

Twenty-One (21)

RIPA No. 79-118

JUL 15 1982

U.S. Nuclear Regulatory Commission
Division of Contracts
Washington, D.C. 20555

ADMINISTERED BY (If other than block 9)

CONTRACTOR NAME AND ADDRESS
CODE
FACILITY CODE
The Franklin Institute
Franklin Research Center
20th and Race Streets
Philadelphia, PA 19103

AMENDMENT OF SOLICITATION NO
DATED (See block 9)
MODIFICATION OF CONTRACT/ORDER NO NRC-03-79-118
DATED 9/28/79 (See block 11)

THIS BLOCK APPLIES ONLY TO AMENDMENTS OF SOLICITATIONS
The hour and date specified for receipt of Offers is extended, is not extended.
Offerors must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation, or as amended, by one of the following methods:
(a) By signing and returning copies of this amendment, (b) By acknowledging receipt of this amendment on each copy of the offer submitted, or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE ISSUING OFFICE PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If, by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided such telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

ACCOUNTING AND APPROPRIATION DATA (If required)
B&R No. 20-19-01-06 FIN B6590 INCREASE \$528,009.00
B&R No. 20-19-02-06 FIN B7539 INCREASE \$140,000.00

THIS BLOCK APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS
(a) This Change Order is issued pursuant to
The Changes set forth in block 12 are made to the above numbered contract/order.
(b) The above numbered contract/order is modified to reflect the administrative changes (such as changes in paying office, appropriation data, etc.) set forth in block 12.
(c) This Supplemental Agreement is entered into pursuant to authority of Clause Nos. 2 and 4 of the contract's General Provisions.
It modifies the above numbered contract as set forth in block 12.

DESCRIPTION OF AMENDMENT/MODIFICATION
Whereas the contractor has been providing technical assistance in support of NRC's reactor licensing action program in accordance with specific Work Assignments issued under this contract, and
Whereas the contractor has notified the Contracting Officer (CO) that the total cost to the NRC for performance of these Work Assignments will be greater than the current estimated cost reflected under the contract, and
Whereas the contractor has requested an increase in reimbursable costs in the amount of \$617,009.00 and additional base and award fee of \$92,551.00 for completion of all outstanding Work Assignments, and
Whereas the factors outlined in Attachment A hereto constitute the basis for such increase in funds, and
Whereas inadequate and/or incomplete licensee information provided by NRC either has required or will necessitate that the contractor perform additional efforts as described under Attachment A to satisfactorily complete each Work Assignment, and

Except as provided herein, all terms and conditions of the document referenced in Block 2, as heretofore changed, remain unchanged and in full force and effect.

CONTRACTOR/OFFEROR IS NOT REQUIRED TO SIGN THIS DOCUMENT OR CONTRACTOR/OFFEROR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN 3 COPIES TO ISSUING OFFICE

NAME OF CONTRACTOR/OFFEROR THE FRANKLIN INSTITUTE
BY J. R. Stover (Signature of person authorized to sign)
17 UNITED STATES OF AMERICA
BY M. J. Mattia (Signature of Contracting Officer)

NAME AND TITLE OF SIGNER (Type or print) J. R. STOVER, Sr, Vice Pres.
DATE SIGNED 7/8/82
NAME OF CONTRACTING OFFICER (Type or print) Mary Jo Mattia
DATE SIGNED JUL 15 1982

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Whereas the NRC Project Officer has advised that an estimated \$510,009.00 of the requested increase in costs is attributable to additional efforts required of the contractor which could not have been reasonably anticipated by the contractor and which were not included as part of the original Work Assignments, and

Whereas the Contracting Officer has determined that these expansions to the Scope of Work Assignments are such as to warrant an increase in the amount of \$51,000.00 to the available award fee under the contract, and

Whereas the NRC Project Officer has advised that an estimated \$107,000.00 of the requested increase in costs are attributable to delays encountered by the Contractor which did not necessitate additional effort beyond the scope of the original Work Assignment and, therefore, do not warrant additional fee with respect thereto, and

Whereas the NRC desires to have the contractor complete performance of all outstanding Work Assignments under the contract and the NRC Project Officer considers the requested increase in cost to be reasonable for completion of all outstanding Work Assignments, and

Whereas the Contracting Officer has determined that the Contractor is entitled to an equitable adjustment to the cost and available award fee in view of the foregoing.

Now, therefore, the following changes are made and constitute an equitable adjustment for the additional work required for performance of all outstanding Work Assignments:

A. Under Section 3.0 Consideration and Payment, Article 3.1 Estimated Cost, Base Fee and Award Fee is deleted in its entirety and the following is substituted in lieu thereof:

"Article 3.1 - Estimated Cost, Base Fee, and Award Fee

1. The estimated cost to the Government for all allowable costs, base fee, and award fee shall not exceed \$6,149,734.15 for performance of this contract.
2. The Contractor shall be reimbursed for all allowable costs incurred and accepted by the Contracting Officer, not to exceed the estimated amount of \$5,434,000.00.
3. Award Fee may also be earned under this contract as provided by Article 3.2, Base and Award Fee.

4. Total funds currently available for payment and allotted to this contract are \$6,149,734.15, of which \$5,434,000.00 represents the estimated reimbursable costs, and of which \$611,934.15 represents the award fee for the period October 2, 1979 through September 30, 1982, and \$103,800.00 represents the base fee for the period October 1, 1980 through September 30, 1982. For further provisions on funding, see Clause No. 4 entitled "Limitation of Cost" of the General Provisions.

5. The total award and base fee currently available; the award fee earned thus far; and the evaluation periods applicable thereto, are as follows:

<u>Evaluation Period</u>	<u>Available Award Fee</u>	<u>Award Fee Earned</u>	<u>Available Base Fee</u>
Oct. 2, 1979 - Dec. 31, 1979	\$40,709.75	\$37,656.00	---
Jan. 1, 1980 - March 31, 1980	\$40,709.75	\$32,567.80	---
April 1, 1980 - June 30, 1980	\$40,709.75	\$40,302.00	---
July 1, 1980 - Sept. 30, 1980	\$40,709.75	\$40,709.75	---
Oct. 1, 1980 - Dec. 31, 1980	\$51,900.00	\$50,343.00	\$12,975.00
Jan. 1, 1981 - June 30, 1981	\$103,800.00	\$99,855.60	\$25,950.00
July 1, 1981 - Dec. 31, 1981	\$103,800.00	\$101,724.00	\$25,950.00
Jan. 1, 1982 - June 30, 1982	\$103,800.00	---	\$25,950.00
July 1, 1982 - Sept. 30, 1982	\$102,900.00	---	\$12,975.00

6. The available award fee not earned by the Contractor, hereinafter termed 'residual fee' for the evaluation periods covering October 1, 1980 through June 30, 1981, totalling \$5,501.40 is hereby diverted to and made a part of the amount allotted for estimated reimbursable costs. The above 'residual fee' when added to the residual fee previously included as part of the amount allotted for estimated reimbursable costs by modification no. 12 hereto results in a total 'residual fee' of \$17,104.85 under this contract. Said 'residual fee' is included as part of the total estimated reimbursable costs specified under subparagraph 4 above."

B. The Award Fee Determination Plan (AFDP) incorporated as Attachment C under modification no. 11 to this contract and applicable to the period October 1, 1980 through September 30, 1982 is revised as follows:

1. Under Part A. Introduction, section 2, the amount reflected in paragraph c is increased by \$617,009.00 from \$3,826,000.00 to \$4,443,009.00 and the amount reflected in paragraph e is increased by \$51,000.00 from \$415,200.00 to \$466,200.00.
2. Under Attachment C-1 to the AFDP, the Maximum Available Award Fee for Evaluation Period No. 5 is increased by \$51,000.00 from \$415,200.00 to \$466,200.00.

C. In summary, this modification increases total contract obligations by \$668,009.00 from \$5,481,725.15 to \$6,149,734.15. This total increase in contract obligations is broken down as follows:

1. Estimated reimbursable costs are increased by \$617,009.00 from \$4,816,991.00 to \$5,434,000.00.
2. Total funds allotted for the award fee pool are being increased by \$51,000.00 from \$560,934.15 to \$611,934.15.
3. Total funds allotted for the base fee remain unchanged at \$103,800.00.

D. As a result of this modification, the total amount obligated under this contract is now \$6,149,734.15. Following is a breakdown of contract obligations by FIN Number:

<u>Type of Work</u>	<u>Obligations</u>	<u>FIN Number</u>
SEP Work	\$1,630,000.00	B7539
OR Work	\$4,519,734.15	B6590

Attachment A

Final Assignment 7 - Override and Reset of Containment Isolation Circuitry

- o Information requested by generic request for information (RAI) letters was not supplied completely or in a timely manner. In pre-contract discussions, NRC stated that timely submittal was to be the basis of FRC's staff-hour estimates. Submittal by FRC of supplementary RAI letters was necessary. Responses to these letters were still inadequate. Consequently, many more RAIs than planned had to be prepared. Thus, additional, out-of-scope costs were incurred.
- o NRC decided that site visits not included in the original scope were needed for five sites (Beaver Valley, Surry Units 1 and 2, North Anna Units 1 and 2, Davis-Besse, and Maine Yankee) in order to obtain the missing information.
- o Contrary to the original scope, licensees were given an opportunity by NRC to make system/procedure changes to eliminate deviations from NRC criteria documented in draft TERS. Consequently, FRC had to evaluate new material and revise the TERS.

Final Assignment 9 - Feedwater System Automatic Initiation and Flow Indication

- o The initial information packages were to have been supplied by the NRC; however, they were not supplied and FRC had to visit NRC offices and compile these packages. This resulted in an unanticipated expenditure of staff-hours.
- o NRC requested that a list and description of the steam generator level indication systems be added to the initial approved scope of work.

Final Assignment 11 - Design Codes, Criteria, and Load Combinations for Category I Structures

- o In mutual recognition of the fact that the effort and methods required to accomplish the objectives of Assignment 11 would be very difficult to predict, a contractual reassessment clause was included in the work scope. This required FRC to review the assignment staffing requirements upon delivery of the second plant-specific TER. A separate letter was provided (Reference 3) defining the level of effort required to complete this assignment based on the experience obtained in preparing the two lead plant TERS.

- o The total number of documents to be handled, cited, filed, and reviewed by FRC (licensee submittals, correspondence, test reports, etc.) is considerably larger than anticipated in the original work scope for the entire assignment. The original estimated level of effort and 5-month schedule based on the estimated number of documents to be reviewed did not take into account such factors as:
 - several submittals for a single plant, including complete revisions entirely superseding earlier versions
 - several responses to the RAI from a single licensee, thereby necessitating several revisions to the RAI, redefining what documents were still needed
 - numerous plant-specific letters and correspondence associated with the general subject of environmental qualification
 - numerous incorrect or irrelevant documents referenced by licensees
 - instances of several test reports appended to a single document referenced by a licensee.

During a 6-week period, FRC has received approximately 1000 new documents to be reviewed. FRC now estimates a total volume of approximately 700 generic test reports and 3000 plant-specific documents (e.g., submittals and correspondence). This represents 50% more documents than originally estimated.

- o The SEP plant licensee responses have included revisions to environmental service conditions, particularly in-containment environments. As a result, FRC must reevaluate many equipment items previously reviewed. This will require a substantial staff-hour expenditure not anticipated in the original work scope.
- o Preparation of RAIs was more time-consuming than anticipated in the original work scope because:
 1. Licensees added and deleted numerous equipment items in the 90-day response EEQ submittals, hindering the tabulation of equipment and the correlation with previously identified items
 2. Submittals contained many discrepancies in technical content which impeded the review and evaluation of submitted information
 3. In many cases, licensees gave technical information about future replacement equipment while deleting all information about the presently installed equipment slated for replacement. Designations of replacement equipment items were often not clear.

- o When FRC issued formal RAIs for all 71 plants in the assignment, the NRC did not forward them to the licensees, but held them pending NRC review and acceptance of licensees' post-accident environmental service conditions. The 2-month delay by NRC in issuance of the RAIs has caused additional staff-hour expenditures not anticipated in the original work scope due to (1) schedule extension, (2) receipt of numerous licensee interim submittals, and (3) receipt of an additional licensee response regarding TMI Action Plan items. FRC continued to prepare partial technical evaluation reports (TERs) where possible.
- o A lack of timely initial transmittal of licensee EEQ submittals (revised responses to the SER and supplementary information) by NRC Project Managers to the NRC lead engineer delayed receipt of the information at FRC and hence the preparation of RAIs. The inefficiencies created by the delay of receipt of the information caused expenditure of additional staff-hours not anticipated in the original work scope.
- o Receipt of additional and revised technical information (after RAIs had been prepared on the basis of initial data) often necessitated extensive revision and reissue of many RAIs. This effectively constituted an additional cycle of technical effort not included in the original work estimate and schedule. (Examples of this are the receipt of revised SCEW sheets and references from licensees of the Kewaunee, Duane Arnold, Pilgrim, and Monticello plants.)
- o Carefully planned work procedures and schedules were disrupted by numerous occurrences that were not anticipated in the original work scope, such as the following:
1. Many telephone calls from NRC Project Managers concerning FRC's review of licensees' justifications for interim operation.
 2. Late transmittal by NRC Project Managers of licensee letters and submittals on EEQ dated months earlier.
 3. Numerous unnecessary telephone calls from licensees or their consultants about the FRC RAIs.
 4. Arrival at FRC of EEQ letters and submittals that were duplicates of documents previously received, but which had to be checked and correlated.
 5. Refusal by some licensees to submit proprietary information to FRC.
 6. Refusal by some licensees to submit any qualification documents, offering the alternative of arranging site visits for the NRC and FRC.

7. Piecemeal arrival of information from licensees that multiplied processing time and effort, extended the review and evaluation period, and necessitated repeated technical reconsiderations.
8. The range of efforts had to be broadened in order to acquire technical information not being attained through normal channels.

Final Assignment 14 - Wind and Tornado Loadings

- o Rescheduling and disruption of effort were caused by failure of licensees to meet deadlines for transmittal of vital documents (17 major deadlines missed). The inefficiencies created by the delay of receipt of information caused expenditure of additional staff-hours not anticipated in the original work scope.
- o Revision of analytical work was performed by FRC due to the transmittal of inaccurate data by licensees. This staff-hour expenditure was not anticipated in the original work scope.
- o An increase in FRC's investigative effort above the original work scope was caused by the transmittal of incomplete and inaccurate documents by licensees.

Final Assignment 15 - Review of Design and Operation of Ventilation Systems for SEP Plants

- o Responses from three licensees still have not been received for review by FRC. To aid the NRC in attaining its milestones, FRC must now travel to these plants and conduct an in-depth review such as that conducted for the first two plants. This in-depth review was not included in the original work scope.
- o In order to effectively document the causes of identified deficiencies, it is apparent that a more comprehensive review is required than originally estimated.

Final Assignment 16 - Review of Hydrological Considerations and Underdrain Failure

- o When plants have been shown not to conform with present NRC criteria, the resolution of these problems takes significant engineering effort beyond the original estimated work scope.
- o For those plants where the licensee has full responsibility for submitting an SAR to the NRC, most submittals have been inadequate, requiring that FRC request further elaboration from the licensee

through an RAI (this applies to Oyster Creek, Millstone, and Haddam Neck). This additional staff-hour expenditure was beyond the original work scope.

- o For some plants, background information that FRC originally thought would be in NRC docketed files was not available, and thus RAIs were required (maps, drawings, site topography, drainage, etc.). Responses to these requests have been both delayed and inadequate in several cases. For example, FRC has requested legible maps for Millstone from Northeast Nuclear Energy Company three times. These delays cause significant loss of engineering hours not estimated in the original work scope.
- o The status of the San Onofre package as indicated in Tentative Work Assignment R (Final Assignment 16) was incorrect. This necessitated an effort on FRC's part not anticipated in the original work scope.
- o In mutual recognition of the fact that the effort and methods required to accomplish the objectives of Assignment 16 would be very difficult to predict, a reassessment of the work scope was requested by NRC. A separate letter (Reference 4) defining the scope and level of effort required for this assignment has been submitted.