

**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

1. Contract ID Code  
Cost-Plus-Fixed-Fee

Page 1 Of 17

2. Amendment/Modification No. P00009	3. Effective Date 2013FEB15	4. Requisition/Purchase Req No. SEE SCHEDULE	5. Project No. (If applicable)
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6. Issued By U.S. ARMY CONTRACTING COMMAND MONTY MCCLELLAND WARREN, MICHIGAN 48397-5000 HTTP://CONTRACTING.TACOM.ARMY.MIL  EMAIL: MONTY.MCCLELLAND@US.ARMY.MIL	Code W56HZV	7. Administered By (If other than Item 6) DCMA HARTFORD 130 DARLIN STREET EAST HARTFORD CT 06108-3234	Code S0701A
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8. Name And Address Of Contractor (No., Street, City, County, State and Zip Code)  PROTON ENERGY SYSTEMS, INC. 10 TECHNOLOGY DR WALLINGFORD, CT 06492-1955	<input type="checkbox"/>	9A. Amendment Of Solicitation No.
	<input type="checkbox"/>	9B. Dated (See Item 11)
	<input checked="" type="checkbox"/>	10A. Modification Of Contract/Order No. W56HZV-11-C-0278
	<input type="checkbox"/>	10B. Dated (See Item 13) 2011APR05
Code 1UZE7	Facility Code	

**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 Offers

is extended,  is not extended.

Offers 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 amendments; (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)**

ACRN: AC NET INCREASE: \$166,162.00

**13. THIS ITEM ONLY APPLIES TO MODIFICATIONS OF CONTRACTS/ORDERS  
It Modifies The Contract/Order No. As Described In Item 14.**

<input type="checkbox"/>	A. This Change Order is Issued Pursuant To: The Contract/Order No. In Item 10A.	The Changes Set Forth In Item 14 Are Made In
<input type="checkbox"/>	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 Item 14, Pursuant To The Authority of FAR 43.103(b).	
<input checked="" type="checkbox"/>	C. This Supplemental Agreement Is Entered Into Pursuant To Authority Of:	MUTUAL AGREEMENT BETWEEN PARTIES
<input type="checkbox"/>	D. Other (Specify type of modification and authority)	

**E. IMPORTANT:** Contractor  is not,  is required to sign this document and return \_\_\_\_\_ copies to the Issuing Office.

**14. Description Of Amendment/Modification (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)**

SEE SECOND PAGE FOR DESCRIPTION

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) JOHN M. HOPFNER JOHN.HOPFNER@US.ARMY.MIL (586)282-7359		
15B. Contractor/Offeror  (Signature of person authorized to sign)	15C. Date Signed	16B. United States Of America By _____ /SIGNED/ (Signature of Contracting Officer)	16C. Date Signed 2013FEB15

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MOD/AMD P00009

**Name of Offeror or Contractor:** PROTON ENERGY SYSTEMS, INC.

## SECTION A - SUPPLEMENTAL INFORMATION

Buyer Name: MONTY MCCLELLAND  
Buyer Office Symbol/Telephone Number: CCTA-ASG-B/(586)282-9750  
Type of Business: Other Small Business Performing in U.S.  
Surveillance Criticality Designator: C  
Weapon System: No Identified Army Weapons Systems  
Contract Expiration Date: 2014OCT06  
Kind of Modification: Supplemental Agreement

\*\*\* End of Narrative A0000 \*\*\*

CONTRACT FOR: High Capacity Electrolyzer

PURPOSE OF MODIFICATION: Funding Increase

PRIOR CONTRACT AMOUNT: \$4,757,963.29  
CHANGE IN CONTRACT AMOUNT: \$ 166,162.00  
CURRENT CONTRACT AMOUNT: \$4,924,125.29

1. The purposes of this bilateral contract modification P00009 are as follows:

a. Add and fund CLIN 0013 by the amount of \$166,162.00 based on a Contractor overrun of costs for Option 5. No additional profit is payable for this overrun.

b. Extend the period of performance on Option 3 by 12 months.

c. Extend the period of performance on Option 5 by 5 months.

d. Update scope of work to include required Manpower Reporting verbiage.

2. To accomplish these purposes the contract is changed as follows:

a. Section B is updated as follows:

- 1)CLIN 0006 Option 3 performance completion date extended by 12 months from 19-APR-2013 to 19-APR-2014.
- 2)CLIN 0008 Option 5 performance completion date extended by 5 months from 19-JAN-2013 to 19-JUN-2013.
- 3)CLIN 0013 for Option 5 overrun is added and funded in the amount of \$166,162.00.

b. Section C - Scope of Work updated to include the following:

## C.6 MANPOWER REPORTING

C.6.1 The contractor shall report all contractor labor hours(including subcontractor labor hours) required for performance of services provided under this contract for the U.S. Army via a secure data collection site. The contractor is required to completely fill in all required data fields using the Army CMR site, which you can access by clicking on the "Department of Army CMRA" link from the following gateway web address: //www.ecmra.mil/

C.6.2 Reporting inputs will be for the labor executed during the period of performance during each Government fiscal year (FY), which runs October 1 through September 30. While inputs may be reported any time during the FY, all data shall be reported no later than October 31 of each calendar year, beginning with 2013. Contractors may direct questions to the Army CMR help desk, which can be contacted using the "Send an email" link on the right side of the sign-in screen at the Army CMR site.

C.6.3 Additional information can be found in the clause in this contract entitled CONTRACTOR MANPOWER REPORTING (52.237-4000).

c. Section F0001 narrative is updated as follows:

- 1) F.3.2.3 is updated to reflect a period of performance extension of 12 months from 12 months to 24 months after Option 3 was exercised.
- 2) F.3.2.5 is updated to reflect a period of performance extension of 5 months from 9 months to 14 months after Option 5 was exercised.

d. Section G is changed to incorporate the amount of \$166,162.00 being added to the contract by this Modification P00009.

e. Section H - H.1.5 within H0001 narrative is updated to reflect an increased estimated cost for Option 5 of \$166,162.00 from

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**Name of Offeror or Contractor:** PROTON ENERGY SYSTEMS, INC.

\$793,452.00 to \$959,614.00 and an increased total amount for Option 5 of \$166,162.00 from \$849,787.00 to \$1,015,949.00. Fixed fee for Option 5 remains unchanged at \$56,335.00.

3. As a result of this modification the total contract amount has increased by \$166,162.00 from \$4,757,963.29 TO \$4,924,125.29.
4. All other terms and conditions of Contract W56HZV-11-C-0278 as previously modified remain unchanged and in full force and effect.
5. This modification P00009 constitutes full and complete consideration to the Contractor in response to the Contractor's overrun proposal dated 13 February 2013.

\*\*\* END OF NARRATIVE A0010 \*\*\*

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Name of Offeror or Contractor: PROTON ENERGY SYSTEMS, INC.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0006	<p>SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS</p> <p><u>EXERCISED OPTION 3 CLIN</u></p> <p>GENERIC NAME DESCRIPTION: HI Hydrogen Station                      PSC: AC43</p> <p>PRON: R312C198R3 PRON AMD: 01 ACRN: AB                      AMS CD: 63300553D00</p> <p><u>Inspection and Acceptance</u>                      INSPECTION: Destination ACCEPTANCE: Destination</p> <p><u>Deliveries or Performance</u>                      DLVR SCH PERF COMPL  <u>REL CD QUANTITY DATE</u>                      001 1 19-APR-2014</p> <p>\$ 116,308.00</p>	1	LO		\$ 116,308.00
0008	<p><u>EXERCISED OPTION 5 CLIN</u></p> <p>GENERIC NAME DESCRIPTION: HI Hydrogen Station                      PSC: AC43</p> <p>PRON: R312C212R3 PRON AMD: 02 ACRN: AB                      AMS CD: 63300553D00</p> <p><u>Inspection and Acceptance</u>                      INSPECTION: Destination ACCEPTANCE: Destination</p> <p><u>Deliveries or Performance</u>                      DLVR SCH PERF COMPL  <u>REL CD QUANTITY DATE</u>                      001 1 19-JUN-2013</p> <p>\$ 849,787.00</p>	1	LO		\$ 849,787.00
0013	<p><u>EXERCISED OPTION 5 - OVERRUN</u></p> <p>GENERIC NAME DESCRIPTION: Proton Onsite - HI H                      PSC: AC43</p> <p>PRON: R322C114R3 PRON AMD: 04 ACRN: AC                      AMS CD: 63300553D00</p>	1	LO		\$ 166,162.00

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Name of Offeror or Contractor: PROTON ENERGY SYSTEMS, INC.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT									
	<p>CLIN 0013 adds funding to cover overrun incurred above funding provided on CLIN 0008.</p> <p><u>Option 5</u>                      Total Amt Provided to Date: \$849,787.00</p> <p><u>Amount added on CLIN 0013</u>                      Estimated Cost: \$166,162.00                      Fixed Fee: \$ 0.00                      Total Amount: \$166,162.00</p> <p><u>Option 5 Revised Total</u>                      CLIN 0008: \$ 849,787.00                      CLIN 0013: \$ 166,162.00                      Total Amt: \$1,015,949.00</p> <p>(End of narrative B001)</p> <p><u>Inspection and Acceptance</u>                      INSPECTION: Destination ACCEPTANCE: Destination</p> <p><u>Deliveries or Performance</u></p> <table border="0"> <tr> <td>DLVR SCH</td> <td></td> <td>PERF COMPL</td> </tr> <tr> <td><u>REL CD</u></td> <td><u>QUANTITY</u></td> <td><u>DATE</u></td> </tr> <tr> <td>001</td> <td>1</td> <td>19-JUN-2013</td> </tr> </table> <p>\$ 166,162.00</p>	DLVR SCH		PERF COMPL	<u>REL CD</u>	<u>QUANTITY</u>	<u>DATE</u>	001	1	19-JUN-2013				
DLVR SCH		PERF COMPL												
<u>REL CD</u>	<u>QUANTITY</u>	<u>DATE</u>												
001	1	19-JUN-2013												

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SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

C. 1 Introduction

The Contractor, as an independent contractor and not as an agent of the Government, shall provide all necessary personnel, facilities, materials and services to complete the effort described in this Scope of Work.

C.1.1 Purpose

The purpose of this effort is for the contractor to design and to perform a demonstration of a high capacity, 65 kilogram of per day Proton Exchange Membrane (PEM) electrolyzer system. The contractor shall perform research in scaling up hydrogen production from the existing sized 0.23 square feet PEM stack to one with a larger active area of greater than 0.5 square feet with the target being any active area greater than 0.5 square feet.

C.1.2 Scope

The scope of this Statement of Work includes engineering, scientific, and technical support of the following activities:

- a) Research, Development, and Demonstration of Large Active Area PEM Cell Stack
- b) Design, Develop, and Demonstrate a High Capacity PEM Electrolyzer

C.1.3 Background

The development and demonstration of high capacity hydrogen generation systems is vital to the adoption of hydrogen vehicle operation at military installations. The combination of a working high capacity system with a large active area PEM cell stack would provide enough fuel to support a fleet of 30 sport utility vehicles. This will push the electrolyzer technology toward the long-term goal of low-cost commercially-sized hydrogen stations.

C.2.0 Contractor Tasking / Requirements

C.2.1 Research, Development, and Demonstration of Large Active Area PEM Cell Stacks

The contractor shall fabricate, build, develop and test a large active area PEM bipolar plate and perform a demonstration of a full scale PEM cell stack. The large active area PEM bipolar plate shall have an active area of at least 0.5 square feet. To complete the demonstration of the full scale stack, the contractor shall upgrade a test bed to handle the higher flow rates and power requirements.

The contractor shall perform the following tasks to fulfill this requirement:

- a) Fabricate a large-area of at least 0.5 square feet bipolar plate that is capable of handling operating at pressures of at least 150 psi.
- b) Assess current Membrane Electrode Assembly (MEA) manufacturing techniques for MEAs with greater than 0.5 square foot active area to quantify MEA uniformity. Based on the assessment, the Contractor shall upgrade the MEA configuration to current production materials and processing methods.
- c) Fabricate at least 50 large active area cells that are greater than 0.5 square foot using production level tooling and procure balance of plant components.
- d) Upgrade an existing test bed at the Contractor's laboratory capable of testing a small scale (less than 10 kg of hydrogen per day) stack with a power supply capable of running a 54 cell stack at full current output, software modifications and stack interfaces such that a full scale PEM stack can operate at full capacity of 65 kg/day.
- e) Build and test sub-scale stacks utilizing the large active area cells that have greater than 0.5 square foot active area to investigate operational characteristics including but not limited to stack current, stack potential, polarization curves, gas flow and cell degradation during a 500 total hour test. The subscale stacks shall be at least 3-cell stacks.
- f) Build, test, and demonstrate one full-scale, large active area (greater than 0.5 square feet) stack using the test bed upgraded in 2.1.d by operational testing for a range of 500 hours up to 2000 hours, or greater, with the target being able to reach 2,000 hours. The full scale stack shall demonstrate hydrogen output of up to 40 kg /day. A full analysis of the test shall be completed. The full analysis shall be reported in a technical report IAW CDRL A007.

The Contractor shall report on a quarterly basis the progress relating to the performance of this activity within the contractors Quarterly Status Report IAW CDRL A005. The contractor shall provide Test Plans/Procedures and Test Reports in a written format IAW CDRL A010 and A008 respectively. The contractor shall develop conference agendas and minutes associated with Government approved Program Status Reviews (PSRs) IAW CDRLs A001 and A002 respectively.

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**C.2.2 Design, Develop, and Demonstrate a High Capacity PEM Electrolyzer**

The contractor shall build a high capacity PEM electrolyzer, and demonstrate functionality of the high capacity PEM electrolyzer to generate 65 kilograms of hydrogen per day. The requirements in Paragraph C.2.2 can be completed concurrently with the requirements in Paragraph C.2.1. In support of this task, the contractor shall perform the following actions:

a) Develop a system and subsystem specification and a system and subsystem design document for the high capacity PEM electrolyzer in accordance with CDRLs A003 and A004 respectively .

b) Build the high capacity PEM electrolyzer.

c) Verify high capacity PEM electrolyzer production of 65 kilograms of hydrogen per day.

The Contractor shall report progress relating to the performance of this activity on a quarterly basis within the contractors Quarterly Status Report IAW CDRL A005. The Contractor shall provide a System/Subsystem Specification (SSS) and System/ Subsystem Design Document in accordance with CDRLs A003 and A004 respectively. The Contractor shall provide a Technical Report for Study/Services in a written format IAW CDRL A007. The contractor shall develop conference agendas and minutes associated with Government approved PSRs IAW CDRLs A001 and A002 respectively.

**C.3 Delivery Schedule and Period of Performance**

**C.3.1 Period of Performance**

The period of performance for the base contract effort shall be 18 months.

**C.3.2 Base Contract Deliverables**

The Contractor shall provide the following deliverables under the base contract.

- a. Conference Agenda in accordance with (IAW) CDRL A001 (C.2.1, C.2.2, C.3.2.3)
- b. Meeting Minutes IAW CDRL A002 (C.2.1, C.2.2, C.3.2.3)
- c. System/Subsystem Specification IAW CDRL A003 (C.2.2)
- d. System/Subsystem Design Description IAW CDRL A004 (C.2.2)
- e. Quarterly Status Reports IAW CDRL A005 (C.2.1, C.2.2, C.3.2.1)
- f. Program Management Plan IAW CDRL A006 (C.3.2.4)
- g. Technical Report IAW CDRL A007 (C.2.1,C.2.2)
- h. Test Inspection/ Report IAW CDRL A008 (C.2.1)
- i. Test Plan/Test Procedures IAW CDRL A010 (C.2.1)

**C.3.2.0 Hardware Deliverable**

The contractor shall deliver to the government the PEM Electrolyzer system fabricated in accordance with C.2.2 by the end of the base contract period of performance. The electrolyzer will be delivered to a location designated by the COR at the Start of Work Meeting,

**C.3.2.1 Program Management**

The contractor shall prepare a written Quarterly Status Report IAW CDRL A005 that includes the final financial data for the quarter. The Contractor shall include in this Status Report a summary of the project accomplishments and a status of the contract milestones. This report shall briefly describe any issues, concerns, or failures and recommended actions or actions completed to remediate the issue, concern, or failure.

**C.3.2.2 Start of Work**

The contractor shall plan for and conduct a project Start of Work Meeting at TARDEC unless the parties agree on a mutually decided location which shall be convened within 45 days after contract award. The Start of Work Meeting shall address performance of the work listed in this SOW and short term schedules that include roles, responsibilities, project organization.

**C.3.2.3 Program Status Reviews**

The contractor shall participate in Program Status Reviews (PSRs) by presenting progress completed since the last program status review; the PSRs will occur three times at dates mutually agreed upon by the Contract Officers Representative and Contractor at least three weeks before the PSR is to be held. The purpose of these meetings shall be to brief the progress of each assigned task and to solicit input and concurrence of work performed. PSRs may be conducted during periodic teleconferences or in person. The contractor shall provide a written agenda prior to the meetings IAW CDRL A001; meeting minutes shall be provided after the meetings have adjourned IAW CDRL A002, and the contractor shall track action items determined by these PSRs in the meeting minutes.

**C.3.2.4 Program Management Plan**

The contractor shall submit a Program Management Plan (PMP) no later than 45 days after the award of the contract IAW CDRL A006. This

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plan shall include the following:

- a) Overarching Program Schedule
- b) Expected rate and cumulative resource expenditures for the project
- c) Overarching issues and concerns of the program and associated recommendations.

The PMP shall be updated by the Contractor as significant changes to the program occur to best reflect the current management plan for the program.

#### C.4 Travel Requirements

For the tasks listed in C.2.1 and C.2.2, a total of two (2) trips from the contractor site to Warren, MI for PSRs is expected.

#### C.5 Options

The Section H Option Clause lists in H.1 a total of seven (7) separately priced and unfunded options which the government has the unilateral right to exercise under this contract. The contractor will only perform one or more of these options after they have been exercised by the government, in accordance with the Section H Option Clause. The purpose of these unfunded options, which include the tasks described in C.5.1 through C.5.7, is to continue the development of high capacity PEM electrolyzer technologies. These options support the installation and demonstration of the electrolyzer developed in the base contract in a hydrogen station. The Scopes of Work of these unfunded options include engineering, scientific, and technical support and developmental engineering work of the following activities supporting the scope of work:

1. Design a Hydrogen Station for a Selected Site for the Demonstration of the PEM Electrolyzer.
2. Station Equipment Installation and Commissioning.
3. Demonstrate the High Capacity PEM Electrolyzer.
4. Extension of Electrolyzer Demonstration Support.
5. Upgrade of the Hydrogen Station to 700 bar Fueling.
6. Development of Balance of Plant for Large Scale PEM Electrolysis.
7. Demonstration of Balance of Plant for Large Scale Electrolysis.

The development and demonstration of high capacity hydrogen generation systems is vital to the adoption of hydrogen vehicle operation at military installations. The combination of a working high capacity system with a large active area PEM cell stack would provide enough fuel to support a fleet of 30 sport utility vehicles.

##### C.5.1 Option Task 1: Design a Hydrogen Station for a Selected Site for the Demonstration of the PEM Electrolyzer

The contractor shall hold a teleconference once every 2 weeks with the COR, if Option 1 is exercised. The purpose of the teleconference will be to discuss progress on Option 1. For the teleconference, the contractor shall prepare a teleconference Agenda in accordance with (IAW) Data Item A001 and teleconference minutes IAW Data Item A002. The contractor shall coordinate any teleconference cancellations with the COR.

##### C.5.1.1 Option Task 1.1: Station Requirements Document / Detailed Work Breakdown

The Contractor shall generate a document, in accordance with (IAW) CDRL A011, that defines the capabilities of the entire fueling station, applicable codes and standards, environmental conditions capabilities, and detailed equipment specifications. Included in this document shall be a detailed description of the work breakdown structure. The Contractor shall visit the hydrogen station site one time for initial review of the site layout and location of utilities is anticipated during the period of performance for Option 1. The Contractor shall be provided the location of the hydrogen station site within 20 days after exercise of this Option 1.

##### C.5.1.2 Option Task 1.2: 2-D Site Plan and Site Selection Support

The Contractor shall generate an equipment layout based on the installation requirements for building a hydrogen fueling station per applicable National Fire prevention Act (NFPA), Environmental Protection Agency (EPA) and local and state codes and standards related to hydrogen. The Contractor shall modify the station design to include specific site features such as distances from buildings and roads noted during the initial review of the site referenced in C.5.1.1.

##### C.5.1.3 Option Task 1.3: Generation of Site Construction Drawing Package

The Contractor shall generate detailed drawings of the station layout based on the 2-D site plan including connections to utilities, masses of equipment, clearance distances required for codes and standards, and any specific construction requirements pertinent to the fueling equipment IAW CDRL A009. The Contractor is responsible for generation of a site construction drawing package IAW CDRL A009 including all of the construction details required per local construction codes for the site. The Contractor shall ensure that the specific requirements for the station are implemented in accordance with the drawings.

##### C.5.1.4 Option Task 1.4: Station HAZOP

The Contractor shall conduct a hazard and operability (HAZOP) analysis meeting at the contractor site. At the meeting, Technical experts from the Contractor and the Government shall review the detailed hazard analyses in conjunction with the conditions specific to the selected site and its layout. The results of the HAZOP will be reported in CDRL A007. The GFE provided by the Government is listed in Attachment 0001 and will be provided by the government within 30 days of option exercise.

**Name of Offeror or Contractor:** PROTON ENERGY SYSTEMS, INC.**C.5.1.5 Option Task 1.5: Permit Application Support**

The Contractor shall provide the technical data and additional information to the host sites for the application to local authorities for permits to install and operate the fueling station. This effort includes clarifications and explanations of the fueling stations compliance with codes and standards and operation as requested by the local Authority Having Jurisdiction (AHJ), and other permitting entities. The Contractor is responsible for any modifications or clarifications to the construction drawing package as requested by local authorities.

**C.5.1.6 Option 1: Option Exercise/Period of Performance/Deliverables**

C.5.1.6.1 Option 1 may be unilaterally exercised by the government in accordance with H.1.1 of the Section H Option Clause.

C.5.1.6.2 Option 1, if exercised, shall have a period of performance as specified in F.3.2.1.

C.5.1.6.3 The contractor shall provide the following deliverables under Option 1:

- a) A work breakdown structure IAW CDRL A011
- b) A requirements document/station design document IAW CDRL A009,
- c) A technical report (HAZOP) IAW CDRL A007,
- d) Quarterly updates IAW CDRL A005,
- e) Conference agendas IAW CDRL A001, and
- f) Conference meeting minutes IAW CDRL A002.

**C.5.2 Option Task 2: Station Equipment Installation and Commissioning**

The contractor shall hold a teleconference once every 2 weeks with the COR, if Option 2 is exercised. The purpose of the teleconference will be discussing progress on Option 2. The contractor shall prepare a Conference Agenda in accordance with Data Item A001 and Meeting Minutes in accordance with Data Item A002, for these teleconferences. The contractor shall coordinate any teleconference cancellations with the COR. The contractor shall provide a Monthly update in a monthly status report in accordance with CDRL A005.

**C.5.2.1 Option 2 Tasks**

The contractor shall prepare the site designated for the hydrogen station at the East Range of Schofield Barracks in Hawaii for the installation of the hydrogen station equipment, including the dispenser, storage tubes, compressor, and electrolyzer. The contractor shall take the site designated for the hydrogen station at the East Range of Schofield Barracks in Hawaii from its current state to a completed and operational hydrogen station in accordance with the station design document produced in Option 1, CDRL A009. The contractor shall install the station equipment at a prepared site and connect it to the utilities in cooperation with licensed personnel of the site construction contractor. Rigging services will be provided by the US Government. Contractor shall connect all of the required interconnecting hydrogen piping and commission the station. The contractor shall be responsible for commissioning of the electrolyzer being delivered and installed under this task as well as the hydrogen storage, compression and dispensing equipment (350 Bar). The Government will be providing the equipment listed as Government Furnished Equipment (GFE) in Attachment 0001 during the period of performance of the option, available to the contractor within 15 days of exercise of Option 2. Contractor commissioning activity involves the startup, checkout, and operational testing of the completed station. The station is open for refueling vehicles when the Authority Having Justification (AHJ) signs off on the final installation. The results of the installation will be reported in a technical report in accordance with CDRL A007.

C.5.2.1.1 The contractor shall perform site construction to prepare the designated site at the East Range of Schofield Barracks in Hawaii in accordance with the station design document from Option 1, CDRL A009. The Contractor shall coordinate all site construction activities with the Schofield Barracks directorate of public works. The contractor shall perform the following:

- a) Purchase and install a transformer capable of handling the hydrogen station load.
- b) Install the low voltage (480V) wiring for connections to the electrical utility at the transformer and the hydrogen station equipment. The Department of Public works will install the high voltage wiring (12.47 KV) and make the final connections on the utility poles and to the transformer input including any pole mounted components. The pole installation shall be the responsibility of the contractor.
- c) Install municipal water lines between the main water supply and the hydrogen station equipment.
- d) Install wastewater lines between the wastewater utility and the hydrogen station equipment.
- e) Create concrete pads for hydrogen station equipment to include trenching, rebar, conduit, and stub-ups.
- f) Create ground grid for vehicle refueling location.
- g) Purchase and install fencing, bollards, and lighting equipment to secure the hydrogen station.
- h) Purchase and install safety equipment at the hydrogen station site including infrared detectors, combustible gas sensors, remote emergency stops, a safety panel connected to a strobe and horn indicating if the station is safe to approach, and a fire alarm panel with battery backup that ties into Schofield Barracks existing fire safety system.

C.5.2.1.2 The contractor shall install and commission the GFE provided into the hydrogen station site including hydrogen storage tank purging.

**Name of Offeror or Contractor:** PROTON ENERGY SYSTEMS, INC.**C.5.2.2 Option 2: Option Exercise/Period of Performance/Deliverables**

C.5.2.2.1 Option 2 may be unilaterally exercised by the government in accordance with H.1.2 of the Section H Option Clause.

C.5.2.2.2 Option 2, if exercised, shall have a period of performance as specified in F.3.2.2.

C.5.2.2.3 The contractor shall provide the following deliverables under Option 2:

- a) A technical report on the construction of the hydrogen station and drawings of the station layout IAW CDRL A007
- b) Monthly updates IAW CDRL A005
- c) Conference agendas IAW CDRL A001
- d) Meeting minutes IAW CDRL A002.

**C.5.3 Option Task 3: Demonstrate the High Capacity PEM Electrolyzer in the Hydrogen Dispensing Station**

The contractor shall hold a teleconference once every 2 weeks with the COR, if Option 3 is exercised. The purpose of the teleconference will be discuss progress on Option 3. The contractor shall prepare a Conference Agenda in accordance with Data Item A001 and Meeting Minutes in accordance with Data Item A002, for these teleconferences. The contractor shall coordinate any teleconference cancellations with the COR. Progress made on Task 3 shall be reported on a quarterly basis in accordance with CDRL A005.

**C.5.3.1 Option 3 Tasks**

The contractor shall demonstrate to the government for one year the operation of the electrolyzer by operating the electrolyzer within the hydrogen dispensing station for one year after station completion and generating hydrogen to maintain pressure in the storage tubes to permit vehicle fueling. The contractor shall develop a test plan for the demonstration in accordance with CDRL A010. The contractor shall provide maintenance and repair within one week of the electrolyzer encountering a shutdown condition that prohibits the system from performing. Maintenance and repair are defined as actions performed on the electrolyzer system to keep the system performing during the period of this option. The contractor shall provide remote monitoring of the high capacity PEM electrolyzer system during the demonstration, including updates to the system hardware and software and telephone response to the station operator for questions on the operation of the electrolyzer. The Contractor shall collect and analyze operational data from the station and from the electrolyzer.

The contractor shall hold a training session to teach the proper and safe operation of the high capacity PEM electrolyzer system and all auxiliary equipment associated to it. The training shall be for at least three persons and no more than fifteen persons. The contractor shall provide training materials for this training in accordance with CDRL A012. .

**C.5.3.2 Option 3: Option Exercise/Period of Performance/Deliverables**

C.5.3.2.1 Option 3 may be exercised unilaterally by the government in accordance with H.1.3 of the Section H Option clause.

C.5.3.2.2 Option 3 shall have a period of performance, if exercised, as specified in F.3.2.3.

C.5.3.2.3 The contractor shall provide the following deliverables under Option 3:

- a. A test plan for the demonstration and testing of the hydrogen station and electrolyzer system IAW CDRL A010
- b. A technical report on the operation of the hydrogen station and the electrolyzer IAW CDRL A007
- c. Training materials IAW CDRL A012
- d. Quarterly updates IAW CDRL A005
- e. Conference agendas IAW CDRL A001
- f. Meeting minutes IAW CDRL A002.

**C.5.4 Option Task 4: Extension of Electrolyzer Demonstration support**

The contractor shall hold a teleconference once every 2 weeks with the COR, if Option 4 is exercised. The purpose of the teleconference will be discuss progress on Option 4 and will prepare a Conference Agenda in accordance with Data Item A001 and Meeting Minutes in accordance with Data Item A002, for these teleconferences. The contractor shall coordinate any teleconference cancellations with the COR. Progress made on Task 4 shall be reported on a quarterly basis in accordance with CDRL A005.

**C.5.4.1 Option 4 Tasks**

The contractor shall continue to perform the tasks listed in Option Task 3 for the station operator for the electrolyzer system and hydrogen station. The contractor shall perform an assessment of the state of operability and degradation the equipment within the station within one month of this option being exercised. The contractor shall perform maintenance and repairs to the system hardware and software to keep the hydrogen station operational. The contractor shall report the operation of the hydrogen station and electrolyzer in accordance with CDRL A007.

**C.5.4.2 Option 4: Option Exercise/period of Performance/Deliverables**

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C.5.4.2.1 Option 4 may be unilaterally exercised by the government in accordance with H.1.4 of the Section H Option clause.

C.5.4.2.2 Option 4, if exercised, will have a period of performance as specified in F.3.2.4.

C.5.4.2.3 The contractor will provide the following deliverables under Option 4:

- a. A technical report on the operation of the hydrogen station and the electrolyzer IAW CDRL A007
- b. Quarterly updates IAW CDRL A005
- c. Conference agendas IAW CDRL A001
- d. Meeting minutes IAW CDRL A002.

C.5.5 Option Task 5: Upgrade of the Hydrogen Station at Designated Site to 700 bar Fueling

The contractor shall hold a teleconference once every 2 weeks with the COR, if Option 5 is exercised. The purpose of the teleconference will be discuss progress on Option 5. The contractor shall prepare a Conference Agenda IAW with Data Item A001 and Meeting Minutes IAW Data Item A002, for these teleconferences. The contractor shall coordinate any teleconference cancellations with the COR. Progress made on Task 5 shall be reported on a quarterly basis in accordance with CDRL A005.

C.5.5.1 Option 5 Tasks

C.5.5.1.1 The contractor shall upgrade 350 bar hydrogen fueling station installed during the completion of the requirements stated in Option 2 such that it can refuel vehicles up to 700 bar. The contractor shall meet all required codes and standards set forth in National Fire Protection Association Codes 2, 30A, 50A, and 52 for hydrogen equipment for the installation of new equipment within the station. The contractor shall report on the upgrade made to the hydrogen station in accordance with CDRL A007.

C.5.5.1.2 The contractor shall supply, install, and commission equipment to provide 700 fueling capability in parallel to the existing 350 bar fueling capability.

C.5.5.1.3 The 700 bar portion of the station shall be capable of fueling 700 bar vehicles by hydrogen filling per J2601 fueling protocol.

C.5.5.2 Option 5 Exercise/Period of Performance/Deliverables

C.5.5.2.1 Option 5 may be unilaterally exercised by the government in accordance with H.1.5 of the Section H Option clause.

C.5.5.2.2 Option 5, if exercised, shall have a period of performance as specified in F.3.2.5.

C.5.5.2.3 The contractor shall provide the following deliverables under Option 5:

- a. A technical report on the upgrade made to the hydrogen station IAW CDRL A007
- b. Quarterly updates IAW CDRL A005
- c. Conference agendas IAW CDRL A001
- d. Meeting Minutes IAW CDRL A002.

C.5.6 Option Task 6: Design and Development of Components and Subsystems for Large Scale PEM Electrolysis

The contractor shall hold a teleconference once every 2 weeks with the COR, if Option 6 is exercised. The purpose of the teleconference will be discuss progress on Option 6. The contractor shall prepare a Conference Agenda IAW Data Item A001 and Meeting Minutes IAW Data Item A002, for these teleconferences. The contractor shall coordinate any teleconference cancellations with the COR. Progress made on Task 6 shall be reported on a quarterly basis in accordance with CDRL A005.

C.5.6.1 Option 6 Tasks

The contractor shall complete the conceptual design for a higher capacity hydrogen generation system that is capable of generating 100 to 150 kilograms of hydrogen per day. The contractor shall provide a system and subsystem specification in accordance with CDRL A003 and a system and subsystem design document in accordance with CDRL A004. The design phase will include development and testing of the critical components that must be redesigned to handle the higher capacity. The contractor shall provide a test plan for the testing of the critical components in accordance with CDRL A010. These critical components consist of the phase separators (oxygen-water and hydrogen-water), power supply, and dryers. The stack design shall also be upgraded to increase efficiency and reduce cost, and the operational packaging shall be redesigned to accommodate the larger components. The contractor shall report on the testing of the dryer, phase separation, power supply and cell stack components in accordance with CDRL A007.

C.5.6.2 Option 6: Option Exercise/Period of Performance/Deliverables

C.5.6.2.1 Option 6 may be unilaterally exercised by the government in accordance with H.1.6.

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C.5.6.2.2 Option 6, if exercised, will have a period of performance as specified in F.3.2.6.

C.5.6.2.3 The contractor shall provide the following deliverables under Option 6:

- a. System/subsystem specification of the critical components IAW CDRL A003
- b. System/subsystem design document for the container and individual subsystems IAW CDRL A004.
- c. A test plan for the testing and design selection of the components and subsystems IAW CDRL A010.
- d. A technical report on the testing of the dryer, phase separation, power supply, and cell stack components IAW CDRL A007
- e. Quarterly updates IAW CDRL A005
- f. Conference agendas IAW CDRL A001
- g. Meeting minutes IAW CDRL A002.

C.5.7 Option Task 7: Integration of Subsystems and Demonstration of Large Scale PEM Electrolysis System

The contractor shall hold a teleconference once every 2 weeks with the COR, if Option 7 is exercised. The purpose of the teleconference will be discuss progress on Option 7. The contractor shall prepare a Conference Agenda IAW Data Item A001 and Meeting Minutes IAW Data Item A002, for these teleconferences. The contractor shall coordinate any teleconference cancellations with the COR. Progress made on Task 7 shall be reported on a quarterly basis in accordance with CDRL A005.

C.5.7.1 Option 7 Tasks

The contractor shall construct and demonstrate to the Government before the end of the period of performance of Option 7 a breadboard balance of plant system capable of handling the inputs and outputs of a Large Scale PEM electrolysis system. The contractor shall perform additional research to integrate the subsystems into the complete design for the balance of plant. The contractor shall develop a system and subsystem specification for the breadboard system in accordance with CDRL A003 and a system and subsystem design document in accordance with CDRL A004. The contractor shall perform a demonstration that shall include testing of the components to show that they operate as they were designed, data collection of the operation of the balance of plant systems, and an analysis of the operational data showing the efficiency of the subsystems within the balance of plant, as well as the balance of plant as a whole. The contractor shall write a test plan for the testing of the components in accordance with CDRL A010. The contractor shall perform an analysis that investigates cost comparison and energy efficiency compared to the Contractor's other existing hydrogen generation platforms in accordance with CDRL A007.

C.5.7.2. Option 7: Exercise/Period of Performance/Deliverables

C.5.7.2.1 Option 7 may be unilaterally exercised by the government in accordance with H.1.7 of the Section H Option Clause.

C.5.7.2.2 Option 7 shall have a period of performance as specified in F.3.2.7.

C.5.7.2.3 The Contractor shall provide the following deliverables under Option 7:

- a. A system/subsystem specification of the works-like integrated system IAW CDRL A003.
- b. A system/subsystem design document for the works-like integrated system IAW CDRL A004.
- c. A test plan for the testing and demonstration of the works-like integrated system IAW CDRL A010.
- d. A technical report on the testing, demonstration and operation of the works-like integrated system IAW CDRL A007.
- e. Quarterly updates IAW CDRL A005.
- f. Conference agendas IAW CDRL A001.
- g. Meeting Minutes IAW CDRL A002.

C.5.8 Option Delivery Schedule

The delivery schedule for the data item deliverables due under the options listed in C.5.1 through C.5.7 will be as specified in Section J, Exhibit A, CDRLs.

#### C.6 MANPOWER REPORTING

C.6.1 The contractor shall report all contractor labor hours (including subcontractor labor hours) required for performance of services provided under this contract for the U.S. Army via a secure data collection site. The contractor is required to completely fill in all required data fields using the Army CMR site, which you can access by clicking on the "Department of Army CMRA" link from the following gateway web address:  
<http://www.ecmra.mil/>

C.6.2 Reporting inputs will be for the labor executed during the period of performance during each Government fiscal year (FY), which runs October 1 through September 30. While inputs may be reported any time during the FY, all data shall be reported no later than October 31 of each calendar year, beginning with 2013. Contractors may direct questions to the Army CMR help desk, which can be contacted using the "Send an email" link on the right side of the sign-in screen at the Army CMR site.

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C.6.3 Additional information can be found in the clause in this contract entitled CONTRACTOR MANPOWER REPORTING (52.237-4000).

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## SECTION F - DELIVERIES OR PERFORMANCE

## F.1 Data Deliverables

F.1.1 The contractor shall submit all data deliverable items electronically as specified in the Section J Contract, Exhibit A, Contract Data Requirements List (CDRL), DD Form 1423.

## F.2 Hardware Deliverables

F.2.1 The contractor shall deliver all hardware deliverables, or any other deliverables that cannot be submitted electronically to a shipping address(es) that will be provided by the government after contract award but at least thirty (30) days before the due date for that deliverable.

## F.3 Period of Performance

## F.3.1 Base Contract

All work required under the base contract (C.1, C.2, C.3 and C.4) shall be completed by 18 months after contract award.

## F.3.2 Option Period of Performance

All work required under one or more of the options listed in C.5, if those options are exercised under the Section H Option clause, shall be completed as listed below for each individual option.

## F.3.2.1 Option 1

The period of performance for Option 1 shall be until 10 Feb 2012 which equals 8 months and 10 days from when Option 1 was exercised, in accordance with the terms of the Section H Option clause, specifically H.1.1.

## F.3.2.2 Option 2

The period of performance for Option 2 shall be until 15 May 2013 which equals 22 months from when Option 2 was exercised, in accordance with the terms of the Section H Option clause, specifically H.1.2.

## F.3.2.3 Option 3

The period of performance for Option 3 shall be twenty-four (24) months which will begin when Option 3 has been exercised, in accordance with the terms of the Section H Option clause, specifically H.1.3. \*\*\*

## F.3.2.4 Option 4

The period of performance for Option 4 shall be twelve (12) months which will begin when Option 4 is exercised, in accordance with the terms of the Section H Option clause, specifically H.1.4.

## F.3.2.5 Option 5

The period of performance for Option 5 shall be fourteen (14) months which will begin when Option 5 has been exercised, in accordance with the terms of the Section H Option clause, specifically H.1.5. \*\*\*

## F.3.2.6 Option 6

The period of performance for Option 6 shall be twelve (12) months which will begin when Option 6 has been exercised, in accordance with the terms of the Section H Option clause, specifically H.1.6.

## F.3.2.7 Option 7

The period of performance for Option 7 shall be twelve (12) months which will begin when Option 7 has been exercised, in accordance with the terms of the Section H Option clause, specifically H.1.7.

\*\*\* Updated to reflect changes made IAW modification P00009

\*\*\* END OF NARRATIVE F0001 \*\*\*

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SECTION G - CONTRACT ADMINISTRATION DATA

LINE	AMS CD/ <u>ITEM</u>	OBLG <u>STAT</u>	JO NO/ <u>ACCT ASSIGN</u>	ACRN	PRIOR AMOUNT	INCREASE/ <u>DECREASE</u>	CUMULATIVE <u>AMOUNT</u>
0013	R322C114R3 63300553D00	2	22C114	AC \$	0.00 \$	166,162.00 \$	166,162.00
					NET CHANGE \$	166,162.00	

ACRN	ACCOUNTING CLASSIFICATION	INCREASE/ <u>DECREASE</u>
AC 21	22040000026N6N7EP633005255Y S20113	W56HZV
		\$ <u>166,162.00</u>
NET CHANGE		\$ 166,162.00

	PRIOR AMOUNT <u>OF AWARD</u>	INCREASE/DECREASE <u>AMOUNT</u>	CUMULATIVE <u>OBLIG AMT</u>
NET CHANGE FOR AWARD:	\$ 4,757,963.29	\$ 166,162.00	\$ 4,924,125.29

LINE	ACRN	EDI/SFIS ACCOUNTING CLASSIFICATION
0013	AC 21	121320400000 W56HZV 26N6N7E63300553D00255YR322C114R3 22C114 S20113

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## SECTION H - SPECIAL CONTRACT REQUIREMENTS

## SECTION H

## H.1 Option Clause

The government reserves the right to unilaterally exercise any or all of the following options, for the option effort incorporated in Options 1 through 7, as listed in C.5 (C.5.1 through C.5.7), and as specified in H.1.1 through H.1.7, below. Individual options may be exercised, alone or in any combination, at any point or points specified in the option exercise period for each individual option, subject to the terms of option exercise, as listed below, for each individual option. Cost plus fixed fee will apply to each option, if it is exercised. The estimated cost, fixed fee and total amount that will apply to each individual option, if it is exercised in accordance with this clause, is listed below.

## H.1.1 Option 1: Design a Hydrogen Station (C.5.1)

The government has the unilateral right to exercise Option 1 from contract award to up to 18 months after contract award. The contractor shall perform the Option 1 tasks listed in C.5.1, if the government exercises Option 1. The period of performance for Option 1 shall be as specified in F.3.2.1.

The estimated cost, fixed fee and total amount for Option 1, if it is exercised, will be:

Estimated Cost:	\$299,904.00
Fixed Fee:	\$ 21,293.00
Total Amount:	\$321,197.00

## H.1.2 Option 2: Station Equipment Installation (C.5.2)

The government has the unilateral right to exercise Option 2 from contract award to up to 18 months after contract award. The contractor shall perform the Option 2 tasks listed in C.5.2, if the government exercises Option 2. The period of performance for Option 2 shall be as specified in F.3.2.2.

The estimated cost, fixed fee and total amount for Option 2, if it is exercised, will be: \_

Estimated Cost:	\$1,552,894.88
Fixed Fee:	\$ 76,731.41
Total Amount:	\$1,629,626.29

## H.1.3 Option 3: Demonstrating High Capacity Electrolyzer (C.5.3)

The government has the unilateral right to exercise Option 3 from contract award to up to 18 months after contract award. The contractor shall perform the Option 3 tasks listed in C.5.3, if the government exercises Option 3. The period of performance for Option 3 shall be as specified in F.3.2.3.

The estimated cost, fixed fee and total amount for Option 3, if it is exercised, will be:

Estimated Cost:	\$108,598.00
Fixed Fee:	\$ 7,710.00
Total Amount:	\$116,308.00

## H.1.4 Option 4: Extension of Electrolyzer Demonstration (C.5.4)

The government has the unilateral right to exercise Option 4 from contract award to up to 30 months after contract award. However, Option 4 cannot be exercised until Option 3 is exercised. The contractor shall perform the Option 4 tasks listed in C.5.4, if the government exercises Option 4. The period of performance for Option 4 shall be as specified in F.3.2.4.

The estimated cost, fixed fee and total amount for Option 4, if it is exercised, will be:

Estimated Cost:	\$110,898.00
Fixed Fee:	\$ 7,874.00

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Total Amount: \$118,772.00

H.1.5 Option 5: Upgrade of Hydrogen Station (C.5.5)

The government has the unilateral right to exercise Option 5 from contract award to up to 18 months after contract award. However, Option 5 cannot be exercised unless Option 2 has been exercised. Option 5 can be performed concurrently with Option 4. The contractor shall perform the Option 5 tasks listed in C.5.5, if the government exercises Option 5. The period of performance for Option 5 shall be as specified in F.3.2.5.

The estimated cost, fixed fee and total amount for Option 5, if it is exercised, will be:

Estimated Cost:	\$ 959,614.00	***
Fixed Fee:	\$ 56,335.00	***
Total Amount:	\$1,015,949.00	***

H.1.6 Option 6: Design and Development of Components (C.5.6)

The government has the unilateral right to exercise Option 6 from contract award to up to 18 months after contract award. The contractor shall perform the Option 6 tasks listed in C.5.6, if the government exercises Option 6. The period of performance for Option 6 shall be as specified in F.3.2.6.

The estimated cost, fixed fee and total amount for Option 6, if it is exercised, will be:

Estimated Cost:	\$1,913,929.00
Fixed Fee:	\$ 135,889.00
Total Amount:	\$2,049,818.00

H.1.7 Option 7: Integration of Subsystems (C.5.7)

The government has the unilateral right to exercise Option 7 from contract award to up to 30 months after contract award. However, Option 7 cannot be exercised until Option 6 has been exercised. The contractor shall perform the Option 7 tasks listed in C.5.7, if the government exercises Option 7. The period of performance for Option 7 shall be as specified in F.3.2.7.

The estimated cost, fixed fee and total amount for Option 7, if it is exercised, will be:

Estimated Cost:	\$1,458,520.00
Fixed Fee:	\$ 103,555.00
Total Amount:	\$1,562,075.00

H.2 Data Rights Assertion

The contractor's Data Rights Assertion dated 4 Apr 2011, submitted in accordance with the Section K Solicitation entitled "Identified Limited Rights Data" and the Section I Solicitation provision entitled "Rights in Technical Data - Non Commercial Items (DFARS 252-227-7013) is hereby incorporated into the contract in Section J as Attachment 0002.

\*\*\* Updated to reflect changes made IAW modification P00009

\*\*\* END OF NARRATIVE H0001 \*\*\*