

WATER TREATMENT TECHNICIAN

The Water Treatment Technician assists in operating and maintaining a water treatment facility, performs basic laboratory testing and equipment maintenance, completes required recordkeeping, and maintains applicable operator certification in order to maintain integrity of service, providing a healthy and clean water supply to customers.

Categories	Specific Tasks or Competencies						
A. Water Treatment Processes	A-1 Describe & demonstrate coagulation, flocculation, and sedimentation/settling processes (e.g., jar test, pilot scale plant).	A-2 Describe & demonstrate the disinfection process.	A-3 Describe & demonstrate the rapid sand filtration process.	A-4 Describe & demonstrate the pressure (diatomaceous earth) filtration process.	A-5 Describe advanced filtration processes (e.g., micro filtration, ultra filtration, upflow clarification).	A-6 Describe & demonstrate water sample collection (e.g., coliform, oil, lead, copper).	A-7 Calibrate inline meters and analyzers for turbidity & chlorine.
	A-8 Describe & demonstrate the taste & odor control process.	A-9 Perform applicable troubleshooting.					
B. Water Sources	B-1 Perform quality test on source water.	B-2 Conduct raw water sources audits.	B-3 Conduct sanitary surveys.	B-4 Interpret USGS gaging station data.	B-5 Interpret stream surveillance data (USGS, EPA, state).	B-6 Explain the geology of various aquifers (including surficial/bedrock, confined/unconfined).	B-7 Describe various water sources: surface water, groundwater, & groundwater under the influence of surface water.
C. Water Quality	C-1 Explain the impact of varying raw water quality on finished water quality.	C-2 Sample, test, & analyze water to identify changes in water quality indicators during treatment, explain the cause, and describe the appropriate response.	C-3 Ensure state and federal water quality regulations are met.	C-4 Explain the potential causes of water quality degradation in the distributions system.			
D. Water Quality Indicators	D-1 Compare & contrast quality of raw water (turbidity, chlorine demand, conductivity,	D-2 Compare & contrast quality of finished water (turbidity, chlorine	D-3 Compare & contrast quality of distribution system water	D-4 Read and interpret analytical equipment (e.g.,			

	pH, alkalinity, temperature, bacteria, jar test, DO, TOC, hardness, nitrate levels, ammonia, iron, manganese, odor, algae/bacterial counts, runoff, & spills) to state & local guidelines.	residue, conductivity, pH, alkalinity, temperature, bacteria, DO, TOC, hardness, nitrate levels, ammonia, iron, manganese, taste/odor, & algae/bacterial counts) to state & local guidelines.	(turbidity, chlorine residue, conductivity, pH, alkalinity, temperature, bacteria, DO, TOC, hardness, nitrate levels, ammonia, iron, manganese, taste/odor, & algae/bacterial counts) to state & local guidelines.	raw/finished turbidimeters, chlorine analyzer, pH and temperature meter, jar tests) and adjust process accordingly.			
E. Safety	E-1 Interpret & demonstrate a working knowledge of MSDS data (IAW CFR).	E-2 Use appropriate PPE (IAW CFR) (e.g., SCBA, respirators).	E-3 Describe safe chemical handling practices & lab procedures (IAW CFR).	E-4 Describe dangers associated with chlorine disinfectants, ammonia, ozone, UV, & cross-contamination & perform appropriate handling procedures.	E-5 Perform industrial hygiene procedures (IAW CFR).	E-6 Describe & demonstrate lockout/tagout procedures on mechanical equipment (IAW CFR).	E-7 Describe & demonstrate confined space procedures (IAW CFR).
	E-8 Describe & demonstrate trench shoring procedures (IAW CFR).	E-9 Demonstrate CPR & basic first aid (IAW CFR).	E-10 Explain how bloodborne pathogens affect WT issues (IAW CFR).	E-11 Describe safe traffic control procedures.	E-12 Identify & describe requirements of PSM as applied to WT facilities.		
F. WT Maintenance	F-1 Perform PM, TS, & calibration on pumps (metering, centrifugal, positive displacement, turbine) & pump tubing.	F-2 Calibrate online meters and analyzers for turbidity, chlorine, & particle counters.	F-3 Perform PM & TS on valves (e.g., gate, butterfly, pressure reducing, air-vacs, altitude), screens, & strainers.	F-4 Perform PM & TS on compressors, actuators (pneumatic & electric), & pressure filters.	F-5 Perform PM & TS on clamps, pressure gauges, chemical mixer blades, chemical vats, chemical injectors,	F-6 Perform PM, TS, & calibration on safety instruments.	F-7 Perform PM & TS on distribution system (e.g., reservoirs, supply pipelines, cathodic protection rectifiers,

					valves, gas chlorinators, chlorine gas monitors, portable gas sniffers, & oxygen content monitors.		hydrants, valves, curb stops, water mains, manholes).
	F-8 Perform PM & TS on river intake bar screens and traveling screens.	F-9 Perform PM & TS on computer systems.	F-10 Perform PM & TS on processing lab equipment.	F-11 Perform PM & TS on interior & exterior of plants & raw pump stations.			

Patent Pending 2000, ATEEC/HMTRI