Start Up

Pre Start-up Ceck List

1. All equipment must be installed in accordance with drawings.
    a. Verify piping according to drawings.
    b. Verify electrical by doing point to point against electrical wiring diagrams.
2. Piping should be flushed assuring no debris has entered the vessels.
3. Pressure test (hydrotest) all piping and vessels.
4. If shipped loose, internals must be installed in vessels.
5. Media must be installed in vessels.
6. Pressure gauge and test tap kits must be installed.
7. Brine tank and brine lines must be connected.
8. Shut off kits and super-flow kits must be installed.
9. Manual bypass must be in place.
10. Water to system must be pressurized.
11. System must have electrical power.
12. All wiring must be completed.
13. Visually inspect for leaks.
14. Clean chemical storage tanks.
15. Safety showers must be tested and found functional.
16. Chemicals should be available on site. Be sure to obtain the specification sheets from supplier of the chemical to assure proper quality.
17. Confirm that Programmable Controls have been programmed properly.
18. All necessary work and safety permits must be acquired.
19. Drains and wastewater system must be complete and permitted.
20. Acquire supplemental equipment that is necessary to operate the unit.
21. Notify necessary support staff of start-up time and date.
22. All project documentation should be assembled including plans, specifications, submittals and O&M manuals.
23. Make certain you can meet safety requirements of facility prior to entering the facility.
24. Determine appropriate contact personnel.

Important Notice: Water King and it's representatives are not installing contractors and are not responsible for on site assembly or installation of the unit. The purpose of start up is to verify (not perform) proper installation of the equipment and to verify proper function and setting of the controllers so the system can be placed in service. The contractor must provide support personnel for start up including mechanical technicians and electricians should their services be required.

Water King MSDS Disclaimer

1. The Material Safety Data Sheets (MSDS) found in this manual are being offered as a service only.
2. This information is accurate to the best of our knowledge. However, data, safety standards and government regulations are subject to change. Handling and use or misuse is beyond the control of Water King.
3. Water King makes no warranty, either expressed or implied, with respect to the completeness or confirming accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all the correct data relevant to his particular use.

Material Safety Data Sheet

1. A copy of the Material Safety Data Sheets are available in the MSDS Section of the Manufactures Record Book.

O&M 107.2
Installation Verification

1. Piping
    a. Does it match the plans? Is the piping configuration logical?
    b. Is it properly installed? Is quality of workmanship adequate?
    c. Are the manual bypass valves and the manual isolation valves in the correct location?
    d. Is drain piping correctly sized?
    e. Are the flow meter(s) positioned correctly?
    f. Is the direction of flow correct on check valves and diaphragm valves?
    g. For stagers, check valve installation, tubing installation and wiring.
2. Brine System
    a. Is the brine tank correctly installed? Is the grid plate in place? Are the brine valve and brine director in place
    b. Is the brine line correctly installed with a direct path to the mineral tank? Is it free of kinks? Is it tight to prevent vacuum leaks?
    c. Make certain the float is not dragging in the brine tank.
    d. Is the water level up to the float in the brine tank? Is the water level in the brine tank 2" above the grid plate?
    e. Is the vent hole in the Styrofoam float tube open? If not move float up to clear this hole.
    f. Is the external injector properly installed? Is the correct injector in the valve?
3. Electrical
    a. Review electrical with electrical contractor. Tie in all appropriate electrical connections to the control panel according to WIRING DIAGRAM.
    b. Double check wiring.
    c. Does it match electrical drawings from manuals?
    d. Check terminals strips for correct location and tightness of all connections.
4. Controls
5. Task Master III
6. Ensure that the correct controller has been installed in the Task Master III valve. Controllers available are either timed or demand regenerated.
7. For twin alternating systems, verify that the interconnecting cables installed between the primary and secondary valves are securely fastened.
8. Refer to Task Master III Owner Manual (900401) for programming instructions.

Cycle Testing

1. Piping Isolate system
    a. Close Outlet Valves
    b. Open Bypass Valve
    c. Open Inlet Valves (s l o w l y)
    d. Vent each Vessel
2. Power up and make certain every thing works
    a. On triplex system, one unit will go to stand-by.
    b. Work with the Unit in Stand By
    c. Manually start regeneration from the controller. Check flow to drain. Watch for resin in drain. Water may be discolored. (color throw) Does flow match O & M? Do not leave in this cycle longer than one minute.
    d. Advance timer to brine draw position. Is water level in Brine Tank moving down?
    e. Advance Timer to Fast Rinse Position. Check flow to drain. Does flow match O & M? Watch for resin. Water may be discolored. (color throw) Do not leave in this cycle longer than one minute.
    f. Advance timer to service position.
    g. Repeat short cycles until water to drain is clear.
    h. When advancing timer by hand, it must be allowed to return “Home” by itself.
    i. Repeat with other units.

Start-up Check List

1. Verify items from Pre Start Up Check List.
2. Verify that all valves are set to their proper position.
3. Power up controllers.
4. Verify that all valves (manual and automatic) are set to their proper position.
5. Make certain everything is working properly.
6. Work with the Unit in Stand By.
7. Manually start regeneration. Unit should automatically enter **BACKWASH**. watch for proper backwash flow. Do not leave in this cycle longer than one minute. Verify that all valves are set to their proper position. Verify adequate backwash flow.
8. Advance to **BRINE DRAW** position and make certain water level (brine level) in brine tank is decreasing. Verify that all valves are set to their proper position. Once level decrease is observed go to next step.
9. Advance to **FAST RINSE** position and watch for proper drainage. Verify that all valves are set to their proper position. Do not leave in this cycle longer than one minute.
10. Advance timer to **SERVICE** Position. Verify that all valves are set to their proper position.
11. Place other units in **STANDBY** and repeat short cycle regeneration confirming cycling and flow of all units.
12. Flush each vessel by placing it in BACKWASH position. Continue backwash until backwash water to drain is clear. (This step is needed incase the resin has “color throw”.)
13. Place system Online and position all necessary valve to their proper status.
14. Verify all controllers and meters are working properly.
15. Verify controller settings.
16. Make certain both outlet valves are open.
17. Place system in service.
18. Contractor may place initial salt load in brine tank at this time.

Salt. Generally, salt is not placed in the brine tank until after start up. The resin is ready to use when it arrives so an initial regeneration is not required. Having only water in the brine tank at start up avoids introducing salt into the water system.

Exit

1. Take pictures of installation for record purposes if possible.
2. Obtain names and contact information for all attendees and observers at start up and start up training.
3. Exit facility making certain to sign out if required.