Performance Work Statement

Chiller Plant Preventive Maintenance

Full coverage service contract whereby the contractor shall provide all parts (i.e. including, but not limited to motors, pumps, tubes, electrical components, circuit boards, functional parts, etc.), materials, staffing and supervision to perform preventative maintenance and training on water cooled chillers, air cooled chillers, glycol chillers and cooling towers. The intent of this contract is to provide full coverage for all parts, refrigerant, and labor associated with all repair and preventive maintenance work for the specified equipment identified in Attachment A. Service shall include normal preventative maintenance as well as emergency (breakdown) call-out service. In terms of the specific tasks outlined below they are only recommended guidelines. Jobsite conditions may dictate that maintenance schedule is performed more often than recommended.

Locations Covered:

1. C.W. Bill Young VAMC, 10,000 Bay Pines Blvd, Bay Pines, FL 33744
2. Lee County Healthcare Center, 2489 Diplomat Pkwy East, Cape Coral, FL 33909

GENERAL

Chemicals

Any chemicals or disinfectants used must be registered with the US-EPA for the application. Safety Data Sheets (SDS) must be made available when asked.

Work Hours and Requirements

Work hours shall be Monday through Friday 7:00 a.m. to 4:30 p.m., unless otherwise authorized by the COR. All work shall be coordinated through COR, identified with Attachment B. Contractor shall check in at the Energy Center, Bldg. 100 when working at C.W. Bill Young VAMC and directly with the COR at the Lee County Healthcare Facility. Again, the contractor must check in with the COR each time they are on site to complete scheduled work or respond to emergency calls.

Contractor shall have a badge that identifies their name and company when on site.

Only one chiller and/or cooling tower in each plant can be down for service at any one time, unless specifically permitted by the COR due to favorable weather conditions.

Data/Deliverable Requirements

All preventative maintenance is to be done in accordance with the original equipment manufacturer's recommendations and technical manuals. All mechanics working on chiller equipment must be factory certified by the OEM. Certifications must be on file with the Contracting Officer Representative (COR) prior to the start of the work. All reports shall be submitted to the COR and/or the Assistant Chief, Engineering Service via e-mail after each service or emergency call.

Service Requirements

Contractor shall be able to respond to emergency calls within two hours of notification by the COR or designee. Chiller technicians must be OEM certified technicians and must be able to complete all programming and reprogramming for repairs and upgrades to the equipment.

MAINTENANCE REQUIREMENTS:

Refrigerant Alarm Calibration Requirements:

QUARTERLY- The quarterly preventive maintenance services include:

a) Maintain adjusts, operates, diagnose, and calibrate the refrigerant monitoring system. Inspect any field-assembled components, equipment installation, and electrical connections for compliance with requirements. Test alarm set points of the refrigerant monitoring system with calibration gases and verify sequence of operation.

b) Contractor to provide a quarterly written report of calibration results of the refrigerant alarms for the chiller plants documenting the test procedures, test results and corrective actions if required. Report is due within 5 days of the end of the quarter.

Centrifugal Chiller Maintenance Requirements:

ANNUALLY- Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected within 5 days of the end of the year.

1. **General Assembly**
   a) Check and record refrigerant level.
   b) Sample refrigerant and oil and report showing numerical data on all tests performed on the sample and recommendations and comments on the sample.
   c) Inspect for leaks and report leak results.
      1. 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.
      2. In order to use EPA-recommended methods, certain conditions must be met:
         a) The isolation valves on the chilled water and condenser water lines must shut off the circulation completely.
         b) The temperature of the equipment room should be 70°F or higher.
         c) Access connections to the condenser water and chilled water circuits must be provided (customer's responsibility).
   d) 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.
   e) Calculate refrigerant loss and report to the customer.
   f) Repair minor leaks as required (e.g., valve packing, flare nuts).
   g) Check vanes for free and smooth operation.
   h) Check mechanical linkages for wear.
2. **Purge**
   a) Check purge unit controls for proper operation.
   b) Check and clean purge drum as required.
   c) Clean the condenser coil.
   d) Clean strainers or replace filters as required.
   e) Check the purge compressor assembly for leaks as required.
   f) Check the purge unit for proper operation.
3. **Controls and Safeties**
   a) Verify all settings in the electronic control panel.

b) Inspect the control panel for cleanliness.
c) Inspect wiring and connections for tightness and signs for overheating and discoloration.
d) Verify the operation of the vane control system.
e) Verify the working condition of all indicator/alarm lights and LED/LCD displays.
f) Verify the operation of the oil sump temperature control device.
g) Test high condenser pressure safety device. Calibrate and record setting.
h) Test low evaporator temperature safety device. Calibrate and record setting.
i) Test low oil pressure safety device. Calibrate and record setting.
j) Test high motor temperature safety device. Calibrate and record.
k) Test operation of chilled water pump and condenser water pump starter auxiliary contacts.

4. **Lubrication System**
   a) Pull oil sample for spectroscopic analysis. Include testing for metal wear, moisture, acidity, viscosity, aniline point, solid residue and report showing numerical data on all tests performed on the sample and recommendations and comments on the sample. Shall also show graph of current test data in comparison with previous test data available.
   b) Check oil for acid content and discoloration. Make recommendations to the customer based on the results of the test.
   c) Measure and record the oil pump voltage and amperage.
   d) Verify the operation of the oil heater. Measure amps and compare readings with the watt rating of the heater.
   e) Change the oil filter.
   f) Verify the oil level.
5. **Motor and Starter**
   a) Clean the starter and cabinet.
   b) Inspect wiring and connections for tightness and signs of overheating and discoloration.
   c) Check condition of the contacts for wear and pitting.
   d) Check contactors for free and smooth operation.
   e) Check the mechanical linkages for wear, security, and clearances.
   f) Check tightness of the motor terminal connections.
   g) Meg the motor and record reading.
   h) Verify the operation of the electrical interlocks.

SEMI-ANNUALLY - The semi-annual preventive maintenance services include:

a) The services include mechanical or chemical cleaning of the tubes or coil twice per year, once at the beginning of the cooling season and once and the conclusion. The one at the completion of the cooling season shall coincide with the annual cleaning of the cooling towers.

b) Provide a written report of completed work for the previous quarters, submit operating log, and indicate any uncorrected deficiencies detected. Report is due within 5 days of the end the bi-annual period.

QUARTERLY – The quarterly preventive maintenance services include:

a) Check the general operation of the unit(s).
b) Log the operating temperatures, pressures, voltages, and amperages.
c) Check the operation of the purge unit.
d) Check the operation of the control circuit.
e) Check the operation of the lubrication system.

f) Check the operation of the motor and starter.
g) Analyze the recorded data. Compare the data to the original design conditions.
h) Review operating procedures with operating personnel.
i) Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected. Report is due within 5 days of the end of the quarter.

Air Cooled Chiller Maintenance Requirements

QUARTERLY – The quarterly preventive maintenance services include:

a) Check programmable operating setpoints and safety cutouts. Assure they are correct for the application.
b) Check compressor and evaporator heater operation
c) Check for dirt in the panel.
d) Check door gasket sealing integrity.
e) Check heat exchangers, compressors, and pipework for damage and gas leaks
f) Read the operating pressures and temperatures at the control panel using the display keys and check that these are within the operating limitations give in the manual.
g) Check compressor oil level and add oil if necessary
h) Check refrigerant level in the evaporator sight glass while running at "Full Load" for 15 to 30 minutes.
i) Ensure no fault messages are displayed on the unit.
j) Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected. Report is due within 5 days of the end of the quarter.

SEMI-ANNUALLY - The semi-annual preventive maintenance services include:

a) The services include mechanical or chemical cleaning of the tubes or coil twice per year, once at the beginning of the cooling season and once and the conclusion. The one at the completion of the cooling season shall coincide with the annual cleaning of the cooling towers.
b) Leak check the chiller(s)
c) Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected. Report is due within 5 days of the end the bi-annual period.

ANNUALLY - The annual preventive maintenance services include:

a) Sample compressor oil, check for acid, and replace if necessary
b) Disconnect power source and lock out. Check tightness of power wiring connections.
c) If applicable, check glycol concentration on low temp
d) Clean coils in accordance with manufacturere's recommendations and procedures.
e) Sample refrigerant and oil and report showing numerical data on all tests performed on the sample and recommendations and comments on the sample.
f) Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected. The report is due 5 days from the end of the year.

TRI-ANNUAL – The tri-annual preventive maintenance services include:

a) Eddy Current testing for <u>all</u> chillers within attachment A.

Variable Frequency Drives (VFD) Maintenance Requirements:

ANNUALLY- The annual preventive maintenance services include:

a) Check drive for cleanliness and vacuum out components where required.
b) Perform annual service in accordance with manufacturer's IOM and maintenance procedures by qualified, trained, and certified technician.
c) Visually inspect drive components
d) Visually inspect MOV devices for swelling and arcing
e) Verify pre-charged resistors for breakage
f) Inspect arc terminal for leakage and arcing
g) Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected. The report is due within 5 days of the end of the year.

Cooling Tower Maintenance Requirements

ANNUALLY- The annual preventive maintenance services include:

a. **Inspection Requirements**
The contractor shall provide a visual inspection of the towers including walls, roof, fans components, fill, and gear box. Contractor shall provide a written report verifying the procedure followed, disinfectant type and levels utilized, pictures of inside the tower, recommendations for improvements to the overall health of the towers, and certification that all disinfection and testing procedures complied with all state, local, and federal guidelines. The final report shall be submitted to facility no more than 14 calendar days of the completion of the work.

b. The towers shall be returned to a state in which the facility's chemical contractor can resume normal treatment. Any chemicals introduced for cleaning must be removed.

c. **Clean & Disinfecting**
Work must be completed in accordance with most current trade practices, guidelines, and requirements. The following are components of the process:

1. Pre-clean inspection and disinfection of cooling tower and associated systems
    a. Perform mechanical inspection noting any defects or hazardous conditions
    b. Disinfect the system using chlorine, bromine, or chlorine dioxide maintaining pH or adjusting disinfectant concentration as required.
    c. In the process of disinfection, apply a biodetergent or biodispersant to aid in the disinfection and removal of organic deposits, slimes, and deposits.
    d. This above steps must be taken prior to personnel safely entering the cooling towers.
    e. Inspection of the system shall include inspection for defects, cracks, support members, fill condition, and damage to waterproofing. The general condition of the interior of the towers shall be documented by photograph and all defects or conditions of concern shall be photographed for the owner.

2. Physical cleaning and inspection of cooling tower surfaces, components, associated systems:
    a. VA personnel will drain the system and close off any fresh air intakes that may be negatively impacted by the overspray.

b. Chip and remove peeling paint and rust on gear box assembly and motor and repaint utilizing Coronado Rust Scat Polyurethane Enamel, Sandstone, Semi-Gloss.
c. Clean and wash all accessible areas of the tower system including the fill, inside and outside of each individual cell, all wall surfaces, fan shroud, fan blades, and gearducer.
d. Remove scale and corrosive debris from the tower sump and distribution troughs
e. Remove and dispose of any accumulated sediments in the tower fill pack, sump, and troughs. This shall not be allowed to go into a store or sewer drain. It shall be vacuumed out and properly disposed.
f. Inspect condenser pumps and clean strainer for each one.
g. Clean and flush lines and clear nozzles of slime and debris.
h. Remove and clean any anti-cavitation plates and screen at the basin outlet
i. If applicable, drain gear box oil and replace with new oil. Oil must be properly disposed of by the contractor.
j. All physical cleaning shall be completed utilizing a pressure washer.

3. Post-clean inspection and disinfection of cooling tower and associated systems.
    a. Perform mechanical inspection and note any defects and conditions of concern.
    b. Disinfect the system using chlorine, bromine, or chlorine dioxide maintaining pH or adjusting disinfectant concentration as required.
    c. Return tower water to conditions which allow normal operation.
    d. VA staff will return system to service.

d. Provide annually a written report of completed work, operating log, and indicate any uncorrected deficiencies detected. Report is due with 5 days of the end of the year.

QUARTERLY- The quarterly preventive maintenance services include:

a) Visual inspection of all mechanical components including motors, pulley's, gear boxes, drives, blades, belts, valves, and pumps.
b) Grease bearings
c) Check sump level control system for proper operation.
d) Visual inspection of all electrical components.
e) Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected. Report is due within 5 days of the end of the quarter.

PERFORMANCE SUMMARY

Requirement Performance Objectives	Acceptable Quality Level	Method of Surveillance	Remedy
Refrigerant alarm calibrations for Centrifugal and Air Cooled Chillers identified in Attachment A.	Perform refrigerant alarm calibrations in accordance with the manufacturer's recommendations and technical manuals. No more than two instances of rework due to poor quality per quarter.	Inspection By The COR	Payment equal to correctly provided services in accordance with the PWS
Maintain and repair Centrifugal and Air Cooled Chillers in accordance with the PWS, identified in Attachment A.	Perform preventive maintenance on Centrifugal and Air Cooled Chiller equipment identified in Attachment A, maintaining a 90% chiller up-time per quarter.	Inspection By The COR	Payment equal to correctly provided services in accordance with the PWS
Preventive maintenance of the variable frequency drives in accordance with the PWS.	Provide complete preventive maintenance on the variable frequency drives in accordance with the PWS. No more than two instances of rework due to poor quality per year.	Inspection By The COR	Payment equal to correctly provided services in accordance with the PWS
Annual and quarterly maintenance of the cooling towers identified in attachment A in accordance with the PWS.	Perform preventive maintenance and inspection of the Cooling towers identified in Attachment A in accordance with the PWS, maintaining a 98% cooling tower up-time per year.	Inspection By The COR	Payment equal to correctly provided services in accordance with the PWS
Invoicing	Submission of timely, complete and accurate invoices. Maintaining that 95% of the invoices submitted are complete, timely and accurate invoice submittals	Monthly Inspection and certification of the invoices by the COR	Payment equal to correctly provided services in accordance with the PWS
Emergency Response	No more than two hours elapse before an emergency repair/maintenance is initiated 90% of the time during the evaluation period.	Monthly Inspection By The COR	Payment equal to correctly provided services in accordance with the PWS
Safety	No more than one mishap notification per calendar year.	Monthly Inspection By The COR	Payment equal to correctly provided services in accordance with the PWS

SAFETY REQUIREMENTS

Confined Space

1. The Bay Pines VA Healthcare System complies with the Occupational Safety and Health Administration (OSHA) confined space requirements as detailed in 29 CFR 1910.146. The above ground water tanks located at the C. W. Bill Young Medical Center have been evaluated and deemed to meet the definition of permit required confined spaces. All confined space entry shall comply with 29 CFR 1910.146. A site-specific Confined Space Entry plan, that specifically addresses entry conditions, air monitoring and rescue services, shall be developed and submitted to the Facility Safety and Emergency Management Service.

2. Confined space entry permits must be authorized by the Facility Safety and Emergency Management Service. Contractors shall coordinate with their Project Manager to request entry permits. Written request to de-classify a (PRCS) to a (CS) may be documented in writing and submitted to the Facility Safety and Emergency Management Office for consideration and approval.

TRAINING REQUIREMENTS

1. The Contractor shall provide on the job training every six months for all operators (not to exceed 10 students) for all equipment in this performance work statement. Training will be conducted in a classroom setting (20%) and out in the field by actual trainers (80%). Virtual training is not allowable or acceptable to include the use of a virtual instructor or prerecorded instructor. Approximately eighty percent (80%) of the training will be in a “field style” environment (i.e. with the chillers, cooling towers etc.). The other twenty percent (20%) will be in the classroom. Training will be provided on all equipment types, their function, operation, and control programming. The contractor shall be responsible for providing all classroom materials necessary in order to successfully render the training (to include but not limited to) the following: teaching materials, samples, projectors, laptops, presentations, sign in sheets, etc. Total training time shall be a minimum of two (2), eight (8) hour days. Prior to the scheduling and commencement of training the proposed training plan (syllabus, planned course of instruction, proposed classes etc.) shall be approved by the COR.

Fall Protection

1. The fall protection (FP) threshold height requirement is 6 ft (1.8 m) for ALL WORK, unless specified differently or the OSHA 29 CFR 1926 requirements are more stringent, to include steel erection activities, systems-engineered activities (prefabricated) metal buildings, residential (wood) construction and scaffolding work.
2. The use of a Safety Monitoring System (SMS) as a fall protection method is prohibited.
3. The use of Controlled Access Zone (CAZ) as a fall protection method is prohibited.
4. A Warning Line System (WLS) may ONLY be used on floors or flat or low-sloped roofs (between 0 - 18.4 degrees or 4:12 slope) and shall be erected around all sides of the work area (See 29 CFR 1926.502(f) for construction of WLS requirements). Working within the WLS does not require FP. No worker shall be allowed in the area between the roof or floor edge and the WLS without FP. FP is required when working outside the WLS.
5. Fall protection while using a ladder will be governed by the OSHA requirements.

Data/Deliverable Requirements

All preventative maintenance is to be done in accordance with the manufacturer's recommendations and technical manuals. All mechanics/technicians working on the Trane equipment must be factory certified by Trane. Certifications must be provided to the COR prior to commencement of work. Reports shall be submitted to the COR and/or the Assistant Chief, Engineering Service via e-mail after each service or emergency call. The Government will have full ownership of all technical data, reports, and deliverables associated with this contract.

Service Requirements

Contractor shall be able to respond to emergency calls within two hours of notification by the COR, designee. The contractor is to provide unlimited 24/7 emergency service with 2-hour response time on site for all equipment listed in Attachment A. Emergency service needs are to be managed by the Contractor's staff. Emergency calls will receive immediate troubleshooting attention from the Contractor's technical support staff. In the event the COR chooses to leave a message on Contractor's Emergency Call number, the Contractor will be required to return the Government's call within 30 minutes. Coverage includes 100% parts, labor, travel, and on-site time for both remedial and emergency repairs.