



METROPOLITAN WASHINGTON  
AIRPORTS AUTHORITY

## **STATEMENT OF WORK**

# **PREVENTIVE AND CORRECTIVE MAINTENANCE SERVICES, CHILLERS AND RECIPROCATING SYSTEMS AND THE ICE HARVESTING UNITS AT WASHINGTON DULLES INTERNATIONAL AIRPORTS**

**PREPARED BY: Metropolitan Washington Airports Authority**

**Washington Dulles International Airport  
Maintenance Engineering Department (MA-226)**

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## **SECTION II - SUMMARY OF WORK**

### **01 SUMMARY OF WORK**

The Metropolitan Washington Airports Authority (Airports Authority) is seeking a single service General Mechanical Contractor who is regularly engaged in the maintenance and repair of refrigeration systems at the scale and complexity of this contract for the past ten (10) years, specialized in single packaged Water or Air Cooled Chiller Units and their associated equipment.

The Contractor's work includes implementation and execution of all the services, tasks and goals identified in this Statement of Work.

The Contractor shall execute Base Services covering preventive maintenance (PM) and system operations and testing; and Supplemental Services (SS) for corrective maintenance (CM) that covers equipment repairs and overhauls, and/or other specialized services as identified or required to maintain the safe and efficient operation for 20,000 Tons of cooling.

The refrigeration systems at Dulles consist of outdoor air cooled compressor units and water cooled chillers that range in sizes from 150 Tons to 2000 Tons, including two 700 Ton Energy Storage Ice Harvesting units. The primary systems are Trane, York and McQuay units.

The Contractor shall develop, schedule and execute a Preventive Maintenance Program (PMP) that is based on the tasks that the SOW has identified. The Contractor may also recommend to MWAA Industry Best Practices and other service or methodology that the manufacturers may require for consideration in servicing the components to our refrigeration systems at Dulles.

The goal of the Airports Authority is to obtain a maintenance program that will reduce and minimize equipment repairs and maintenance costs through improved preventive and predictive (PdM) maintenance measures. The Contractor shall provide in the implementation of their work a practical and knowledgeable level of quality control techniques to ensure the success of predictive maintenance in their preventive maintenance activities at Dulles.

The following refrigeration systems are included in Base Services, eight 2000 ton water cooled Trane Duplex Centra-Vac centrifugal chillers using R-123 refrigerant, two 700 ton Thermal Energy Storage Ice Harvesting units using R-22 in the Utility Building (UB), two 150 ton water cooled McQuay units using R134A, two 150 Ton water cooled York chillers using R22, two 140 and three 250 ton outdoor reciprocating Trane model RTAC air cooled compressors units using R134A, and two 110 and one 130 ton water cooled screw Dunham Bush compressors using R22 at Dulles.

The Contractor shall provide and maintain the resources of an actively employed service staff and specialized subcontractors capably sized to successfully complete the tasks of work covered in this SOW in a timely planned order. The Contractors staffing shall be capable to maintain and satisfy all services as identified in this SOW at all times, and that meet with the requirements for certifications and specialized experience years for their HM, JRM, and LRM Staff.

The Contractors execution of work shall be sequenced to consecutively complete the PM tasks going from one system's unit to another until the PMP or the CM or SS is completed as scheduled or approved by the UB Supervisor.

The Contractor shall execute a communication plan that is effective and accurate in making contact with the Utility Building (UB) Supervisor and the Contracting Officer's Technical Representative (COTR) for replying to responses, proposals, invoices, the monitoring of work and equipment status, and the keeping of records.

The Contractor shall provide all necessary types of labor, including specialized subcontractors, materials, tools, supervision, and equipment necessary to perform the PMP, and to execute Supplemental Services as authorized for the following types of selective tasks or to the system categories listed.

1. Eddy Current testing.
2. Major equipment overhauls and upgrades.
3. Refrigerant recovery and processing.
4. Certified Square D Starter PM on 4160V Medium Voltage breakers.
5. Tracer Summit Control diagnostics.
6. Condenser and/or Chilled Water Pump loops.
7. Cooling Tower Fans.
8. Tube Cleaning.
9. Repairs on McQuay, York, and Trane units.
10. Repairs on the Thermal Energy Storage Ice Harvesting units, a Trane Absorption Cold Generator unit, and rooftop Direct Expansion air cooled units, packaged units and/or heat pumps.

## **02 RESPONSIBILITY OF THE CONTRACTOR**

The reliability of the equipment serviced by this Contract depends on a highly effective PMP. The Contractor and their subcontractors performing the preventive maintenance or Supplemental Services as a minimum shall provide and maintain the following goals. The Contractor's PMP Services shall be executed during scheduled intervals consistent with the operations of the UB, and the equipment's seasonal service operation. The PMP shall be submitted for review and approval within 15 days from award of this contract to the UB Supervisor and COTR.

- A. To obtain a complete service-results oriented PMP that will effectively communicates how the Contractor is providing an efficient service for the PM required by this SOW.
- B. To establish and implement a PMP that results in continuous improvement in the equipment's performance, and assesses for RCM or corrective action.
- C. To review and document the operational status and functional performance via inspection of the equipment assuring the Contractors activities accurately acknowledges what changes there are, if any, in the status of the equipment and identifies any degradation or PdM.
- D. To provide an accurate well defined schedule that is coordinated and does not interfere with operations at the UB.
- E. To anticipate predictive maintenance needs to prevent potential failures either before they occur or before they develop into major defects (imminent failures).
- F. To respond to all supplemental services and to perform the necessary corrective repair or action effectively and efficiently.
- G. To carefully follow all safety regulations, including safety precautions identified for operating and servicing the chillers and ice harvester units.
- H. To complete all of the approved or authorized additional SS services during the winterization period between December 1st and March 31st including any associated reports as identified in this SOW.

The Contractor will be responsible for all assigned and authorized supplemental services tasks.

The Contractor will be responsible for the proper and safe securing of the equipment being serviced at all times, including shut down and start up of the equipment with coordination and approval from the UB Supervisor.

The Contractor will coordinate with the UB Supervisor for any restrictions or operational restraints' affecting the execution of their services. The Contractor's Supervisor and/or LRM shall at the beginning and the ending of their workday notify the UB Supervisor of their activities.

The Contractor shall record and document all of their work on work tickets. The Contractor shall also provide specific reports and testing results when required. The Contractor shall respond to the Dulles Airport Work Order Desk for tracking PMP activities and Supplemental Services.

The Contractor will notify the UB Supervisor and the COTR in writing when providing justification for any proposed changes or improvements to the PMP. Approved changes will be added to the SOW.

The Contractor shall be responsible for housekeeping during the performance of all its work and from the services they have performed this includes removal of all debris, and cleaning of the equipment from grease and dirt.

The Contractor as a Supplemental Services shall be capable to provide a ten year Major Inspection and Overhaul/Upgrade of the Trane 2000 Ton chiller units, including their compressors, auxiliary and/or refrigerant system devices, and the Purge system as recommended and required by Trane.

The Contractor shall provide during winterization a certified 4160V Square D Stator preventive maintenance test and repair by a certifiable electrical subcontractor for the chillers in the UB as Supplemental Services.

The Contractor shall provide the services from a chiller manufacture of Trane, McQuay and York units, and for the Ice Harvesters when identified by requests as Supplemental Services.

The Contractor's PMP shall provide as a minimum the following types of services to the chillers and reciprocating units:

1. Review of operational characteristics and log history.
2. Testing and inspection.
3. Set point and control adjustments
4. Abnormal Vibrations.
5. Instrument calibrations.
6. Refrigerant and oil removal and charging.
7. Processing of spent fluids or gasses off site.
8. Motor and starter voltage checks and adjustments.
9. Refrigerant leak testing.
10. Record and review flow, pressure and temperature readings.
11. Observe and verify purge control and operation.
12. Provide Oil / Refrigerant analysis.
13. Verification of safeties.
14. Unit shutdown and start up as necessary with UB approval.

The Contractor will provide as a minimum the following types of PMP services to the ice harvesting units; and provide coordination in scheduling that does not restrict the operational period between 10 AM and 9:30 PM for the Ice Harvesting units; unless specific permission is authorized by the UB Supervisor:

1. Lubricate pumps, motors and drives.
2. Check for scale or fouling of evaporator plate surface.
3. Verify chemical treatment is in balance
4. Check motor/compressor coupling and electrical connections, wiring and lugs for loose connections.
5. Verify water strainers are clean.
6. Check storage tank water level.
7. Check pressure drop across drier cores.
8. Check refrigerant charge and levels.
9. Analyze refrigerant.
10. Verify tank water depth, circulating water temperature, discharge and suction pressure, and oil pressure
11. Verify the operating mode (Ice making or Chilling)
12. Check liquid line sight glass levels.
13. Verify operational conditions, and log information.
14. Unit shutdown and start up as necessary with UB approval.



### **SECTION III - DEFINITIONS**

**24/7** – Twenty-four hours a day, seven days a week

**ADMINISTRATION** – Office Supervisor that process invoices, contract documentation, and service calls.

**ADD-ALTERNATE** - Requires the Contractor to perform same description of services as are required on the Base Services section of the contract to other designated equipment.

**AIRPORT** – Shall refer to Washington Dulles International Airport, aka, “Dulles” as described in the SOW.

**AOA** - Aircraft Operation Area - The portion of the airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. This is a security area requiring security badging. Workers in this area are required to obtain and display an AOA photo ID credential.

**ASTM E243** – Standard Practice for Electromagnetic (Eddy Current) Examination of Copper and Copper Alloy Tubes

**ASTM** – American Society for Testing and Materials

**ANSI/ASNT CP-189** – ASNT Standard for Qualification and Certification of Nondestructive Testing Personnel

**ASHRAE** – American Society of Heating, Refrigeration, and Air Conditioning Engineers.

**AIRPORTS AUTHORITY** - The Metropolitan Washington Airports Authority

**AIRPORTS AUTHORITY WORK HOURS** - The business hours are 6 AM through 4:30 PM EST/DST, Monday through Friday, excluding weekends and Federal holidays.

**BASE SERVICES** – The Contractor will perform and provide all services, testing, and documentation required by this contract as listed and as described in the SOW.

**BEST PRACTICE** – a method or technique that has consistently shown results superior to those achieved with other means.

**CMMS** - Computerized Maintenance Management System is used to record work orders, maintenance and repair activities, inspections and deficiencies, identify parts and track service call requests.

**COTR** - Contracting Officer’s Technical Representative.

**CORRECTIVE MAINTENANCE (CM)** - Required corrective practices or measures, installation, adjustment, and/or repairs identified during a preventive maintenance program (PMP) or from an unusual circumstance adversely affecting the normal system or equipment’s operation. Corrective maintenance shall be performed on a priority basis as necessary to meet the required System Service Availability through a Call Order.

**CORRECTION** - The elimination of a deficiency, and the adjustment and/or calibration of an instrument, controller, component, equipment, or system.

**DULLES** - Washington Dulles International Airport.

**EIP** – Eddy Current Testing Program.

**EI** – Eddy Current

**FM1J** – The database system utilized by work order station in MA-226, Maintenance Engineering Division, for recording, receiving, tracking, trending and reporting service calls at Dulles.

**HCS** - Hazardous Communication Standard also known as “HAZCON”.

**HOUSEKEEPING** - The absence of dirt, litter, debris, dust, surface marks, spills, oils, film, stains, streaks, and/or any other foreign matter generated from the execution of the Contractor’s work.

**HVAC MECHANICAL PERSONNEL (HM)** - mechanical personnel who have completed an apprenticeship program or vocational training with five years of refrigeration and/or HVAC service experience. All mechanics shall have a current certification as required by the United States Environmental Protection Agency for refrigeration gases.

**INSPECTION** – A documented visual observance, test, or review of the equipment.

**JOURNEYMEN REFRIGERATION MECHANIC (JRM)** - are Staff that have qualifying experience equal to a minimum of seven (7) years of actual work in this trade, the successful completion of a State registered apprenticeship program as a pipefitter or refrigeration mechanic, and/or an applicable vocational training program. Two (2) of the seven (7) years must include as a minimum, experience in the area of specialization in refrigeration mechanics on chiller refrigeration for chillers sized 100 Tons and above. Also, all journeymen refrigeration mechanics shall have a current certification as required by the United States Environmental Protection Agency for refrigeration gases. Note: The personal attributes needed to undertake this job responsibility are evaluated by the COTR for knowledge and ability to perform the necessary manual labor or mechanical operations, installation, repair, and maintenance customarily performed by refrigeration mechanics of this tenure, and failure to meet with these conditions and approval by the COTR shall provide for dismissal or non-acceptance of Staff.

**LITTER** - Debris, waste paper, beverage containers, dead birds, dead animals, etc.

**MA-226** - Engineering and Maintenance Department, Maintenance Engineering Division

**METROPOLITAN WASHINGTON AIRPORTS AUTHORITY (the Airports Authority)** - The public body responsible for the operation and management of both Ronald Reagan Washington National Airport (Reagan National) and Washington Dulles International Airport (Dulles).

**MAINTAINED SYSTEMS** - For simplicity purposes, this phrase refers to the components and equipment comprised in the Chillers and Ice Harvesting systems for which this Statement of Work refers to, and as they pertain to the Price or Maintenance Schedules associated with this Statement of Work.

**MSDS** - Material Safety Data Sheet

**OSHA** – United States Occupational Safety and Health Administration.

**QUALITY CONTROL PROGRAM** - A method used by the Contractor to assure that a consistent level of quality services is maintained thorough out the terms of the Contract, ensuring the characteristics of their work satisfy the proper standards of the contract requirements, and that the Contractor is being attributable to the performance and corrective measures necessary to maintain the desired results.

**QUALITY ASSURANCE (QA)** - A means by which the Airports Authority and the Contractor are able to confirm that the quantity and quality of services received and executed conform to contract requirements and the QCP. These methods/procedures are not intended to be a substitute for contract quality control.

**PREVENTIVE MAINTENANCE PROGRAM (PMP)** - Scheduled cyclical service in accordance with the SOW and the operational guidelines for the equipment covered in this SOW.

**LEAD REFRIGERATION MECHANIC (LRM)** – The LRM will have as a minimum a journeymen's license and/or experience qualifying as a JRM, plus an additional three (3) years of specialized work experience on chillers, for a combined total of five (5) specialized work years as a refrigeration mechanic on chillers sized 100 Tons or more. The LRM will have as a minimum a total of ten (10) years of work in this trade. The specialized work period of a LRM shall have included experience for a person who operates, inspects, adjusts services, repairs or overhauls chiller's compressors and pumps, and their refrigeration equipment, diagnoses chiller operational conditions, makes recommendations to defects in chiller operation or the refrigeration equipment, maintains records and prepares reports on repairs and/or service completed, and executes recognized chiller industry practices, procedures and techniques for preventive maintenance in this trades work. Also, all journeymen refrigeration mechanics shall have a current certification as required by the United States Environmental Protection Agency for refrigeration gases. Note: The personal attributes needed to undertake this job responsibility are evaluated by the COTR for knowledge and ability to perform the necessary manual labor or mechanical operations, installation, repair, and maintenance customarily performed by refrigeration mechanics of this tenure, and failure to meet with these conditions and approval by the COTR shall provide for dismissal or non-acceptance of Staff.

**PREDICTIVE MAINTENANCE (PdM)** - are techniques that determine the conditions of equipment to predict when and what maintenance should be preformed increasing equipment availability, and that the right information is given in the right time.

**PROJECT MANAGER** – Supervisor person who supervises and leads skilled Staff and directs work assignments and other assigned personnel in the trade of refrigeration mechanics, processes proposals and/or invoices, maintains records, and performs duties peculiar to and normally required in the trade of refrigeration, and implements recognized procedures and techniques for this work, and is responsible for Quality Control. The project manager is not a replacement for Staff assigned and shall have experience equal to a LRM as well as an additional two (2) years history of managing Staff, contracts and subcontractors.

**RELIABILITY CENTERED MAINTENANCE (RCM)** - is a process to establish the safe minimum levels of maintenance determined by the following. What the equipment is supposed to do and its performance standards. What are the ways the equipment can fail to provide the required function. What are the events that cause the failure, and what happens when the failure occurs, and what does it matter. What task can be performed proactively to prevent or diminish the consequences of this failure.

**SERVICES** - Includes services performed, workmanship, and material furnished or utilized in the performance of services.

**SNTC** – Society for Nondestructive Testing

**SOW** – Statement of Work

**STATE** - The Commonwealth of Virginia

**SUPERVISOR** - Supervises individuals and/or groups/teams of employees/sub contractors.

**UB** – Heating & Cooling Utility Building.

**WORK ORDER** – A service request call released from the Work Order Desk with a number identification, a description of the service request, the time and date sent, and contact information. Work Orders identify tasks in Base Services (preventive or corrective maintenance), emergencies, and/or reference Call Orders.

**WORK ORDER DESK** – The service unit that when utilized is primarily responsible for receiving, dispatching, and tracking service requests (FM1J). The telephone number at Dulles is 703-572-2813.

**VANDALISM** - Willful or malicious abuse and/or destruction of property.

## **SECTION IV - BASE SERVICES**

The Contractor shall provide all supervision, labor, administrative support, materials, tools, parts, supplies, equipment, and transportation necessary to effectively perform and efficiently fulfill Base Services.

The Base Services part of the SOW requires the Contractor to deliver practices incorporating techniques based on PdM and RCM, manufacturer recommendations, best practice and the specific tasks as identified.

The Contractor shall be responsible for housekeeping during the performance of all its work and from the services they have performed including removal of all debris, and cleaning of the equipment from grease and dirt.

The Contractor shall provide a detailed cyclical PMP for the chillers, reciprocating units and ice harvesting units as identified in the Price Schedule. The Contractor's PMP shall include all of the administrative requirements of this scope of work and the services identified in Section III Introduction, and Section IV Base Services.

- A. The Contractor's PMP service shall provide the equipment covered by this contract with compliance to manufacturer guidelines and recommendations, and any other applicable code, law or regulation in practice recognized as a current Industry standard.
- B. The Contractor shall verify all of the chillers and ice harvesting units are in a safe and proper operational mode during execution of the PMP as part of the Base Services.
- C. The COTR in writing may direct the Contractor to reschedule and/or reduce any PM occurrence. The Contractor shall appropriately reduce their invoicing per the Price Schedule if PM tasking is not performed on any chiller, reciprocating unit or ice harvesting units.

### **01 PREVENTIVE MAINTENANCE PROGRAM (PMP)**

The Contractor's Preventive Maintenance Program (PMP) shall provide for 12 monthly inspections, which include a pre-startup and shutdown service during winterization for fifteen (15) chillers, and two (2) ice harvesting units, and five (5) outdoor reciprocating units as Base Services. PMP work is performed between the hours of 6:30 AM and 3:30 PM, Monday through Friday; and is to be completed by 3:30 PM on any one unit being serviced unless permitted by the UB Supervisor. PM activities shall not run onto another day for a single unit's PM without coordination and permission from the UB supervisor.

The monthly PMP shall record and verify any diagnostic description present to a chiller, reciprocating units or ice harvester unit in operation. The Contractor shall monitor and record the sequence of operation that each unit is in; and include identification of their operational characteristics shown on their control panels or by instruments for each chiller, reciprocating unit or ice harvester.

The Contractor shall provide final hard copies and electronically prepared PM Service report forms to the Utility Building (UB) Supervisor. The reporting format shall be developed by the Contractor and shall be approved by the UB Supervisor (planner) as to the forms contents of the PMP task or SS. PM and SS forms or reports shall be submitted upon completion of the service to the UB Supervisor.

During each of the released yearly service periods, the Contractor shall submit a brief bi-monthly (six) executive summary listing dating all activities completed or released, i.e. PM's and Call Orders to the UB Supervisor and COTR by email no later than five business days pass the calendar month established.

- At the end of each contract service period (Option Year) the Contractor's correspondence, execution plans, service reports, equipment inspections, forms, executive summary listings etc. shall be submitted on a Cd for the COTR and UB Supervisor.

The Contractor shall submit their PMP with an execution plan (schedule) to the UB Supervisor and COTR for review on compliance to the SOW in 15 days after award of this contract. The PMP submission shall include as a minimum the following:

- An example of the executive summary listing, reports and forms that the Contractor will utilize, and a brief narrative explaining how their implementation of the preventive maintenance program will be executed, which shall also include the execution plan.
- Omissions or clarifications to the PMP and/or the execution plan shall be incorporated and resubmitted as a final report within five days from the conclusion of the meeting. The Contractor, if requested by the COTR or UB Supervisor, shall provide further explanation detailing specific procedural scope on the contents of it's PMP
- The execution plan shall also be reviewed for coordinated with the UB Supervisor for sequence, scope restrictions, or operational restraints.

Upon the approval of the execution plan by the UB Supervisor and the COTR, the Contractor shall submit an email of the final plan in Microsoft Word or Excel. The execution plan shall then be incorporated in to the work order system by MWAA staff.

The Contractor's PMP shall also provide for an annual refrigeration and oil analysis report on a chiller, a reciprocating unit or ice harvester as Base Services or as directed by the UB Supervisor. The refrigerant analysis shall check for acidity, oil content, and moisture contamination and the oil analysis will identify metals as a minimum.

The Contractor's PMP shall provide monthly inspection and specific evaluation of each purge unit for their systems' operation in coordination with the operational status of the 8 chillers and 2 ice harvesters in the UB during the month. Functional service repair, calibration or tear down to any Purge System shall be Supplemental Service. Operational criteria of the Purge Systems to any chiller shall be reported in each monthly PM and specifically presented to the UB identifying any abnormalities or incorrect operation.

The Contractor's PMP shall also clearly identify any difference in services to a chiller, reciprocating units or ice harvesting unit under load versus being a unit in a standby mode.

A. Monthly chiller PMP services shall include as a minimum the following tasks to all chillers and reciprocating units:

1. Check and record operating temperatures, pressures and amperages and voltages.
2. Check operating safety controls.
3. Check operation of purge. Check purge operating minutes/hours for leak detection and record. Drain, remove and process all non condensable from the purge equipment.
4. Review logs with UB Supervisor. Advise UB Supervisor on the unit's operation.
5. Report any uncorrected deficiencies
6. Identify recommendations of PdM or RCM to improve efficiency.
7. Check all auxiliary equipment for status.
8. Check and verify all oil levels and heaters.
9. Inspect for any leaks.
10. Check, record and clean all sight glasses, temperature and pressure gauges.

11. Coordinate with the UB Supervisor to execute a starting or unit shut down, required auxiliary equipment starting and stopping, and for operations, trends and status of each chiller and reciprocating unit.
12. Diagnose any problems or deficiencies, and review with UB Supervisor.

B. Annual start-up and shut-down of a chiller or reciprocating unit for PMP services shall include as a minimum the following tasks in addition to monthly PM activities:

1. Review of previous operating logs.
2. Check for refrigeration leaks.
3. Perform service to purge system.
4. Check all safety controls.
5. Meg motor and oil pump motor.
6. Check starter terminals contacts for wear.
7. Change oil filter if applicable.
8. Replace refrigerant monitor filters if authorized.
9. Check operation of the vane controller.
10. Report any uncorrected deficiencies.

The Contractor's annual PMP shall provide for annual calibration of the evaporator refrigerant temperature sensors to be within +2 F of set-point for the eight chiller in the UB, in coordination with and as directed by the UB Supervisor.

C. Monthly PMP Services for the Ice Harvesting Units shall include as a minimum the following tasks are verified and recorded:

1. Review of previous operating logs.
2. Tank storage water depth.
3. Circulating water temperature.
4. Discharge and suction pressure.
5. Oil pressure.
6. Operating mode (Ice or Chilling).
7. Liquid line sight glass flow.
8. Moisture indication.
9. Verify oil level and oil return strainer status.
10. Check refrigerant charge and levels.
11. Pressure drop across drier cores.
12. Report any uncorrected deficiencies.

Annual start-up and shut-down services for the Ice Harvester PMP shall include as a minimum the following tasks in addition to monthly PM activities:

D. Shut-Down

1. Check motor/compressor coupling.
2. Check electrical connections, wiring and lugs for loose connections.
3. Check for scale or fouling of evaporator plate surface.
4. Verify water strainers are being cleaned.
5. Clean distribution pan as necessary.
6. Lubricate motor bearings.
7. Analyze refrigerant sample.
8. Inspect filter/drier cores and replace if directed as SS.

9. Check the packing on all valve stems
10. Drain the system in coordination and approval with the UB for cleaning and inspection.
11. Pump the system down: to 0-5 psig.
12. Cycle the Master Control Switch.
13. Replace and secure all seal caps.
14. Check the packing on all valve stems for leaks.
15. Isolate the refrigerant charge.
16. Prevent a freeze up.
17. Pull the main disconnects.
18. Secure all access panels and doors to the equipment and storage tank.

E. Start-Up

1. Remove and clean all water line strainers and filters.
2. Refill all water lines, sumps, basins and storage tanks.
3. Verify the water distribution pans are clean.
4. Verify all oil levels; remove any refrigerant accumulation in the compressor crankcase.
5. Replace filter/drier cores as required.
6. Verify all valves are in their proper positions.
7. Verify power is properly energized and the control panel sequences are modulated in their proper order and position.
8. Reset the low pressure safety cutout to 15-20 psig and observe the start-up sequence of the unit. Verify that suction pressure, discharge pressure, and oil pressure are within specifications.
9. Verify with the UB Supervisor for part load operations of the compressor until the tank temperature can be pulled down with-in the operating specifications.
10. Notes. Coordinate with UB Supervisor on all of these activities before proceeding. If the sight glass moisture indicator is yellow and does not clear up after the unit has operated for 10-15 minutes, the drier cores should be changed. Monitor the oil level in the compressor and frost line on the compressor suction inlet. If proper oil return is not obtained, it may be necessary to clean the strainer(s) in the oil return lines. If frost appears on the compressor, indicating excessive liquid return, the system shall be pumped down again, and after adjustments have been made a restart is available; if the liquid carry-over continues, an adjustment of the thermal expansion valves may be required. Manually open the high ice level switches to determine if the automatic shut down on high ice level is functioning properly. When satisfactory operation is observed and confirmed the Ice Harvesting unit control panel can be returned to either the "off" or "automatic" position.

The replacing of filters and drier cores shall be executed as Supplemental Services when directed.

The bulk of all corrective and preventive maintenance work orders is generated either through the Airports Authority's FM1j Computerized Maintenance Management System (CMMS) or via the installed CMMS system operated by the Contractor that targets the various specialized electronic systems at Washington Dulles International Airport covered under this contract.

## **02 PREVENTATIVE MAINTENANCE PROGRAM REPORTING**

Whenever work is not completed on schedule or was not permitted due to a deficiency or operational restraint from the UB Supervisor, the Contractor will in coordination with the UB Supervisor submit a written notice for rescheduling the tasks to the UB supervisor for approval. The Contractor will execute the rescheduling and performance of the work task at no additional cost.



The Contractor shall maintain a CD file for archival retrieval of all contract documents for each contract period (Base & Option Years) and annually submit the record CD file of all these records to the UB supervisor and COTR.

When any deficiencies are found, the Contractor will immediately notify the UB supervisor before proceeding to finish its PM site visit and document the observance on its daily work ticket.

The Contractor shall upon arriving to the job site and prior to its departure from the job site; check-in with the UB supervisor or UB Staff as directed, and/or the Work Order Desk if necessary during a callback. The Contractor shall check-in and inform the UB Supervisor or Staff, and/or the Work Order Desk after hours, as to the purpose of the visit and checkout will be with both.

The Contractor shall document each site service and furnish a copy of its work order form to the UB supervisor and/or Staff as directed.

### **03 CORRECTIVE MAINTENANCE SERVICES**

The identification of Corrective Maintenance (CM) services are part of the Base Services and can result from discovery in execution of the Contractor's services and/or be reported by the UB Supervisor through the COTR. The repairs identified for CM from PM or the UB Supervisor or COTR shall be authorized by a Call Order that only the COTR can release except for when an emergency occurs. A Call Order to the Contractor will be executed on a time and material basis under Supplemental Services.

The Contractor's CM service shall be planned for execution and shall not interfere or prevent the PMP services from continuing as scheduled. The Contractor shall coordinate with the UB Supervisor for all access to the equipment before the start of any CM work.

If the Contractor's PMP tasks reveal that an item is not operating correctly; not in compliance with the code; or presents a safety hazard to users, the Contractor shall notify the Utility Plant Supervisor immediately and record their observance.

In the event of catastrophic equipment failure, accident, or injury the Contractor shall engage emergency shutdown controls or stop buttons controlling the equipment and immediately inform the UB Supervisor.

### **04 MATERIAL AND PARTS**

The Contractor shall be reimbursed for material and parts at the same rate as the Contractor with an added 10 percent markup. Parts supplied directly by manufacturers or subcontractors shall be reimbursed at the Contractor's cost with no additional markup. There shall be no mark up for shipping and handling costs. Monthly invoices that include reimbursement for material and parts must include copies of the original invoice(s) as back-up documentation for all parts purchased for the month being invoiced. There will be no exceptions, parts without copies of original invoices will not be paid.

### **05 UTILITY BUILDING**

The Chilled Water system in the UB is supplied with eight 2000 Ton Trane Duplex Centra-Vac Centrifugal Chillers and two 700 Ton TURBO Ice Harvesting units.

The Chillers are all Model CDHF2500 with the following serial numbers: L01G09714, L01E08697, L01E08784, L01F09114, L01F09244, L01F09308, L01F09361, and L01G09588.

The Ice Harvesting Units are both TURBO Refrigeration models IGC700, serial number SLR-SC-SS with a model FTS-8-120 evaporator, and a MYCOM N7Y26 Controller.

The chiller evaporators and condensers are both single pass heat exchangers with steel shells and 5/8 diameter 21½ foot (21' 6") long copper tubes. Each chiller contains 960 evaporator tubes and 1251 condenser tubes.

The Chilled Water System (CWS) is located in the East Utility Building. This system generates a design temperature of 36 degree leaving chill water supply with 55 degree return water from airport buildings having a 20 degree delta-T. The system contains a Neutral Bridge Function, expansion tanks, pumps and associated piping. The total chill water system size is approximately 700,000 gallons.

An Ice Harvesters System connected to the chilled water system consists of heat exchangers, a refrigeration compressor system, ice storages tank, Ice Harvester, pumps, and associated piping. The total system size of the Ice Harvester storage tank is approximately 400,000 gallons of water.

The Condenser Water System for the Chillers and Ice Harvesters are serviced by eight water cooled towers, located between the East and West buildings along with pumps and associated piping. This system's approximate size is 150,000 gallons.

The Closed Loop Chilled Water Chemistry is monitored for conductivity and pH with a computerized intermittent feed of a variety of chemicals to control ph, nitrite levels, and general corrosion control for mild steel, iron dispersant and copper.

The Open Loop Condenser Water Chemistry is monitored for scaling tendency with computerized chemical concentration in ppm for an oxidizing biocide to control conductivity, ph, turbidity, make up and blow down.

**SECTION V - SUPPLEMENTAL SERVICES****01 DESCRIPTION OF SERVICES**

- A. The Airports Authority may, during the course of this contract, request that the Contractor perform Supplemental Services which are outside the requirements of the Base Services section of this contract. The Contractor will be reimbursed for supplemental service tasks in accordance with the fully loaded labor or task rates specified in the Price Schedule. There will be no mark up for shipping and handling costs. Specialized services supported by the Contractor's subcontractors shall require a proposal for processing the approvals of rates and cost not identified on the Price Schedule.
- B. The Contractor will not invoice the Airports Authority for supplemental services unless a signed Call Order by the COTR has been received and until all the work described in the Call Order has been completed to the satisfaction of the COTR. The Airports Authority will incur no obligation for work that is not authorized in advance with a signed Call Order.
- C. The Contractor will provide all supervision, labor, materials, supplies, dispensable parts, tools, and equipment necessary to perform Supplemental Service. Additional work by the Contractor will be compensated at the rates listed in the Price Schedule. Examples of supplemental service are repairs, replacements and additional maintenance or CM on any of the equipment comprised in the refrigerant system being serviced.
- D. Services may also be extended to include auxiliary equipment, as necessary, such as, the compressors, motor, starters up to 4160V, vessel shell and tubes, equipment insulation, fans, electronic sensors and controller modules, instruments, and electrical control devices, wire harnesses, fuses, vane controls, and any other ancillary components, such as, the receiver, filters, hotwell, evaporator, refrigerant pumps, water pumps, valves, and ice tank housing assemblies.
- E. The Airports Authority shall incur no obligation for out of scope work, including Supplemental Services that has not been authorized in advance by a signed Call Order.
- F. The following tasks are identified as specific Supplemental Services that the Contractor shall perform when authorized during the term of this Contract. These services shall require detailed cost proposals for processing of a Call Order; and all invoicing shall require submission of materials and labor tickets.
1. The Contractor shall provide vibration analyses report on fans or compressor motors for balance, bearing or rotor defects, proper alignment and/or gear defects (if applicable).
  2. The Contractor shall provide services for a complete Trane authorized certifiable 10 year Major Inspection and Overhaul / Upgrade of the Compressors and Refrigerant systems including the replacement or rebuild of entire Purge system of a chiller as recommended and required by the manufacturer or the COTR. The Contractor shall complete this task within thirty (30) days when authorized to proceed on site. This task also requires a one year warranty on all work and an extended five year warranty on the compressor. Terms shall be submitted with the proposal for acceptance and approval.
  3. The Contractor shall provide a certified 4160V Square D Stator preventive maintenance and repair service to a chiller.
  4. The Contractor will be capable of providing certified personnel and testing equipment meeting ASTM E243, SNT-TC 1A and ANST standards for conducting Eddy Current Testing on the

condenser and evaporator tubes. The Contractor's work shall include the possible plugging of tubes.

5. The Contractor shall be capable of providing diagnostics services on Tracer Summit Controls, and control modules for operations or programming on McQuay or York units.
6. The Contractor shall execute refrigerant recovery and processing to EPA standards utilizing the HVAC mechanic.

## **02 CONTRACT SERVICES CALL ORDER**

- A. Supplemental Services shall be requested and approved in advance by the COTR using the "Contract Services Call Order" form shown in Appendix A. The Call Order will contain a detailed description of the services that are required from the Contractor. The Contractor shall provide the COTR a detailed cost estimate including an itemized breakdown for all labor, parts and materials and shipping as well as a schedule with critical milestones for completing the work to be listed on the Call Order.
- B. Labor rates included on the contract price schedule (Supplemental Services) for the contract will be used in preparing these estimates. Both the cost breakdown and schedule shall be made part of the Call Order. The Contractor shall not proceed with any work described in such Call Orders until authorized in writing by the COTR.

## **SECTION VI - GENERAL REQUIREMENTS**

### **01 STATUS MEETINGS**

The Contractor's project managers and LRM or representative(s) shall attend four (4) two (2) hour meetings on a quarterly basis with the UB Supervisor and/or the COTR to discuss PMP tasks, tests, inspections, corrective measures, coordination, status, documentation and/or performance of the SOW.

The Contractor shall provide an administrative service for processing of documents, records, submissions, invoices and receipt of calls from the UB or COTR or emails from the COTR.

### **02 COMMUNICATION AND COORDINATION**

The Contractor for the duration of the contract shall maintain an effective Communication and Coordination Policy with the MWAA staff, the UB Supervisor and the COTR utilizing e-mail, telephones, faxes, cell phones, etc. to ensure MWAA staff is kept abreast of the current equipment's preventive maintenance program and the equipment's status during any planned outages or supplement service.

The Contractor shall obtain approval from the UB Supervisor when the removal of equipment from service is necessary and identify the reason for the unit to be out of service with an estimated duration.

The Contractor shall coordinate with the UB Planner for the release of PMP work order tickets. The Contractor shall document their services status by closing out the work order ticket at the UB, in addition to other required communications and reporting activities required by this SOW.

### **03 QUALITY CONTROL PROGRAM**

The Contractor shall implement an effective quality control program (QCP) as a means to monitor and measure work performance and to ensure that services are being provided in accordance with the contract documents.

The Contractors QC program will provide for two (2) quality control inspections on their PMP during each year's service period. The UB Supervisor or COTR may identify specific quality characteristics of the Contractor's work that is to be reviewed in addition to the QC inspection performed by the Contractor, such as, the applications of PdM and RCM.

The Contractor shall submit in a computerized electronic format a report of their QC inspection within five (5) days from their completion to the UB Supervisor and COTR.

At various times, either scheduled or unscheduled, the Utility Plant Supervisor or the COTR may accompany the Contractor while corrective action, supplemental services or preventive maintenance functions are being performed.

At all times during the contract period the Contractor shall provide no less than the level of quality described in this SOW. There shall also be no interference with tasks and baseline responsibilities set forth in this SOW from the Contractor performing its quality control program.

The Contractor shall not remove damaged or failed parts from the airport, until approved by the Utility Plant Supervisor.

**04 QUALITY ASSURANCE SURVEILLANCE PROGRAM (QASP)**

All services rendered under this contract are subject to Airports Authority inspections, both during and after completion of the work. The Airports Authority's QASP is NOT a substitute for adequate and consistent quality control by the Contractor.

The Airports Authority has the right, at all times, to inspect services performed, the Contractor's workmanship, and materials furnished/utilized in the performance of such services to the extent practicable. The Airports Authority shall perform inspections, as it deems necessary, throughout the term of the contract. However, the inspections and/or walk-through will be conducted in a manner that will not unduly interrupt or delay the Contractor's work.

The Airports Authority has the right to arrange for a third party to conduct a condition assessment on the Contractor's work and to analyze or identify measures of the preventive maintenance program.

If any of the services do not conform to contract requirements, the Airports Authority may require the Contractor to perform the services again in conformity with contract requirements, and have the Contractor perform a quality control inspection at no additional increase in contract amount or the Airports Authority may reduce the payment to reflect the reduced value of the services performed. Each unresolved action shall adversely affect the Contractor's payment by 10%, but not to exceed 60% of the total base billing. The Contracting Officer (CO) will make a determination as to an appropriate sum of money that will approximately equate to the reduced service.

If, after having been directed by the Airports Authority to correct a contract deficiency, the Contractor fails to promptly perform the services again or fails to take the necessary action to ensure future performance is in conformity with contract requirements, the Airports Authority may:

- Perform the services (by contract or otherwise) and charge the Contractor any cost incurred by the Airports Authority directly related to the performance of such service plus a 10% markup on parts required.
- Terminate the contract for default.

Typical Airports Authority QASP methods may include random inspections while the Contractor is on site.

**05 COMMUNICATION AND COORDINATION**

The Contractor shall maintain an effective communication and coordination policy with the Airport(s) utilizing email, telephones, text messaging devices, etc. to ensure the Airport(s) is kept up to date of current equipment status, scheduled and unscheduled outages, vandalism etc. for the term of the contract.

**06 DELIVERY OF SUPPLIES**

The Contractor shall schedule, arrange and coordinate with the UB Supervisor for deliveries. There are no loading docks accessible at Dulles to service any of the refrigerant systems; deliveries can drive up to a rolling garage door. Delivery hours are the same as the normal PMP hours of service unless permission is authorized.

**07 FIRE PREVENTION AND PROTECTION**

- A. Fire prevention and protection at Airports Authority facilities property is essential. The Airports Authority shall provide limited fire prevention equipment within the facilities. The availability of fire

protection equipment provided by the Airports Authority shall not limit the Contractor's responsibility or liability for maintaining a reliable fire prevention and protection program for its employees and the property serviced.

- B. The Contractor shall be knowledgeable of and provide adequate and appropriate training for all its employees in the proper method of reporting a fire. All pertinent information regarding fire-reporting procedures may be obtained from the COTR.

## **08 LOST AND FOUND PROPERTY**

The Contractor shall immediately turn in to the Airports Authority's Lost and Found Department all property found on the job site and obtain a receipt from the Lost and Found Department. Any violations or disregard of the rules, regulations and/or policies may be cause for immediate termination.

## **09 SAFETY**

- A. The Contractor and each of its employees shall comply with all applicable OSHA and Airports Authority rules and practices, including directives issued by the Airport Manager, Airport Operations, MWAA Public Safety, Federal Aviation Administration, TSA, and Airports Authority Divisions while on the job site.
- B. The Contractor shall provide and ensure that all personnel at the work site wear safety devices/apparel as required by OSHA.
- C. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the contract. The Contractor shall take all necessary precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to persons, properties, equipment and vehicles.
- D. The Contractor shall furnish documentation as directed by the COTR of the completion of the approved safety training of technicians and any other personnel as applicable. The safety training shall comply with all OSHA standards and a sample program shall be submitted to the COTR.
- E. The Airports Authority reserves the right to inspect all areas for safety violations at its discretion, direct the Contractor to make immediate improvement of necessary conditions and/or procedures, and/or stop the work if other hazards are deemed to exist.
- F. In the event that the Airports Authority should elect to stop work because of any type of existing safety hazards after the Contractor has been notified and provided ample time to correct, the Contractor shall bear all costs for eliminating the hazard(s) and shall not be granted compensation for the work stoppage. The Contractor shall pay all additional expenses.
- G. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the contract. The Contractor shall take all necessary precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to persons, properties, equipment and vehicles.
- H. The Contractor's employees shall comply with all applicable OSHA, ASME and Airports Authority rules and practices, including directives issued by the Airport Manager, Airport Operations, Airports Authority Police and Fire Departments, Federal Aviation Administration, and Airports Authority Divisions while on the job site.

- I. The Contractor shall provide and ensure that all personnel at the work site wear the safety devices/apparel as required.
- J. Aisles, passageways, alleyways, entrances, exits or right-of-ways to fire protection equipment must be kept unobstructed at all times.
- K. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the contract, including use and erection of scaffolding and ladders as applicable. The Contractor shall take all necessary precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to persons, properties, equipment and vehicles.
- L. Damage caused by the Contractor to any properties shall be repaired and have any needed replacements made to the satisfaction of the Airports Authority at the expense of the Contractor. The Airports Authority, at its sole direction, may elect to repair or replace the damaged property, and deduct such costs from monies due the Contractor.
- M. The Contractor shall, within 15 days of contract award, submit its own detailed safety and protection plan/program that shall comply with all safety, environmental protection, property protection and health provisions of the contract. Prior to use of any products or materials, the Contractor shall provide the following submittals for review and approval by the COTR as applicable.
- Manufacturer's product data and literature,
  - Manufacturer's maintenance recommendations,
  - Samples, if required by the COTR,
  - Material Safety Data Sheets (MSDS).
- N. The Airports Authority reserves the right to inspect all areas for safety violations at its discretion, direct the Contractor to make immediate improvement of necessary conditions and/or procedures, and/or stop the work if other hazards are deemed to exist.
- O. In the event that the Airports Authority should elect to stop work because of any type of existing safety hazards after the Contractor has been notified and provided ample time to correct, the Contractor shall bear all costs for eliminating the hazard(s) and shall not be granted compensation for the work stoppage. All additional expenses shall be paid by the Contractor.

## **10 ACCIDENTS**

The Contractor shall be responsible for promptly notifying the Airport Police and the COTR of all accidents arising from the performance of this contract involving bodily injury to workers, building occupants, visitors, or other persons. The Utility Plant Supervisor along with the COTR will provide the necessary information concerning whom to contact and the specific form of the follow-up written notice.

The Contractor shall provide a formal report of all accidents and/or injuries, which occur and involve the equipment covered by this contract via email no later than two hours after the occurrence. This report shall identify all parties involved, location, times and suspected cause of incident.

## **11 SMOKE FREE ENVIRONMENT**

The Airports Authority allows smoking in certain areas. The Contractor and its employees shall adhere to the rules and regulations of allowing smoking in designated areas.



**12 SECURITY AND IDENTIFICATION REQUIREMENTS**

- A. The Contractor, its subcontractors, and all its employees shall be subject to and shall at all times conform with any and all rules, regulations, policies and procedures pertaining to security at Dulles. Any violations or disregard of the rules, regulations, policies and procedures may be cause for immediate termination.
- B. The Contractor shall safeguard all the identification cards, issued its employees and subcontractors by the Airports Authority to fulfill the requirements of this SOW. The contractor shall ensure these cards are visibly displayed by the respective individual at all times while employed on site at the Airport to fulfill this requirement.
- C. The Contractor shall immediately report to the Airports Authority all keys issued to it by the Airports Authority that are lost or stolen. The Contractor shall be responsible for all loss, damages and expenses that the Airports Authority incurs as a result of the Contractor's loss of Airports Authority keys. These costs include the expense of changing all locks to which the lost keys provided access. The cost of changing locks or keys to the building rooms or areas accessible by the lost or stolen keys will be deducted from the Contractor's invoice to the Airports Authority for the services performed under the contract.
- D. The Contractor shall ensure that, under no circumstances any of its employees shall enter an area not authorized for access by the Contractor.
- E. The Contractor, its subcontractors, and all its employees shall be subject to, and shall at all times, conform with any and all rules, regulations, policies, and procedure pertaining to security at the Airport. Any violations of the rules, regulations, policies, and procedures may be cause for immediate removal from the job site.
- F. The Contractor shall be responsible for, at its own expense, obtaining the proper security clearance, fingerprinting, training, badges required to access the restricted areas of the Airport including the Air Operations Area (AOA), Security Identification Display Area (SIDA), and U.S. Customs Seal to gain entrance in the U.S. Customs area at Dulles Airport. Identification badges issued by the Airports Authority must be visibly worn at all times while in the SIDA.
- G. The Contractor shall be responsible for, at its own expense, compliance with the requirements and procedures to obtain approval of any motor vehicle to operate in the Air Operations Area (AOA).
- H. The Contractor shall not leave any tools, parts and/or supplies unattended in the public or sterile areas at anytime while performing work at the Airport.
- I. All airport ID badges remain the property of the Airports Authority and must be returned to the Airports Authority at the time of an employee's separation or termination from the Contractor. It shall be the responsibility of the Contractor to ensure badges are returned to the Airports Authority.
- J. Any and all personal packages brought onto and/or removed from Airports Authority property may be subject to inspection by a security officer or Airports Authority Police.
- K. Firearms and/or explosives shall **NOT** be brought onto the Airports Authority's property at any time. **VIOLATORS WILL BE PROSECUTED.**

## **SECTION VII - SPECIAL REQUIREMENTS**

### **01 PERMITS AND RESPONSIBILITIES**

The Contractor shall, without additional expense to the Airports Authority, be responsible for obtaining all necessary licenses and permits. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's negligence and shall take proper safety and health precautions to protect the work, the workers, the public and the property of others. In addition, the Contractor shall be responsible for all materials delivered and work performed until completion and acceptance of the entire work.

The Contractor shall comply with all applicable revisions, additions, changes and/or upgrades to any Federal, state, and municipal laws, codes, and regulations which are in effect on the date of contract and which affect the performance of the work. The Contractor shall also obtain and pay the costs of any royalties and licenses for any patented or copyrighted items used in the performance of the work.

It shall be the responsibility of the Contractor to promptly notify the COTR if an official in charge of compliance with the Occupational Safety and Health Act (OSHA) visits the work site.

### **02 REGULATION REQUIREMENTS**

The Contractor shall comply with all applicable Federal, state, local, Airports Authority and the airport's regulatory code and procedural requirements. This shall include but not be limited to the Contractor complying with the following Airports Authority requirements:

1. Construction Safety Manual
2. Orders and Instructions
3. Design Manual
4. Advisories
5. Orders and Instructions
6. Security, Traffic and Parking Requirements
7. Safety Procedures including Lockout / Tag out, Confined Space Entry, Hazardous Materials, Material Safety Data Sheets etc.

The Contractor shall report all incidents and accidents immediately to the Airports Authority in accordance with Federal and State laws and regulations and Airports Authority Orders and Regulations.

### **03 HAZARDOUS/CARCINOGENIC MATERIALS**

The Contractor shall not bring, produce, use, or store on the job site any hazardous or carcinogenic products without prior written approval by the Airports Authority. All hazardous and/or carcinogenic waste transported or generated on-site at the airport by the Contractor must be properly disposed of off the airport by the Contractor as required by law and at no additional cost to the Airports Authority.

The Contractor shall provide the Airports Authority with complete, legible copies of all regulatory notices, violations, citations, etc. received by the Contractor that pertain directly or indirectly to the fulfillment of this SOW.

**04 VOC REQUIREMENT**

The Contractor shall use on the job site only chemicals and cleaning products that do not exceed the national Volatile Organic Chemical (VOC) limitations rule(s) published by the U.S. Environmental Protection Agency (EPA).

**05 HAZARDOUS WASTE**

The Airports Authority shall ensure the Contractor's employees are aware that the domestic drains, and storm drains shall not be used to dispose of gasoline, paint, thinners, oils, solvents, concentrated cleaning agents, refrigerant or other toxic material.

The Contractor is responsible for collecting, accumulating, recycling, and/or disposal of its refrigerant, hazardous and toxic waste off the Airport in compliance with Federal, state and local laws governing hazardous waste storage and disposal.

The Contractor shall provide the CO and the COTR with documentation of supplied or reclaimed refrigerant, hazardous materials or wastes that are accumulated, handled, generated, or disposed of by the Contractor's operations. The documentation shall demonstrate the adequacy of the handling and disposal operations used by the Contractor and will demonstrate that the Contractor activities will not result in contamination of airport property. The Airports Authority shall be copied on all correspondence with regulatory agencies concerning the Contractor's compliance with environmental regulations.

If the Contractor generates hazardous waste in an amount that makes it subject to state and EPA hazardous waste requirements, the Contractor shall apply for a Hazardous Waste Generator Identification Number. Hazardous waste shall be shipped off the Airport using the Contractor's Hazardous Waste Generator Identification Number documented on a complete and properly signed Uniform Hazardous Waste Manifest. The Contractor shall be required to submit an Annual Hazardous Waste Report to the State of Virginia Department of Environmental Quality.

The Contractor shall be responsible for developing a Resource and Conservation Act Contingent (RCRA) Plan if the amount of hazardous waste generated places it into a category that requires a plan.

The Contractor shall be responsible for notification and reporting required under the Superfund Amendments and Reauthorization Act (SARA), Title III regulations.

The Contractor shall, at the start of the contract, implement a written hazardous waste spill contingent plan listing materials used, spill prevention procedures, containment equipment and procedures to be used in the event of spill, personnel protective equipment requirements, notification procedures, in accordance with RCRA and OSHA regulations.

In the event of a spill, the Contractor shall notify the Airport Fire Department at Dulles on 703-572-2980. The Contractor shall be responsible for all cleanups, site remediation, and disposal costs including hazardous waste response teams that may be required at the site. All procedures shall be in accordance with applicable Federal, state and local environmental and OSHA regulations. The Contractor shall remove all hazardous waste materials from the airport at the end of each workday. Hazardous materials that are temporarily stored at the job site shall be placed in containment devices that are capable of containing 110% of the volume of the substance in the event of a spill.

**06 EQUIPMENT RELATED ACCIDENTS/INJURIES**

The Contractor will provide a formal report of all accidents and/or injuries, which occur and/or involve the equipment serviced by this contract immediately to the UB Supervisor and via e-mail no later than two hours after the occurrence to the COTR. This report will identify all parties involved, location, times, and suspected cause of incident.

**SECTION VIII - PERSONNEL****01 KEY PERSONNEL**

- A. All services covered by this contract will be performed by fully qualified and trained refrigeration and HVAC mechanics. Supervisor shall possess the necessary skills and experience to perform the work as identified in the SOW for specialized preventive maintenance or supplement services on centrifugal chillers, reciprocation units and ice harvesting units.
- B. The Contractor's Staff will include, when required, technicians or subcontractors specifically qualified and trained to perform the tasks identified in the supplemental services. All Contractor personnel will also be capable of reviewing and analyzing the equipment's logs and operating history. The Contractor will provide an onsite lead Supervisor person in their PM Staffing during the execution of all work or as directed by the UB supervisor or COTR.
- C. The Contractor shall provide a qualified and experienced Project Manager for this contract. The Contract Manager shall have full authority to act for the Contractor and serve at all times to carry out all the provisions of the contract. The Project Manager shall be in charge of and have overall responsibility for the work to be carried out under this contract.
- D. The Contractor's project manager's work hours shall coincide with the Utility Buildings business hours which are defined as 6:30 AM – 3:30 PM, Monday through Friday, with the exceptions of all holidays observed by the Airports Authority. The Project Manager or approved responsible alternate authorized by the COTR will be identified and available for receiving calls 24 hours a day, seven (7) days a week.
- E. The Contractor shall submit within five (5) working days (M-F) after the award of the contract a list of its Key Personnel to the COTR and UB Supervisor identifying the Project Manager and an alternate or equally responsible Supervisor person who when approved by the COTR shall assume the Project Manager's duties when the primary project manager is absent. The key personnel list shall also identify the names of the certified refrigeration mechanics that will perform the Base Services of this SOW. A resume shall be included with all names on the Contractors Key Personnel List. The Contractor shall include with the Key Personnel List contact numbers for all refrigeration Supervisor, and in office administration Supervisor associated with this contract.
- F. When Staffing changes are made the Contractor shall comply with updating the Key Personnel List prior to processing for a security badge providing the supporting documentation of a resume and submitting the list to the COTR and UB Supervisor. Any change in lead level Staffing shall require 15 days notice to the COTR and the UB Supervisor.
- G. The Airports Authority shall have the right in its sole discretion to approve or reject any Project Manager selected by the Contractor at any time.

**02 ATTIRE**

- A. All Contractor employees, including subcontractors of the Contractor shall at all times, while on the job site in an official capacity be attired in a distinctive prime contractor uniform, which is acceptable to the Airports Authority.
- B. The uniform shall have the prime Contractor's name easily identifiable, affixed thereon in a permanent or semi-permanent manner such as a badge or monogram. Any color combination, as appropriate, may be used for the uniforms as long as they are distinct from that used by the Airports Authority and other tenants.

- C. These uniforms must be supplied and maintained by the Contractor at no cost to the Airports Authority. As part of their uniform, the Contractor's employees shall conspicuously display the following identification:
- Airport Photo Identification Security Badge issued by the Airport Operations Department.
  - Photo Identification Badge issued by the employee's respective employer.

### **03 CONDUCT**

- A. The Contractor's employees at all times while on the job site, whether on or off duty, shall conduct themselves in a professional, orderly and safe manner. Rudeness, fighting, being under the influence of alcohol and/or drugs or possessing and/or consuming alcohol and/or drugs, gambling, soliciting, stealing, and any other conduct that interferes or has the potential to interfere with the Contractor's performance of its duties under this contract, shall not be permitted on the job site and shall result in immediate and permanent removal from the job site of any employee engaging in such conduct from work.
- B. The contractor and its personnel shall review and agree to comply with the Airports Authority's Information Security System (ISS), and network policy.

**SECTION IX - DELIVERABLES**

The contractor shall submit the following items to the COTR:

**01 SEVEN (7) BUSINESS DAYS AFTER THE CONTRACT AWARD DATE**

- A. LIST OF PERSONNEL REQUIRING SECURITY BADGING - The Contractor shall provide the COTR with a list of employees who will be applying for security badges seven (7) days after the contract award date.
- B. RESUMES OF ALL KEY PERSONNEL - The Contractor shall provide the resumes for all personnel proposed to perform work on this contract for approval seven (7) days after the contract award date.
- C. TELEPHONE, CELL, FAX NUMBERS, EMAIL ADDRESSES, SCHEDULES - The Contractor shall identify and provide the COTR with a list of names, and telephone numbers of the key personnel who shall be responsible for fulfilling all the requirements of this SOW including their work schedules.

**02 FIFTEEN (15) BUSINESS DAYS AFTER CONTRACT START DATE**

- A. QUALITY CONTROL PLAN - The Contractor shall, within fifteen (15) days of contract start date, submit a quality control plan that details how the Contractor will insure all requirements of the contract will be fulfilled. The plan shall include but not be limited to all elements of the quality control program described in the technical proposal that the contractor submitted in response to the Airports Authority's solicitation for this contract.
- B. SAFETY AND PROTECTION PLAN - The Contractor shall, within fifteen (15) days of contract award, submit its own detailed safety and protection plan that shall comply with all safety, environmental protection, property protection and health provisions of the contract.

**03 ONGOING AS REQUIRED BY THE SOW – SECTION IV – BASE SERVICES**

- A. PREVENTATIVE MAINTENANCE PROGRAM

**SECTION X - CONTRACTOR FURNISHED RESOURCES****01 GENERAL**

The Contractor shall furnish all supervision, labor, administrative support, materials, tools, parts, supplies, equipment, and transportation necessary to fulfill all the requirements and satisfactorily perform all services described in this SOW in a safe, orderly, timely, efficient and workmanlike manner. The contractor shall provide any additional resources necessary to fulfill the contract requirements at no additional cost to the Airports Authority.

**02 SAFETY EQUIPMENT**

- A. The Contractor shall provide all safety equipment/devices, personal protective equipment and clothing as required for its employees.
- B. The Contractor shall not use propane-fueled portable equipment in the performance of the work required by this contract.

**03 DIAGNOSTIC TOOLS**

The Contractor shall provide and utilize on the job site any diagnostic equipment with all OEM software available to enable the Contractor to change parameters as well as diagnose/troubleshoot each component/software covered by this contract, as applicable.

The Contractor shall obtain, have on file, and make available to its personnel all operational and technical documentation, (such as; operational and service manuals, schematics, and parts list), which are necessary to meet the performance requirements of this contract.

**04 COMMUNICATION EQUIPMENT**

All Contractor employees assigned to the Airport shall have, at all times while on the jobsite, portable communication devices with full service to allow immediate two-way communication between the Contractor and/or the Airports Authority and the employee.

**05 SERVICE VEHICLE**

The Contractor shall provide at a minimum one (1) service vehicle which is equipped, licensed, insured and AOA inspected. The service vehicle shall be on site anytime the Contractor's employees are working at the Airport. The service vehicle is required to transport materials and supplies, contractor's employees and tools to various equipment and storage locations at the Airport.



**SECTION XI - AIRPORTS AUTHORITY FURNISHED RESOURCES****01 PARKING**

The Airports Authority will provide at no cost to the Contractor one (1) parking space for the on-site service vehicles at the UB when performing tasks defined in this SOW. The Contractor shall be responsible to the regulations of MWAA for driving on the AOA.

**02 ON-SITE SPACE**

To facilitate fulfilling the requirements of this SOW, the Airports Authority will provide the Contractor storage space(s) at the UB. The Contractor will use the spaces provided to the Contractor to fulfill the requirements of this SOW. The Contractor shall keep such areas clean and orderly at all times.

**03 OPERATIONS AND MAINTENANCE MANUALS**

To facilitate fulfilling the requirements of this SOW, the Airports Authority will make available for the Contractor's use the Maintained Systems O&M manuals. The Contractor will utilize these manuals only for work being performed at the job site and will be returned to the Airports Authority in the condition which they were received.

**04 UTILITIES**

The Airports Authority will pay the cost of utilities (electric, water, etc.) used in the operations and maintenance of the Maintained Systems as reasonable. The Airports Authority will not compensate, or will back charge, the Contractor for unreasonable utility charges.

**05 WASTE REMOVAL**

At Dulles, the Airports Authority will provide for pick-up of office waste, generated in the maintenance of the Maintained Systems, excluding hazardous waste materials (e.g., batteries, etc.), which shall be the responsibility of the Contractor.

**06 AIRPORTS AUTHORITY CONTACT INFORMATION**

The Airports Authority will provide phone numbers, e-mail and mailing addresses for the CO, COTRs and other Airports Authority key personnel as are warranted.

## **SECTION XII - METHOD OF PAYMENT**

The Contractor shall submit one invoice on a monthly basis for services that have been completed to the satisfaction of the COTR. The Contractor's invoice may be submitted electronically to Accounts Payable MA-22B by using the email address; [mwaa.invoices@mwaa.com](mailto:mwaa.invoices@mwaa.com) no later than the 10th day of the following month. Monthly invoices shall be itemized to provide a breakdown of cost for all contract services according to the following:

### **01 BASE SERVICES**

The Contractor shall invoice the Airports Authority for maintenance and repair services, preventive maintenance services work which was performed in accordance with the SOW, and shall be paid for actual services performed.

### **02 SUPPLEMENTAL SERVICES**

The Contractor shall be reimbursed for the labor and materials required to complete Supplemental Services in accordance with the fully loaded labor rates specified in Section III - Schedule. The Contractor shall be reimbursed for the materials used in the performance of Supplemental Services at invoice plus 10 percent mark up. There shall be no mark up for shipping and handling costs. The Contractor shall not invoice the Airports Authority for any work unless a Call Order signed by the COTR and all work described in the Call Order has been completed to the satisfaction of the COTR. The Airports Authority shall incur no obligation for work that is not authorized in advance, with a signed Call Order.

### **03 MATERIAL AND PARTS**

The Contractor shall be reimbursed for material and parts at the same rate as the Contractor with an added 10 percent markup. Parts supplied directly by manufacturers or subcontractors shall be reimbursed at the Contractors cost with no additional markup. There shall be no mark up for shipping and handling costs. Monthly invoices that include reimbursement for material and parts must include copies of the original invoice(s) as back-up documentation for all parts purchased for the month being invoiced. There will be no exceptions, parts without copies of original invoices will not be paid.

**SECTION XIII - CONTRACT CLOSE OUT****01 AIRPORTS AUTHORITY PROVIDED RESOURCES**

Upon expiration/termination of the contract, the Contractor shall return to the Airports Authority, in good working order less any reasonable wear and tear, all Airports Authority provided resources, computer and bar code hardware, communication devices, documentation, drawings, etc.

**02 SECURITY DEVICES**

Upon expiration/termination of the contract or discontinuance of employment of any of Contractor employee working at the Airport, all keys, security badges and all other Airports Authority identification shall be surrendered to the COTR.

**03 RECORDS AND DOCUMENTATION**

Upon contract termination or the end of a contract period (Base Year and Option Years) all records and documentation shall all be provided and submitted to the COTR with the final payment of contract period in place.

In the event deficiencies or unsatisfactory documentation, logs or maintenance are identified, the Contractor will correct the deficiency immediately and notify the COTR upon completion. Failure to notify the COTR may delay payment of the Contractors final invoice.

**SECTION XIV - APPENDICES**

- A. SITE PLANS
- B. CONTRACT SERVICES CALL ORDERS
- C. EXPERIENCE AND PAST PERFORMANCE FORM (must be included in Offeror's Technical Proposal)

**APPENDIX A**

**SITE PLANS**

**APPENDIX B**

**CONTRACT SERVICES CALL ORDER**

### 1-13-C031 Chiller and Ice Harvester Maintenance Services, IAD

Prepared: \_\_\_\_\_ Date Prepared: \_\_\_\_\_

Type of Work: \_\_\_\_\_ Requested By: \_\_\_\_\_

Contractor: \_\_\_\_\_ Contract #: \_\_\_\_\_

**Address:** \_\_\_\_\_ **Contractor POC:** \_\_\_\_\_

Office Telephone : \_\_\_\_\_

Emergency Phone \_\_\_\_\_

[illegible]

Estimate Date: \_\_\_\_\_ Site Visit Date: \_\_\_\_\_

MWAA

Estimator: \_\_\_\_\_ Contractor Estimator: \_\_\_\_\_

Work Item(s): QTY/UM:

Estimated Cost:		Notes:
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NOTE: By signing this Call Order, the Contractor acknowledges that he/she will only preform the work described herein after this Call Order is approved in writing by the COTR. Furthermore, the cost to the Authority for this work shall not exceed the "Estimated Cost" noted above.

**Call Order #**

MA-226: \_\_\_\_\_ Date: \_\_\_\_\_ Date Issued: \_\_\_\_\_

COTR: \_\_\_\_\_ Date: \_\_\_\_\_ Date Completed: \_\_\_\_\_

Inspector: \_\_\_\_\_ Date: \_\_\_\_\_ Date Invoiced Rev'd: \_\_\_\_\_

**Contractor:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Invoice Amount:** \_\_\_\_\_

Remarks:

\_\_\_\_\_

[illegible][illegible]

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[illegible]


**APPENDIX C**

**EXPERIENCE AND PAST PERFORMANCE  
(to be included with Offeror's Technical Proposal)**



**FIRM:**

**APPENDIX C - EXPERIENCE AND PAST PERFORMANCE**

**FACILITY INFORMATION**

**FACILITY NAME:**

**ADDRESS:**

**STATE:**

**COUNTRY:**

**PERIOD OF PERFORMANCE:**

**CONTRACT VALUE:**

**POINT OF CONTACT**

**NAME:**

**TITLE:**

**PHONE NUMBER:**

**EMAIL ADDRESS:**

**DETAILED DESCRIPTION OF THE FACILITY AT WHICH SERVICES WERE PROVIDED**

**TYPE OF FACILITY:**

**SIZE:**

**NUMBER OF COMPANY PERSONNEL ON-SITE WORKING ON THE CONTRACT:**

**DETAILED DESCRIPTION OF WORK & SERVICES PERFORMED**

**TYPES AND SIZE OF CHILLERS AND/OR ICE HARVESTOR EQUIPMENT SERVICED:**

**DESCRIPTION OF CHALLENGES, IF ANY, POSED BY THE NATURE OF THE FACILITY:**