Water Safety

A) Water Safety Plan: Establish and maintain a site-specific water safety plan. The intent of the Water Safety Plan is to include all water uses (potable and non-potable). Prior to start of work, prepare a plan detailing site-specific water safety measures and submit to the Contracting Officer Representative (COR) for review for compliance with contract requirements in accordance with the Master Specifications, Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. Master Specifications can be found at http://www.cfm.va.gov/TIL/spec.asp.

B) The Water Safety Plan Submission:

1. Shall be submitted, reviewed and approved prior to commencing construction.

2. Shall be resubmitted annually for review and approval in the event a contract extends more than a year.

C) At a minimum, the water safety plan shall address installer experience, license, and certifications, temporary service connections, delivery and storage of domestic water materials, installation procedures, post installation procedures, and a general knowledge in VA temperature requirements to make certain proper auxiliary equipment such as thermometers, anti-scald devices, and mixing valves are installed.

D) Installer Qualifications

1. Tradesman skilled in the appropriate trade shall be provided.

2. Provide installers appropriate license.

3. Provide evidence of the successful completion of at least five projects of equal or greater size and complexity.

4. Provide additional qualifications or continuing education.

E) Temporary service connections, Pre-Construction, Delivery, and Storage

1. Although the VA allows for use of domestic water during construction, it must be ensured that proper separation is in place at the point of connection via a backflow device.

2. Water lines and equipment shall be capped/covered when delivered to the site and kept capped until installation. They shall be protected and cleaned (inside and outside) before placing in operation.

3. Existing equipment and piping being worked on by the contractor shall be under the custody and responsibility of the contractor and shall be protected as required for new work.

4. Reference Master Specifications 22 05 11 Delivery, Storage, and Handling.

F) Risk Assessment

1. Ensure the infection control risk assessment is conducted with Facility stakeholders to address the potential impact of construction and maintenance of water systems on growth or transmission of waterborne pathogens and commissioning requirements.

G) Installation

1. Reference Master Specifications 22 05 11 Cleanliness of Piping and Equipment Systems.

2. Ream all pipe ends to remove burrs. Burrs can trap sediment and cause corrosion.

3. Aerators shall not be installed on faucets. Reference Master Specifications 22 40 00.

4. Dead legs are considered a length of pipe two pipe diameters from the branch, riser or main with one end open to the system and the other end terminating at a cap, blind flange or closed valve. Dead legs shall not be installed on the system without COR approval.

5. Carbon filters shall not be installed on the system.

6. Avoid running fire sprinkler piping above ductwork.

7. Water lines shall be run at a slight fall to make drainage of the system easier and reduce air locks. Drain valves shall be provided at all low points in the system and traps in the hot water circulating lines shall be avoided.

8. Connect branch lines at the bottom of mains serving fixtures and pitch the lines down so that the main may be drained through the fixture. Connect branch lines to top of main serving only fixtures located on the floor above.

9. All water lines shall be insulated per the specifications.

10. Avoid running ice machine supply lines near source of heat such as the compressor.

11. All water line shutdowns shall be scheduled with the COR.

12. Remove unused piping (e.g. dead legs left as a result of removing equipment such as water heaters, sinks, or showers). To minimize stagnant water, the lines should be cut and capped where they tee into the main, if feasible, or at the last accessible point of flow.

13. Properly balance water circulation system.

H) Post installation

1. Hydrostatically pressure test per Master Specifications 22 11 00. Once testing is complete the lines shall either be drained or have proper separation from the main domestic water connection.

2. Remove piping installed for leak testing.

3. Flush lines with clean potable water until dirty water does not appear at the points of outlet. This shall also include any parts of existing systems that have been altered, extended, or repaired.

4. Disinfect water lines per procedures outlined in specifications, International Plumbing Code (IPC) and American Water Association (AWA) C651. Newly installed water piping, equipment, and distribution system components that had been disinfected but not put into use within a week of the action must be disinfected again prior to building occupancy due to stagnation of water in the system.

5. Conduct Bacterial testing and water quality testing as required by the COR/Engineer.

6. Once sterilization has occurred daily flushing of the system and every fixture must be conducted and documented until turnover of the

project. COR/Engineer will keep documentation of flushing and disinfection for at least 3 years.

7. Equipment must be commissioned to ensure operation meets the design intent and documentation retained for at least 3 years.

I) Temperature Requirements

1. Tank type hot water heaters shall heat the water to a minimum of 140 degrees Fahrenheit.

2. Instantaneous or semi-instantaneous hot water heaters must heat the water to a minimum of 130 degrees Fahrenheit.

3. Circulation loops in the hot water system must be maintained throughout the system at 124 degrees Fahrenheit.

4. Cold water should be at or below 67 degrees Fahrenheit to the greatest extent possible.

5. Master thermostatic mixing valves shall be installed to temper water distribution from the hot water source and shall comply with the IPC and ASSE 1017.

6. General use showers and sinks, as well as immersion tubs, must not exceed a water discharge above 110 degrees Fahrenheit and have combination balanced-pressure/thermostatic valves meeting the IPC and ASSE 1016 (Tubs and showers) and ASSE 1070 (sinks and lavatories).

7. Emergency showers and eye wash stations must maintain temperatures between 60 degrees Fahrenheit and 100 degrees Fahrenheit and have anti scald protection meeting the IPC and ASSE 1071.

8. Verify temperatures with a calibrated thermometer.