V									
B.	Condensation Oscillations	———	———	———							———	———	NOTE 1
Task III	Plant Unique Analyses												
A.	Review Plan	———	———	——— V									
B.	Plant Specific Loads	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	NOTE 2
C.	Plant Specific Evaluation Reports	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	NOTE 2
Task IV	Program Activities	———	———	———	———	———	———	———	———	———	———	———	V

NOTE 1 Schedule to be established when testing schedule has been submitted by the Mark I Owners Group.

NOTE 2 Individual schedules will be established when submittal dates are provided by each Mark I licensee.