

Modification No. 9  
Contract No.  
NRC-04-83-168  
RP2399-1

CONTRACT AMONG  
THE BABCOCK & WILCOX COMPANY  
AND  
ELECTRIC POWER RESEARCH INSTITUTE  
AND  
THE U.S. NUCLEAR REGULATORY COMMISSION

THIS AGREEMENT, effective the 6th day of June 1983, as modified and superceded by this Modification No. 9, effective December 20, 1985, among the UNITED STATES OF AMERICA (hereinafter referred to as the "Government"), as represented by the UNITED STATES NUCLEAR REGULATORY COMMISSION (hereinafter referred to as the "Commission"), and THE BABCOCK & WILCOX COMPANY, a corporation duly organized and existing under the laws of the State of Delaware with a principal office in Alliance, Ohio (hereinafter referred to as the "Contractor"), and ELECTRIC POWER RESEARCH INSTITUTE, a not-for-profit corporation duly organized and existing under the laws of the District of Columbia, with principal offices in the city of Palo Alto, California (hereinafter referred to as the "Institute").

WITNESSETH THAT:

WHEREAS, this Agreement is authorized by law, including the Energy Reorganization Act of 1974, as amended, and Section 302(c)(10) of the Federal Property and Administrative Services Act of 1949, as amended, and the Atomic Energy Act of 1954, as amended.

WHEREAS, the Commission, the Institute, the Contractor, and the Babcock & Wilcox Owners Group (hereinafter referred to as the "Owners"), wish to participate jointly in a research project entitled "Integral System Test (IST) Program Once-Through Integral System (OTIS) and Multiloop Integral System Test (MIST) Components," the total estimated cost of which is \$31,588,706.00, and WHEREAS, the IST Program costs are to be jointly funded by the Commission, the Institute, the Contractor, and the Owners Group, both through direct reimbursement of program costs and in-kind contributions composed of items such as fee waiver, provision of building, facilities, and equipment by the Contractor, and provision of the GERDA data and IST benchmark analysis by the Owners. The division of \$31,588,706.00 IST Program costs are as follows:

Commission - 42.3%

Institute - 3.8%

Owners - 26.8% (Representing in-kind contributions and cash contributions)

Contractor - 27.1% (Representing in-kind contributions and fee waiver and cash contribution), and

WHEREAS, the Contractor has been performing work under Contract No. NRC-04-83-168;

WHEREAS, the parties desire to modify Contract No. NRC-04-83-168 as hereinafter provided, and this supplemental agreement is authorized by law, including the Federal Property and Administrative Services Act of 1949, as amended, the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, as amended;

WHEREAS, this supplemental agreement reflects the agreements of the parties regarding finalization of the MIST facility specification and establishment of revised Cost Control Group Ceilings:

NOW, THEREFORE, the parties agree to revise the Contract as follows:

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ARTICLE I - STATEMENT OF WORK

The Contractor shall provide the necessary personnel, facilities, and materials to perform the effort under the technical direction of the Program Management Group (PMG) in accordance with Appendix B, B&W Proposal No. R&D 82-291, entitled "Integral System Test Program - Once-Thru Integral System (OTIS) and Multi-loop Integral System Test (MIST) Components", R&D 82-291, Rev. 4. dated August 15, 1984 and Multi-loop Integral System Test (MIST) Facility Specification, RDD:84:4091-01-01:01 date October 28, 1983.

ARTICLE II - PERIOD OF PERFORMANCE

The period of performance under this contract shall commence on June 6, 1983, and shall continue through April 30, 1987.

ARTICLE III - TOTAL ESTIMATED COST, OBLIGATION OF FUNDS AND LIMITATIONS

- A. Estimate of Cost. The total estimated cost of the work specified in Appendix B to be performed under this contract is \$19,641,676.00 and is apportioned as follows:

Commission	- \$13,372,493.00
Institute	- 1,206,512.00
Owners	- 4,945,929.00
Contractor	- 116,742.00

The presently estimated cost of the work specified in Appendix B of this contract may be increased or decreased by written agreement of the parties.

- B. Obligation of Funds

1. Obligations

The total amount of funds presently obligated by the participants for the work specified in Appendix B is \$17,720,671.00 and is apportioned as follows:

Commission	- \$11,475,000.00
Institute	- 1,183,000.00
Contractor	- 116,742.00
Owners	- 4,945,929.00

Sufficient funds are not presently available to cover the totality of work over the entire period of performance under this contract. Additional funds will be allotted from time to time by contract modification up to the full estimated amount of the contract.

Pursuant to Clause 5.2 of the General Provisions entitled "Limitation of Funds (Cost Sharing)," the Commission may unilaterally increase its obligation by written notice to the Contractor and all amounts obligated may be increased or decreased by written agreement of all the parties. Such revised amounts shall be deemed substituted in this subparagraph B.1.

The amount of \$11,475,000.00 presently allocated and obligated by the Commission includes the \$243,000.00 authorized under Letter Contract NRC-04-83-168. The amount of \$243,000.00, in turn, includes precontract costs, beginning with February 1983 authorized pursuant to § 1-15.205-30 of the Federal Procurement Regulations, in the amount of \$150,000 by a letter dated May 18, 1983, from the NRC Contracting Officer to the Contractor.

2. NRC Accounting and Appropriation Data

FIN No. : 88909  
B&R No. : 60190103  
Obligated: \$11,475,000.00

3. Monthly Billing

Contract participants shall be billed on a monthly basis for work performed hereunder and the billing shall be prorated on the same basis as indicated in Paragraph A above.

C. Limitations

1. Payment Limitations

Payment of \$13,372,493.00, \$1,206,512.00, \$4,945,929.00 and \$116,742.00 shall constitute full and complete compensation by the Commission, the Institute, the Owners, and B&W (Contractor) respectively, for the performance of work as delineated in Appendix B under this contract. The Commission, the Institute, and the Owners shall not be obligated in excess of the ceiling amounts established for each Cost Control Group by this contract, unless the ceiling is changed by further modification to the contract. In the absence of further contract modification, the Contractor shall not be required to continue to work and continuation of work by the Contractor beyond the established ceiling amount for each Cost Control Group shall be at the Contractor's own risk.

2. Cost Control Groups - Cost Ceilings

a. For cost control purposes, the Cost Control Groups and Control Group cost ceilings listed below are hereby established. None of these ceilings shall be exceeded without prior written approval of the parties. Such approval, if granted, shall be effected by a contract modification changing the Control Group cost ceiling. In the absence of such approval, the Contractor shall not be requested to continue work related to that Cost Control Group.

b. The IST Program is divided into three phases:

Phase I - OTIS facility modifications, testing and analysis.  
Phase II - MIST Facility Specification  
Phase III - MIST facility construction, testing and analysis

<u>Cost Control Group</u>	<u>Phase, Tasks or Subtasks</u>	<u>Control Group Cost Ceiling</u>
A	PHASE I TOTAL	\$1,078,805
B	PHASE II TOTAL	\$488,313
	PHASE III PROGRAM	
C	1.0 Program Management	\$1,960,675
D	Facilities	\$834,493
	2.1 Building Modifications	
	2.2 Control Room Enclosure	
E	Reactor Coolant System Pumps	\$1,447,000
	2.3 Reactor Coolant Pumps	
F	Reactor Coolant System Components	\$3,176,855
	2.3 Balance of Loop Components	
G	Balance of RCS	\$1,084,979
	2.4 New Steam Generator and Enhanced Hot Leg Instrumentation	
	2.5 Secondary Loop	
H	Auxiliary Equipment	\$579,244
	2.6 Auxiliary Plant Equipment	
	2.7 Auxiliary Test Equipment	
I	DAS, Electrical and Hydro	\$3,752,599
	2.8 Data Acquisition System Hardware and Software	
	2.9 General Electrical and Supervision	
	2.10 Loop Hydro and Insulation	
J	Advanced Instrumentation, Guard Heater Power Measurement and Guard Heater Trip	\$319,633
	2.11 Gamma Densitometers	
	2.12 RCP Characterization Instrumentation	
	2.13 Guard Heater Power Measurement	

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	2.14 DELETED IN ENTIRETY	
	2.15 Leak Quality Measurement	
K	3.0 Design Verification	\$252,036
L	4.0 Test Planning	\$642,048
M	5.0 Testing	\$1,824,936
N	6.0 Data Analysis	\$1,158,319
O	7.0 Reporting	\$266,353
P	8.0 Facility Hold	\$39,007
Q	9.0 PMG Designated Task	\$563,570
	Of the total amount	
	provided under Cost	
	Control Group Q, \$332,370K	
	is reserved for unanticipated	
	problems associated with the	
	shakedown and/or testing	
	phases of Cost Control Group	
	M. Use of these funds shall	
	require prior approval of the	
	PMG.	
R	10.0 Underrun Holding Account	\$172,811

PHASE III TOTAL \$18,074,558

ISI PROGRAM TOTAL \$19,641,676

e. Procedure for application for a change in Cost Control Group Ceiling

If at any time the Contractor has reason to believe that the costs expected to be incurred in the performance of a Cost Control Group(s) may exceed the established ceiling amount(s), the Contractor shall immediately provide verbal notification to that effect to the Contracting Officer, the Authorized Representative of the Institute and the PMG with written confirmation to follow within 10 workdays.

This notification shall, as a minimum:

- i. identify the Cost Control Group;
- ii. state the estimated additional funds required to complete performance of the Cost Control Group;
- iii. describe the manner in which those additional funds will be expended by cost element dollars;
- iv. provide an explanation of the causes for the projected increase;
- v. provide recommendations of possible alternatives available; and
- vi. state the impact, increase or decrease, on schedule for completion of the work (if any).

Following the Contractor's notification of a projected cost growth on any Cost Control Group, the PMG shall determine: (1) whether funds are available from another Cost Control Group as the result of an "underrun," (2) whether to proceed with the specific task and/or recommend other appropriate action to the Contracting Officer.

Following consideration by the PMG, a recommendation for or against contract modification shall be made by the PMG to the Contracting Officer, and if the Contracting Officer can support the PMG's recommendation, a contract modification shall be issued accordingly.

- f. Cost overruns or underruns shall be recorded by the Contractor on a cumulative basis for each Cost Control Group. Should there be a cost growth within scope in the Total Estimated Cost set forth in Article III, the following cost shares shall apply up to 20% of the Total Estimated Cost (See Article III):

Commission	34.9%
Institute	3.1%
Owners	22%
Contractor	40%



- g. Financial reports on each of the Cost Control Groups shall be provided monthly. These reports shall provide:
- i. Total contract dollars expended;
  - ii. Monthly and total expenditure allocations for each party;
  - iii. Technical status of work and comparison with projected schedule and milestones by subtask; and
  - iv. Potential and identified problems, proposed resolutions, and options by subtask and recommendations.

The following shall be provided by control groups:

- v. Monthly and total expenditures and a comparison with the projected expenditure schedule;
- vi. Estimated deviation in projected expenditure rate for cost to complete;
- vii. Projected next month billing; and
- viii. Status of outstanding major (\$100,000 or greater) purchase orders.

#### ARTICLE IV - ALLOWABLE COST AND PAYMENT

- A. For the performance of this contract, the Commission and the Institute, in accordance with the Share Provision of ARTICLE III A, shall pay to the Contractor:

The cost thereof (hereinafter referred to as "allowable cost") determined by the Contracting Officer and the Authorized Representative of the Institute to be allowable in accordance with:

- 1. Subpart 1.15.2 of the Federal Procurement Regulations (41 CFR 1-15.2), as in effect on the date of this contract;
- 2. The terms of this contract; and
- 3. For the purposes of the contract, an IR&D ceiling not to exceed four (4) percent shall remain in effect.

- B. Once each month (or at more frequent intervals, if approved by the Contracting Officer for the Commission or by the Authorized Representative for the Institute), the Contractor may submit to the Contracting Officer for the Commission and the Authorized Representative for the Institute, in such form and reasonable detail as they may require, an invoice or voucher supported by a statement of costs incurred by the Contractor in performance of this contract and claimed to constitute allowable costs. For this purpose, except as provided herein with respect to pension contributions, the



term "costs" shall include only those recorded costs which result, at the time of the request for reimbursement, from payment by cash, check, or other form of actual payment for items or services purchased directly for the contract, together with (when the Contractor is not delinquent in payment of costs of contract performance in the ordinary course of business) costs incurred, but not necessarily paid, for materials which have been issued from the Contractor's stores inventory and placed in the production process for use on the contract, for direct labor, for direct travel, for other direct in-house costs, and for properly allocable and allowable indirect costs, as is shown by records maintained by the Contractor for purposes of obtaining reimbursements under Government contracts plus the amount of progress payments which have been paid to the Contractor's sub-contractors under similar cost standards. In addition, when pension contributions are paid on a quarterly or more frequent basis, accruals therefore may be included in indirect costs for payment purposes provided that they are paid to the fund within thirty (30) days after the close of the period covered. If payments are not made to the fund within such thirty (30) day period, pension contribution costs shall be excluded from indirect costs for payment purposes until payment has been made. The restriction on payment more frequently than biweekly and the requirement of prior payment for items or services purchased directly for the contract shall not apply when the Contractor is a small business concern.

- C. Promptly after receipt of each invoice or voucher, the Commission and the Institute shall review and certify each invoice or voucher and make payment of the amount thereon, as approved by the Contracting Officer and the PMG Representative on behalf of the Commission and Institute, respectively, directly to the Contractor. Such payment of indirect costs shall be made initially on such provisional payment as is mutually agreed upon in writing from time to time by the Contractor, the Institute and the Contracting Officer; however, the elements of indirect cost and the base or bases used in computing provisional payments shall not be construed as indicating the elements of cost to be distributed or the base or bases of distribution to be employed in determining the actual indirect costs hereunder. Within one hundred twenty (120) days following the close of the Contractor's fiscal year or the completion of work under the contract, or at such other times as are mutually agreeable, the final indirect costs shall be determined.

Any failure of the parties to agree upon such final indirect costs shall be resolved under the contract "Disputes" clause. Following each such determination, the necessary adjustments shall be made with respect to the pertinent amount or amounts, provisionally paid. Prior to final settlement of the entire contract, the final indirect costs so determined shall be subject to appropriate adjustment for errors, omissions or other reasons.

- D. At any time or times prior to final payment under this contract, the Contracting Officer and the Authorized Representative of the Institute may have the invoices or vouchers and statements of cost audited. Any audit by the Institute shall be in conformance with the audit procedures set forth in the most recent Institute/Contractor Master Agreement in effect at the time such audit is to be performed. Each payment theretofore made

shall be subject to reduction for amounts included in the related invoice or voucher which are found by the Contracting Officer or the Authorized Representative of the Institute, on the basis of such audit, not to constitute allowable cost. Any payment may be reduced for overpayments, or increased for underpayments, on preceding invoices or vouchers.

- E. On receipt and approval of the invoice or voucher designated by the Contractor as the "completion or final invoice" or "completion or final voucher" and upon compliance with the Contractor with all the provisions of this contract (including without limitation, the provisions relating to patents and the provisions of (F), below), the Commission and the Institute shall promptly pay to the Contractor any balance of allowable cost, which has been withheld pursuant to (C), above, or otherwise not paid to the Contractor. The completion invoice or voucher shall be submitted by the Contractor promptly following completion of the work under this contract but in no event later than one year (or such longer periods as the Contracting Officer and the Authorized Representative of the Institute may in their discretion approve in writing) from the date of such completion.
- F. The Contractor agrees that any refunds, rebates, credits, or other amounts (including any interest thereon) accruing to or received by the Contractor or any assignee under this contract shall be paid by the Contractor to the Government and the Institute and the Owners to the extent that they are properly allocable to costs for which the Contractor has been reimbursed by the Government, the Institute and the Owners under this contract. Reasonable expenses incurred by the Contractor for the purpose of securing such refunds, rebates, credits, or other amounts shall be allowable costs hereunder when approved by the Contracting Officer and the PMG Representative of the Institute, and the B&W Owners Group. Prior to final payment under this contract, the Contractor and each assignee under this contract whose assignment is in effect at the time of final payment under this contract shall execute and deliver:
  - 1. An assignment to the Commission, the Institute, and the Owners, in form and substance satisfactory to the Contracting Officer and the Authorized Representative of the Institute, of refunds, rebates, credits, or other amounts (including any interest thereon), properly allocable to costs for which the Contractor has been reimbursed by the Commission, the Institute, and the Owners under this contract; and
  - 2. A release discharging the Commission, Owners, and Institute, their officers, agents, and employees from all liabilities, obligations, and claims arising out of or under this contract, subject only to the following exceptions:
    - a. Specified claims in stated amount or in estimated amounts where the amounts are not susceptible of exact statement by the Contractor;

- b. Claims, together with reasonable expenses incidental thereto, based upon liabilities of the Contractor to third parties arising out of the performance of this contract; provided, however, that such claims are not known to the Contractor on the date of the execution of the release; and provided further, that the Contractor gives notice of such claims in writing to the Contracting Officer, the Authorized Representative of the Institute and Owners not more than six (6) years after the date of the release or the date of any notice to the Contractor that the Government and the Institute are prepared to make final payment, whichever is earlier; and
  - c. Claims for reimbursement of costs (other than expenses of the Contractor by reason of its indemnification of the Commission, the Institute and Owners against patent liability), including reasonable expenses incidental thereto, incurred by the Contractor under the provisions of this contract relating to patents.
- G. Any costs incurred by the Contractor under the terms of this contract which would constitute allowable costs under the provisions of this clause shall be included in determining the amount payable under this contract, notwithstanding any provisions contained in the specifications or other documents incorporated in the contract by reference, designating services to be performed or materials to be furnished by the Contractor at his expense or without cost to the Commission, the Institute and the Owners.

#### ARTICLE V - OVERHEAD/GENERAL AND ADMINISTRATIVE RATES

- A. Pending the establishment of final overhead rates which shall be negotiated based on audit of actual costs, the Contractor shall be reimbursed for allowable indirect costs hereunder at the provisional rate of 215% of Total Direct Labor.
- B. Pending the establishment of final General and Administrative rates which shall be negotiated based on audit of actual costs, the Contractor shall be reimbursed for allowable indirect costs hereunder at the provisional rate of 19.7% of Total Direct Cost and Overhead.
- C. Notwithstanding A. and B. of this Article, said provisional overhead and G&A rates may be adjusted as appropriate during the term of the contract upon the acceptance of such revised rates by the Contracting Officer and the Authorized Representative of the Institute.

#### ARTICLE VI - PROGRAM MANAGEMENT

- A. Program management of the work will be accomplished by a four-member Program Management Group (PMG) consisting of a technical representative from each of the IST program participants, including the B&W Owners Group. The Chairmanship of the PMG shall be on a rotating basis among the four members for successive meetings. It is the intention of the parties that the work of the PMG will be carried out with mutual agreement. However, if a disagreement arises that cannot be resolved in a cooperative manner,

the matter will be referred to progressively higher levels of management for resolution up to the Director, Office of Nuclear Regulatory Research - NRC, Director, Nuclear Power Division - EPRI, the Vice President, Research and Development Division and Contract Research Division - B&W, and the chairman of the B&W Owners Group Executive Committee. If the disagreement cannot be resolved by these parties, the Director, Office of Nuclear Regulatory Research, NRC will have final determination. A broad outline of the duties and responsibilities of the Program Management Group is set forth as follows.

1. Duties of the PMG are to monitor the project for:
  - a. The design, testing and analysis efforts are appropriate for meeting the program objectives.
  - b. The schedules are reasonable and that costs for each major task are within the relative amounts allocated under the contract and that the total costs are within the amount set forth in the contract.
  - c. Design, testing and analysis efforts are consistent with the contract scope.
  - d. Respective organizational management is informed of the progress of work, problems which arise, and of requirements to revise the scope, if necessary.
  - e. Routine program direction to the Contractor is provided.
  - f. Upper management approval is obtained for:
    - i Work scope changes resulting in an increase to the Total Estimated Costs
    - ii Total Program Funding changes
    - iii Yearly funding commitments
    - iv Period of performance changes
2. In the performance of its duties, it is anticipated that the PMG will:
  - a. Meet routinely (approximately quarterly) for the purposes of reviewing technical progress, special problems, budgets, and recommendations from Program sponsors.
  - b. Alternate the meeting sites to share the burden of travel expenses equally among the participants.
  - c. Conduct routine business by telephone, to the maximum extent practical.
  - d. Identify clearly any areas of disagreement for resolution.
  - e. Utilize consultants as appropriate.

- f. Resolve comments on those reports which are specified in the Statement of Work, Appendix B.
  - g. Evaluate Contractor recommendations to the PMG and make technical decisions as identified in the Statement of Work.
  - h. Review and approve requests on a schedule as recommended by the Contractor or as otherwise modified by the PMG.
3. The chairman will be responsible for arranging the meetings and assuring that an appropriate agenda is developed in advance. The Contractor's PMG representative will be responsible for preparing meeting minutes.
- B. Information Type Technical Discussions. Technical direction of the work hereunder shall be furnished to the Contractor in accordance with the above; however, technical matters that are informational in nature may be discussed independently with the Contractor by Commission, Institute, or the Owners by telephone, and through in-person visits without obtaining the concurrence of the other parties. In those instances, however, an effort shall be made by the Commission, the Institute, or the Owners to include the other parties in those discussions prior to their occurrence. As a minimum, the party initiating such discussions shall advise the other parties of the discussions and their contents as soon as practicable after they occur and shall additionally furnish copies of pertinent documentation relating to the discussions.

#### ARTICLE VII - REPORTS

- A. The Contractor shall provide reports in the quantity and frequency as scheduled in the attached Appendix B. The said reporting schedule and requirements may be revised by the mutual agreement of the PMG members without further formal modification to this contract.
- B. The Commission, the Institute, the Contractor, and the Owners shall receive equal identification on all published reports and similar documents, and in oral presentations, together with such notices and prepublication copies as are deemed appropriate. The design, numbering system, color scheme, etc., of the covers of the formal reports to be submitted by the Contractor, in accordance with the terms of this contract, will be resolved informally by the PMG.
- C. The following legal notice shall be affixed to each report furnished by the Contractor to the Commission, the Institute, and the Owners hereunder and to any report resulting from this Agreement which may be distributed outside of the Commission, the Institute, and the Owners:

#### "Legal Notice"

This report was prepared by the Babcock & Wilcox Company as an account of work sponsored by the Nuclear Regulatory Commission, the Electric Power Research Institute, the Babcock & Wilcox Company, and the B&W Owners Group. No person acting on behalf of the NRC, the Institute, members of the Institute, the Babcock & Wilcox Company, or the B&W Owners Group:



1. Makes any warranty, express or implied, with respect to the use of any information, apparatus, method, or process disclosed in this report or that such use may not infringe privately owned rights; or
2. Assumes any liabilities with respect to the use of, or for damage resulting from the use of any information, apparatus, method, or process disclosed in this report."

ARTICLE VIII - TRAVEL REIMBURSEMENT

- A. The Contractor will be reimbursed for reasonable domestic travel costs incurred directly and specifically in the performance of this contract and accepted by the Contracting Officer, in accordance with the Contractor's approved travel policy on file with the NRC.
- B. If foreign travel is required in the performance of this contract, General Provision Clause 3.5, "Preference for U.S. Flag Air Carriers," applies.

All requests for foreign travel must be submitted for approval on NRC Form 445 at least 45 days in advance of the proposed travel. NRC Form 445 may be obtained from the PO listed in Article XI or the Division of Contracts. Additional guidance is furnished by FPR 1-1.323-3.

ARTICLE IX - SUBCONTRACTING PROGRAM FOR SMALL BUSINESS AND SMALL DISADVANTAGED BUSINESS

- A. The Contractor has established, in its subcontracting plan, which is incorporated herein by reference, the following goals for awards to small business concerns:
  1. Small Business Concerns: Thirty (30) percent of total estimated subcontract cost under this contract will go to subcontractors who are small business concerns. Total dollars planned to be subcontracted to small business concerns are estimated to be \$1,200,000.
  2. Small Disadvantaged Business Concerns: Two (2) percent of total estimated subcontract costs under this contract will go to subcontractors who are small business concerns owned and controlled by socially and economically disadvantaged individuals. Total dollars planned to be subcontracted to small disadvantaged business concerns are estimated to be \$80,000.

ARTICLE X - KEY PERSONNEL

Pursuant to this ARTICLE (Key Personnel), the following individuals are considered to be essential to the successful performance of the work hereunder and shall not be replaced without the prior approval of the Contracting Officer. In such event, the Contractor agrees to substitute persons possessing substantially equal abilities and qualifications satisfactory to the Contracting Officer.

H. R. CARTER- B&W Program Manager, PMG Representative,  
and ARC Technical Manager  
Chuck Morgan- B&W Senior Technical Consultant  
Jim Gloudemans - UPGD Technical Coordinator

#### ARTICLE XI - PROJECT OFFICER AND PMG REPRESENTATIVE

William Beckner is hereby designated as the Contracting Officer's authorized representative (hereinafter called Project Officer) for technical aspects of this contract. The Project Officer is not authorized to approve or request any action which results in or could result in an increase in contract cost; or terminate, settle any claim dispute arising under the contract; or issue any unilateral directive whatever.

The Project Officer is responsible for: (1) monitoring the Contractor's technical progress, including surveillance and assessment of performance, and recommending to the Contracting Officer changes in requirements; (2) interpreting the scope of work; (3) performing technical evaluation as required; (4) performing technical inspections and acceptances required by this contract; and (5) assisting the Contractor in the resolution of technical problems encountered during performance. Within the purview of this authority, the Project Officer is authorized to review all costs requested for reimbursement by the Contractor and submit recommendations for approval, disapproval, or suspension for supplies and services required under the contract. The Contracting Officer is responsible for directing or negotiating any changes in terms, conditions, or amounts cited in the contract.

For guidance from the Project Officer to the Contractor to be valid, it must: (1) be consistent with the description of work set forth in the contract; (2) not constitute new assignment of work or change to the expressed terms, conditions or specifications incorporated into this contract; (3) not constitute a basis for an extension to the period of performance or contract delivery schedule; and, as stated above; (4) not constitute a basis for any increase in the contract cost.

#### ARTICLE XII - OTHER UNDERSTANDINGS AND AGREEMENTS

- A. Commission/Institute and Owners Relationship. The Commission, the Institute, and the Owners shall share in the benefits and costs under this contract in accordance with the terms of the contract. Any change to be effective under the Changes clause of the General Provisions (Appendix A) and any other term of the contract, that involves a change in the scope of the work and/or an adjustment in price or time for performance, including any final findings of fact and decision, shall be in writing and signed by both the Contracting Officer for the Government and the Authorized Representative of the Institute; provided, however, that in the event of a dispute by the Contractor, the Government shall represent the interest of the Government, the Institute, and the Owners in resolving claims submitted by the Contractor pursuant to the Changes and Disputes clauses, respectively, of the General Provisions (Appendix A). The reference to the Government and/or the Commission in the attached General Provisions (Appendix A), specifically Clauses 1.17, 1.18, 2.3, 2.12, 4.1, 4.3, 5.2, and 5.16 shall apply equally to the Institute.



- B. Site Representatives. The Commission, Owners, and the Institute reserve the right to utilize the services of Site Representative(s) who shall reside at the Contractor's Facility. The Site Representative(s) shall have no program management authority and may be either a Commission, Owners, or Institute employee, contractor or consultant exclusive of competitors of the Contractor. The Contractor shall provide the necessary project related facilities and resources for up to three site representatives. The Sponsors will provide all non-project related facilities, resources, and project-related travel for the site representative(s). Access of the site representative(s) to Contractor's facility will be controlled according to Contractor's policy with respect to working hours and access requirements.

At least thirty days prior to assigning a site representative to the Contractor, the Sponsors shall identify in writing the individual, expected arrival date, duration of stay and the individual's resume.

Contractor may request an interview with the individual. Based on the interview, the Contractor may require another representative with different technical qualifications for assignment as a site representative.

At least two weeks prior to the planned arrival date for the site representative(s), the duties and responsibilities will be mutually agreed to by the Contractor and Sponsors.

At any time, during the site representative(s) term, the Contractor may, after 2 weeks notification to the Sponsors, unilaterally discharge the site representative(s).

It is understood that the site representative(s) may change. Under normal procedure, the Contractor should be notified in writing at least 30 days prior to the expected termination date of the current site representative(s).

- C. Data Storage. Engineering data obtained from tests conducted under the contract shall be stored on magnetic tape and shall be retained by the Contractor during the contract period. Upon completion of the contract, the magnetic tapes and instructions for access to the information contained thereon are to be stored at a repository(ies) suitable to the parties.
- D. Close-Out Costs. Upon completion of the work under this contract, all costs associated with close-out of the contract are to be shared by the parties as follows:
1. Commission - 42.3%
  - Institute - 3.8%
  - Contractor - 27.1%
  4. B&W Owners Group - 26.8%

- E. Termination. It is understood and agreed that the Institute, or the Owners may, after giving thirty (30) days written notice to the other parties, terminate their participation in this contract. Pursuant to the Termination for Default or for Convenience of the Government clause of the General Provisions (Appendix A) the Commission may terminate its participation in this contract. Said notices shall be accompanied by a written statement

of the reason(s) for such termination. The settlement costs shall be shared equally by the Institute, the Commission, and the Owners subject to the limitation of obligations in Article III and in no event shall the Contractor be liable for payment of such settlement costs. The Contractor may rely upon any notice of Termination for Convenience received from either the Commission, the Institute, or the Owners.

- F. RELAP5 Computer Code. The Contractor shall provide its version of the RELAP5 Computer Code (REDBL) to the program participants (Commission, the Institute, and the Owners) on a proprietary basis approximately April 1984. Program participants shall hold the RELAP5 Computer Code proprietary until they have assured themselves of the veracity of the Code. It is therefore anticipated that the Computer Code will be released to the public domain approximately June 1986.

In the event that any version of the RELAP5/MOD2 code is used by the Contractor to perform any of the analysis specified in Appendix B, this RELAP5/MOD2 version shall be made available to the program participants subject to the following conditions. Written request should be transmitted to the Commission's, Reactor Systems Research Branch, Division of Accident Evaluation, Office of Nuclear Regulatory Research. The code shall be transmitted to the requesting party or user following receipt of a signed commitment that:

1. User will not release the code software to any third party.
2. User will immediately notify the NRC of any reactor safety problem which may be uncovered through the use of the code, as per 10 CFR 21 and 10 CFR Part 50.50a, as applicable.
3. If User discovers code errors, User will communicate these errors to the code developers at the Idaho National Engineering Laboratory (INEL).
4. User will make the results of the code used available to the NRC.
5. If User makes any improvement and/or modification to the code, these improvements or modifications will be made available to the NRC. Should code improvements and modifications, or the results of code use, be determined to be company proprietary, the NRC will utilize its procedures to protect such information.
6. If User requires INEL assistance to implement and/or use this software, the assistance will be given on a cost recovery basis and will be negotiated in a separate agreement with the NRC.

G. Owners Participation

The Owners are comprised of the following eight utility companies at this time:

Arkansas Power and Light Company  
Duke Power Company  
Florida Power Corporation

GPU Nuclear Corporation  
Sacramento Municipal Utility District  
Tennessee Valley Authority  
Toledo Edison Company  
The Supply System

The Owners, both jointly and separately, shall be deemed to be "Sponsors" of the program, and therefore, shall not be considered to be subcontractors within the context of the General Provisions set forth in Appendix A. Although the individual members of the Owners are not parties signatory to this contract, they will be providing cost contributions to the IST Program as follows:

1. Contribution of GERDA data, valued at \$2,500,000.
2. Contribution of IST benchmarking, valued at \$1,000,000.
3. Funding contributions of \$4,945,929 through contractual arrangements with the Contractor.

It is understood, and agreed by the Owners, that if the actual cost of the IST benchmarking should be less than \$1,000,000 or the actual cost of the GERDA data should be less than \$2,500,000, then the differential shall be contributed towards the total program cost in the form of a cash contribution.

Further, as reflected in the General Provisions of this contract and the alterations thereto, the Owners shall be entitled to receive program data to the same extent and on the same schedule as the parties to this contract.

#### H. External IST Program Testing

1. Concurrent Test Rights - In the event that an IST program participant or third party desires to conduct test(s) on the MIST facility, which are to be performed concurrently with the existing IST Program test matrix and through Phase III program conclusion, the IST parties agree to the following:

The interested IST program participant(s) or third party shall submit a written request to each of the PGM Representatives. The request shall state the proposed test objectives, schedule and cost. The Contractor shall assist the interested party in determining testing cost, duration and IST test schedule and/or cost impact. Cost for the additional testing and any cost impact due to a delay to the IST Program shall be charged to the party requesting the additional testing. The PMG shall provide the interested party with its decision within ten (10) working days following receipt of the proposal. The Contracting Officer shall be notified by the PMG of any recommendation to proceed with concurrent tests. Written approval from the Contracting Officer to the Contractor shall be required prior to initiation of any concurrent tests. Rights to data resulting from any additional testing shall vest as follows:

- If a third party wishes to perform tests concurrent to the IST Program, then rights to resulting test data shall vest in that

third party as well as in all IST Program participants. IST program participant(s) shall not be billed for facility hold charges during third party concurrent test(s).

- If an IST Program participant wishes to perform additional tests, then rights to resulting test data shall vest in the Commission, the Institute, the Contractor and the IST Participant(s) who funded the additional testing. The resulting data shall not be released by the Commission, the Institute, or the Contractor to any other party without the written consent of the participant(s) funding the test(s).

In either case, data resulting from additional tests shall be transmitted by the Contractor to the data bank at INEL. IF the subject data are determined to be proprietary by the funding participant(s) or the third party, then the Commission, the Institute, and the Contractor shall utilize their procedures to protect these data.

2. Future Test Rights - It is recognized that the IST Program participants, either jointly or separately, or other third parties may wish to perform research work on the IST program MIST facility following conclusion of the IST Phase III program. The interested IST participant or third party shall submit to each of the PMG Representatives, a written request which includes the proposed test objectives, scope of work and expected duration. Following the completion of the Phase III IST Program (as specified under Article II - PERIOD OF PERFORMANCE), the IST Program participants for a period of one (1) year:

- Shall have pre-emptive rights over third parties to perform additional testing on the MIST facility. This pre-emptive right may be exercised by notifying the contractor 30 days prior to the planned test start date of the interested IST party.
- Shall have the right to refuse a third party to utilize the MIST facility for testing. Reasons for any refusal (i.e., modifications of facility, possible damage of facility, etc.) shall be provided to the PMG parties and the Contracting Officer. The Contracting Officer shall notify the third party of the PMG's decision.
- Shall not be assessed by the Contractor any special "facility use charges" or be charged any amortization costs related to the MIST facility.
- Shall have rights to any data resulting from third party testing on the MIST facility.

#### I. Program Interruption by Brown Boveri Reaktor

It is recognized by the parties to this contract that the Contractor has been required to negotiate modifications to its existing contract with BBR in order to secure use of its test facility for the IST program and that the B&W Owners Group shall purchase certain data from BBR which will be contributed to the

program for the benefit of the participants. These transactions have generated certain rights in BBR with respect to program data and have resulted in the imposition of certain restrictions regarding facility usage and dissemination of data, as set forth below. (The items listed below have been taken essentially verbatim from the contractual documents governing the transactions with BBR, and in this context, the expression "1 x 1" is synonymous with "GERDA," the expression "upgraded GERDA" is synonymous with "OTIS," and the expression "2 x 4" is synonymous with "MIST.")

#### 1. B&W Owners Group Agreement With BRR

The B&W Owners Group, upon signing a confidentiality agreement with the Contractor subject to BRR approval, shall have the right to receive the "Data" as defined in 2 below, to release the "Data" to the U.S. Nuclear Regulatory Commission (NRC) and the Electric Power Research Institute (EPRI) under a similar duty of confidentiality, and to use the "Data" at anytime in response to licensing questions. The B&W Owners Group, NRC, EPRI, and their contractors shall have the right to use the "Data" in a confidential manner and within the United States for the development of models and the assessment of computer codes. In this regard, the NRC anticipates publishing a nonproprietary code assessment report at some point after July 1984. All duties of confidentiality with respect to the "Data" shall cease when MIST data becomes available (presently expected to be in the second half of 1986).

#### 2. GERDA Data Scope of Disclosure

Subject to the provisions set forth herein, Contractor may provide the B&W Owners Group, the NRC, and the EPRI with full access and right to copy and use the following information created as part of the GERDA Test Program currently being performed by Contractor for BBR, which shall hereinafter be referred to as "Data." The right to access and use shall be on a proprietary basis.

##### a. Planning Reports

- Phase 0 Test Specifications and Results
- Test Facility Functional Specification
- Auxiliary Feedwater Benchscale Test Report
- Drawings and Specifications for the test loop and associated instrumentation
- Facility manuals and operating procedures
- Project Technical Plan
- Contractor's Alliance Research Center Technical Procedures.
- Design Requirements Report
- Test Specifications



b. Quick Look Reports

Each report will contain a brief test specification, a discussion of major observations and test acceptability, and preliminary data scanned for validity. The Quick Look Reports will be provided to the B&W Owners Group, the NRC, and the EPRI after they are approved by BBR.

c. Final Report

This report will be issued after Phase I GERDA testing is completed. The final report will be comprehensive and self-contained, and will include all certified and interpreted test data for all Phase I GERDA tests. The Final Report will be provided to the B&W Owners Group, the NRC, and EPRI after it is approved by BBR.

d. Data Tapes

Data tapes generated in Phase I GERDA testing will be available to the B&W Owners Group, the NRC, and EPRI. They will be furnished a listing of tapes. With this information, they can access Contractor's CDC computer and copy the tapes directly or Contractor may copy the tapes as requested by them. It is intended that the data tapes remain proprietary.

3. BBR Right to OTIS Facility

If significant technical issues should arise, either during the BBR 1 x 1 tests or during evaluation/review of the BBR 1 x 1 data by BBR or the RSK, and these issues should require BBR to perform additional testing in the GERDA facility of its 1 x 1 successor, then BBR shall notify Contractor with a description of the proposed additional testing and test schedule and allowance will be made by either delaying the July 1, 1984 turnover date, if required, or by other suitable means acceptable to BBR.

Modifications of the GERDA upgraded version require BBR approval or Contractor assurance that Contractor can bring the facility to the original October 1, 1983 condition, without cost to BBR, for initiating the new BBR tests within 30 days.

4. BBR Rights to OTIS Data

The OTIS final report will be sent to BBR on a proprietary basis. The data tapes from the OTIS test program will be available to BBR in the United States at Contractor's Lynchburg office.

BBR may use the data in support of licensing activities on a proprietary basis. The data may not be used by BBR for any other purpose.

5. BBR Use of MIST Facility

If a licensing issue is identified in writing from the German Licensing Authorities (RSK, TUEV, or Ministries) which impacts the startup schedule or the licensed operating power level of the M-K plant, BBR will be provided timely access to the 2 x 4 facility. If priorities for use of the

facility become a problem, they will be mutually resolved between BBR, B&W, and the representatives of the 2 x 4 test program.

In case of BBR testing on this facility, the Institute, Commission and Owners shall bear no cost as a result of preparation for testing, for operating the facility and for testing or restoration of the facility to a condition comparable to that which existed prior to the interruption.

6. BBR Use of MIST Data

The Quick Look Reports prepared by B&W for this MIST program will be made available to BBR upon request. These reports will be proprietary since they will precede anticipated summary reports to be published by the NRC and EPRI for the public domain.

The above mentioned information will be without charge to BBR.

NOTE: The parties to the IST Program understand and agree that should BBR exercise its rights to interrupt the program prior to July 1, 1984, the schedule shall be appropriately adjusted and the allocation of any resultant cost increase shall be borne by the contracting parties in accordance with the following cost share ratios: The Commission - 42.3%, the Institute - 3.8%, the Owners - 26.8%, and B&W - 27.1%. For those interruptions subsequent to July 1, 1984, any resultant cost increases shall not be borne by the Commission, the Institute, or the Owners.

ARTICLE XIII - GENERAL PROVISIONS AND ALTERATIONS AND ADDITIONS

A. General Provisions - Appendix A

The General Provisions of this contract consist of the "Cost Type Research and Development Contracts With Commercial Organizations," Appendix A - General Provisions revised December 1, 1981, attached hereto, and by this reference made a part hereof.

B. Alterations

Appendix A - General Provisions is hereby modified as follows:

Clause 1.5, entitled "Standards of Work" is deleted in its entirety.

Clause 1.17 entitled "Dissemination of Contract Information" is deleted in its entirety and a new clause "Dissemination of Contract Information," as shown below, is substituted in lieu thereof.

Clauses 1.18 and 1.19, entitled "Private Use of Information and Data" and "Drawings, Designs, Specifications," respectively, are deleted in their entirety and a new Clause 1.18 entitled "Drawings, Designs, Specifications, and Private Use of Contract Information and Data," is substituted in lieu thereof.



MODIFICATION NO. 9

Clause 2.3, entitled "Key Personnel," is deleted in its entirety and a new Clause 2.3 entitled "Key Personnel," is substituted in lieu thereof.

Clause 2.3 is modified as follows: All references to "the Contracting Officer" or "the Contracting Officer or his representatives" shall be read as "the Contracting Officer and the Authorized Representative of the Institute" or "the Contracting Officer or his representative and the Authorized Representative of the Institute."

Clause 2.5, entitled "Subcontracts" is modified as follows: The advance notification set forth in paragraphs (a) and (b) shall be required only for those proposed subcontracts (of any type) which are expected to exceed \$100,000.

Clause 2.9 entitled "Changes" is modified to delete all references to fee, fixed fee, and any applicable provision thereto wherever they appear, in their entirety.

Clause 2.10 entitled "Inspection" is revised to the extent that all references to the "Government" shall mean the "Commission and the Institute."

Clause 2.11, entitled, "Required Source for Jewel Bearings," is deleted in its entirety.

Clause 2.12, entitled "Government Property" is deleted in its entirety and a new Clause 2.12, entitled "Property," is substituted in lieu thereof.

Clause 4.1, entitled "Patent Rights - Acquisition by the Government" is deleted in its entirety and a new Clause 4.1, entitled "Patent Rights," is substituted in lieu thereof.

Clause 4.2, entitled "Patent Indemnification of Government by Contractor," is deleted in its entirety and a new Clause 4.2, entitled "Authorization and Consent," is substituted in lieu thereof.

Clause 4.3, entitled "Rights in Copyrightable Material Under Contract" is deleted in its entirety and a new Clause 4.3, entitled "Copyright," is substituted in lieu thereof.

Clause 4.4, entitled "Copyright Indemnification of Government" is deleted in its entirety.

Clause 5.1, entitled "Limitation of Cost" is deleted in its entirety.

Clause 5.2, entitled "Limitation of Funds (Cost Sharing)," the word "Parties" is substituted for the word "Government" and all references to fee, fixed fee, and any applicable provision thereto wherever they appear are deleted in their entirety.

Clause 5.4, entitled "Allowable Cost and Payment" is deleted in its entirety and a new clause entitled "Allowable Cost and Payment" is substituted in lieu thereof as Article IV.

Clause 5.7, entitled, "Termination for Default or Convenience of the Government" is modified to delete all references to fee, fixed fee, and any applicable provision thereto wherever they appear, in their entirety.

ARTICLE XIV - APPENDICES

- A. Appendix A - General Provisions, Cost Type Research and Development Contracts With Commercial Organizations, dated December 1, 1981.
- B. Appendix B - Integral System Test Program Workscope
- C. Appendix C - 3202 Manual Chapter - Reports
- D. Appendix D - Billing Instructions for NRC Cost-Type Contracts

ARTICLE XV - CONTENT OF CONTRACT

This contract consists of pages 1 through 24 and the appendices noted in Article XIV.

ARTICLE XVI - ORDER OF PRECEDENCE

In the event of an inconsistency between the provisions of this contract, the inconsistency shall be resolved by giving precedence in the following order:

- 1. Schedule consisting of pages 1 through 24 including ARTICLES I through XVI.
- 2. General Provisions - Appendix A.
- 3. Program Workscope - Appendix B.
- 4. All other provisions of the contract, whether incorporated by reference or otherwise.

IN WITNESS WHEREOF, the parties have executed this contract.

U.S. NUCLEAR REGULATORY COMMISSION

By: Paul J. Edwards  
Contracting Officer  
Technical Contracts Branch  
Division of Contracts

1/16/86  
date

ELECTRIC POWER RESEARCH INSTITUTE

By: Robert W. Walker  
ROBERT W. WALKER  
CONTRACTS MANAGER  
ADMINISTRATION

1/13/86  
date

THE BABCOCK & WILCOX COMPANY

By: N. F. Smith  
N. F. Smith, Manager  
Contract Management Dept., CRD

12/13/85  
date