

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE	PAGE OF PAGES
2. AMENDMENT/MODIFICATION NO. P00003		3. EFFECTIVE DATE 30-Dec-2014	4. REQUISITION/PURCHASE REQ. NO. SEE SCHEDULE	J	1 29
6. ISSUED BY INSTAL & VEHICLE SUP CONTRACTING DIV 6501 E. 11 MILE ROAD WARREN MI 48397-5000		CODE W56HZV	7. ADMINISTERED BY (If other than item 6) INSTAL & VEHICLE SUP CONTRACTING DIV JOSEPH R SIMON CCTA-HDB-SMS 350 JOSEPH.R.SIMON13.CIV@MAILMIL WARREN MI 48397-5000		CODE W56HZV
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code) JACOBS TECHNOLOGY INC. JOHN CLAYTON 600 WILLIAM NORTHERN BLVD TULLAHOMA TN 37388-4729			9A. AMENDMENT OF SOLICITATION NO.		
			9B. DATED (SEE ITEM 11)		
			X 10A. MOD. OF CONTRACT/ORDER NO. W56HZV-14-C-L713		
			X 10B. DATED (SEE ITEM 13) 17-Apr-2014		
CODE 07486		FACILITY CODE 07486			
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS					
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input type="checkbox"/> is not extended.					
<p>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:</p> <p>(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.</p>					
12. ACCOUNTING AND APPROPRIATION DATA (If required) See Schedule					
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).					
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:					
X D. OTHER (Specify type of modification and authority) 52.217-9 Option to Extend the Term of the Contract					
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input checked="" type="checkbox"/> is required to sign this document and return <u>1</u> copies to the issuing office.					
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) Modification Control Number: simonj15172 Reference GFEBs PR#: 0010631513-0005					
<p>The purpose of modification P00003 to W56HZV-14-C-L713 is to:</p> <ol style="list-style-type: none"> Exercise the First Option Year pursuant to FAR 52.217-9. The period of performance for this contract is hereby extended from 28 April 2015 to 27 April 2016. SubCLIN 1001AA has been added and funded in the amount of \$301,346.00 for GSPeL Maintenance. SubCLIN 1003AA has been added and funded in the amount of \$34,135.00 for Data Items. SubCLIN 1004AA has been added and funded in the amount of \$683.00 for Contract Manpower Reporting. SubCLIN 0002AD has been added and funded in the amount of \$23,776.00 for Emergency Repairs. Update the Performance Work Statement. The total contract value has increased by \$359,940.00 from \$906,578.00 to \$1,266,518.00. All other terms and conditions remain in effect and unchanged. <p>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.</p>					
15A. NAME AND TITLE OF SIGNER (Type or print)			16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)		
			JEFFREY B. YEAGER / CONTRACTING OFFICER		
			TEL: 586-282-6200 EMAIL: jeffrey.b.yeager2.civ@mail.mil		
15B. CONTRACTOR/OFFEROR		15C. DATE SIGNED	16B. UNITED STATES OF AMERICA		16C. DATE SIGNED
_____ (Signature of person authorized to sign)			BY <i>Jeffrey B. Yeager</i> (Signature of Contracting Officer)		30-Dec-2014

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION SF 1449 - CONTINUATION SHEET

SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by \$359,940.00 from \$906,578.00 to \$1,266,518.00.

SUPPLIES OR SERVICES AND PRICES

CLIN 1001

The option status has changed from Option to Option Exercised.

CLIN 1002

The option status has changed from Option to Option Exercised.

CLIN 1003

The option status has changed from Option to Option Exercised.

CLIN 1004

The option status has changed from Option to Option Exercised.

SUBCLIN 0002AD is added as follows:

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002AD		1	Job	\$23,776.00	\$23,776.00

GSPEL Equipment Repairs/Workorders
FFP

Perform necessary repairs to equipment in accordance with the PWS.

Repairs are not to exceed \$250,000 for the year. Please see Labor Rates attachment for yearly rates.

For invoicing instructions, see clause 52.232-4007, Wide Area Workflow.

FOB: Destination

PURCHASE REQUEST NUMBER: 0010631513-0001

NET AMT	\$23,776.00
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ACRN AH	\$23,776.00
CIN: GFEB001063151300022	

SUBCLIN 1001AA is added as follows:

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1001AA		1	Job	\$301,346.00	\$301,346.00

GSPEL Maintenance Option Year 1
FFP

Perform all routine/scheduled/recurring maintenance in accordance with the PWS.

Price set for Option Year 1 is \$301,346

Period of Performance is 28 April 2015 - 27 April 2016

For invoicing instructions, see clause 52.232-4007, Wide Area Workflow.

FOB: Destination

PURCHASE REQUEST NUMBER: 0010631513-0003

NET AMT	\$301,346.00
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ACRN AG	\$301,346.00
CIN: GFEB001063151300010	

SUBCLIN 1003AA is added as follows:

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1003AA		1	Job	\$34,135.00	\$34,135.00

Data Items Option Year 1
FFP

Technical data as set forth in Contract Data Requirements List (CDRL) DD Form 1423.

Price set for Option Year 1 is \$34,135
Period of Performance is 28 April 2015 - 27 April 2016

For invoicing instructions, see clause 52.232-4007, Wide Area Workflow.

FOB: Destination

PURCHASE REQUEST NUMBER: 0010631513-0003

NET AMT	\$34,135.00
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ACRN AH	\$34,135.00
CIN: GFEB001063151300020	

SUBCLIN 1004AA is added as follows:

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1004AA		1	Job	\$683.00	\$683.00

CTR Manpower Reporting Option Year 1
FFP
in accordance with clause 52.237-4000.

Price set for Option Year 1 is \$683
Period of Performance is 28 April 2015 - 27 April 2016

For invoicing instructions, see clause 52.232-4007, Wide Area Workflow.

FOB: Destination

PURCHASE REQUEST NUMBER: 0010631513-0001

NET AMT	\$683.00
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ACRN AH	\$683.00
CIN: GFEB001063151300021	

ACCOUNTING AND APPROPRIATION

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by \$359,940.00 from \$906,578.00 to \$1,266,518.00.

SUBCLIN 0002AD:

Funding on SUBCLIN 0002AD is initiated as follows:

ACRN: AH

CIN: GFEB001063151300022

Acctng Data: 0212014201520400000662622255 R.0009793.1.19 6100.9000021001

Increase: \$23,776.00

Total: \$23,776.00

Cost Code: A60FL

SUBCLIN 1001AA:

Funding on SUBCLIN 1001AA is initiated as follows:

ACRN: AG

CIN: GFEB001063151300010

Acctng Data: 0212014201520400000663633255 R.0009814.2.18 6100.9000021001

Increase: \$301,346.00

Total: \$301,346.00

Cost Code: A60FL

SUBCLIN 1003AA:

Funding on SUBCLIN 1003AA is initiated as follows:

ACRN: AH

CIN: GFEB001063151300020

Acctng Data: 0212014201520400000662622255 R.0009793.1.19 6100.9000021001

Increase: \$34,135.00

Total: \$34,135.00

Cost Code: A60FL

SUBCLIN 1004AA:

Funding on SUBCLIN 1004AA is initiated as follows:

ACRN: AH

CIN: GFEB001063151300021

Acctng Data: 0212014201520400000662622255 R.0009793.1.19 6100.9000021001

Increase: \$683.00

Total: \$683.00

Cost Code: A60FL

DELIVERIES AND PERFORMANCE

The following Delivery Schedule item has been added to SUBCLIN 0002AD:

DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
POP 28-APR-2014 TO 27-APR-2015	N/A	TARDEC JARROD HOOSE CENTRAL RECEIVING DOCK JARROD HOOSE 6501 E 11 MILE ROAD WARREN MI 48397-5000 586-282-8533 FOB: Destination	W91ATL

The following Delivery Schedule item has been added to SUBCLIN 1001AA:

DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
POP 28-APR-2015 TO 27-APR-2016	N/A	TARDEC JARROD HOOSE CENTRAL RECEIVING DOCK JARROD HOOSE 6501 E 11 MILE ROAD WARREN MI 48397-5000 586-282-8533 FOB: Destination	W91ATL

The following Delivery Schedule item has been added to SUBCLIN 1003AA:

DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
POP 28-APR-2015 TO 27-APR-2016	N/A	TARDEC JARROD HOOSE CENTRAL RECEIVING DOCK JARROD HOOSE 6501 E 11 MILE ROAD WARREN MI 48397-5000 586-282-8533 FOB: Destination	W91ATL

The following Delivery Schedule item has been added to SUBCLIN 1004AA:

DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
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POP 28-APR-2015 TO 27-APR-2016 N/A

TARDEC
JARROD HOOSE
CENTRAL RECEIVING DOCK
JARROD HOOSE
6501 E 11 MILE ROAD
WARREN MI 48397-5000
586-282-8533
FOB: Destination

W91ATL

INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for SUBCLIN 0002AD:

INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
N/A	N/A	N/A	Government

The following Acceptance/Inspection Schedule was added for SUBCLIN 1001AA:

INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
N/A	N/A	N/A	Government

The following Acceptance/Inspection Schedule was added for SUBCLIN 1003AA:

INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
N/A	N/A	N/A	Government

The following Acceptance/Inspection Schedule was added for SUBCLIN 1004AA:

INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
N/A	N/A	N/A	Government

The following have been modified:

PERFORMANCE WORK STATEMENT

PERFORMANCE WORK STATEMENT (PWS)

Ground Systems Power and Energy Laboratory (GSPEL) Equipment Maintenance and Repair

Part 1

General Information

1. **GENERAL:** This is a non-personal services contract to provide all maintenance, calibration and repair work required to support the maintenance requirements for the Ground Systems Power and Energy Laboratory (GSPEL). The Government shall not exercise any supervision or control over the contract service providers performing the services herein. Such contract

service providers shall be accountable solely to the Contractor who, in turn is responsible to the Government.

1.1 Description of Services/Introduction: The contractor shall provide all personnel, equipment, supplies, transportation, tools, materials, supervision, and other items and non-personal services necessary to perform the maintenance and repair requirements for the Ground Systems Power and Energy Laboratory (GSPEL) as defined in this Performance Work Statement.. The contractor shall perform to the standards set forth in this contract.

1.2 Background: The Ground Systems Power and Energy Lab (GSPEL) is an addition to the existing Building 212 on Detroit Arsenal (6501 E. Eleven Mile Rd, Warren, MI 48397) that provides research and development laboratory space. The building contains approximately 40,500 square feet of space. The Government requires a total operations and maintenance contract to provide all material, equipment, and labor required to maintain over fifty pieces of laboratory equipment and systems within the facility.

1.3 Objectives

1.3.1 Provide all routine/scheduled maintenance for all equipment listed in this PWS in accordance with OEM specifications

1.3.2 Perform all one-time modifications/upgrades to equipment and facilities, as listed in this PWS, in order to support long-term operations and maintenance requirements for the GSPEL.

1.3.3 To provide for timely repairs to the equipment listed in this PWS in the event of a malfunction or degraded operating condition.

1.4 Scope

1.4.1 Provide all maintenance, calibration and repair work required to support the Operations and Maintenance (O&M) requirements for the GSPEL lab. The contractor shall reference the O&M manual specific to each item of equipment to determine maintenance requirements. The contractor shall provide a monthly Laboratory Equipment Inspection and Maintenance Report (CDRL A001), which shall forecast upcoming maintenance requirements, report completed maintenance requirements, and report the status of ongoing maintenance tasks, repairs, and related issues for each piece of equipment in this PWS. The contractor shall provide a monthly Consumable Parts Inventory and Parts Usage Report (CDRL A002), listing all parts and materials used during all maintenance and repair activities under this contract.

1.4.1.1 The contractor shall be responsible for securing and paying for all permits, fees, certifications and licenses required for the proper execution and completion of maintenance and repair work.

1.4.1.2 The contractor shall comply with all local, state, and federal codes, ordinances, rules, regulations, orders and other legal requirements pertaining to the performance of work under this contract. The COR will provide this information.

1.4.1.3 All maintenance and repair work must meet all applicable requirements of the Original Equipment Manufacturer (OEM) to ensure that all warranties are maintained.

1.5 Period of Performance: The period of performance shall be for one Base Year of 12 months and two 12-month option years.

1.6 General Information

1.6.1 Quality Control: The contractor shall develop and maintain an effective quality control program (QCP) to ensure services are performed in accordance with this PWS. The contractor shall develop and implement procedures to identify, prevent, and ensure non-recurrence of defective services. The contractor's quality control program is the means by which the work it performs will be monitored for compliance. The contractor shall deliver the QCP to the contracting officer (KO) and contracting officer's representative (COR) within 30 days after contract award (CDRL A003). A copy of the comprehensive written QCP shall be resubmitted to the KO and COR within five working days if changes are needed or required. The contractor shall submit the revised QCP before implementing any changes. After acceptance of the quality control plan the contractor shall receive the contracting officer's acceptance in writing of any proposed change to his QC system.

1.6.2 Quality Assurance: The Government shall evaluate the contractor's performance under this contract in accordance with the Quality Assurance Surveillance Plan. This plan is primarily focused on what the Government must do to ensure that the contractor has performed in accordance with the performance standards. It defines how the performance standards will be applied, the frequency of surveillance, and the minimum acceptable defect rate(s).

1.6.3 Recognized Holidays:

New Year's Day	Labor Day
Martin Luther King Jr.'s Birthday	Columbus Day
President's Day	Veteran's Day
Memorial Day	Thanksgiving Day
Independence Day	Christmas Day

1.6.4 Hours of Operation: The contractor is responsible for conducting business between the hours of 7:00 a.m. and 5:00 p.m., Monday thru Friday except Federal holidays or when the Government facility is closed due to local or national emergencies, administrative closings, or similar Government directed facility closings. The Government, at its discretion, may require that emergency repairs be conducted outside of these core working hours, to include Saturdays or Sundays. For other than firm fixed price line items, the contractor will not be reimbursed when the Government facility is closed for the above reasons. The Contractor must at all times maintain an adequate workforce for the uninterrupted performance of all tasks defined within this PWS when the Government facility is not closed for the above reasons. When hiring personnel, the

Contractor shall keep in mind that the stability and continuity of the workforce are essential.

1.6.5 Place of Performance: The work to be performed under this contract will be performed at the GSPEL facility, Building 212, Detroit Arsenal located at: 6501 E. Eleven Mile Rd., Warren, MI 48397-5000

1.6.6 Type of Contract: The Government will award a Firm Fixed Price Contract, to include a Time and Material contract line item for emergency or incidental repairs.

1.6.7 Physical Security: The contractor shall be responsible for safeguarding all Government equipment, information and property provided for contractor use. At the close of each work period, Government facilities, equipment, and materials shall be secured.

1.6.8 Special Qualifications:

1.6.8.1 All contractor personnel working on pressurized systems shall be Pressurized Systems Certified Technicians with Level II certification in accordance with SNT-TC-1A in:

- a. Ultrasonic Testing
- b. Magnetic Particle Testing
- c. Dye Penetrate Testing
- d. Visual Testing

1.6.8.2 All contractor personnel working on pressurized systems shall possess API-510 Pressure Vessel Inspector Certification.

1.6.8.3 All contractor personnel working on control systems shall be Certified Control System Technicians.

1.6.8.4 All contractor personnel performing testing, adjusting, and balancing shall be National Environmental Balancing Bureau (NEBB) or Associated Air Balance Council (AABC) Certified Balance Technicians.

1.6.8.5 All contractor personnel working on refrigeration systems shall possess either universal or level II EPA Section 608 Technician and Preventative Maintenance Technicians.

1.6.9 Post Award Conference/Periodic Progress Meetings: The Contractor agrees to attend any post award conference convened by the contracting activity or contract administration office in accordance with Federal Acquisition Regulation Subpart 42.5. The contracting officer, Contracting Officers Representative (COR), and other Government personnel, as appropriate, may meet periodically with the contractor to review the contractor's performance. At these meetings the contracting officer will apprise the contractor of how the Government views the contractor's performance and the contractor will apprise the Government of problems, if any, being experienced. Appropriate action shall be taken to resolve outstanding issues. These meetings shall be at no additional cost to the Government.

1.6.10 Contracting Officer Representative (COR): The (COR) will be identified by separate letter. The COR monitors all technical aspects of the contract and assists in contract administration. The COR is authorized to perform the following functions: assure that the Contractor performs the technical requirements of the contract; perform inspections necessary in connection with contract performance; maintain written and oral communications with the Contractor concerning technical aspects of the contract; issue written interpretations of technical requirements, including Government drawings, designs, specifications; monitor Contractor's performance and notify both the Contracting Officer and Contractor of any deficiencies; coordinate availability of Government furnished property, and provide site entry of Contractor personnel. A letter of designation issued to the COR, a copy of which is sent to the Contractor, states the responsibilities and limitations of the COR, especially with regard to changes in cost or price, estimates or changes in delivery dates. The COR is not authorized to change any of the terms and conditions of the resulting contract.

1.11 Key Personnel: The follow personnel are considered key personnel by the Government: Contract Manager and Alternate Contract Manager. The contractor shall provide a contract manager who shall be responsible for the performance of the work. The name of this person and an alternate who shall act for the contractor when the manager is absent shall be designated in writing to the contracting officer . The contract manager or alternate shall have full authority to act for the contractor on all contract matters relating to daily operation of this contract. The contract manager or alternate shall be available between 7:30 a.m. and 5:00 p.m., Monday thru Friday except Federal holidays or when the Government facility is closed for administrative reasons. Contractor shall notify the Contracting Officer of any changes to the Key Personnel. Qualifications for all key personnel are listed below:

1.6.9.1 Contract Manager and Alternate Contract Manager

1.6.9.1.1 Bachelor's Degree in engineering or business

1.6.9.1.2 Experience with automotive test facility maintenance procedures, best practices, and repair cost determinations

1.6.9.1.3 Knowledge of computerized maintenance management systems (CMMS)

1.6.9.1.4 Certified Reliability Maintenance Specialist

1.6.12 Identification of Contractor Employees: All contract personnel attending meetings, answering Government telephones, and working in other situations where their contractor status is not obvious to third parties are required to identify themselves as such to avoid creating an impression that they are Government officials. They must also ensure that all documents or reports produced by contractors are suitably marked as contractor products or that contractor participation is appropriately disclosed. Contractor personnel will be required to obtain and display access badges while working on Detroit Arsenal.

1.6.13 Organizational Conflict of Interest: Contractor and subcontractor personnel performing work under this contract may receive, have access to or participate in the development of proprietary or source selection information (e.g., cost or pricing information, budget information or analyses, specifications or work statements, etc.) or perform evaluation services which may create a current or subsequent Organizational Conflict of Interests (OCI) as defined in FAR Subpart 9.5. The Contractor shall notify the Contracting Officer immediately whenever it becomes aware that such access or participation may result in any actual or potential OCI and shall promptly submit a plan to the Contracting Officer to avoid or mitigate any such OCI. The Contractor's mitigation plan will be determined to be acceptable solely at the discretion of the Contracting Officer and in the event the Contracting Officer unilaterally determines that any such OCI cannot be satisfactorily avoided or mitigated, the Contracting Officer may effect other remedies as he or she deems necessary, including prohibiting the Contractor from participation in subsequent contracted requirements which may be affected by the OCI.

PART 2

DEFINITIONS & ACRONYMS

2. DEFINITIONS AND ACRONYMS:

2.1. DEFINITIONS:

2.1.1. CONTRACTOR. A supplier or vendor having a contract to provide specific supplies or service to the Government. The term used in this contract refers to the prime.

2.1.2. CONTRACTING OFFICER. A person with authority to enter into, administer, and or terminate contracts, and make related determinations and findings on behalf of the Government. Note: The only individual who can legally bind the Government.

2.1.3. CONTRACTING OFFICER'S REPRESENTATIVE (COR). An employee of the U.S. Government appointed by the contracting officer to administer the contract. Such appointment shall be in writing and shall state the scope of authority and limitations. This individual has authority to provide technical direction to the Contractor as long as that direction is within the scope of the contract, does not constitute a change, and has no funding implications. This individual does NOT have authority to change the terms and conditions of the contract.

2.1.4. DEFECTIVE SERVICE. A service output that does not meet the standard of performance associated with the Performance Work Statement.

2.1.5. DELIVERABLE. Anything that can be physically delivered but may include non-physical things such as meeting minutes.

2.1.6. PHYSICAL SECURITY. Actions that prevent the loss or damage of Government property.

2.1.7. QUALITY ASSURANCE. The Government procedures to verify that services being performed by the Contractor are performed according to acceptable standards.

2.1.8. QUALITY ASSURANCE Surveillance Plan (QASP). An organized written document specifying the surveillance methodology to be used for surveillance of contractor performance.

2.1.9. QUALITY CONTROL. All necessary measures taken by the Contractor to assure that the quality of an end product or service shall meet contract requirements.

2.1.10. SUBCONTRACTOR. One that enters into a contract with a prime contractor. The Government does not have privity of contract with the subcontractor.

2.1.11. WORK DAY. The number of hours per day the Contractor provides services in accordance with the contract.

2.1.12. WORK WEEK. Is defined as Monday through Friday, unless specified otherwise.

2.2. ACRONYMS:

ACOR	Alternate Contracting Officer's Representative
AFARS	Army Federal Acquisition Regulation Supplement
AR	Army Regulation
CCE	Contracting Center of Excellence
CFR	Code of Federal Regulations
CONUS	Continental United States (excludes Alaska and Hawaii)
COR	Contracting Officer Representative
COTR	Contracting Officer's Technical Representative
COTS	Commercial Off the Shelf
DA	Department of the Army
DD250	Department of Defense Form 250 (Receiving Report)
DD254	Department of Defense Contract Security Requirement List
DFARS	Defense Federal Acquisition Regulation Supplement
DMDC	Defense Manpower Data Center
DOD	Department of Defense
FAR	Federal Acquisition Regulation
HIPAA	Health Insurance Portability and Accountability Act of 1996
KO	Contracting Officer
OCI	Organizational Conflict of Interest
OCONUS	Outside Continental United States (includes Alaska and Hawaii)
ODC	Other Direct Costs
PIPO	Phase In/Phase Out
POC	Point of Contact
PRS	Performance Requirements Summary
PWS	Performance Work Statement
QA	Quality Assurance
QAP	Quality Assurance Program
QASP	Quality Assurance Surveillance Plan
QC	Quality Control
QCP	Quality Control Program
TE	Technical Exhibit

PART 3
GOVERNMENT FURNISHED PROPERTY, EQUIPMENT, AND SERVICES

3. GOVERNMENT FURNISHED ITEMS AND SERVICES:

3.1 Utilities: The Government will provide all utilities in the facility for the contractor's use in performance of tasks outlined in this PWS. The contractor shall be responsible for operating under conditions that preclude the waste of utilities, such as turning off the water faucets or valves after using the required amount.

3.2 Materials The Government will provide Standard Operating Procedures and Policies and original equipment manufacturers' manuals necessary for performance of the tasks outlined in this PWS.

PART 4
CONTRACTOR FURNISHED ITEMS AND SERVICES

4. CONTRACTOR FURNISHED ITEMS AND RESPONSIBILITIES:

4.1 General: The Contractor shall furnish all supplies, equipment, facilities and services required to perform work under this contract that are not listed under Section 3 of this PWS.

4.2 Materials: The Contractor shall furnish all materials, supplies, and equipment necessary to meet the requirements under this PWS.

4.3. Equipment : The Contractor shall furnish the following tools and equipment, which shall remain property of the Government.

4.3.1 The contractor shall possess a Fluke 1587 MDT meg-ohm meter and Fluke 568 laser temperature meter, or approved equal.

4.3.2 The contractor shall possess 2 x Werner 8 foot fiberglass fold out step ladders or approved equals required to support all maintenance and repair requirements.

4.3.3 The contractor shall purchase and install Stanley Vidmar, or approved equal, storage cabinets of same quality as is currently installed in GSPEL (no more than 10 feet long x 8 feet tall) to contain all tools and equipment, less ladders and scaffolding. The storage cabinet(s) will be placed within the GSPEL building and a contractor-purchased Stanley Vidmar rolling tool cart or approved equal will be utilized to transport tools from the storage cabinets to work sites within the GSPEL.

4.3.4 The contractor shall purchase and install 2 x Spencer Turbine Bearing Temperature Monitor Controllers with installation kits for 2 Spencer turbine blowers with the trip function wired to each blowers associated Variable Frequency Drive. Installation shall be performed by a Spencer authorized service contractor.

4.3.5 Cooling Water Strainer: The contractor shall install a motorized, automatic, self-cleaning strainer system on the main cooling water intake to the GSPEL Building. The

system shall be completely functional at completion of installation. The contractor shall install a 100-mesh screen (152 Micron Equivalent minimum). The contractor shall install an "Eliminator 723" by Fluid Engineering or an approved equivalent. The contractor shall not proceed with installation prior to approval from the COR. The performance specifications of the strainer are as follows:

1. Max Flow Rate: 6,200 gpm
2. Average Flow Rate: 3,600 gpm
3. Pressure: 60 PSI
4. Filter: 152 MICRONS
5. Backwash Rate: Less than 6 percent throughput
6. Power Supply: 120VAC
7. Connection: 12 inch Ductile Iron; In-line flange connection

4.3.6 The contractor shall maintain an inventory of all contractor-acquired tools and equipment, provided by the contractor under sections 4.2 and 4.3 of this PWS. The contractor shall include the following monthly deliverable to report the inventory status: Physical Inventory Report (CDRL A004).

4.3.7 The contractor shall maintain all tools and equipment in accordance with manufacturer and OSHA requirements.

PART 5 SPECIFIC TASKS

5. Specific Tasks

5.1 To support the long-term operations and maintenance requirements for the GSPEL building, modifications to equipment/facilities and software upgrades for controls must be installed on several pieces of equipment to accommodate efficient maintenance practices and reduce day-to-day maintenance requirements. These modification tasks are integral to the overall maintenance plan. The following are the one time start up requirements for this contract.

5.1.2 The contractor shall install safety harness attachment points to allow work in accordance with applicable safety regulations pertaining to elevated work requirements: 3 at Small Environmental Chambers; 2 at Calorimeter Lab; 1 at PEVEL Chamber Main Fan. If the contractor determines that they will need additional tie-off points, they shall include this in their proposal.

5.1.3 Calorimeter Rooftop Air Intake Filter Modification: The contractor shall add a support structure to the 6 ft x 4 ft. rooftop air intake, designed to fit disposable filters and equip the unit with Airguard disposable panel filters or approved equal.

5.1.4 The contractor shall apply a floor coating system on up to 5,400 square feet of the GSPEL mezzanine floor. The floor coating shall be applied to floor surfaces and vertical surfaces of housekeeping pads.

5.1.4.1 The contractor shall hand grind all edges and surfaces to be coated.

- 5.1.4.2 The contractor shall steel shot blast the concrete to create clean bonding surfaces.
 - 5.1.4.3 The contractor shall apply a primer to clean the concrete surface.
 - 5.1.4.4 The contractor shall apply Sika-Flex 2C-NS or equivalent joint filler along all housekeeping pads where they meet the floor.
 - 5.1.4.5 The contractor shall apply a Neogard FC7050/7960 or equivalent base.
 - 5.1.4.6 The contractor shall apply a Neogard FC7510-7961 or equivalent wear coat.
 - 5.1.4.7 The contractor shall provide flashing around the large Syltherm tank to protect insulation from the floor coating.
 - 5.1.4.8 The contractor shall provide up to 50 linear feet of curbing to isolate floor penetrations from the overall spill containment area.
 - 5.1.4.9 The contractor shall provide manufacturers data sheets and color codes for all products utilized. The contractor shall not proceed with this work prior to gaining product approval from the COR.
- 5.2 The contractor shall be responsible for maintaining the following pieces of equipment in accordance with OEM procedures. Each piece of equipment identified below has the specific tasks required from the OEM manuals that the contractor is required to perform.
- 5.2.2 Armstrong Humidity System
 - 5.2.2.1 Semi-annual Maintenance
 - 5.2.2.1.1 Inspect plumbing system, steam injectors, and flow control components.
 - 5.2.2.2 Annual Maintenance
 - 5.2.2.2.1 Clean and Inspect steam traps in accordance with owner's manual.
 - 5.2.2.2.2 Replace control air filters.
 - 5.2.3 Munters Make-up Air Unit
 - 5.2.3.1 Bi-Monthly Maintenance
 - 5.2.3.1.1 Replace air filters
 - 5.2.3.2 Quarterly Maintenance
 - 5.2.3.2.1 Inspect desiccant wheel, desiccant wheel rollers, desiccant wheel drive motor and gas fired reactivation system
 - 5.2.3.2.2 Check belt tension and grease bearings on blowers quarterly.
 - 5.2.3.3 Annual Maintenance
 - 5.2.3.3.1 Change desiccant wheel drive oil.
 - 5.2.3.3.2 Clean gas fired reactivation heat exchangers.
 - 5.2.3.3.3 Inspect and clean or replace gas fired reactivation pilot burner as required.
 - 5.2.3.3.4 Clean and lubricate solar plenum pressure control dampers.
 - 5.2.3.3.5 Clean and lubricate volume control damper and flow control damper.
 - 5.2.3.3.6 Inspect and adjust volume control damper and flow control damper motors.
 - 5.2.3.3.7 Clean and inspect blowers.
 - 5.2.3.3.8 Inspect desiccant wheel seals.
 - 5.2.3.3.9 Inspect all ductwork.
 - 5.2.4 Trane Condensing Units
 - 5.2.4.1 Quarterly Maintenance

- 5.2.4.1.1 Inspect and clean evaporator drain pan and condensate piping to ensure there are no blockages or excess debris preventing flow.
- 5.2.4.1.2 Inspect and clean the evaporator coils
- 5.2.4.1.3 Manually rotate the condenser fans to check for free movement and bearing wear.
- 5.2.4.1.4 Check all bearing and fan mount hardware for tightness.
- 5.2.4.1.5 Inspect all wire terminals connections for tightness.
- 5.2.4.1.6 Inspect the unit for unusual conditions such as loose panels, leaking pipes, ect.
- 5.2.4.1.7 Inspect and clean the condenser coils.
- 5.2.4.1.8 Inspect the compressor and condenser fan motor contactors. Replace if needed in lieu of cleaning contacts.
- 5.2.4.1.9 Inspect compressor oil level with compressors off.
- 5.2.4.2 Annual Maintenance
 - 5.2.4.2.1 Check superheat and record readings
 - 5.2.4.2.2 Clean dust/dirt from unit
 - 5.2.4.2.3 Clean any rust and repaint
 - 5.2.4.2.4 Check and repair gasket on control panel door for proper fit and function.
 - 5.2.4.2.5 Inspect control panel wiring to ensure connections are tight and insulation is intact.
 - 5.2.4.2.6 Check refrigerant piping for leaks.
- 5.2.5 York Refrigeration Plant
 - 5.2.5.1 Semi-Annual Maintenance
 - 5.2.5.1.1 Lubricate compressor motor bearings
 - 5.2.5.1.2 Perform Vibration analysis on chiller motors (2).
 - 5.2.5.1.3 Perform oil and refrigerant leak checks while system is shut down.
 - 5.2.5.2 Annual Maintenance
 - 5.2.5.2.1 Replace Oil Filters and Refrigerant Filters
 - 5.2.5.2.2 Check drive coupling bolt and set-screw torque, component wear, and alignment.
 - 5.2.5.2.3 Check functionality of control instrumentation.
 - 5.2.5.2.4 Inspect and clean condenser tubes on water side.
 - 5.2.5.2.5 Inspect and clean oil cooler tubes on water side.
 - 5.2.5.2.6 Check paint and insulation. Patch insulation and repaint where necessary.
 - 5.2.5.2.7 Perform motor circuit analysis on chiller motors (2).
 - 5.2.5.2.8 Replace control air filters
- 5.2.6 Watlow Liquid Electric Heater
 - 5.2.6.1 Annual Maintenance
 - 5.2.6.1.1 Perform functional test of all temperature limiting devices.
 - 5.2.6.1.2 Perform resistance check on all heater elements.
 - 5.2.6.1.3 Check heater control panel seals for fit and function. Correct as required.
 - 5.2.6.1.4 Check all electrical connections for tightness and replace any oxidized or corroded wires.
 - 5.2.6.1.5 Check all heater terminal penetrations for leakage.
- 5.2.7 PEVEL Chamber Heater Pump Package and Reservoir Pump Package
 - 5.2.7.1 Quarterly Maintenance

- 5.2.7.1.1 Check pumps for fastener tightness, coupling, shaft rotation.
- 5.2.7.1.2 Check pumps for excessive noise or leaks.
- 5.2.7.2 Semi-annual Maintenance
- 5.2.7.2.1 Grease motor bearings.
- 5.2.7.2.2 Check operation of all valves.
- 5.2.7.3 Annual Maintenance
- 5.2.7.3.1 Replace control air filters
- 5.2.7.3.2 Perform pump bearing oil service.
- 5.2.7.3.3 Perform vibration analysis on pump motors (2).
- 5.2.7.3.4 Perform motor circuit analysis on pump motors (2).

- 5.2.8 Atlas Technical Lighting Solar Simulator
- 5.2.8.1 Semi-annual Maintenance
- 5.2.8.1.1 Replace electrical cabinet filters.
- 5.2.8.2 Annual Maintenance
- 5.2.8.2.1 Check/Clean solar lamps, filter glass, and controls.
- 5.2.8.2.2 Check all wire and electrical connections.
- 5.2.8.2.3 Check operation of breakers and E-Stops.
- 5.2.8.2.4 Inspect and tighten all lamp fasteners.
- 5.2.8.2.5 Verify solar light output.

- 5.2.9 PEVEL Electrical and Control System
- 5.2.9.1 Annual Maintenance
- 5.2.9.1.1 Inspect PLC, Electrical Distribution and MCC panel seals for proper function.
- 5.2.9.1.2 Clean and inspect PLC, Electrical Distribution, and MCC panel interiors.
- 5.2.9.1.3 Calibrate PEVEL pressure, temperature, and flow sensors.
- 5.2.9.1.4 Replace filter on PLC cabinet.
- 5.2.9.1.5 Check operation of PLC cabinet fan.

- 5.2.10 Greenheck Purge and Exhaust Fans (2 x purge, 2 x exhaust)
- 5.2.10.1 Monthly Maintenance
- 5.2.10.1.1 Check for unusual noise, leaks, corrosion, and vibration.
- 5.2.10.1.2 Check installation tightness of bolts and belts.
- 5.2.10.1.3 Check shaft for proper rotation
- 5.2.10.2 Semi-annual Maintenance
- 5.2.10.2.1 Lubricate vehicle exhaust fan bearings
- 5.2.10.2.2 Lubricate scavenge exhaust fan bearings
- 5.2.10.2.3 Lubricate motor bearings
- 5.2.10.2.4 Clean motors exterior, impeller, and fan housing interior.
- 5.2.10.2.5 Check set screws and bolts tightness on entire fan wheel and housing.
- 5.2.10.2.6 Clean VFD heat sink.
- 5.2.10.3 Annual Maintenance

- 5.2.11 Liebert Uninterrupted Power Supply
- 5.2.11.1 Quarterly Maintenance
- 5.2.11.1.1 Inspect and clean filters.
- 5.2.11.1.2 Check cooling fan operation.
- 5.2.11.2 Semi-annual Maintenance
- 5.2.11.2.1 Perform battery cell checks.

- 5.2.11.2.2 Perform UPS control checks.

- 5.2.12 Generac Generator and Automatic Transfer Switch
 - 5.2.12.1 Quarterly Maintenance
 - 5.2.12.1.1 Check valve clearance every 100 Hrs.
 - 5.2.12.1.2 Inspect wiring, battery cables, engine and gearbox oil level, coolant level, and ground connections.
 - 5.2.12.1.3 Test operate generator under no load conditions.
 - 5.2.12.2 Semi-annual Maintenance
 - 5.2.12.2.1 Inspect fuel supply system and connections.
 - 5.2.12.2.2 Inspect exhaust system
 - 5.2.12.3 Annual Maintenance
 - 5.2.12.3.1 Inspect Wiring
 - 5.2.12.3.2 Re-torque fan bolts
 - 5.2.12.3.3 Clean and inspect auto transfer switch internals.
 - 5.2.12.3.4 Drain and refill gearbox.
 - 5.2.12.3.5 Change engine oil and filter.
 - 5.2.12.3.6 Lubricate controls.
 - 5.2.12.3.7 Replace air filter
 - 5.2.12.3.8 Replace fuel filter
 - 5.2.12.3.9 Check and record engine compression.
 - 5.2.12.3.10 Conduct load test and power transfer of generator, UPS, and Auto-Transfer Switch system.

- 5.2.13 Aerovent Axial Fans (1 x VFD, 3 x Fans, 3 x Motors)
 - 5.2.13.1 Quarterly Maintenance
 - 5.2.13.1.1 Grease fan and motor bearings
 - 5.2.13.1.2 Replace VFD enclosure air filters
 - 5.2.13.2 Semi-annual Maintenance
 - 5.2.13.2.1 Perform vibration analysis of fan and motor bearings.
 - 5.2.13.2.2 Check condition, tension, and alignment of belts.
 - 5.2.13.2.3 Clean VFD heat sink.
 - 5.2.13.3 Annual Maintenance
 - 5.2.13.3.1 Clean and inspect fan impellor, stators and casing.
 - 5.2.13.3.2 Clean fan drive internals.
 - 5.2.13.3.3 Inspect fan drive internals.
 - 5.2.13.3.4 Perform motor circuit analysis on fan motors.

- 5.2.14 Aerofin Heat Exchanger
 - 5.2.14.1 Annual Maintenance
 - 5.2.14.1.1 Clean and inspect heat exchanger coil
 - 5.2.14.1.2 Perform thermal scan (IR) inspection of coil.

- 5.2.15 PEVEL Chamber Nozzles and Winch
 - 5.2.15.1 Annual Maintenance
 - 5.2.15.1.1 Inspect the wire rope for corrosion; frayed or broken wire; abrasions; kinking; heat damage; or reduction in diameter.
 - 5.2.15.1.2 Clean and Lubricate the latch bail hinge point, top and side flange hinge points, and the flow screen hinge points.

- 5.2.15.1.3 Clean and inspect vehicle tie-down floor brackets. Vacuum all dirt and debris from tie-down cavities.
- 5.2.15.1.4 Inspect winch for general wear and tear.

- 5.2.16 Ingersoll-Rand Air Dryer
 - 5.2.16.1 Semi-annual Maintenance
 - 5.2.16.1.1 Check moisture indicator to insure it is blue.
 - 5.2.16.1.2 Check for proper cycling
 - 5.2.16.1.3 Replace pilot air filter.
 - 5.2.16.1.4 Check pre-filter drain and muffler for moisture
 - 5.2.16.1.5 Replace pre and post filter elements.
 - 5.2.16.2 Annual
 - 5.2.16.2.1 Check desiccant and repair if required.
 - 5.2.16.2.2 Check operation of pilot air drain valves
 - 5.2.16.2.3 Check all panel lights
 - 5.2.16.2.4 Test electrical connections
 - 5.2.16.2.5 Inspect purge valves (4).

- 5.2.17 UV – IR Fire Protection Sensors
 - 5.2.17.1 Quarterly Maintenance
 - 5.2.17.1.1 Clean detector window and light rods.
 - 5.2.17.2 Annual Maintenance
 - 5.2.17.2.1 Test alarm sensing function.

- 5.2.18 Viking Fire Deluge Valve
 - 5.2.18.1 Annual Maintenance
 - 5.2.18.1.1 Perform water flow test
 - 5.2.18.1.2 Perform main drain test
 - 5.2.18.1.3 Inspect all trim for signs of corrosion and blockage. Clean as required.
 - 5.2.18.1.4 Clean all strainer baskets.

- 5.2.19 Jamison Doors
 - 5.2.19.1 Semi-annual Maintenance
 - 5.2.19.1.1 Inspect, Lubricate, and adjust door hinges and latches.

- 5.2.20 Horiba Dynamometer Systems (14 Motors, 12 Gearboxes, 2 Drive Cabinets, 2 Translation Carts)
 - 5.2.20.1 Semi-annual Maintenance
 - 5.2.20.1.1 Sample and analysis gearbox oil.
 - 5.2.20.1.2 Sample and analyze translation cart hydraulic oil.
 - 5.2.20.1.3 Check motor grease level and add if required.
 - 5.2.20.1.4 Replace air filters as required.
 - 5.2.20.1.5 Visually inspect dynamometer umbilical system for damage or signs of abnormal operation.
 - 5.2.20.2 Annual Maintenance
 - 5.2.20.2.1 Replace drive coolant. Utilize on-site disposal.
 - 5.2.20.2.2 Replace translation car hydraulic oil filter
 - 5.2.20.2.3 Perform vibration analysis on motors and gearboxes.
 - 5.2.20.2.4 Perform motor circuit analysis on motors.
 - 5.2.20.2.5 Perform ultrasound and IR analysis on dynamometer motors.

- 5.2.21 AeroVironment AV800
 - 5.2.21.1 Annual Maintenance
 - 5.2.21.1.1 Vacuum, blow-down, and clean all dirt, dust and debris from system.
 - 5.2.21.1.2 Clean or replace Air Filters as necessary.
 - 5.2.21.1.3 Check cooling system for leaks, aging hoses, and level.
 - 5.2.21.1.4 Replace coolant
 - 5.2.21.1.5 Perform current and voltage calibration.

- 5.2.22 AeroVironment AV900 (Qty of 2)
 - 5.2.22.1 Annual Maintenance
 - 5.2.22.1.1 Vacuum, blow-down, and clean all dirt, dust and debris from system.
 - 5.2.22.1.2 Clean or replace Air Filters as necessary.
 - 5.2.22.1.3 Check cooling system for leaks, aging hoses, and level.
 - 5.2.22.1.4 Replace coolant
 - 5.2.22.1.5 Perform current and voltage calibration.

- 5.2.23 Russels Environmental Chambers A & B and Large Chamber
 - 5.2.23.1 Monthly Maintenance
 - 5.2.23.1.1 Empty and clean air purge system sediment bowl
 - 5.2.23.1.2 Inspect and replace input air purge system pre-filter if required.
 - 5.2.23.1.3 Inspect and adjust blower drive belt/coupling condition, tension, and sheaves for proper operation. Replace belts as required.
 - 5.2.23.1.4 Inspect filters and cool fog resonator for mineral deposits or debris.
 - 5.2.23.1.5 Replace demineralizer
 - 5.2.23.2 Bi-Monthly Maintenance
 - 5.2.23.3 Quarterly Maintenance
 - 5.2.23.3.1 Inspect all connections for tightness and contactor/relay arcing
 - 5.2.23.3.2 Check for friction wear on all refrigerant lines and capillary tubes
 - 5.2.23.3.3 Check circulator for proper rotation and tightness to shaft.
 - 5.2.23.4 Semi-annual maintenance
 - 5.2.23.4.1 Clean condenser tube scale on all condensers.
 - 5.2.23.4.2 Check for scale buildup on desuperheater. Clean as necessary.
 - 5.2.23.5 Annual Maintenance
 - 5.2.23.5.1 Inspect refrigerant charge pressure and moisture content. Check compressor oil level.

- 5.2.24 Battery Lab Roof Top Unit – 8
 - 5.2.24.1 Quarterly Maintenance
 - 5.2.24.1.1 Grease fan bearings
 - 5.2.24.1.2 Inspect and clean the condenser coils
 - 5.2.24.1.3 Inspect the air intake filters. Clean or Replace as necessary.
 - 5.2.24.1.4 Inspect and adjust damper linkage for proper operation.
 - 5.2.24.1.5 Grease Fan Motor Bearings
 - 5.2.24.1.6 Check fan belt and sheaves for proper tightness and alignment.
 - 5.2.24.1.7 Check compressor oil and perform oil analysis.
 - 5.2.24.2 Annual Maintenance
 - 5.2.24.2.1 Inspect entire unit for loose fasteners, leaks, unusual noise, dirt and corrosion.

- 5.2.25 Battery Lab PLC System
 - 5.2.25.1 Annual Maintenance
 - 5.2.25.1.1 Clean and inspect PLC system cabinet.
 - 5.2.25.1.2 Check electrical connections and components for loose connections.

- 5.2.26 Battery Test Cell Exhaust Air Scrubber Units (3 Units)
 - 5.2.26.1 Monthly Maintenance
 - 5.2.26.1.1 Inspect all scrubber filters. Clean or replace as required.
 - 5.2.26.2 Semi-annual Maintenance
 - 5.2.26.2.1 Inspect belt tension and alignment. Adjust as needed.
 - 5.2.26.2.2 Grease fan motor bearings.
 - 5.2.26.3 Annual Maintenance
 - 5.2.26.3.1 Inspect drain pan for dirt, debris and corrosion. Clean as required.
 - 5.2.26.3.2 Open and inspect all wire and cable connections. Clean and adjust as required.

- 5.2.27 Battery Lab Mezzanine Air Handling and compressor units; AC-5 and AC-6 (2 Units)
 - 5.2.27.1 Bi-Monthly Maintenance
 - 5.2.27.1.1 Inspect air filters. Clean or replace as required.
 - 5.2.27.2 Quarterly Maintenance
 - 5.2.27.2.1 Inspect and clean the condenser coils.
 - 5.2.27.2.2 Inspect and clean the evaporator coils
 - 5.2.27.2.3 Manually rotate the condenser fans to check for free movement and bearing wear.
 - 5.2.27.2.4 Check all bearing and fan mount hardware for tightness.
 - 5.2.27.3 Annual maintenance
 - 5.2.27.3.1 Clean air handler and compressor units. Remove any rust and repaint.
 - 5.2.27.3.2 Inspect and clean evaporator drain pan and condensate piping to ensure there are no blockages or excess debris preventing flow.
 - 5.2.27.3.3 Inspect all wire terminals connections for tightness.
 - 5.2.27.3.4 Inspect the unit for unusual conditions such as loose panels and leaking pipes.
 - 5.2.27.3.5 Inspect the compressor and condenser fan motor contactors. Replace contactors at required.
 - 5.2.27.3.6 Clean and inspect gasket on control panel door for proper fit and function. Repair or replace as required.
 - 5.2.27.3.7 Inspect control panel wiring to ensure connections are tight and insulation is intact. Correct as required.
 - 5.2.27.3.8 Check refrigerant piping for leaks.

- 5.2.28 Fume Hoods and exhaust valves (4 Units)
 - 5.2.28.1 Annual Maintenance
 - 5.2.28.1.1 Inspect fume hoods for proper door mechanical operations. Clean and lubricate as required.
 - 5.2.28.1.2 Inspect and adjust Phoenix valves for proper operation.

- 5.2.29 Calorimeter 50 Ton Scroll Chiller
 - 5.2.29.1 Annual Maintenance
 - 5.2.29.1.1 Replace refrigerant filter driers

- 5.2.29.1.2 Check all electrical connections
- 5.2.29.1.3 Perform control instrumentation operational checks
- 5.2.29.1.4 Check oil level and perform oil analysis. Not intended for complete replacement.
- 5.2.29.1.5 Inspect and clean condenser tubes.
- 5.2.29.1.6 Inspect paint and insulation. Repair.

- 5.2.30 Calorimeter Tunnel
- 5.2.30.1 Quarterly Maintenance
 - 5.2.30.1.1 Inspect air intake filters. Clean or replace as required.
 - 5.2.30.2 Semi-annual Maintenance
 - 5.2.30.2.1 Check operating controls for proper operation and adjustment.
 - 5.2.30.2.2 Clean, lubricate and adjust access door hinges.
 - 5.2.30.3 Annual Maintenance
 - 5.2.30.3.1 Clean and inspect orifice flow meters.
 - 5.2.30.3.2 Clean and inspect interior chambers. Ensure all grease, oil, water, coolant and debris are removed.

- 5.2.31 Calorimeter Blowers and VFDs (2 Units)
- 5.2.31.1 Semi-annual Maintenance
 - 5.2.31.1.1 Inspect motor/fan coupling and foundation bolts for tightness.
 - 5.2.31.1.2 Inspect fan wheel for wear, debris and corrosion. Clean as required.
 - 5.2.31.1.3 Check blower pressure for compliance with nameplate rating.
 - 5.2.31.1.4 Grease motor bearings and coupling
 - 5.2.31.1.5 Lubricate blower bearings.
 - 5.2.31.1.6 Inspect blower shaft seals. Lubricate as required.
 - 5.2.31.2 Annual Maintenance
 - 5.2.31.2.1 Clean exterior of blower, motor, motor fan, and inside of motor fan shroud.
 - 5.2.31.2.2 Perform motor circuit analysis.
 - 5.2.31.2.3 Clean and inspect VFD cabinet and interior components.
 - 5.2.31.2.4 Perform vibration analysis on blowers and motors

- 5.2.32 Calorimeter Coolant-Oil Recirculation Skid
- 5.2.32.1 Semi-annual Maintenance
 - 5.2.32.1.1 Grease pumps, motor bearings and couplings.
 - 5.2.32.1.2 Inspect motor and pump mount bolts and connections for tightness.
 - 5.2.32.1.3 Check operating controls for proper operation and adjustment.
 - 5.2.32.1.4 Clean and inspect steam traps (2). Repair.
 - 5.2.32.2 Annual Maintenance
 - 5.2.32.2.1 Replace bearing lubricant in pumps (2).
 - 5.2.32.2.2 Clean and inspect heat exchanger.
 - 5.2.32.2.3 Clean exterior of blower, motor, motor fan, and inside of motor fan shroud.
 - 5.2.32.2.4 Perform motor circuit analysis (2 motors)
 - 5.2.32.2.5 Perform vibration analysis on pumps and motors.

- 5.2.33 Calorimeter Air Recirculation Skid
- 5.2.33.1 Semi-Annual Maintenance

- 5.2.33.1.1 Inspect compressor drive belts for wear, tightness, and alignment.
Replace belts if required.
- 5.2.33.1.2 Inspect motor and compressor bolts and connections for tightness
- 5.2.33.1.3 Check operating controls for proper operation and adjustment.
- 5.2.33.1.4 Clean and inspect steam trap. Repair as required.
- 5.2.33.1.5 Grease motor bearings.
- 5.2.33.2 Annual Maintenance
- 5.2.33.2.1 Replace bearing lubricant in compressors.
- 5.2.33.2.2 Clean exterior of blower, motor, motor fan, and inside of motor fan
shroud.
- 5.2.33.2.3 Perform vibration analysis on motors (2) and compressors (2).
- 5.2.33.2.4 Perform motor circuit analysis on motors (2).

- 5.2.34 Calorimeter Chiller Pump Skid
- 5.2.34.1 Semi-Annual Maintenance
- 5.2.34.1.1 Inspect pump drive system for wear, tightness, and alignment.
- 5.2.34.1.2 Grease motor bearings.
- 5.2.34.2 Annual Maintenance
- 5.2.34.2.1 Clean exterior of blower, motor, motor fan, and inside of motor fan
shroud.
- 5.2.34.2.2 Perform motor circuit analysis

- 5.2.35 Spencer Blower (2 Units)
- 5.2.35.1 Annual Maintenance
- 5.2.35.1.1 Inspect drive systems for wear, tightness, and alignment.
- 5.2.35.1.2 Lubricate motor bearings and coupling.
- 5.2.35.1.3 Inspect plumbing vibration isolation couplings for wear, damage, and
leaks.
- 5.2.35.1.4 Clean exterior of blower, motor, motor fan, and inside of motor fan
shroud.
- 5.2.35.1.5 Change bearing oil.
- 5.2.35.1.6 Check for soft footing.
- 5.2.35.1.7 Perform vibration analysis
- 5.2.35.1.8 Perform motor circuit analysis

- 5.2.36 Air Filter Bench (4 Units)
- 5.2.36.1 Annual Maintenance
- 5.2.36.1.1 Change compressed air filters.
- 5.2.36.1.2 Check flange and pressure tap connections for leaks.
- 5.2.36.1.3 Inspect exterior of benches for indications of damage.
- 5.2.36.1.4 Inspect, adjust, and lubricate all hinge swivel, roller, or moving joints.
- 5.2.36.1.5 Inspect, adjust, or replace all filter seals as required.
- 5.2.36.1.6 Clean and inspect 5 Venturi flow meters.
- 5.2.36.1.7 Grease motor bearings as required.
- 5.2.36.1.8 Perform vibration analysis on 250CFM Spencer blower.

- 5.2.37 Air Mat Arrestor
- 5.2.37.1 Annual Maintenance
- 5.2.37.1.1 Inspect ducts for dust build-up. Clean as required.
- 5.2.37.1.2 Inspect filter cartridges and replace as required.

- 5.2.38 Air Flow Lab Air Handling Units ACC-1, ACC-2, and Chiller Unit
 - 5.2.38.1 Monthly Maintenance
 - 5.2.38.1.1 Inspect and clean or replace filters as required.
 - 5.2.38.2 Quarterly Maintenance
 - 5.2.38.2.1 Inspect and adjust dampers for proper operation.
 - 5.2.38.3 Semi-annual Maintenance
 - 5.2.38.3.1 Check blower belts and sheaves condition, tightness, and alignment.
 - 5.2.38.3.2 Lubricate motor and fan bearings.
 - 5.2.38.4 Annual Maintenance
 - 5.2.38.4.1 Clean and inspect access doors, seals and fan foundation platform.
 - 5.2.38.4.2 Clean and inspect condenser tubes.
 - 5.2.38.4.3 Check compressor oil level.
 - 5.2.38.4.4 Check operating controls for proper operation and adjustment.
 - 5.2.38.4.5 Perform annual calibration inspections and maintenance.

- 5.2.39 Battery and Air Flow Lab Humidification Units (Nortec NH Electric Resistive Steam Humidifiers) (5 units)
 - 5.2.39.1 Semi-annual Maintenance
 - 5.2.39.1.1 Visually inspect Water and steam connections for leaks and damage.
 - 5.2.39.1.2 Inspect electrical cables and components for tightness and damage
 - 5.2.39.1.3 Clean and inspect cabinets for damage
 - 5.2.39.1.4 Check for sufficient clearances around humidifier.
 - 5.2.39.1.5 Drain the unit and de-scale all internal surfaces. Inspect all components for damage.
 - 5.2.39.1.6 Reset service indicators.

- 5.2.40 PEVEL Dynamometer Cooling Water Strainer
 - 5.2.40.1 Quarterly Maintenance
 - 5.2.40.1.1 Clean or Replace de-watering sock filters.
 - 5.2.40.2 Annual Maintenance
 - 5.2.40.2.1 Inspect, clean, and replace or repair as required all of the following components:
 - 5.2.40.2.1.1 Cover seal
 - 5.2.40.2.1.2 O-rings
 - 5.2.40.2.1.3 Fine screen
 - 5.2.40.2.1.4 Coarse screen
 - 5.2.40.2.1.5 Piston
 - 5.2.40.2.1.6 Dirt collector
 - 5.2.40.2.1.7 Bearings
 - 5.2.40.2.1.8 Electric motor packing
 - 5.2.40.2.1.9 Air and water connections.
 - 5.2.40.2.1.10 Shaft packing seal

- 5.3 Additional work required supporting overall operations and maintenance plan that must be incorporated as follows:
 - 5.3.1 The contractor shall perform calibration of Vehicle Environmental Chamber (VEC) Instrumentation. The contractor shall utilize NovaStar Solutions or an ISO 17025 accredited metrology laboratory. Initial calibration will be conducted 6

- months after the start of this contract and then annually thereafter. All calibrations shall be performed onsite within a two-day period.
- 5.3.2 The contractor shall perform calibration of VEC and GSPEL hazardous gas detection systems upon initiation of this contract and then annually thereafter. The contractor shall utilize a calibration service with experience in calibration of Inotek gas detection systems.
- 5.3.3 The contractor shall perform vibration analysis on equipment on a quarterly basis as prescribed in section 5.2.
- 5.3.4 The contractor shall establish a vibration analysis program to include start up and programming initiated at the beginning of this contract to establish a baseline for vibration analysis of the equipment as identified in section 5.2 (CDRL A006).
- 5.3.5 The contractor shall perform motor circuit analysis (MCA) for equipment as identified in section 5.2 of this PWS. The contractor shall provide analysis reports for each motor circuit (CDRL A006). The contractor shall perform this analysis with both on and off- line conditions
- 5.3.6 The contractor shall perform oil analysis annually for all equipment listed elsewhere in Part 5 of this PWS.
- 5.3.7 The contractor shall perform a quarterly inspection and maintenance program for the PEVEL Bridge Crane. The contractor shall provide all reports and documentation of results (CDRL A007).

5.4 Equipment Repairs

5.4.1 Should the contractor discover a mechanical deficiency or any condition requiring remedial action or repairs in any piece of equipment listed above, it shall notify the COR and provide a written estimate of the price of repair. This estimate shall list the number of hours, by labor category, as well as the type and cost of materials needed to make the repairs.

5.4.2 If the Government discovers that a mechanical deficiency or any condition requiring remedial action or repairs in any piece of equipment listed above, it shall notify the contractor. The contractor shall send a representative within one business day to diagnose the problem, and shall provide a written estimate of the price of repair. This estimate shall list the number of hours, by labor category, as well as the type and cost of materials needed to make the repairs.

5.4.3 Once the Government has received the written estimate from the contractor, the Government will, at its discretion, provide notice to the contractor to proceed with the work. The contracting officer may require documentation to justify the price of any required material, items, or subcontracting effort. The contractor shall present all parts that have been replaced to the COR for visual inspection. Upon completion of the repairs, the contractor is responsible for disposing of old parts.

5.4.4 The contractor shall provide a monthly status report for all ongoing equipment maintenance on the following deliverable: Laboratory Equipment Inspection & Maintenance Report (CDRL A001). Upon completion of repair work, the contractor shall provide a work summary detailing the performance of the work, to include before and after photographic documentation. The contractor shall include this information in the following deliverable: Laboratory Equipment Inspection & Maintenance Report (CDRL A001).

5.5 Scheduling and Notification

5.5.1 The contractor shall identify, in advance, the impacts that scheduled maintenance, modifications, or installations will have on ongoing or adjacent operations and provide notice to the Government. The contractor shall provide a schedule to accompany the notice on an as required basis as follows: Daily Site Activity Schedule (CDRL A005).

TECHNICAL EXHIBIT 1

Performance Requirements Summary

The contractor service requirements are summarized into performance objectives that relate directly to mission essential items. The performance threshold briefly describes the minimum acceptable levels of service required for each requirement. These thresholds are critical to mission success.

Performance Objective (The Service required—usually a shall statement)	1.1.1.1 Standard	Performance Threshold (This is the maximum error rate. It could possibly be “Zero deviation from standard”)	Method of Surveillance
PRS # 1. Contractor shall perform all necessary equipment upgrades and installations, in accordance with PWS Para 5.1	Applicable OEM and OSHA standards.	Zero deviation from standard.	100% Inspection
PRS # 2 Contractor shall perform all scheduled equipment maintenance in accordance with OEM instructions/specifications. PWS Para 5.2 and 5.3	OEM specifications and manuals	Zero deviation from standard	100% Inspection
PRS # 3 Contractor shall complete all directed equipment repairs in cost efficient and timely manner. PWS Para 5.4	OEM specifications and manuals, contractor’s time and material estimate.	100% resolution of equipment deficiencies/ Repairs competed not later than 2 business days after agreed-upon completion schedule	100% Inspection

TECHNICAL EXHIBIT 2**DELIVERABLES SCHEDULE**

<u>Deliverable</u>	<u>Frequency</u>	<u># of Copies</u>	<u>Medium/Format</u>	<u>Submit To</u>
Laboratory Equipment Inspection and Maintenance Report (CDRL A001)	Monthly	3	Electronic file by e-mail as an MS Word or Adobe PDF document	Brian Carr (brian.a.carr1.civ@mail.mil), Steve Roberts (stephen.w.roberts20.civ@mail.mil), and Jarrod Hoose (jarrod.i.hoose.civ@mail.mil)
Consumable Parts Inventory and Parts Usage Report (CDRL A002)	[Same as above.]	[Same as above.]	[Same as above.]	[Same as above.]
Contractor's Quality Control Program (CDRL A003)	First Submission 30 days after contract award, as needed thereafter	[Same as above.]	[Same as above.]	Brian Carr, Joe Simon(joseph.r.simon13.civ@mail.mil), Jarrod Hoose
Physical Inventory Report(CDRL A004)	Annually	[Same as above.]	[Same as above.]	Brian Carr, Steve Roberts, and Jarrod Hoose
Daily Site Activity Schedule (CDRL A005)	Daily	[Same as above.]	[Same as above.]	[Same as above.]
Motor Circuit Analysis Report (CDRL A006)	Annually	[Same as above.]	[Same as above.]	[Same as above.]
Inspection and Maintenance Report for PEVEL Crane (CDRL A007)	Quarterly	[Same as above.]	[Same as above.]	[Same as above.]

(End of Summary of Changes)