PDHQ Central Plant Controls Upgrade R.F.P. Information

Project Description and Summary

The PDHQ controls upgrade project will consist of upgrading and replacing (4) existing Circon UHC-300 chiller plant controllers, (4) 25 horsepower variable frequency drives (VFD'S) with bypass for condenser water pumps P-5 & P-6 and for secondary chilled water pumps P-3 & P-4, annual service / maintenance for chillers CH-1 and CH-2, eddy current testing of both condenser and evaporator tube bundles as well as mechanical brushing of the tubes, replacement of actuator and linkage for cooling tower condenser water modulating bypass valve as well as start-up, commissioning, verification of proper operation and training for City staff. Upon completion, the Optimum Energy equipment should be removed and all optimization processes will reside in the new supervisory controller and will function independently without any outside 3rd party involvement.

Project Scope

Chiller Plant controller replacement

1. Replace the (4) existing Circon UHC plant controllers
2. Provide and install new controllers to existing sensors and end devices
3. Replace well temperature sensors with new sensors as needed.
4. Provide as-built control drawings referencing the original drawings.
5. Provide programming to new controllers I/O points to existing JACE controller and plant sequence of operation.
6. Provide temporary manual operation of chiller plant during the controller change out.
7. Upon completion of project contractor is to provide a minimum of *8 hours of comprehensive operational controls training for City HVAC staff.*
8. Provide point to point start-up and checkout of new system.
9. Validate and verify the control sequences for the following:

    a) Chiller/s (lead/lag), chiller failure alarm and switch over for CH-1 Trane/Turbocor retrofit and CH-2 Trane screw chiller.
    b) Pump/s (lead/lag), pump failure alarm and switch over for primary and secondary chilled water pumps P-1, P-2, P-3 & P-4 and condenser water pumps P-5 & P-6
    c) VFD programming and sequence of operation.
    d) Modulating chilled water low flow de-coupler valve for Turbocor operation.
    e) Cooling tower isolation valves
    f) Cooling tower modulating 3-way bypass valve

Trane (Turbocor converted) Chiller Annual Service

1. Brush condenser and evaporator tubes.
2. Perform eddy current test on both condenser and evaporator tubes. Document and record findings.
3. Check for leaks.
4. Check main power supply voltages.
5. Check / tighten and inspect all electrical connections and terminals for hot spots and discoloration.
6. Check amperage per manufactures specifications.
7. Check DC bus voltage.
8. Check and verify operation of all system safety devices and interlocks.
9. Check IGV assembly operation.
10. Check control cabinet fan/s cooling operation.
11. Check motor cooling system.
12. Perform log check, review fault/s analysis, and analyze operation and performance of chiller.

Trane Screw Chiller Annual Service

1. Perform full annual service / maintenance per manufactures specifications.
2. Brush Condenser and evaporator tubes.
3. Perform eddy current test on both condenser and evaporator tubes.
4. Annual service should include the following:

    a) Document and record findings
    b) Perform oil Analysis.
    c) Replace oil filter.
    d) Check for refrigerant leaks.
    e) Check calibrate operating and safety controls.
    f) Check and calibrate flow switches devices.
    g) Perform controls test.
    h) Check main starter / and control panel
    i) Inspect and tighten
    j) Inspect and tighten electrical connections.
    k) Inspect contacts / wiring for hot spots and discoloration.
    l) Meg compressor.
    m) Check oil sump heater operation.
    n) Perform log check, review fault/s analysis, and analyze operation and performance of chiller.

Pump/s VFD Replacement

1. Remove existing failed VFD drives from pumps.
2. Provide and install (4) new 25-Horsepower variable frequency drives with bypass for secondary chilled water pumps and condenser water pumps.
3. Install, modify electrical conduit and connections for new VFD installation.
4. Provide Programming to VFD/S / pump/s per required plant sequence of operation.
5. Perform startup and commissioning of VFD drives, verify and validate the control sequences for chilled water secondary pumps P-3 & P-4 and condenser water pumps P-5 & P-6.