

Back-up Evaporator Pump Addition Scope of Work

1. Furnish and install a new chilled water evaporator pump CHWP-5.
 - a. Bell and Gossett 1510e-6BD
 - b. 1,100 gpm @ 28 ft.w.c.
 - c. 9.15 bhp
 - d. 85.74% pump efficiency
 - e. 10 hp, non-overloading motor selection
 - f. Minimum motor efficiency = 91.7%
 - g. 1,150 rpm
2. See attached system diagram for the general arrangement of the pump and piping connections.
3. Trim the impeller on existing chilled water evaporator pump CHWP-1 to 10-7/8 inches to provide 1,100 gpm at 28 ft.w.c. using 10.7 bhp.
4. Replace the existing triple duty valve serving pump CHWP-1 with a wafer style check valve, Metraflex CV)-700 SS or approved equal, and a lugged butterfly valve with gear operator, Bray Series 31 or approved equal.
5. The trim for the new pump shall be the same as is specified for pump CHWP-1 above.
6. Furnish and install a new starter disconnect, conduit, wire and branch circuit protection as required for a complete, fully functional, fully code compliant motor control and branch circuit circuit fed from a spare space in existing distribution panel board CPDP.
7. Insulate all pipe, fittings and specialties.
8. Patch points of connection to existing piping and insulation systems to restore the integrity of the vapor barrier in a neat and workman like manner.
9. Provide all necessary hangers, supports, and seismic restraints.
10. Paint all new and patched pipe and insulation to match the Owner's color coding standards
11. Provide engraved placards and nameplates to match the existing for all major items of equipment and for the pump CHWP-1 indicating that its impeller has been trimmed and the new performance point.
12. Furnish and install control points as specified in the attached point list.

13. Modify existing control system graphics and programming as indicated in the attached outline narrative sequence.
14. Coordinate with the Owner to obtain the contact information for their control system vendor and use that vendor for the control work. Control systems shall be sole source Moneyhell using the Owner's designated vendor, no substitutions.
15. Provide engraved nameplates and placards matching the existing for all new items of equipment.
16. Provide an engraved placard for CHWP-1 indicating that its impeller was trimmed and indicating the new performance point in terms of flow, head, impeller diameter, brake horsepower and speed.
17. Submit on the following items for approval by the Owner prior to purchase and installation.
 - a. New pump CHWP-5, starter/disconnect and distribution panel board switch.
 - b. Pipe, valves, fittings and hangers and related hardware and fittings.
 - c. Conduit, wire, and related electrical hardware and fittings.
 - d. Insulation
 - e. Control system hardware, software, and related materials.
 - f. Pipe fitters field piping isometric sketches.
 - g. Electrical riser diagram indicating conduit and wire sizes, switch sizes, etc.
 - h. Nameplates and placards.
18. Submittals shall be specific to the materials and equipment to be provided and shall completely specify all of the technical details and performance metrics associated with the equipment and materials.
19. Include performance curves for the new pump, the trimmed pump impeller and the new motor.
20. Match existing conditions for all mechanical and electrical materials and methods unless otherwise specified.
21. Upon completion of the work, update the existing control documents to reflect the new point additions and programming and furnish a complete set of plant control documents incorporating the revisions associated with this project.

22. Comply with the Owners *General Conditions of Contract* (copy attached) and all local code requirements.