UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

NOV 13 1990

AECL Technologies
ATTN: Mr. D. R. Shiflett
15400 Calhoun Drive
Suite 107
Rockville, Maryland 20855

Dear Mr. Shiflett:

Subject: Task Order No. 13 Under Contract No. NRC-03-90-031 Entitled "Electrical Distribution Functional Inspection - TMI," FIN L1527

In accordance with the task order procedures of the subject contract, this letter definitizes Task Order No. 13. This effort shall be performed in accordance with the enclosed Statement of Work and the Contractor's proposal dated October 17, 1990, incorporated herein by reference.

The cost ceiling of this task order is $72,723.36. Of the total cost ceiling amount, the amount representing total reimbursable costs is $72,521.97 and the amount representing the fixed fee is $201.39.

Accounting data for Task Order No. 13 is as follows:

B&R No.:	020-19-14-02-0
FIN No.:	L-1527-0
Appropriation No.:	31X0200.200
Obligated Amount:	$72,723.36

(Obligated under the basic contract)

Please indicate your acceptance of this task order by having an official, authorized to bind your organization, execute three copies of this document in the space provided and return two copies to the Contract Administrator. You should retain the third copy for your records.

Any questions regarding this matter should be addressed to Brenda DuBose, Contract Management Assistant, on (301) 492-7442.

Sincerely,

Paul J. Edgeworth, Contracting Officer
Contract Administration Branch No. 1
Division of Contracts and
Property Management
Office of Administration

Enclosure:
As stated

ACCEPTED: Task Order No. 13

D. R. Shiflett
NAME

Vice President & General Manager
TITLE

11/16/90
DATE

Contract NRC-03-90-031
AECL Technologies

Enclosure

STATEMENT OF WORK
Task Order - 013

TITLE: Electrical Distribution System Functional Inspection - TMI

DOCKET NUMBER: 50-289/320

B&R NUMBER: 020-19-14-02

FIN: L-1527

NRC PROJECT MANAGER: Wayne Walker, NRR (301-492-1232)

NRC TEAM LEADER: Neil Della, NRR (215-337-5046)

NRC CONTRACT ADMINISTRATOR: Brenda DuBose, ADM (301-492-7442)

PERIOD OF PERFORMANCE: November 18, 1990 to January 15, 1991

BACKGROUND

A electrical Distribution Functional Inspection will be conducted at the TMI Plant. This inspection will assess on a sample basis the design, operation, maintenance and surveillance of the as configured electrical distribution system including modifications made since receipt of operating license.

OBJECTIVE

The objective of this task order is to obtain expert technical assistance to assist the NRC inspection team in the performance of the subject Electrical Distribution Functional Inspection.

WORK REQUIREMENTS AND SCHEDULE

The work specified in this statement of work (SOW) falls within Section C.1.3 of the basic contract's SOW. The contractor shall provide the qualified specialists, and the necessary facilities, materials, and services to assist the NRC staff prepare for and conduct the subject EDSFI, and document the inspection activities and findings.

Task	Scheduled Completion
1. Prepare for the subject inspection by reviewing inspection related background documentation and records provided by the NRC Team Leader and prepare input to the inspection plant.	One day prior to the inspection.

2. The inspection should evaluate whether:

(a) The installed configuration of the EDS in agreement with the facility drawings such as the Q-list, setpoint list, and equipment location drawings and that appropriate physical separation has been maintained between redundant electrical divisions and internal plant hazards.

The inspection preparation is scheduled to take place on or about November 19, thru November 21, the inspection is to take place on or about December 3, thru December 7, and December 17, thru December 21, with an intervening home-office review period December 10, thru December 14, 1990.

(b) The EDS meets the appropriate regulatory requirements and licensing commitments.

(c) Electrical motive and control power of the correct frequency and adequate voltage is available on demand to assure components will function as required to achieve safe shutdown and mitigate accident consequences.

(d) Proper logic for system actuation, operation, control and protection has been incorporated in the system. Review of proper logic includes review of control logic diagrams, and ladder diagrams of programmatic controllers, to verify that proper interlocks and permissive have been included in the design to achieve the required design functions of systems and components.

(e) Setpoints have been correctly chosen for over current protective relays to (1) assure proper breaker coordination between different voltage levels; (2) to prevent exceeding the vendor specified thermal limits on motors, containment electrical penetrations and cable insulation systems;

3) to allow starting of electrical equipment under degraded voltage conditions; and
4) to provide adequate pre-trip alarms, when applicable.

(f) Setpoints and time delays have been correctly chosen for other protective relays for attributes such as under-voltage, under-differenctial current, thermal overload and phase synchronization to assure functionality of the EDS.

(g) The scope, depth and frequency of maintenance, surveillance and testing of electrical systems and components is adequate to verify their functional performance.

(h) The operators understand the design bases and the limitations of the EDS. The inspectors should determine whether the design bases and operating limitations have been adequately addressed in normal and emergency operating procedures.

(i) The EDS support system such as HVAC, EDG fuel oil transfer system, EDG cooling water system and air-start system etc., are adequate to support operation under design basis conditions.

3.	Prepare an inspection report input.	Documentation of inspection at office on or about December 24 thru December 28, 1990

REPORTING REQUIREMENTS

Technical Reports

At the completion of Task 1, provide inspection plan input to the NRC Team Leader. The format and scope of this input shall be as provided by the NRC Team Leader.

During Task 2, each contractor specialist shall prove daily reports to the NRC Team Leader. The format and scope of these reports shall be as provided by the NRC Team Leader.

At the completion of Task 2 (prior to the inspection team's exit meeting with the licensee) each contractor specialist shall provide a draft inspection report input to the NRC Team Leader. The format and scope of this input shall be as provided by the NRC Team Leader. Typically, this input will consists of handwritten summary of the specialist's inspection findings.

At the completion of Task 3, the contractor shall deliver each specialist's final inspection report input (feeder report) to the NRC Project Manager (original and one copy) with one hard copy and one computer diskette version (IBM Displaywrite 3 or 4, or other IBM PC compatible software acceptable to

the NRC Team Leader) to the NRC Team Leader. The format and scope of the final report inputs shall be as provided by the NRC Team Leader. Each specialist's feeder report will serve as documentation of the specialist's inspection activities, efforts, and findings, and will be used by the NRC Team Leader for the preparation of the NRC's inspection report. As a minimum, each specialist reports input shall include the following:

- Identify of the individuals (name, company, and title) that provided information to the specialist during the inspection.
- For each area inspected, a description of the activities and general findings and conclusions reached regarding the adequacy of the area.
- For each area with a concern or findings, a discussion of the concern of finding with technical bases.

BUSINESS LETTER REPORTS

The contractor shall provide monthly progress reports in accordance with the requirements of the basic contract.

MEETINGS AND TRAVEL

One, three-person, five day trip to the TMI plant site, located in Harrisburg, Pennsylvania, to prepare for the subject inspection.

Two, three-person, five day trips to the TMI plant site to assist NRC in conducting the subject inspection.

One, three-person, five day trip to Region I office to assist NRC in documentation of inspection acivities.

The contract specialist shall coordinate all travel arrangements in advance with the NRC Team Leader.

ESTIMATED LEVEL OF EFFORT

Number	Discipline	Hours
	Project Manager	90
1	Mechanical Systems Engineer	244
2	Electrical Design Engineer	488
	Support Staff	20

The estimated level of effort for each of the specialists consists of 64 hours for inspection preparation, 100 hours for on-site inspection activities, 40 hours for home office inspection related review during the intervening period between the on-site inspection periods, and 40 hours for inspection documentation.