

WATER DISTRIBUTION SYSTEM FLUSHING, FLOW TESTING, SAMPLING, AND FIELD ANALYSIS TEAM

DESCRIPTION	The Water Distribution System Flushing, Flow Testing, Sampling, and Field Analysis Team flushes, flow tests, and samples the water distribution system.
RESOURCE CATEGORY	Public Works
RESOURCE KIND	Team
OVERALL FUNCTION	The Water Distribution System Flushing, Flow Testing, Sampling, and Field Analysis Team: 1. Tests distribution system flow 2. Flushes water from hydrants and blow-offs 3. Samples water 4. Field tests water systems
COMPOSITION AND ORDERING SPECIFICATIONS	1. Discuss logistics for deploying this team, such as security, lodging, transportation, and meals, prior to deployment 2. This team typically works 12 hours per shift, is self-sustainable for at least 72 hours, and is deployable for up to 14 days 3. The requestor provides external support to the team, such as fuel and power for recharging phones, computers, and other rechargeable devices 4. The requestor should provide water distribution system maps which show valve, blow-off, and hydrant locations and water main sizes, or other resources for this team to locate the system 5. The requestor should provide this team with Global Positioning System (GPS) coordinate information when possible 6. The requestor should provide a representative familiar with the hydraulics of the affected system to accompany the team

Each type of resource builds on the qualifications of the type below it. For example, Type 1 qualifications include the qualifications in Type 2, plus an increase in capability. Type 1 is the highest qualification level.

COMPONENT	TYPE 1	TYPE 2	NOTES
CAPABILITY PER TEAM FLUSHING AND FLOW TESTING	Same as Type 2, PLUS: Sampling and field analysis of bac-t, pH, turbidity, and chlorine residual	Distribution system flow testing and flushing from hydrants and blow-offs	Not Specified
EQUIPMENT PER TEAM BASIC EQUIPMENT	Same as Type 2, PLUS: 1. Transport coolers with ice, as necessary per sample guidelines 2. Analytical testing equipment 3. Appropriate sampling supplies, such as sampling containers, reagents, sampling pump, and other supplies 4. Chain of custody forms 5. 120 milliliter (ml) sterilized bottles with sodium thiosulfate for bacterial analysis	Essential equipment to perform flushing and flow testing, including: 1. Hydrant diffuser with dechlorinator 2. Pitot tube or other flow measuring device 3. Pressure gauges 4. Hydrant wrench 5. Valve turn key 6. System maps 7. Hand tools as necessary for the task and location 8. Pipe locating equipment 9. Traffic management cones or other traffic control devices	1. The following standards address 120ml sterilized bottles with sodium thiosulfate: American National Standards Institute (ANSI) / American Water Works Association (AWWA) C651-14. 2. The following standard addresses sampling guidelines: Environmental Protection Agency (EPA) EPA-817-R-08-003: Sampling Guidance for Unknown Contaminants in Drinking Water. 3. Hand tools may include tape measure, screwdrivers, bolt cutters or other cutting tools, assorted wrenches, shovel, crowbar or lift tool, chainsaw, and garden trowel
EQUIPMENT PER TEAM MEMBER COMMUNICATIONS	Same as Type 2	1. Cell phone 2. Portable two-way radio	Consider alternate forms of communication, such as satellite phones, based on the mission assignment and team needs.

COMPONENT	TYPE 1	TYPE 2	NOTES
EQUIPMENT PER TEAM MEMBER PERSONAL PROTECTIVE EQUIPMENT (PPE)	Same as Type 2	PPE is mission-specific and may include: 1. Hard hat 2. Reflective vests 3. Disposable gloves per sampling requirements 4. Respiratory devices 5. Protective clothing 6. Protective footwear 7. Protective shields 8. Flashlight	1. The following regulation addresses PPE: Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) Part 1910.132: Personal Protective Equipment. 2. The following standards address gloves for sampling: ANSI/AWWA C651-14 or EPA EPA-817-R-08-003 Sampling Guidance for Unknown Contaminants in Drinking Water.
EQUIPMENT PER TEAM VEHICLE	Same as Type 2	1 - Light-duty truck	Not Specified
PERSONNEL PER TEAM MANAGEMENT AND OVERSIGHT	Same as Type 2	1 - Lead Flushing Technician	The Lead Flushing Technician is not a National Incident Management System (NIMS) typed position.
PERSONNEL PER TEAM MINIMUM	3	2	Not Specified
PERSONNEL PER TEAM OPERATIONS AND SUPPORT	Same as Type 2, PLUS: 1 - Water Sampling Technician	1 - Flushing Technician	The Flushing Technician and Water Sampling Technician are not NIMS typed positions.

Superseded

NOTES

1. Nationally typed resources represent the minimum criteria for the associated component and capability.
2. This document is US Government work and is not copyright protected in the United States. This publication was created with individual input and expertise provided by several state and local government entities. While the Federal Emergency Management Agency does not endorse any non-US government organizations or publications, several documents were referenced in the creation of this document, including, for example, the “American Water Works Association (AWWA), c 2008. Water & Wastewater Mutual Aid and Assistance Resource Typing Manual. Denver, Colorado.”

REFERENCES

1. Environmental Protection Agency, EPA-817-R-08-003 Sampling Guidance for Unknown Contaminants in Drinking Water, November 2008
2. Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) Part 1910.132: Personal Protective Equipment, latest edition adopted
3. American National Standards Institute (ANSI) / American Water Works Association (AWWA) C651-14 Standard, Disinfecting Water Mains, February 2015

Superseded