Submittals for Pacific Water Inc. Model WS120-956TA Twin Meter Alternating Water Softening System

1.0 SCOPE

1.1 Provide as indicated a vertical pressure type water softening system complete with pressure vessels, control valves, softening resin and combination brine salt storage tank. The system shall be of an approved design as fabricated by a manufacturer regularly engaged in the production of water treatment equipment. All equipment and material will be supplied in compliance with the specifications as intended for a complete and operational system.

2.0 GENERAL DESCRIPTION

2.1 System specifications are based on Pacific Water Inc. Model No. WS120-956TA. This system shall be a duplex (twin) meter alternating water softening system designed to remove mineral hardness from a known water source. The system will be capable of supplying 4,800 gallons of softened water between regenerations based on the influent total water listed in Section 3.1 of the Design Parameters.

3.0 DESIGN PARAMETERS

3.1 Influent Total Water Hardness
1.1 Influent Total Water Hardness
1.2 Normal System Flow & Pressure Drop:
Maximum System Flow & Pressure Drop:
Maximum System Flow:
Maximum System Flow:
Backwash/Rinse Flow:
Operating Temperature Range:
Operating Pressure Range (System):
Electrical Requirements:
20 grains per gallon
342 parts per millio
47 gpm @ 15 psi dr
60 gpm @ 25 psi dr
5.3 gpm
90-120 psi
120 Volt, 60 Hz, 1 pr

20 grains per gallon (gpg) 342 parts per million (ppm) or mg/l 47 gpm @ 15 psi drop 60 gpm @ 25 psi drop 5.3 gpm 40°-100°F 30-120 psi 120 Volt, 60 Hz, 1 phase (receptacle required)

4.0 EQUIPMENT SPECIFICATIONS

4.1 MINERAL TANKS

Each mineral tank shall be 16 inches in diameter. The height shall be 65 inches, sufficient to allow for proper freeboard space above the resin bed for adequate expansion of the resin during backwashing.

4.1.0 Mineral Tank Construction

Mineral tanks shall be manufactured of a polyethylene inner shell reinforced by a continuous roving FRP filament winding. The top opening shall be a 4 inch - 8 UN threaded connection. The tank shall be rated for 150 psi maximum working pressure.

4.2 INTERNAL DISTRIBUTION

- 4.2.1 The upper distribution system in each softener shall be of the basket diffuser type to dispense water laterally to avoid channeling within the resin bed.
- 4.2.2 The lower distribution system shall be of the single point distributor type, constructed of non-corrosive materials and shall be designed to provide even flow distribution through the resin bed. The lower distribution system shall be embedded in a subfill of washed gravel to support the resin bed.

4.3 MAIN OPERATING VALVES

The main operating control valves shall be of a top mount design constructed of lead free brass with 2.0 inch NPT inlet and outlet piping connections. The control valves shall operate using a hydraulically balanced piston, driven between a series of seals and spacers to actuate the various regeneration cycles. The control valves shall incorporate self-adjusting flow regulators to control the rate of flow to the drain and prevent resin loss during backwash regardless of system pressure fluctuations between 30 and 120 psi. The system shall be supplied with an alternating valve to control the on-line and off-line status of each unit as well as preventing hard water bypass during regeneration.

4.3.1 Control Valve Timers

Each control valve shall be equipped with an electronic programmable regeneration controller that will accept pulses from the electronic water meter and initiate a regeneration cycle after the preset gallons have been used. The controller will control the overall operation of the water softening system. All cycle times shall be fully adjustable. The order of the regeneration cycles shall be adjustable as well as the ability to add or delete cycles from the regeneration program. The controller shall be capable of displaying the following information: The current system flow rate, peak flow rate, gallon totalizer, days since last regeneration, total days since start-up, number of regenerations since start-up and a 63 day water usage history.

4.4 WATER METER

The meter body shall be constructed of stainless steel with 2.0" NPT pipe connections. It will be designed to allow ease of removal of the turbine for inspection without modification of the piping system.

4.5 EXCHANGE RESIN

The ion exchange resin shall be virgin high capacity "standard mesh" and shall be stable over the entire pH range with good resistance to bead fracture from attrition or osmotic shock. Each cubic foot of resin will be capable of removing 30,000 grains of hardness as calcium carbonate when regenerated with 15 lbs. of salt. The resin shall be solid, of proper particle size, (not more than 4% through 40 mesh U.S. standard screens, wet screening) and will contain no agglomerates, shells, plates, or other shapes that might interfere with the normal function of the water softener.

The system shall include a total of 8 cubic feet of ion exchange resin. (4 cu/ft per softener)

4.6 BRINE SYSTEM

Provide a complete brine system consisting of a plastic tank, salt platform, brine well, an automatic brine valve and all necessary fittings for operation with the water softening system. The system shall consist of a combination brine measuring and salt storage tank with salt platform. The tank will be 24 inches in diameter x 41 inches in height. The brine tank will be equipped with a float operated non-corrosive field serviceable brine float valve for automatic control of brine withdrawal and fresh water refill.

4.7 ACCESSORIES (All Optional selections)

- 4.7.1 Water test kits for hardness tests will be supplied.
- 4.7.2 Pressure Gauges for hard water inlet and soft water outlet.
- 4.7.3 Sampling Cocks for hard water inlet and soft water outlet.
- 4.7.4 Vacuum Breaker for protecting Fiberglass tanks from vacuum.

5.0 INSTRUCTIONS

One complete set of operating and maintenance manuals shall be provided.

6.0 WARRANTY

A written warranty must be provided from the manufacturer of the water softener system covering workmanship and materials

Submittals for Model «MODEL»