NRC FORM 173 (2-78)

80-80-006

STANDARD ORDER FOR DOE WORK

DATE: April 2, 1980

ISSUED TO: (DOE Office)	ISSUED BY: (NRC Office)
San Francisco Operations Office	Office of State Programs

ACCOUNTING CITATION

APPROPRIATION SYMBOL: 31X0200.800

B&R NUMBER: 80-19-08-02

FIN NUMBER: A-0351-0

PERFORMING ORGANIZATION AND LOCATION: Lawrence Livermore Laboratory (LLL)

FIN TITLE: ARAC Site Installations at Nuclear Power Plants

WORK PERIOD - THIS ORDER

FIXED ☐	ESTIMATED ☒
FROM: Apr. 15, 1980	TO: Sept. 30, 198

OBLIGATION AVAILABILITY PROVIDED BY:

A. THIS ORDER	$ 200,000
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	$ 0
C. TOTAL ORDERS TO DATE (TOTAL A & B)	$ 200,000
D. AMOUNT INCLUDED IN "C" APPLICABLE TO THE "FIN NUMBER" CITED IN THIS ORDER	$ 200,000

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:

These funds are to remain available for use on the agreed upon program until expended. This Work Order refers to LLL's draft contract No. W-7405-ENG-48, dated March 14, 1980. Any further funding is contingent upon availability of funds.

ISSUING AUTHORITY	ACCEPTING ORGANIZATION
SIGNATURE: Frank W. Young	SIGNATURE
NAME: G. Wayne Kerr, Acting Director Office of State Programs	TITLE
	DATE

NRC FORM 173 (2-78)

8004240 006

Statement of Work
for
Lawrence Livermore Laboratory (LLL)

FIN No. A-0351-0
B&R No. 80-19-08-02

Objectives:

1. To install and demonstrate the use of ARAC site facility terminals at Indian Point Nuclear Power Station, a New York State location, Zion Nuclear Power Station and the Illnois State Office of Emergency Preparedness, 2. to produce a body of experience in the use of ARAC advisory information relevant to emergency response in the case of a nuclear accident, 3. to respond to these sites in case of an actual nuclear accident.

Method:

Based on agreement with the Department of Energy, the LLL is to support the installation of "spare" ARAC site facility terminals at Indian Point Nuclear Power Station and at the New York State Office of Emergency Preparedness at Albany N.Y. during FY 1980, and at the Zion Nuclear Power Station and the Illinois State Office of Emergency Service at Springfield Illinois during FY '81. For these two power station sites and associated State offices LLL shall proof test the system terminals, CRT scopes and hardcopy capabilities to receive ARAC data and the ARAC regional products (see attachments A and B). The LLL shall establish data bases for these two nuclear power station sites which will include terrain, geography, the distribution of meteorological stations, and site characterization notebooks. Preliminary tests between the sites and LLL will be performed to examine the effectiveness of the system. The responsibility for the electronic interface between the site system and the site meteorological towers is understood to be that of the utility organization operating the nuclear power station. Site installation and operation instructions are found in LLL documents UCID-18569 and UCID-18050 respectively.

Operational Understanding:

All testing between LLL and the site facilities must be conducted on a "non-interference" basis with operational activities, i.e. ARAC involvement in a real accident (DOE is non-DOE site), threat, or foreign atmospheric nuclear weapon test periods. This is required due to the limited operational staff and the ARAC center dedicated communication levels. In addition, with the present level of operational staff in the ARAC center, immediate response to a request for assistance will be the normal 40 hour LLL work week. During nightime, weekends, and holidays responses will be staffed by call-outs which can take 1 1/2 to 2 hours before the ARAC center personnel are on line for the request. The timing and level of response is a strong function of the availability of a limited number of key personnel.

Output:

The expected output of the project will be the implementation of the present full ARAC service to the two power station sites and associated State offices and the resultant experience and familiarity acquired by the staffs of the nuclear power stations and the State offices which will be applicable in nuclear emergencies. This includes training of recipient operators to a level of proficiency satisfactory to LLL and NRC/FEMA.

Costs and Scheduling

For purposes of financial authorization, the project work is divided into two phases as follows:

Phase 1A (from fiscal 1980 funding)	$200,000
Phase 1B (from fiscal 1981 funding)	$ 60,000

Phase 1A

Item (A)	Installation and implementation at Indian Point complete by July 15, 1980	$ 75,000
Item (B)	Installation and implementation at a New York State site complete by October 15, 1980	$ 50,000
Item (C)	Installation and implementation at or near Zion Station complete by January 15, 1981	$ 75,000
	Sub Total FY 1980 Funding	$200,000

Phase 1B

Item (A)	Installation and implementation at the Illinois State Emergency Operations Center by February 15, 1981	$ 60,000
	Sub Total FY 1981 Funding	$ 60,000

Statement on Related Costs

LLL will furnish and ship government owned computer equipment to the four sites included in this project as listed below. Title of this equipment will remain with the Department of Energy. Upon completion of the project, recipients will remove all government equipment and return to LLL at no cost to the LLL.

LLL will not be responsible for site installation costs and the electronic interface between the ARAC terminal equipment and the environmental monitors at the operating power reactor sites. LLL will advise on maintenance of hardware and software programs but has no responsibility for on-site costs of maintenance of equipment.

LLL and DOE will prepare and execute all documentation on equipment transfers and accountability directly with the four recipients.

Component List for each ARAC Terminal System

Item	Description	Model
1.	Computer DEC	PDP-11/04 (with rack)
2.	Display-Graphic Processor	VR17L

3.	Tape Handler-Dual	TU56
4.	Terminal-Display/Keyboard	LA36
5.	Printer-Plotter Matrix	1100A

Note: Items 1-4 are manufactured by Digital Equipment Corp.
Item 5 is manufactured by Versatec.

Reporting:

LLL will furnish each recipient with the instruction manuals and maintenance data supplied by the manufacturer in order to satisfy maintenance and/or warranty needs.

LLL will furnish draft report for the project both phases but organized by site installation (4) which will include project history, functional descriptions and summaries of operational experience and evaluation. LLL will participate to an extent negotiable, in the operational support and evaluation of special meteorological verification programs to be managed by NRC Office of Research.

LLL will furnish site recipients with copies of all software programs which operate the site terminal equipment and consult with recipient organizations on code interpretation and modifications initiated by the recipients through the end of FY 1981.

Period of Performance:
Approximately April 15, 1980 to September 30, 1981.

Technical Monitor:

Robert T. Jaske, Office of State Programs, NRC (Detailed to FEMA)
Tel. (202) 523-5422

ATTACHMENT A:

MENU OF THE ARAC SITE FACILITY DATA PRESENTATIONS AND CALCULATIONS (STAND ALONE CAPABILITY).

Site System Control Menu

1. Set parameters
2. Wind rose
3. Meteorological data
4. Site map (detailed)
5. Site map
6. Regional model map
7. Trajectory map
8. Gaussian diffusion
9. Regional model calculations
10. Communications with ACF
11. Set emergency
12. Clear emergency and hangup
13. Plot

ATTACHMENT B:

MENU OF THE ARAC CENTER ADVISORY PRODUCTS

ARAC Center Advisory Products Menu

1. Integrated surface air-ADPIC
2. Instantaneous Air-ADPIC
3. Ground deposition-ADPIC
4. Integrated surface air-PATRIC
5. Instantaneous air-PATRIC
6. Ground deposition-PATRIC
7. Trajectory puff
8. Trajectory plume
9. CPS (Gaussian point source (plume)
10. IPS (Gaussian point source (puff)

Note: Menu items 1-6 available via ARAC Center to site facility communications line for viewing on site CRT

Menu items 7-8 presently under development.

Menu items 9-10 available on site mini computer systems without centerline values.