AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
J	1 of 5

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)
P00001	31-May-2005	W66QKZ-3219-4546	

6. ISSUED BY	CODE	7. ADMINISTERED BY (If other than item 6)	CODE
US ARMY CORPS OF ENGINEERS 333 SW FIRST AVE PORTLAND OR 97204-3495	W9127N	US ARMY CORPS OF ENGINEER DAVID A EBNER 503-808-4611 DAVID.A.EBNER@USACE.ARMY.MIL PORTLAND OR	W9127N

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
ACTUATION TEST EQUIPMENT CO. DOUGLAS ALBRIGHT 3393 EDDIE RD. WINNEBAGO IL 61088		9A. AMENDMENT OF SOLICITATION NO.
		9B. DATED (SEE ITEM 11)
	X	10A. MOD. OF CONTRACT/ORDER NO. W9127N-04-D-0009
CODE 3H4P4 FACILITY CODE	X	10B. DATED (SEE ITEM 13) 26-May-2004

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer 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 completing Items 8 and 15, and returning _____ copies of the 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 ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS 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 each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).
X	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: Bi-lateral Agreement.
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return 1 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

This Modification extends the completion date and Modifies the Statement of Work as detailed on the following pages.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) TEL: EMAIL:	
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)	16C. DATE SIGNED

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

The following have been added by full text:

Section C - Descriptions and Specifications

AMENDED STATEMENT OF WORK
A TYPE 1 OPTIMIZER (INDEX TEST BOX)

There are 3 changes **(in BOLD)**. Part 1 (1.2) - Changes to POC; Part 3 (3.4.1)- new date; and Part 3 – (added Para 3.4.2.9a)

PART 1 GENERAL

1.1 BACKGROUND.

Type 1 optimization refers to the software and equipment to conduct automatic, unattended, index tests on Kaplan hydraulic turbines. An index test is a relative efficiency test performed to determine the shape of the optimum efficiency profile and the optimum cam curve to be inputted to the governor or control unit. A cam curve denotes the relation between the angle of the blades on the runner and the opening of the wicket gates, for a given head. This contract is intended to produce a working, prototype Type 1 Optimizer and validate the operational concept of the unit to conduct automatic, unattended, index tests on Kaplan hydraulic turbines.

1.2 POINTS OF CONTACT.

Project Manager:	**Edward Miska**	**503.808.4294**
Product Coordinator:	Wayne Todd	503.808.4278
HDC Contact:	**Edward Miska**	**503.808.4294**
Administration:	Leslie Conklin	503.808.4815
Contract Administrator:	David Ebner	503.808.4611
	George Williams	503.808.4615

1.3 HDC ADDRESSES.

Street Address:
USAED PORTLAND
Hydroelectric Design Center
Robert Duncan Plaza
333 S.W. First Ave., 8th Floor
Portland, Oregon 97204-3495

Mailing Address:
USAED, PORTLAND
Hydroelectric Design Center
P.O. Box 2946
Portland, Oregon 97208-2946

1.4 REFERENCES.

The contractor will coordinate efforts to conduct the prototype demonstration with the US Army Corps of Engineers Product Coordinator using the following references as guidelines:

American Society of Mechanical Engineers (ASME),
Power Test Code (PTC) 18 (latest revision)
International Electro-technical Commission (ETC),
Publication 41 (latest revision)

References are available upon request from the Product Coordinator.

1.5 MATERIALS AND INFORMATION TO BE PROVIDED TO THE GOVERNMENT.

1.5.1 Licensing as detailed in the Optimizer Special License Agreement in Section J of this Contract and in various clauses.

1.5.2 All data developed in performance of this contract that relates to operation of the McNary Dam Kaplan turbine is proprietary to the U.S. Government. The contractor does not gain or retain rights to operational data, except as specified in the Optimizer Special License Agreement in Section J of this Contract. See also DFAR 252.227-7013, DFAR 252.227-7025. All deliverables specified in 1.7.2.

1.6 GENERAL REQUIREMENTS.

The Contractor will provide all administration, plant, facilities, equipment, computer programming, design, labor, travel and work required to develop, test, manufacture, provide, install, proof of concept shop and field test, document and provide monthly progress reports, interim reports, and final reports for a prototype Index Test Box at McNary Dam for a Kaplan turbine unit.

1.7 DELIVERY.

1.7.1 The Contractor shall use a serialized transmittal letter to accompany all reports and other deliverables to the Hydro-Electric Design Center (HDC), Portland District. Facsimile and e-mail communications shall use the date and time of transmission as a reference.

1.7.2 Deliverables:

1.7.2.1 One prototype, complete, stand alone, demonstration Type 1 Optimizer single, independent system also known as an Index Test Box (ITB), which is removable and portable, that operates a Kaplan unit through the existing control system and collects the necessary data for prototype Kaplan cam analysis and development. Operates unattended and provides data in a standard format for analysis of blade to gate relationships versus as found operational parameters in a format consistent with existing Government equipment, processes and procedures.

1.7.2.2 A complete prototype source code listing for any code developed under this contract. Reference the Optimizer Special License Agreement in Sec. J, FAR 52.227-14, DFAR 252.227-7014, DFAR 252.227-7013, DFAR 252.227-7016, DFAR 252.227-7019. Any pre-developed code shall be as a self-contained module and identified by form, fit and function, including inputs and outputs.

1.7.2.3 A complete prototype parts list with drawings.

1.7.2.4 An instruction manual, including installation, operation and maintenance of the prototype, Type 1 Optimizer.

1.7.2.5 Any required software and hardware to reduce and analyze the recorded test data and present the results in a standard format, with engineering units as customarily used in the US. Reference FAR 52.227-14, DFAR 252.227-7014, DFAR 252.227-7013, DFAR 252.227-7016, DFAR 252.227-7019, DFAR 252.227-7037

1.7.2.6 A data storage capability that will allow the historical compilation of performance data on each generating unit in a powerhouse.

1.7.2.7 Demonstration of the prototype both independently and on an operating Kaplan unit, both with and without fish screens.

1.7.3 Reports and progress reports. Letter progress reports are to be submitted on at least a monthly basis. These shall list work accomplished, problems encountered, and work remaining. Milestone accomplishment letter reports shall also be submitted with each billing statement.

1.7.4 Additional, complete, programmed Index Test Boxes as specified herein.

PART 2 PRODUCTS

2.1 WORD PROCESSOR SYSTEMS.

The Contractor shall use MS Word 2000 for all typed documents delivered to HDC. The Contractor shall use CDs for all submittals and deliveries to HDC. If an earlier version of Word is used, it shall be coordinated in advance and approved by the Government prior to use.

PART 3 EXECUTION

3.1 PROTECTION.

The Contractor shall make every effort to protect the electronic data generated to create the "deliverables" from system errors, erasures, damage, read/write failures, viruses, etc. The Contractor shall maintain a backup file of all work items at the close of each working day.

3.2 (reserved).

3.3 SCOPE OF WORK.

3.3.1 Compatibility:

3.3.1.1 The prototype Type 1 Optimizer shall be compatible with the electronic control units on the turbine-generators at the McNary powerhouse.

3.3.1.2 The prototype Type 1 Optimizer shall be designed and developed so that it is capable of being integrated into the existing Generic Data Acquisition and Control system (GDACS) system with a minimal amount of modification.

3.3.2 Inputs and Outputs:

3.3.2.1 It is the Contractor's responsibility to assess the type and quality of data or signal inputs available from the already installed powerhouse instrumentation.

3.3.2.2 The outputs of the prototype Type 1 Optimizer are to be a data field and resulting relative efficiency profile with a corresponding cam curve at two-foot intervals of gross head. The outputs shall be observable on the device and be provided in electronic formats suitable for subsequent analysis on computer.

3.3.3 Proof of Concept Demonstration:

3.3.3.1 The contractor is to supervise, participate in and assist in the Government's installation of the prototype Type 1 Optimizer at the McNary powerhouse.

3.3.3.2 After installation, the contractor is to demonstrate the prototype Type 1 Optimizer by having it conduct a complete index test at a single head, both with and without fish screens, and reduce and analyze the recorded test data to produce the specified outputs.

3.4 PERFORMANCE PERIOD / MILESTONES.

3.4.1 **The Contractor shall furnish all of the items discussed in paragraph DELIVERY by the end of the performance period of Aug 20, 2005.**

3.4.2 The following interim milestones shall be used as a gauge in establishing progress payments to the Contractor. The milestone schedule may be changed by mutual agreement of the Contractor and the U.S. Government.

3.4.2.1 Initial trip to Portland to meet with the government for design and development discussions. This initial meeting will document and demonstrate items developed prior to award of the contract. The initial trip will also include field trip(s) to McNary to evaluate powerhouse instrumentation signal inputs and install a prototype Index Test Box with only the data collection part of it enabled. Only the existing powerhouse instrumentation will be used by the Index Test Box. Verification of the accuracy of the already installed powerhouse instrumentation is not part of this Statement of Work.

3.4.2.2 Other field trips to McNary as needed for development and continued testing.

3.4.2.3 Submission of a preliminary prototype design.

3.4.2.4 Submission of a complete set of prototype drawings and parts list. Complete by July 20, 05

3.4.2.5 Submission of a prototype instruction manual, including installation, operation and maintenance instructions. Preliminary manuals shall be provided as needed for field installation and use. Complete

3.4.2.6 Delivery of one prototype complete, stand-alone, Type 1 Optimizer, Index Test Box FOB to McNary powerhouse. The initial version with data collection and perturbation functions shall be accomplished the week of June 20th but no later than June30th:

3.4.2.7 Completion of supervising the installation of a prototype Type 1 Optimizer, Index Test Box,

3.4.2.8 Demonstration of the prototype Type 1 Optimizer, Index Test Box, first as an independent bench test and then on an operating Kaplan unit, both with and without fish screens,

3.4.2.9 Delivery of the prototype Type 1 Optimizer source code listing developed under this contract, and a final report specifying objectives achieved, knowledge developed during the project and recommendations. Current versions of the source code shall be delivered with any revisions to be implemented at McNary and as requested for test versions sent HDC, to be run on the HDC test bed or other PC's. Final delivery of a complete package shall be complete by August 20, 2005.

3.4.2.9a With every delivery or software modification, the Contractor shall deliver software source code.

3.4.2.10 Additional, complete, programmed Index Test Boxes as called out in the Line Items.

3.5 MEETING AND TELEPHONE MINUTES/RECORDS.

The Contractor shall include in the design workbook a copy of all meeting minutes and telephone conversations. Records shall be made at the time they occur and shall be assembled and collated in the workbook.

Principal Engineer. The contractor must obtain the Contracting Officer's (CO) approval to change the principal engineer, Douglas J. Albright. The contractor shall advise the CO if the principal engineer will, or plans to, devote substantially less effort to the work than anticipated.

(End of Summary of Changes)