



MISSISSIPPI STATE DEPARTMENT OF HEALTH

Public Water System Operations Manual



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Bureau of Public Water Supply
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Public Water Supply Operations Manual All Classifications

As a public water supply, the responsibilities of the proper maintenance and operation are usually considered a function of the certified waterworks operator. However, the full responsibility of compliance with the various provisions of the State and Federal Safe Drinking Water Acts is truly a function of the responsible officials and management of the public water supply. Officials provide oversight of system operations to ensure that key operational tasks occur as they should so as to provide customers with a continually safe and adequate drinking water supply that is compliant with the various provisions of the Safe Drinking Water Act

Within the structure of a public water supply, the certified waterworks' operator is the person responsible for the daily operation of all water treatment facilities, water plants, distribution systems, intake structures, storage tanks, control systems, and other related appurtenances of the public water system. The public water system through the certified operator performs all routine duties as necessary to ensure that the public water system complies with all requirements of the Federal and Mississippi Safe Drinking Water Acts and is properly operated and maintained. The certified operator may have an authorized representative(s) under his or her supervision who works with the water system. The authorized representative(s) can complete routine operational and maintenance duties and responsibilities as assigned by the certified operator without the certified operator being present.

The certified waterworks operator is responsible for keeping the water system officials informed of actions necessary to comply with the operational elements of the Safe Drinking Water Acts and ensure to the degree that they are able, as authorized by the water system officials, to implement these actions. The officials of a public water system have a corresponding responsibility to verify that the operational elements are carried out as necessary by operations staff including the collection and analyzation of all required sample to comply with the Federal and State SDWA.

General Operational Duties

Public water systems through their certified operator must complete certain minimal operational duties and responsibilities that occur regardless of the water system classification. These duties may be carried out by the designated operator of record or an individual(s) under his or her direct supervision. Systems may decide or insist on a higher level of operation requirements beyond those listed here at their own discretion. Minimum standards shall include:

1. At a minimum, the PWS Operations record shall include results of applicable water quality parameter testing that corresponds to the classification of the PWS and include other parameters modified for water quality purposes in accordance with the required number of days per week.
2. At a minimum, the operator or an individual(s) under his/her supervision will personally check the water system treatment components in accordance with the required number of days per week based on the system classification. The PWS Operations record must include a record of those checks performed.
3. Serve as a point of contact for the staff of the MSDH's Bureau of Public Water Supply.
4. Ensure that all monitoring programs are organized and carried out according to the requirements of MSDH's Bureau of Public Water Supply and the Federal & State Safe Drinking Water Acts (SDWA).
5. Persons under the direct supervision of the certified operator shall be the only individuals allowed to modify treatment parameters/operations consistent with the regulatory requirement of the Federal and State Safe Drinking Water Acts. Those individuals shall be competent under the supervision of the certified operator as having the necessary ability, knowledge, or skills to provide operational support to the public water system.
6. Regularly communicate to system legally responsible official(s) operational status of facilities that comprise the public water system. This includes responding to required SDWA Assessments (RTCR), Significant Deficiencies (SWTR or GWR), Sanitary Defects (RTCR) and Public Notification.

As each water system classification is different, each specific class has differing operations requirements that the system must adhere to for minimum standards. The following guidelines outlined in this document are system-specific with regard to classification.

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Operational Requirements of Class "A" System

The minimum job performance duties and responsibilities of the operation of Class "A" public water system are outlined below. These duties must be carried out by the system's designated operator of record or an individual(s) under his or her direct supervision. These include:

1. Maintaining a Public Water System (PWS) Operations record documenting activities completed on the public water system. This record must be available for inspection by Bureau staff. The Public Water System Operations record is the property of the PWS and must remain as part of the official records of the PWS. Certified Operator of Record must review and signoff on record entries for staff working under his/her supervision.
2. At a minimum, inspect the treatment facilities 7 days a week, and perform all needed and appropriate operational duties.
3. Test and record the disinfection residual continuously on the discharge of the treatment facilities along with routine checks on the distribution system. Maintain a disinfection residual to the ends of the water distribution system.
4. Ensure collection of all compliance water samples on the system as required by the Safe Drinking Water Act. Compliance samples dependent upon Bureau-approved sample site plans must be collected from locations that are on those plans for the water system.
5. Ensure all routine tasks, monitoring, and sampling are occurring as required to comply with the Safe Drinking Water Act's Surface Water Treatment Rules if applicable.

For the purpose of good system operations, the following are recommendations for both the certified operator and someone under his or her direct supervision to perform.

1. Read and record the readings from all master meters and/or hour clocks at operator's discretion.
2. Check all source pumps at least once a week to determine if they are performing as required. The pump cycle run time should be checked and the master meter(s) should be used to record the pumping capacity.

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Operational Requirements of Class "B" System

The minimum job performance duties and responsibilities of the operation of Class "B" public water system are outlined below. These duties must be carried out by the system's designated operator of record or an individual(s) under his or her direct supervision. These include:

1. Maintaining a Public Water System (PWS) Operations record documenting activities completed on the public water system. This record must be available for inspection by Bureau staff. The Public Water System Operations record is the property of the PWS and must remain as part of the official records of the PWS. Certified Operator of Record must review and initial record entries for staff working under his/her supervision.
2. As a minimum, personally inspect the treatment facilities 5 days a week, and perform all needed and appropriate duties in order to maintain water system facilities in operational manner. Days of inspection should be staggered appropriately.
3. Test and record the disinfection residual 5 days a week on the discharge of the treatment facilities along with periodic checks on the distribution system. Maintain a disinfection residual to the ends of the water distribution system.
4. Ensure collection of all compliance water samples on the system as required by the Safe Drinking Water Act. Compliance samples dependent upon Bureau-approved sample site plans must be collected from locations that are on those plans for the water system.

For the purpose of good system operations, the following are recommendations for both the certified operator and someone under his or her direct supervision to perform.

1. Read and record the readings from all master meters and/or hour clocks at the operator's discretion.
2. Check all wells at a minimum once a week to determine if they are performing as needed. The well cycle run time should be checked and the master meter(s) should be used to record the pumping capacity of the well(s).

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Operational Requirements of Class "C" System

The minimum job performance duties and responsibilities of the operation of Class "C" public water system are outlined below. These duties must be carried out by the system's designated operator of record or an individual(s) under his or her direct supervision. These include:

1. Maintaining a Public Water System (PWS) Operations record documenting activities completed on the public water system. This record must be available for inspection by Bureau staff. The Public Water System Operations record is the property of the PWS and must remain as part of the official records of the PWS. Certified Operator of Record must review and initial record entries for staff working under his/her supervision.
2. At a minimum, personally inspect the treatment facilities 3 days a week, and perform all needed and appropriate duties in order to maintain water system facilities in operational manner. Days of inspection should be staggered appropriately with no more than three days between inspections.
3. Test and record the disinfection residual 3 days a week on the discharge of the treatment facilities along with periodic checks on the distribution system. Maintain a disinfection residual to the ends of the water distribution system.
4. Ensure collection of all compliance water samples on the system as required by the Safe Drinking Water Act. Compliance samples dependent upon Bureau approved sample site plans must be collected from locations that are on those plans for the water system.

For the purpose of good system operations, the following are recommendations for both the certified operator and someone under his or her direct supervision.

1. Read and record the readings from all master meters and/or hour clocks at the operator's discretion.
2. Check all wells at a minimum of once a week to determine if they are performing as needed. The well cycle run time should be checked and the master meter(s) should be used to record the pumping capacity of the well(s).

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Operational Requirements of Class "D" System

The minimum job performance duties and responsibilities of the operation of Class "D" public water system are outlined below. These duties must be carried out by the system's designated operator of record or an individual(s) under his or her direct supervision. These include:

1. Maintaining a Public Water System (PWS) Operations record documenting activities completed on the public water system. This record must be available for inspection by Bureau staff. The Public Water System Operations record is the property of the PWS and must remain as part of the official records of the PWS. Certified Operator of Record must review and initial record entries for staff working under his/her supervision.
2. At a minimum, personally inspect the treatment facilities 2 days a week, and perform all needed and appropriate duties in order to maintain water system facilities in operational manner. Days of inspection should be staggered appropriately with no more than 4 days between inspections.
3. Test and record the disinfection residual 2 days a week on the discharge of the treatment facilities along with periodic checks on the distribution system. Maintain a disinfection residual to the ends of the water distribution system.
4. Ensure collection of all compliance water samples on the system as required by the Safe Drinking Water Act. Compliance samples dependent upon Bureau approved sample site plans must be collected from locations that are on those plans for the water system.

For the purpose of good system operations, the following are recommendations for both the certified operator and someone under his or her direct supervision.

1. Read and record the readings from all master meters and/or hour clocks at the operator's discretion.
2. Check all wells at a minimum once a week to determine if they are performing as needed. The well cycle run time should be checked and the master meter(s) should be used to record the pumping capacity of the well(s).

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Operational Requirements of Class "E" System

The minimum job performance duties and responsibilities of the operation of Class "E" public water system are outlined below. These duties must be carried out by the system's designated operator of record or an individual(s) under his or her direct supervision. These include:

1. Maintaining a Public Water System (PWS) Operations record documenting activities completed on the public water system. This record must be available for inspection by Bureau staff. The Public Water System Operations record is the property of the PWS and must remain as part of the official records of the PWS. Certified Operator of Record must review and initial record entries for staff working under his/her supervision.
2. At a minimum, personally inspect the treatment facilities (if present) 1 day a week, and perform all needed and appropriate duties in order to maintain water system facilities in operational manner.
3. Test and record the disinfection residual once a week past the master meter and with periodic checks within the distribution. The system should attempt to maintain a minimum disinfection residual at the ends of the water distribution system. If residuals are below 0.1 mg/l, system will notify wholesaler of the low level concern.
4. Ensure collection of all compliance water samples on the system as required by the Safe Drinking Water Act. Compliance samples dependent upon Bureau approved sample site plans must be collected from locations that are on those plans for the water system.

For the Purpose of good system operations, the following are recommendations for both the certified operator and someone under his or her direct supervision.

1. Read and record the readings from all master meters at a minimum of once a week.

Required Regulatory and Operational Recommendations

The following are operational duties that are either regulatory based (required by existing regulation) or strongly recommended for good overall operations and service by the system. These duties may require the expertise of the system's Certified Operator, someone under the operator's supervision, or other personnel employed by the public water system. Note: Some of the items listed below may require additional support either financially and/or personnel wise to be accomplished.

1. Ensure that all extensions to the water distribution system designed to serve more than one customer have been approved by the MSDH Bureau of Public Water Supply before beginning construction. (Regulatory)
2. Have personnel available to answer customer complaints and investigate and resolve problems with the operational issues that may affect the quality or quantity water provided. (Recommendation)
3. Maintain a working set of distribution plans for the location of valves and lines. (Recommendation)
4. Create a valve and hydrant operation schedule to help ensure that regularly scheduled maintenance occurs for the system. (Recommendation)
5. Develop and implement a routine flushing program. (Recommendation)
6. Maintain an up to date emergency operation plan for the public water system is maintained and implemented as the need arises. (Regulatory)
7. Maintain an adequate inventory of supplies, chemicals and equipment to properly operate the public water system. (Recommendation)
8. Ensure that the water treatment facilities and water sources are properly secured. (Regulatory)
9. Ensure that operations personnel are available 24 hours a day to address system problems as they occur. (Regulatory)

Capacity Assessment Operational Duties

The following are some of the duties that are performed by the operational staff and the public water system as a part of the Capacity Assessment. This Capacity Assessment is performed by Bureau of Public Water Supply Regional Engineering Staff at the system's annual inspection/sanitary survey. These tasks are not solely the operator's responsibility. While the operator may have a significant role, it is inherent on the system and the governing officials to administer the necessary policies and where needed the enforcement of those policies.

1. Ensure that all steel water tanks are regularly inspected to ensure that they are operating properly; the water level in the tank should rise and fall to keep water in the tank circulating. System should visually inspect the tank frequently and coordinate proper maintenance as needed. Poor maintenance can lead to the citing of deficiencies requiring a compliance response.
2. Develop a written set of standard operating procedures (SOP) for the public water system. The public water system should develop these procedures in sufficient detail and routinely update them to identify all activities required to efficiently operate and maintain all components of the water system. The responsible official/management of the public water system should review and approve this set of standard operating procedures. The system should maintain the SOP in the official records of the water system so that it will be available for use by system personnel.
3. Develop and implement an ongoing cross connection control program by: (1) identifying and tracking all existing cross connections on the water system, (2) ensuring that each existing cross connection is isolated from the water system by the correct type of cross connection control assembly, (3) evaluating all new connections to the water system to ensure that cross connection control devices are installed where needed, and (4) developing a written program to track each cross connection control device on the water system to ensure that each device is tested each year by an MSDH approved & licensed backflow device tester. Failure to maintain adequate program can lead to the citing of a deficiency requiring a compliance response.
4. Ensure that the public water system develops and maintains an organized record keeping system to retain all correspondence and reports received from MSDH Bureau of Public Water Supply and to retain the results of all water quality analyses required by the Safe Drinking Water Acts. These records should be maintained on-site, in one location whenever possible, and must be available for review by Bureau of Public Water Supply staff. Failure to maintain adequate program can lead to the citing of a deficiency requiring a compliance response.
5. Analyze and record, at a minimum, quarterly water loss to aid in the determination of leaks and other potential problems on the system.

