STATEMENT OF WORK

1. PURPOSE

The National Weather Service (NWS) Weather Forecast Office (WFO) located in South Burlington, VT, requires preventive maintenance services for all Heating, Ventilation, and Air Conditioning (HVAC) control system and components on a quarterly basis during operating season.

2. PLACES OF PERFORMANCE

The Contractor shall perform services at the following two (2) locations:

SITE 1: Burlington National Weather Service, Weather Forecast Office
Burlington International Airport
1200 Airport Drive
South Burlington, Vermont 05403-6028

SITE 2: Vermont National Guard Base, Radar Data Acquisition (R.D.A.) Site
Ethan Allen Army National Guard Facility (Camp Johnson)
789 Vermont National Guard Road
Colchester, Vermont 05446-6358

3. SCOPE OF WORK

The Contractor shall furnish all labor, material, equipment, and incidentals to provide preventive maintenance on HVAC equipment, controls, and components, including air handlers, electronic duct heaters, condensing units, humidifier system, heat pumps, variable air volume (VAV) boxes, dampers and louvers, exhaust fans, control system sensors, transmitters, differential pressure switches, and other components. Preventive maintenance is required to enable HVAC system function, and to mitigate system downtime and additional repair costs. Preventive maintenance services shall be performed on a quarterly basis during operating season. In addition, the Contractor shall perform Semi-Annual and Annual Preventive Maintenance Service and checks as additional tasks during the quarterly service and checks.

The Contractor shall ensure all HVAC equipment is serviced and maintained including, but not limited to, the following: air handler units, electronic duct heaters, all condensing units, humidifier system, heat pumps, dampers and louvers, all exhaust fans, control system including sensors, transmitters, differential pressure switches and all other components, and package units located in the radar building and the Transmitter Power Maintenance Shelter (TPMS) building at the following locations:

The Contractor will have five (5) working days to correct any/all deficiencies or the agreement is cancelled.

4. DESCRIPTION OF WORK

SITE 1: Burlington National Weather Service, Weather Forecast Office

Checklist: Heat pumps and air conditioner condensing units routine operating inspection and quarterly maintenance

- ☐ Install gauges and check refrigerant pressures.
- ☐ Check and tighten all electrical connections.
- ☐ Check bearings and compressor for proper lubrication.
- ☐ Check compressor voltage and running amps.
- ☐ Check all safety/operating controls; calibrate as necessary.
- ☐ Check thermostats; calibrate as necessary.
- ☐ Check super heat temperature.
- ☐ Check sub cooling temperature.
- ☐ Check condition of condenser coils; clean twice per year.
- ☐ Check condition of blower wheels and drive belts; re-tension, clean and replace as necessary.
- ☐ Check temperature differences across the condenser and evaporator coils.
- ☐ Leak-test refrigerant circuits.
- ☐ Advise the Government Point of Contact of any deficiencies noted during the above inspections and make recommendations as to the correction of same.

Checklist: Fans and Air Handling Units Quarterly Routine Operating Inspection and Maintenance, except as noted

- ☐ Check belts and sheaves.
- ☐ Tighten all nuts and bolts.
- ☐ Check motor mounts and vibration pads; check for excessive vibration or noise. Check motor operating conditions.
- ☐ Inspect electrical connections and conductors annually.
- ☐ Lubricate and adjust associated dampers, motors and linkage annually.
- ☐ Check all fan operations and clean fan blades semi-annually or as needed.
- ☐ Inspect condensate drain pans and piping to ensure proper drainage; clean drains and drain pans annually or as needed.
- ☐ Change pleated filters quarterly; change bag filters annually or sooner if necessary.
- ☐ Check heating and cooling coils.
- ☐ Clean external surfaces as required.
- ☐ Inspect for leaks.
- ☐ Check belts and supply/replace as necessary. Check fan belt tension and adjust as required.
- ☐ Lubricate fan and motor bearings per manufacturer's recommendation. Check and tighten locking collars and bolts.
- ☐ Inspect operating and safety controls.
- ☐ Check motor operating conditions.
- ☐ Check coils.

- ☐ Check all operating conditions and adjust as required.
- ☐ Advise the Government Point of Contact of any deficiencies noted during the above inspections and make recommendations as to the correction of same.

Checklist: Self-Contained Package Units Routine Operating Inspection and Maintenance Semi-annual, except as noted

- ☐ Check operating controls for proper functioning; calibrate as necessary.
- ☐ Check safety controls for proper operation and adjust as necessary.
- ☐ Inspect condition of evaporator coils.
- ☐ Check condition of unit air filters. Supply and change semi-annually or as needed.
- ☐ Inspect fan belts and supply replacements as necessary. Check fan belt tension and adjust as required.
- ☐ Check fan motor bearings for proper lubrication per manufacturer's recommendations. Check and tighten locking collar bolts.
- ☐ Inspect condensate drain pans and piping to ensure proper drainage; clean annually or as necessary.
- ☐ Check compressor oil pressure and level.
- ☐ Check compressor amperage draw with ammeter.
- ☐ Check compressor motor windings with meg ohm meter annually.
- ☐ Install pressure gauges and check refrigerant pressures.
- ☐ Inspect refrigerant piping and fittings for leaks.
- ☐ In the beginning of the heating season check operation of heating section.
- ☐ Advise the Government Point of Contact of any deficiencies noted during the above inspections and make recommendations as to the correction of same.

Checklist: Annual Preventive Maintenance Services

- ☐ Check vessel connections for leaks.
- ☐ Check condenser and receiver relief valves for leaks.
- ☐ Check refrigeration systems and piping for problems.
- ☐ Calibrate pressure gauges and thermometers.
- ☐ Check safety controls for proper settings and operation.
- ☐ Check and tighten electrical connections.
- ☐ Megger-test compressors to determine integrity of motor windings.
- ☐ Change oil filters and clean strainers when required.
- ☐ Take oil sample for laboratory analysis when required.
- ☐ Check oil heaters and controls.
- ☐ Remove condenser heads and brush/clean tubes when required.
- ☐ Inspect condensers for signs of corrosion.
- ☐ Check evaporator coils, clean as required.
- ☐ Clean inlet vanes/linkage and inlet guide vane (IGV) ring.

- Verify proper operation of inlet vane assembly.
- Inspect fan motor control.
- Clean condensate pans.
- Tighten set screws on fan assembly locking collar and torque locking collar per manufacturer's specs.
- Note and report any mechanical or electrical discrepancies that would affect unit operation along with recommendations for correction.

Quarterly Inspection, except as noted: Variable Frequency Drive (VFD) Supply Air Handler and Econoflex Adjustable Speed Drive (ASD) Controller

- Check belts and sheaves.
- Tighten all nuts and bolts.
- Check fan mounts and vibration pads; check for excessive vibration or noise. Check fan operating conditions.
- Inspect electrical connections and conductors annually.
- Lubricate and adjust associated dampers, fan and linkage annually.
- Check all fan operations.
- Inspect charcoal filters.
- Supply and change charcoal filters annually or sooner if necessary.
- Clean external surfaces as required.
- Inspect for leaks.
- Check belts and supply and/or replace as necessary. Check fan belt tension and adjust as required.
- Lubricate fan and motor bearings per manufacturer's recommendation. Check and tighten locking collars and bolts.
- Inspect operating and safety controls.
- Check motor operating conditions.
- Check and clean fan blades as required semi-annually.
- Check all operating conditions and adjust as required.
- Check all operational modes on VFD controller.
- Inspect electrical connections on VFD controller.
- Advise the Government Point of Contact of any deficiencies noted during the above inspections and make recommendations as to the correction of same.

Control System Maintenance | Quarterly Preventive Maintenance

- Check and adjust all control loops.
- Inspect all controllers and verify proper system operation.
- Verify incoming AC power and note proper voltages, check for transformer degradation and report.
- Ensure all wiring and terminations are secure.

- Check all electronic board seating.
- Check data and power cabling for pinching, cracking, tears or breaks and report unusual conditions.
- Check diagnostic Light Emitting Diodes (LEDs), fuses and surge transient protection devices where applicable. Report unusual conditions.
- Troubleshoot minor operational problems relating to controls with the Government Point of Contact and make recommendations.

Semi-Annual Preventive Maintenance

- Verify power supply voltages and record.
- Ensure proper cabinet grounding.
- Review system performance with the Government Point of Contact and discuss recommendations and/or changes as required.
- Via the computer, exercise-controlled devices to verify hardware capability.
- Inspect cables, electrical connections, computer and system peripherals and clean computer as required.
- Diagnostic testing; examining, calibrating, adjusting and cleaning of control devices as required.
- Perform quarterly tasks.
- Advise the Government Point of Contact of any deficiencies noted during the above inspections; make recommendations as to the correction of same.

Annual Preventive Maintenance

- Check and calibrate sensors as required.
- Review control loops and adjust as necessary.
- Evaluate all input/output points for proper operation and report any deficiencies.
- Inspect interior surfaces and components of the panel enclosures and associated field equipment and clean as required for proper operation.
- Ensure all monitoring devices and plug-in components are securely in place, note any deficiency for review.
- Perform quarterly and semi-annual tasks.
- Meet with the Government Point of Contact to discuss system needs, operational deficiencies and system enhancements.

Additional Requirements | Maintenance Records

- The Contractor shall supply and maintain written records of maintenance and repairs on site.
- Note and report any mechanical, electrical or control system discrepancies that would affect equipment operations.
- Document all preventive maintenance work done, all pertinent pressures, temperatures, voltages, fluid levels and test results.

- The report shall contain any uncorrected deficiencies noted at inspection.

On Call and Emergency Repairs

- The Contractor shall provide qualified service personnel and parts to provide repairs as necessary to sustain continuous operation of this facility.
- The Contractor shall provide a 24-hour telephone number and respond within two (2) hours of any call for service.
- The normal working hours of 8:00am to 5:00pm Monday thru Friday.
- All Federal holidays will be treated as off hours and can be invoiced as an emergency service. A list of Federal holidays is available at https://www.opm.gov/policy-data-oversight/pay-leave/federal-holidays/

Unscheduled Service and Repairs

- Unscheduled service including labor, parts and components required to troubleshoot, diagnose or repair the above equipment are not covered under this contract.
- All unscheduled service and repair will be handled through separate contracts.

Qualifications and Standards

- The Contractor's technicians and personnel tasked with service and repairs shall be licensed, qualified, and skilled to repair and service the specific mechanical and automated environmental control systems software and equipment on site.
- The Contractor shall ensure that all work and materials supplied will meet or exceed industry standards and equipment manufacturer's specifications.

Safety Data Sheets (SDS)

- Provide to the Government Point of Contact when necessary for supplies and materials used by the Contractor.

Safety | Lock-Out Tag-Out

- Advise the Government Point of Contact prior to starting maintenance or repair procedures.
- Disconnect power supply; Tag unit as "Out of Service" as per Occupational Safety and Health Act (OSHA) requirements.

Health and Safety Regulations

- The Contractor must comply with all applicable Local, State and Federal laws governing the health and safety of its employees, including all regulations promulgated under the OSHA. Such compliance shall include, but is not be limited to, ensuring that all employees are properly trained for the work to be performed and have been supplied with all necessary protective and safety equipment

Visitor Sign-in

The Contractor's employees/subcontractor must sign in/sign out at the Reception Desk when arriving/leaving.

Maintenance Manuals

The Contractor may ask the Government Point of Contact to review a maintenance manual. If maintenance manuals are not available, the Contractor shall contact the equipment manufacturer for their preventive maintenance program requirements and keep a copy for the office.

Codes and Standards

The Contractor shall follow and ensure compliance with the latest effective publication or applicable codes and ordinances of local governing agencies and of the following standards, codes, etc., as they apply to the work of this Statement of Work.

- American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHREA)
- National Building Code (BOCA)
- Factory Mutual Engineering Association (FM)
- Underwriters' Laboratories, Inc. (UL)
- National Electrical Code (NFPA 70-99), National Electrical Safety Code (ANSI C2) and the NECA Standard of Installation or Local standards, whichever is the more stringent NEC (2002) will be followed, as applicable.
- American Society of Mechanical Engineers (ASME) Air Conditioning and Refrigeration Institute (ARI) Air Movement and Control Association (AMCA)
- American Gas Association (AGA)
- American National Standards Institute (ANSI) American Society for Testing and Materials (ASTM) Electrical Testing Laboratories (ETL)
- International Mechanical Code (IMC) 1996
- Air Movement and Control Association (AMCA)
- Contractor shall follow all Federal, State and Local Codes to include Department of Transportation, (OSHA)
- Occupational Safety and Health regulations (e.g. 29 CFR 1910, 1926).
- OSHA General Industry Safety and Health Standards (29 CFR 1910); OSHA Construction Industry Standards (29 CFR 1926). (Single copies of these regulations are available from the local OSHA Area Offices and are also sold by the Superintendent of Documents, US. Government Printing Office, Washington, DC 20402).
- Environmental Protection Agency (EPA) Final Rule (40 CFR, Part 761) dated July 17, 1985.
- All labor performed on the Liebert HVAC units shall be, Liebert Manufactures qualified.
- Qualified documentation shall be presented when work starts. All labor shall be licensed for the craft and/or trade involved and shall be to the best standards of workmanship for respective equipment to meet the requirements of the manufacture's preventive maintenance plan.

Materials

The Contractor shall provide all miscellaneous materials and preventive maintenance parts necessary to complete the preventive maintenance activities specified herein that are new, of good quality and warrantied according to the manufacturer. Materials requiring a SDS shall be reviewed by the Government Point of Contact prior to usage at least five (5) working days prior to usage. Products found to have certain health hazards to employees shall not be used.

Equipment located at Site 1 - Burlington National Weather Service, Weather Forecast Office, Burlington International Airport

- AA0N RQ-004-3-W-EA09-319 S/N: 202204-AYGD30697
- AAON RQ-002-3-W-KA09-319 S/N: 202204-AYGB30698
- AAON RQ-002-3-W-KA09-319 S/N: 202204-AYGB30699
- AAON RQ-002-3-W-KA09-319 S/N: 202204-AYGB30700
- Liebert Model PX029DH1AD09B7 S/N: Y22F002765
- Liebert Model DSO225A S/N: N22DT2A014
- Liebert Model PX029DH1AD09B7 S/N: Y22F002626
- Liebert Model DSO225A S/N: N22DT2A024

SITE 2: Vermont National Guard Base, R.D.A. Site

Heat Pumps and Air Conditioner (A/C) Condensing Units Quarterly Routine Operating Inspection and Maintenance, Except as Noted

- Install gauges and check refrigerant pressures.
- Check and tighten all electrical connections.
- Check bearings and compressor for proper lubrication.
- Check compressor voltage and running amps.
- Check all safety/operating controls; calibrate as necessary.
- Check thermostats; calibrate as necessary.
- Check super heat temperature.
- Check sub cooling temperature.
- Check condition of condenser coils; clean twice per year.
- Check condition of blower wheels and drive belts; re-tension, clean and replace as necessary.
- Check temperature differences across the condenser and evaporator coils.
- Leak test refrigerant circuits.
- Advise the Government Point of Contact of any deficiencies noted during the above inspections; make recommendations as to the correction of same.

Fans and Air Handling Units Quarterly Routine Operating Inspection and Maintenance, except as noted

- Check belts and sheaves.
- Tighten all nuts and bolts:

- Check motor mounts and vibration pads; check for excessive vibration or noise. Check motor operating conditions.
- Inspect electrical connections and conductors annually.
- Lubricate and adjust associated dampers, motors and linkage annually.
- Check all fan operations.
- Inspect condensate drain pans and piping to ensure proper drainage; clean drains and drain pans annually or as needed.
- Change pleated filters quarterly; change bag filters annually or sooner if necessary.
- Check heating and cooling coils.
- Clean external surfaces as required.
- Inspect for leaks.
- Check belts and supply/replace as necessary. Check fan belt tension and adjust as required.
- Lubricate fan and motor bearings per manufacturer's recommendation
- Check and tighten locking collars and bolts.
- Inspect operating and safety controls.
- Check motor operating conditions.
- Check and clean fan blades as required semi-annually.
- Check coils.
- Check all operating conditions and adjust as required.
- Advise the Government Point of Contact of any deficiencies noted during the above inspections; make recommendations as to the correction of same.

Self-contained Package Units Semi-Annual Routine Operating Inspection and Maintenance, except as noted

- Check operating controls for proper functioning; calibrate as necessary.
- Check safety controls for proper operation; adjust as necessary.
- Inspect condition of evaporator coils.
- Check condition of unit air filters. Supply and change as required or semi-annually.
- Inspect fan belts and supply/replace as necessary. Check fan belt tension and adjust as required.
- Check fan motor bearings for proper lubrication per manufacturer's recommendations.
- Check and tighten locking collar bolts.
- Inspect condensate drain pans and piping to ensure proper drainage; clean annually or as necessary.
- Check compressor oil pressure and level.
- Check compressor amperage draw with ammeter.
- Check compressor motor windings with meg ohm meter annually.
- Install pressure gauges and check refrigerant pressures.
- Inspect refrigerant piping and fittings for leaks.
- In the beginning of the heating season, check operation of heating section.

- Advise the Government Point of Contact of any deficiencies noted during the above inspections; make recommendations as to the correction of same

Annual Preventive Maintenance Service

- Check vessel connections for leaks.
- Check condenser and receiver relief valves for leaks.
- Check refrigeration systems and piping for problems.
- Calibrate pressure gauges and thermometers.
- Check safety controls for proper settings and operation.
- Check and tighten electrical connections.
- Check megger compressors to determine integrity of motor windings.
- Change oil filters and clean strainers when required.
- Take oil sample for laboratory analysis when required.
- Check oil heaters and controls.
- Remove condenser heads and brush/clean tubes when required.
- Inspect condensers for signs of corrosion.
- Check evaporator coils, clean as required.
- Clean inlet vanes/linkage and IGV ring.
- Verify proper operation of inlet vane assembly.
- Inspect fan motor control.
- Clean condensate pans.
- Tighten set screws on fan assembly locking collar and torque locking collar per manufacturer's specs.
- Note and report any mechanical or electrical discrepancies that would affect unit operation along with recommendations for correction.

CONTROL SYSTEM MAINTENANCE

Quarterly Preventive Maintenance

- Check and adjust all control loops.
- Inspect all controllers and verify proper system operation.
- Verify incoming AC power and note proper voltages, check for transformer degradation and report.
- Ensure all wiring and terminations are secure.
- Check all electronic board seating.
- Check data/power cabling for pinching, cracking, tears or breaks and report unusual conditions.
- Check diagnostic LEDs, fuses and surge transient protection devices where applicable. Report unusual conditions.

- Troubleshoot minor operational problems relating to controls with Government Point of Contact; make recommendations.

Semi-annual Preventive Maintenance

- Verify power supply voltages and record.
- Ensure proper cabinet grounding.
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Equipment located at Site 2 - Vermont National Guard Base, RDA Site, Ethan Allen Army National Guard Facility (Camp Johnson)

- MAVAIR SJNCM71588
- BARD *SIN* 187M082564234-02
- BARD S*IN* 187J082537773-02

5. GOVERNMENT POINT OF CONTACT

To be provided with award.