

STATEMENT OF WORK

A. GENERAL GUIDANCE

1. **Title of Project:** Service Agreement on HVAC

2. **Scope of Work:** IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:

(A) Furnish inspection and maintenance service on the following HVAC equipment located at the VA Medical Center, 1700 S. Lincoln Avenue, Lebanon, PA 17042 Service shall consist of the following:

- (1) MAINTENANCE - TRANE CENTRIFUGAL CHILLER, WC (2) - four times a year a thorough maintenance procedure will be performed including the following: Report in with the Customer Representative. Record and report abnormal conditions, measurements taken, etc. Review customer logs with customer for operational problems and trends.
- (2) General Assembly Check and record refrigerant level. Inspect for leaks and report leak results. The refrigerant should be correct before starting the leak check. To prevent unnecessary venting of refrigerant, EPA-recommended methods (e.g. hot water and/or electric blankets) must be used to pressurize the vessels.

(B) In order to use EPA-recommended methods, certain conditions must be met:

- (1) The isolation valves on the chilled water and condenser water lines must shut off the circulation completely. The temperature of the equipment room should be 70 o F or higher. Access connections to the condenser water and chilled water circuits must be provided (customer's responsibility).
- (2) If these conditions cannot be met, the refrigerant must be removed and the vessel pressurized, using dry nitrogen and a trace gas. This additional procedure is outside the scope of this agreement. Calculate refrigerant loss and report to the customer. Repair minor leaks as required (e.g., valve packing, flare nuts). Visually inspect condenser tubes for cleanliness. Check vanes for free and smooth operation. Check mechanical linkages for wear.
- (3) Purge Check purge unit controls for proper operation. Check and clean purge drum as required. Clean the condenser coil. Clean strainers or replace filters as required. Check the purge compressor assembly for leaks as required. Check the purge unit for proper operation.
- (4) Controls and Safeties Calibrate and record. Test operation of chilled water pump and condenser water pump starter auxiliary contacts.
- (5) Lubrication System: Pull oil sample for spectroscopic analysis. Check oil for acid content and discoloration. Make recommendations to the customer based on the results of the test. Measure and record the oil pump voltage and amperage. Verify the operation of the oil heater. Measure amps and compare readings with the watt rating of the heater. Change the oil filter. Verify the oil level.
- (6) Motor and Starter Clean the starter and cabinet. Inspect wiring and connections for tightness and signs of overheating and discoloration. Check condition of the contacts for wear and pitting. Check contactors for free and smooth operation. Check the mechanical linkages for wear, security, and clearances. Check tightness of the motor terminal connections. Meg the motor and record reading. Verify the operation of the electrical interlocks.

(C) PREVENTIVE MAINTENANCE – TRANE CENTRIFUGAL CHILLER, WC (2)- Three regularly scheduled preventive maintenance inspection will include the following:

- (1) STARTUP / CHECKOUT PROCEDURES: Verify the operation of the oil heater and that the oil temperature is at least 100 degrees Fahrenheit before starting the chiller. Verify full water systems, including the cooling tower, condenser and evaporator. Verify clean cooling tower and strainers. Start the condenser water pump, chilled water pump, and cooling tower fan(s). Test all flow-proving devices on the chilled water and condenser water circuits. Verify the flow rates through the condenser and the evaporator. Start the chiller. Verify the operation of all timing devices. Verify the operation of the current control device. Check the setpoint and sensitivity of the chilled water temperature control device. Verify the operation. Verify the operation of the condenser water temperature control device. Check the mechanical limits of both vane arms. Verify smooth movement of vane arms through the full range of operation. Check the starter operation. Verify the motor cooling operation. Check the purge operation. Shut down the chiller. Check the oil and refrigerant levels. Re-start the chiller and log the operating conditions after the system has stabilized. Review operating procedures with the operating personnel. Provide a written report of completed work, operating log, and indicate any deficiencies detected.
- (2) MID-SEASON RUNNING INSPECTION: Check the general operation of the unit. Log the operating temperatures, pressures, voltages, and amperages. Check the operation of the purge unit. Check the operation of the control circuit. Check the operation of the lubrication system. Check the operation of the motor and starter. Analyze the recorded data. Compare the data to the original design conditions. Review operating procedures with operating personnel. Provide a written report of completed work, operating log, and indicate any deficiencies detected.

(D) MAINTENANCE-TRANE 400 TON AIR COOLED CHILLERS (2), YORK 30 TON AIR COOLED SCROLL CHILLER: Three times a year a thorough maintenance procedure will be performed including the following:

- (1) COMPREHENSIVE ANNUAL INSPECTION: To be performed once a year including the following:
 - (a) Report in with customer representative, record and report abnormal conditions, measurements taken, etc. Review customer logs with the customer for operational problems and trends.
 - (b) Inspect for leaks and report leak check results. Repair minor leaks as required (i.e., valve packing, flare nuts). Check the condenser fans for clearance and free operation. Visually inspect the condenser coil for cleanliness. Verify the performance of the fan control inverter VFD, if applicable. Grease bearings as required.
 - (c) Inspect the control panel for cleanliness. Inspect wiring and connections for tightness and signs of overheating and discoloration. Verify the working condition of all indicator/alarm lights and LED/LCD displays. Test the operation of the chilled water pump starter auxiliary contacts.
 - (d) Pull oil sample for spectroscopic analysis. Make recommendations to the customer based on the results of the test. Verify the operation of the oil heaters. (Pull oil sample on 400 Ton Trane chillers only, York and Carrier Scroll Chillers verify operation of the oil heaters only.)
 - (e) Clean the starter cabinet and starter components. Inspect wiring and connections for tightness and signs of overheating and discoloration. Check the condition of the contacts for wear and pitting. Check contacts for free and smooth operation. Check all mechanical linkages for wear, security and clearances. Verify tightness of the motor terminal connections. Meg the motor and record readings. Verify the operation of the electrical interlocks. Measure the voltage and record. Voltage should be nominal voltage +/- 10%.
- (2) MID-SEASON RUNNING INSPECTION: To be performed twice a year including the following:
 - (a) Check the general operation of the unit. Log the operating temperatures, pressures voltages, and amperages. Check the operation of the control circuit. Check the operation of the lubrication system.

Check the operation of the motor and starter. Analyze the recorded data. Compare the data to the original design conditions. Review operating procedures with operating personnel. Provide a report of completed work, operation log and indicate any deficiencies detected.

- (b) CONDENSER COIL CLEANING; Lock out tag out unit energy sources. Remove hail guards/architectural panels – if applicable. Brush off large debris from coils. Clean all sides of coils using appropriate methods commensurate with coil condition (solution/pressure washer). Clean up work area. Replace panels. Remove lock out tag out devices. Return unit to service.

(E) TRANE TRACER SUMMIT OPERATING SYSTEM MAINTENANCE: Maintenance once per quarter to include the following;

- (1) Provide all labor, material, equipment, supervision and quality assurance necessary for service on the Medical Center's Trane Tracer summit operating system; which includes a building control unit, MP851 controllers.
 - (A) PREVENTATIVE MAINTENANCE, one regularly scheduled maintenance inspection per quarter will be provided.
 - (1) Written reports to be provided at the end of inspection with recommendations of necessary repairs and maintenance procedures.
 - (B) EMERGENCY SERVICE and repairs are available on a 24 hour per day basis and will be invoiced at their prevailing straight time or overtime contract customer rate.
 - (C) SOFTWARE MAINTENANCE; Vendor is continually updating and enhancing building automation system software packages.
 - (1) This agreement will include; maintain Trane Tracer Summit Operating System Software at the most current version.
 - (2) Maintain database files on electronic media at a secure location.
 - (3) Archive database files semi-annually.
 - (4) Maintain customer provided copies of the database files upon request.
 - (5) Install Tracer Summit Software refinement and problem correction revisions.
 - (6) Maintain an ongoing dialog with the customer regarding the performance of the system and the operation of the facility, including system optimization control strategies.
 - (7) Provide telephone technical assistance to aid in identifying operational requirements, and determining optimal performance of the building automation system.
 - (8) Review all event log inconsistencies with the customer and determine corrective action.
 - (9) Suggest improvement services as system enhancements become available.
 - (10) Check Tracer workstation monitor for clarity, focus and color.
 - (11) Cycle power and listen for unusual motor bearing noises.
 - (12) Verify proper system restart.
 - (13) Check system date, time, and hardware status.
 - (14) Clean exterior surfaces.
 - (D) BUILDING SYSTEMS SURVEY; vendor technicians will review operating sequences and practices for covered airside systems. An initial survey of current systems operating parameters will be conducted within the first 60 days of the contract term, with the exception of seasonally operated systems, which will be surveyed during the appropriate operating season.
 - (1) This survey will include; Time schedules, Re-set schedules, economizer changeover (where applicable), set points, energy management routines, detailed report of findings for changes, if applicable, operational changes requiring only the adjustment of controls or programming.
 - (E) BUILDING CONTROL UNIT (BCU) MAINTENANCE INSPECTION;
 - (1) Verify secure connection on all internal wiring, LAN, and communications links. Check for loose or damaged parts or wiring, check for any accumulation of dirt or moisture, clean if required.
 - (2) Verify proper system electrical grounding.
 - (3) Verify proper output voltages on control panel power supplies.

- (4) Verify proper BCU main logic board LED operating sequences
- (5) Verify that cards are seated and secured
- (6) Verify LAN communications, if applicable between workstations and other BCUs.
- (7) Verify correct time and date.
- (8) Check and update holiday schedules and daylight savings time.
- (9) Clean external surfaces of the panel enclosure.
- (10) Check modem operation.
- (11) Via PC workstations, view the event log and input/output points for any unusual status or override conditions.
- (12) Review operating procedures with operating personnel
- (F) UNIT CONTROL MODULE INSPECTION; UNIVERSAL PROGRAMMABLE CONTROL MODULES;
 - (1) Verify equipment is being controlled at the appropriate values.
 - (2) Change one set point value. Verify smooth transition and stable control at the new set point. Return set point to original value. Repeat for each additional control loop.
 - (3) Verify that controlled values and damper will stroke fully in both directions, sealing tightly where appropriate.
 - (4) Verify the proper operation of critical control processes and points. Make adjustments if necessary.
 - (5) Verify and/or calibrate other points associated with units where corrective maintenance is indicated.
- (G) UNIT CONTROL MODULES;
 - (1) Verify UCM is in control at the desired values.
 - (2) Change one set point value. Verify smooth transition and stable control at the new set point. Return set point to original value. Repeat for each additional control loop.
 - (3) Verify that controlled values and damper will stroke fully in both directions, sealing tightly where appropriate.
 - (4) Verify the proper operation of critical control processes and points. Make adjustments if necessary.
 - (5) Verify and/or calibrate other points associated with units where corrective maintenance is indicated.
- (H) TERMINAL UNIT CONTROLLERS (MP581);
 - (1) Verify TUC is in control at the desired values.
 - (2) Where the controller performance is in question, Change set point values, verify smooth and stable control at the new value, return set point to new value, verify the proper operation of critical control processes and points; make adjustments if necessary.
- (I) VAV UNIT CONTROL MODULE;
 - (1) Verify VAV UCM is in control at the desired value.
 - (2) Where the controller performance is in question, Change set point values, verify smooth and stable control at the new value, return set point to new value, verify the proper operation of critical control processes and points; make adjustments if necessary.
- (J) TRANE TRACER SUMMIT SOFTWARE UPGRADE;
 - (1) Includes time and materials to upgrade the Tracer Summit system to the most current version.
 - (a) UPGRADE EXCLUSIONS;
 - (1) Revisions to other software programs NOT produced by Trane.

3. Performance Period: The Government is requesting one base period of one year and four option periods of one year.

Base Period:	21 Dec 2015 thru 20 Sep 2016
Option Period 1:	21 Dec 2016 thru 20 Sep 2017
Option Period 2:	21 Dec 2017 thru 20 Sep 2018

Option Period 3:	21 Dec 2018 thru 20 Sep 2019
Option Period 4:	21 Dec 2019 thru 20 Sep 2020

SERVICE/MAINTENANCE AGREEMENT

Item #	Description	QTY	Unit	Unit Price	Total Price
L97C01573	Trane Centrifugal Chiller, Model CVHF910F				
L07A00178	Trane Centrifugal Chiller, Model CVHF1060				
U10K08788	Trane 400 Ton Air Cooled Chiller, Model RTAC1554UU				
U10K08789	Trane 400 Ton Air Cooled Chiller, Model RTAC1554UU				
SCXM-904980	York Air Cooled Scroll Chiller, Model YCAL0033EE17XE				
MP581	Trane Tracer Summit Control System				
U13BO5612	Trane Air Cooled Chiller (Thermal storage) Model RTAC3504UXON				
U13BO5613	Trane Air Cooled Chiller (Thermal Storage) Model RTAC3504UXON				
U13BO5614	Trane Air Cooled Chiller (Thermal Storage) Model RTAC3504UXON				

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