

Specification Amendment: Point of Entry (POE) Water Treatment Systems (August 4 , 2017)

1. As stated in the Bid Documents, GUDI and surface waters shall require a minimum of 2 log cryptosporidium removal/inactivation, 3 log giardia removal/inactivation and 4 log virus. The minimum treatment for such “micro” and “small” systems is filtration followed by ultra violet disinfection at each site.
2. System Capacity
 - 2.1. Micro System Peak Capacity – For the purpose of bidding, assume all unit processes will have a peak capacity of 0.63 L/s (10 USGPM). The successful bidder shall determine and confirm the capacity at each site during the design phase of the project.
 - 2.2. Small System Peak Capacity – For the purpose of bidding, assume all unit processes will have a peak capacity of 1.9 L/s (30 USGPM). The successful bidder shall determine and confirm the capacity at each site during the design phase of the project.
 - 2.3. Raw Water Pumps – For the purpose of bidding, assume all existing raw water pumps will be suitable for continued service. Replacement of raw water pumps, if necessary, would be extra to the contract.
3. Water Treatment Filtration
 - 3.1. Sediment Filters and Ultrafiltration Membranes - For the purpose of bidding, assume that all sites will require filtration unit processes similar to those currently in service as shown in Annex A, Figure 1.
 - 3.2. During design development, the successful bidder may determine that an alternative filtration process might be more suited to a particular site depending on raw water quality and capacity requirements. At all sites, an effort will be made to apply similar technologies, manufacturers and models wherever possible to provide consistency and economies of scale.
 - 3.3. Ultrafiltration (UF) membrane nominal pore size shall be 0.02 microns.
 - 3.4. UF Membrane module maximum inlet pressure will be 410 kPa (60psi)
 - 3.5. Maximum transmembrane pressure (TMP) drop will be 0 to 275 kPa (0 to 40 psi).
 - 3.6. UF Membrane units will be provided with a 10-year prorated warranty.
 - 3.7. UF Membrane replacement costs will be guaranteed in today's dollars at the time of bidding with an allowance for annual CPI increase.
 - 3.8. Bidders will specify required cleaning procedure for UF membranes in their bids.
 - 3.9. UF Membrane design and configuration will be such that required cleaning intervals will be 30 days or longer at design flows.
4. UV Lamps
 - 4.1. The applicable standard for ultra violet treatment is NSF/ANSI 55 Class A. Systems utilize ultraviolet (UV) light to disinfect water containing bacteria, viruses, *Cryptosporidium* or *Giardia*.

- 4.2. Lamp shall meet NSF 55 Class A and provide a minimum dosage of 40mJ/cm² at end of lamp life
- 4.3. Lamp shall be equipped with both transmittance and intensity sensors. UV systems are not effective when transmittance is below 75%.
- 4.4. UV lamps shall be rated for a minimum of 9,000 hours, or approximately 1 year of continuous operation before replacement is required.
- 4.5. A combination of the sensor and an alarm system will alert users that the system is not disinfecting water.
- 4.6. UV lamp shall be equipped with a cooling apparatus (fan or purge valve) to prevent water temperature from overheating during periods of low flow.
- 4.7. The new UV system installed at be able to achieve 4-log reduction of viruses.
- 4.8. Acceptable product manufacturer will be Trojan UV Max Pro, Kineticco, Viqua or approved equal.