



SANITARY SURVEY – SMALL SYSTEM PROCEDURE

PURPOSE: This procedure is written to document the sanitary survey process used for small public water systems (PWS).

SCOPE: This procedure covers the sanitary survey process for small PWS which include Transient, Non-Community Non-Transient, and Small Community systems, generally not regulated by the Public Utilities Commission.

EXECUTIVE SUMMARY:

For Ground Water Systems, field inspectors will use two forms to complete a sanitary survey: 1. the Small System Sanitary Survey Inspection Checklist, 2. the Sanitary Survey Summary Report. The checklist is used to ensure that all necessary areas of inspection are covered during each sanitary survey, consistently by all field inspectors. The report form is used to document deficiencies, recommendations, and requirements for PWS and Drinking Water Program (DWP) record, while providing a tracking method for monitoring the resolution of actions required of the PWS. The remainder of this procedure provides reference information for use during the sanitary survey as needed and for training field inspectors. This procedure documents the general steps of completing a sanitary survey, the creation of the sanitary survey inspection report, and the updating of the DWP electronic database: SDWIS.

For Surface Water Systems: Large NTNC systems (such as paper mills) use the “Non-Community Surface Water Sanitary Survey Form - See Appendix D. Other small surface water systems using bag or cartridge filters use the “Alternative Technologies Sanitary Survey Form – See Appendix E.

For Small “Spring Water” Bottlers using wells that do not meet the definition of a “Significant Groundwater Well” (bottlers using a well that is not regulated by the DEP under 38 MRSA §480 requiring a Natural Resources Protection Act [NRPA] permit), See Appendix G.

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ORIGINATOR/OWNER: The Field Inspection Team/ Field Inspection Team Manager

DEFINITIONS:

Deficiency: A finding during a Sanitary survey that results in a requirement, as detailed in this document or otherwise. Deficiencies can be “**Minor**” or “**Significant**”

DWO: Drinking Water Order

DWP: Drinking Water Program

(either): In this document this term is used to identify requirements that can be either “**Minor**” or “**Significant**” deficiencies, depending on the circumstances.

MSDS: Material Safety Data Sheet

(Minor): A minor deficiency requiring resolution but not reaching a level that warrants a Notice of Non-Compliance at the time it is identified. When a minor deficiency is not resolved in the time frame given for resolution, pre-enforcement options are to be considered and potentially the PWS is issued a Notice of Non-Compliance and entered into the enforcement process.

MOR: Monthly Operating Report

NSF: National Sanitary Foundation

POC: Point of Contact – Administrative Contact, Emergency Contact, Designated Operator, Operator, Financial Contact, Sampler, Owner

POU: Point of Use

PSC: Potential Sources of Contamination

PWS: Public Water System

RTCR: Revised Total Coliform Rule

Sanitary Defect: is a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.

Sanitary Survey: A Sanitary Survey is defined in 40 CFR 141.2 as “an onsite review of the water source (identifying sources of contamination using results of source water assessments where available), facilities, equipment, operation, and maintenance and monitoring compliance of a public water system for the purpose of evaluating the adequacy of such sources, facilities, equipment, operation, and maintenance for producing and distributing safe drinking water.”

(S.D.): A “Sanitary Defect”

SDWIS: The Safe Drinking Water Information System is the database used by the DWP to capture PWS information and data.

(Significant): A significant deficiency requiring resolution which serves as Formal Notice of Non-Compliance of Maine's Water for Human consumption Act and *Rules Relating to Drinking Water*

SOP: Standard Operating Procedure

RESPONSIBILITIES: DWP Field Inspectors complete sanitary survey inspections every five years for Transient and Non-Transient Non-Community PWS, or every three years for Community PWS. Included in the sanitary survey process is the following:

- On-site Inspection of the PWS
- A written record of the inspection provided to the owner
- A written or electronic record of the inspection retained by the DWP
- Completion of SDWIS Updates
- Communicating SDWIS changes to DWP staff
- Entering compliance schedules in SDWIS for required PWS action
- Following SDWIS compliance schedules through to completion
- Writing inspection related violations as necessary
- Referring PWS to DWP Enforcement as necessary

A. SANITARY SURVEY STEPS

1. Review previous PWS sanitary survey before site-visit if available or if possible
2. Ask DWP staff for system specific input related to compliance, DO needs.
3. Complete the sanitary survey inspection as detailed in this procedure, taking pictures of key system components
4. Sketch/update a system schematic
5. Complete the Sanitary Survey Summary Report (Appendix B), providing a copy or copies to the system per instructions on the report
6. Enter Site Visit in SDWIS, including Compliance Schedules to monitor the resolution of any deficiencies found during the sanitary survey
7. Enter SDWIS Information and Data as necessary
8. E-mail a summary of SDWIS Changes to the DWP distribution list
9. Complete the Sanitary Survey Inspection Report (per instructions provided in this procedure)
10. Send completed report to Field Inspection Manager

B. INSPECTION PROCEDURE:

The sanitary survey inspection is completed using the Small System Sanitary Survey Inspection Checklist found in Appendix A of this document. The checklist covers the required elements a Sanitary Survey:

1. General
2. Source
3. Treatment
4. Pumps (Facilities, controls, etc,)
5. Finished Water Storage
6. Distribution System

7. Monitoring & Reporting and Data Verification
8. Management & Operations
9. Operator Compliance
10. Security
11. Financial

The following includes each of the above eleven categories broken down into inspection checklist bullets followed by related inspection details. Also included are example recommendations and requirements associated with any deficiencies found during the sanitary survey inspection.

1. GENERAL

___ Review System Summary with PWS contact

- Is the system classification correct (C, NTNC, T)?
- Is the population on record correct per the DWP Multiplication factors Policy DWP0084
- Is the annual operating period correct?
- Are the names of all points of contact correct with correct contact information
- Are emergency phone numbers directed to individuals vs. general business numbers? (Using "Superintendent" for a school is acceptable)
- Obtain/update valid e-mail address for key individuals
- Capture an e-mail address on the System Summary sheet

___ Discuss violations that have occurred since the last sanitary survey

- Violations will be listed on the System Summary
- Discuss each violation and why it occurred
- Ask what has been done to prevent a reoccurrence of the violation(s)
- Help resolve public notification issues if possible

2. SOURCE

Note: for Small Systems (not PUC Regulated) that use surface water as a source, see the appropriate sanitary survey inspection report in either Appendix D or E.

___ Inspect each well

Inspection Details

- Grasp the well cap with both hands and try to move it to see if it is secure
- Is the well cap a sanitary seal wellcap?
- Does the well cap have a vent?
- Is the vent screened with 24 mesh bug screen?
- Is the conduit securely connected to the wellcap?
- Is the well prone to be hit by vehicles, snow plows, recreational vehicles?

Requirements:

- Well cap off/missing (**Significant**)(S.D.)
- Secure/tighten well cap (**Minor**)(S.D.)
- Secure conduit securely to the well cap (**Minor**)(S.D.)

For a sanitary seal well cap,

- All public water systems shall have a watertight well cap at the termination of the well casing **(Minor)(S.D.)**
- Install a vent if no vent is present **(Minor)(S.D.)**
- Install bug (24 mesh) screen on vent if it is not screened properly **(Minor)(S.D.)**

Recommendations:

- Obtain funds for a sanitary seal well cap as available from the DWP
- Provide bollards, large rocks, or a well tile to protect a well from being hit by a vehicle.

____ **Identify potential sources of contamination within 300 feet each well**

Inspection Details

- Is the well in a pit?
- Can the pit drain by gravity?
- Do pumps drain the pit... are the pumps working?
- Are there water marks on the wall of the pit suggesting the water levels have risen above the well cap?
- Does the well casing extend 18" above grade?
- Does the land slope toward the well head leaving a pool of water around it during wet periods; is the well head subject to flooding? If yes, what can be done to prevent this?
- Does the well have a good surface seal: no cracks or gaps around the casing?
- Refer to the Potential Sources of Contamination (PSC) Form for a list of sources to look for/identify.
- Inspect the condition water in a dug well (see requirement)

Requirements

- If the well is in a pit and covered with water, the casing must be raised to be 18" above grade. **A sanitary seal cover under water is not acceptable (Significant) (S.D.)**
- The pit must drain by gravity or have active pumping capabilities. **(Significant if water is above well head) (S.D.)**
- If the well head is flush to the ground and there are bacteria issues, require the casing to be raised to 18" above grade. **(Significant) (S.D.)**
- Remove significant sources of contamination within the 300 foot circle such as gasoline, paint, or chemical storage, manure piles, or provide secondary containment if applicable. **(either) (S.D.)**
- As part of the DWP sanitary survey inspection, a cover on a dug well must be removed to enable an inspection of the dug well and the water. Contact the Field Inspection Team manager if conditions are poor. Make the requirement to open the cover on a dug well known to the PWS owner in advance of the site visit to ensure that the cover can be moved (equipment to remove the cover is available if needed, e.g. a backhoe).

Recommendations

- If the well is in a dry pit and no bacteria issues are present, recommend raising the well casing to be 18" above grade
- If applicable, recommend better management of minor PSCs within the 300 foot circle

____ **Does PWS own entire source protection area of their water source(s)?** ____ **yes/no**

Inspection Details:

Requirements:

Recommendations:

- For source water protection, it is strongly recommended that a PWS have ownership or control of the primary source water protection area. The source water protection area is defined as a 300 foot radius for small systems, or a calculated radius for NTNC and small community systems with a population greater than 250.

_____ **(NTNC & C only) Are there zoning, ordinances, or other legal restrictions in place in the source water protection area to limit activities that may threaten the source?**
_____ **yes/no**

Inspection Details:

Requirements:

Recommendations:

- If a property within a 300 foot radius is not owned, an easement or ordinance may provide the protection/control that is needed. This information is taken into account when considering sampling schedules; incomplete ownership of the primary source water protection area may reduce the chance of obtaining a sampling waiver for some contaminants or increase the chance of requiring more frequent sampling, depending on the activities occurring in the primary source water protection area.

_____ **(NTNC & C only) Does PWS have an updated Source Water Protection Plan?**
_____ **yes/no**

Inspection Details:

- A Source Water Protection Plan may be in the form of a Wellhead Protection Plan (groundwater systems), or Watershed Protection Plan (surface water systems).
- A plan designed to protect groundwater or surface water by eliminating or controlling sources of pollution to the surface and sub-surface area surrounding a well, well field, or surface water source. Plans cover a delineated area either a circle (300ft for small systems, or a calculated radius for NTNC and community systems with a population greater than 250). Plans have certain required elements, and include threat assessments and a plan to manage the threats. The SWPP will also identify all of the potential contaminant sources in the wellhead protection area.
- **If yes: Is the plan up to date and actively being used by PWS? _____yes/no**
 - Clues to answer this question:
 - Has PWS actively implemented any part of the plan within the last 3 years?
 - Examples:
 - Reduction or elimination of PSCs identified in the Plan
 - Use of Best Management Practices to reduce identified threats to the source within the source water protection area
 - Public outreach and education to increase landowner's and the general public's awareness of need for source water protection
 - Does the SWPP contain an updated inventory of PSC's within the source water protection area?
 - Can PWS produce a copy of the plan?

Recommendations:

- If system does not have a plan or it is not up to date and actively being used, the DWP should recommend creating one. The DWP can also give guidance and direction to help a PWS create a SWPP. Direct to contact Education and Outreach Coordinator on Water Resources Team.

_____ **If source is a spring, evaluate the condition of the spring**

Inspection Details:

- Is the structure covering the spring structurally sound?
- Is there a secure surface seal around the spring, and is surface drainage routed away from the spring?
- Is the structure tight enough to keep rodents and insects out
- Does the spring have an overflow that is screened with insect screen (24 mesh)?
- Is the building vented?
- Is the vent protected with insect screen (24 mesh)

_____ **Review the water system’s capability to meet the volume demands of the PWS**

Inspection Details

- Can the system maintain a minimum of 20 psi at each service?
- Has the system dewatered?
- Does the system have a redundant source?

Requirements

- System must maintain a minimum of 20 psi at each service **(either) (Significant if no water) (S.D.)**
- System must follow the DWP Drinking Water Order policy for dewatering events

Recommendations

- Plan ahead for future water needs at the PWS
- Develop a redundant source in case of emergency and to facilitate well maintenance

_____ **Determine if the system has a raw water tap for each source**

Requirements

- From the Maine Rules Relating to Drinking Water (Sec 3, F10), all new public water systems shall have a raw water (prior to any treatment or storage) sampling port. See “Source Water Sampling and Tap Installation Procedure” DWP0088 for installation details **(Minor)**

Recommendations

- For existing sources, as part of the inspection (sanitary survey or other) a system can be required to install a raw water sampling tap in preparation for raw water sampling that will be required upon a positive routine bacteria sample. See DWP0088, 1A)
- See DWP088 for best raw water tap design
- Label the raw water tap as “Raw Water”

3. TREATMENT

When evaluating treatment processes and equipment, consider the following:

- Have changes to equipment, system, or processes occurred without the necessary DWP prior approval?
- Is there water system equipment (valves, pumps, treatment, etc.) located in a confined space (valve pit, treatment pit)?
- Are current material safety data sheets (MSDS) available for the specific chemical being used, located where that chemical is used (not in a central office offsite)?
- Is the proper safety equipment, including personal protective equipment, available (e.g. chemical resistant gloves, safety glasses, splash shield, chemical apron, eyewash, hand washing sink, etc.)
- Are chemicals labeled properly? Are secondary chemical containers labeled? (e.g. bleach bottles labeled, day tanks labeled)
- Is secondary containment provided where needed (day tanks, drum chemicals)
- Is housekeeping adequate?
- Is electronic test equipment calibrated per manufacturer's recommendations, annually at minimum or more frequently, depending on the device? (electronic meters including chlorine and pH... pH meters are commonly calibrated at each use)
- Are equipment maintenance logs kept? Are the logs kept at the equipment?

[See 8. MANAGEMENT & OPERATIONS, “___ Review Management and Operations Practices”, this document, for requirements and recommendations relative to the above bullets]

Whenever reasonable, record the configuration of treatment equipment on the Sanitary Survey Inspection Report to facilitate investigation at a later date, as needed.

- What is inside each vessel, e.g.:
 - Anion (type)
 - Cation
 - Carbon
 - Filter aggregate
 - Birm (for iron & manganese removal)
 - Greensand
 - Calcite
 - Other

___ Evaluate NSF/ANSI 60 Certification of all chemicals in contact with drinking water

Inspection Details

- Look for marking on chemical containers indicating certification
- Review shipping documentation for evidence of certification
- Determine which certification entity has certified the chemical(s) to ANSI/NSF Std 60: Water Quality Association (WQA), National Sanitary Foundation (NSF), Underwriter's Laboratory (UL).
- As needed, use certification entity websites to verify certification
- Waivers on this requirement may be possible.
- See NSF guidance document and handout in section 30 of the Electronic Field Manual

Requirements

- Per the Maine Rules Relating to Drinking Water, all chemicals in contact with drinking water must be certified to meet ANSI/NSF Standard 60 – 2005: Drinking Water Treatment Chemicals – Health Effects. **(Significant)**
- Label tanks identifying the contents/chemical/mineral inside **(Minor)**

Recommendations

- Have the system develop an SOP for receipt of chemicals to ensure proper certification upon chemical delivery.

___ Evaluate NSF/ANSI 61 Certification of all materials, products, and coatings in contact with drinking water

Inspection Details

- Look for markings that indicate certification
- Purchase specifications or shipping documents provided by the water system may indicate certification
- As needed, use certification entity websites to verify certification
- Waivers on this requirement may be possible.
- See Maine Rule Related to Drinking Water for exemptions from this requirement.
- See NSF guidance document and handout in section 30 of the Electronic Field Manual

Requirements

- Per the Maine Rules Relating to Drinking Water, all materials, products, and coatings that contact drinking water must be certified to meet ANSI/NSF Standard 61-2007: Drinking Water System Components – Health Effects. Check exemptions in Rule. **(Significant)**

Recommendations

- Have the system develop a purchasing SOP that will ensure Std 61 certification on materials, products, and coatings in contact with drinking water.

___ Inspect treatment equipment and record components and connections on a schematic

Treatment Inspection Details:

___ Chlorination

- What is the chlorination used for? Disinfection or Oxidation?
- Is the equipment operating properly?
- Review Monthly Operating Reports
- Does the chlorine pump turn on when the well pump turns on?
- Is the chlorination feed “paced to flow” based on a flow meter?
- Are chlorine residual measurements being taken and submitted on Monthly Operating reports – chlorine measurements must also be taken at the time bacteria samples are taken.
- Have the owner/operator show you how they take a chlorine residual and provide training as needed
- For required chlorination, is there adequate contact time?
- Can the system meet 4-log inactivation if necessary?

- Is the chlorine tank being filled properly and frequently enough to enable continuous operation?
- Does the unit have a multifunction valve and is it operating properly... the pump does not become air bound?

Requirements

- Systems triggered by a ground water rule violation must meet 4-log inactivation of viruses by a combination of proper dosing of chlorine and providing adequate contact time. **(Significant) (S.D.)**
- All new chlorination systems required by the DWP must be designed to meet 4-log removal of viruses, but only have to operate to 4-log if required by the ground water rule.

Recommendations

- Develop a written SOP on operating the chlorination system
- Include the day tank mixture recipe on the side of the day tank
- A peristaltic pump is preferred over a diaphragm pump
- Refer to the DWP Chlorination System Design Guidelines

Inspect Chlorine Contact Tanks

Inspection Details

- Confirm that the contact tank is a flow-through contact tank (the easiest way to tell this is when a contact tank has an inlet pipe at the top and an outlet pipe at the bottom. If tank has only one inlet/outlet connection, the internal piping of the tank may make it a contact tank by design. In this case, record the tank make and model and verify internal piping design on its product specification sheet... web search for spec sheet)
- Is the tank structurally sound; is the tank damaged?
- Is there corrosion visible?
- Is the tank leaking?
- What is the tank's volume?
- Does the tank provide 10 minutes of contact time (well gal/min x 10 min = contact tank volume (gallons) required for 10 minutes of contact time.
- (Optional, unless triggered by the Ground Water Rule) Calculate "CT" time with available CT calculator to verify that system can reasonably meet 4-log inactivation of viruses if necessary

Requirements:

- Repair or replace tank if it is leaking **(Minor) (S.D.)**
- Newly installed chlorination systems must be designed to be capable of achieving 4-log inactivation of viruses yet do not have to operate at 4-log unless triggered by the Ground Water Rule. Meeting this requirement involves an achievable chlorine dose and an appropriate contact tank size. See DWP available CT calculator.

Recommendations:

- Plan for replacing the tank if condition is poor or if heavy corrosion exists

Adsorptive Media

- What is the adsorptive media removing?
- What is the predicted life of the media?
- What testing is done to evaluate the performance of the media as a method of determining when the media should be changed out?
- How will the media be disposed of properly?

Requirement

- Media disposal method must meet state and federal disposal requirements. Work with media supplier to identify proper disposal methods and potential disposal issues. **(Minor)**

Recommendations

- Develop a plan for media replacement

Aeration

- What is the aeration used for?
- Is the aeration provided by a blower or by an air inlet eductor?
- Does the blower aerator have a HEPA filter on the air inlet?
- Is the air outlet properly vented outside the building? Is the vent screened?

Requirements

- For radon removal, the external vent needs to extend above roof level to avoid human contact with exiting air. **(Minor)**
- Vent must be screened ($\frac{1}{4}$ " to $\frac{1}{2}$ " mesh) to prevent birds from entering. **(Minor)**
- The area surrounding an air inlet eductor must be clean and free of dust and debris. **(either) (S.D.)**

Recommendations

- A system that is having bacteria problems should be using a HEPA filter on an aeration system air inlet

Ion Exchange (including water softening)

- What is the ion exchange system removing?
- How frequently does it backwash?
- How is the backwash waste water disposed of?
- Is the brine tank full of salt?
- Is the salt ANSI/NSF Standard 60 certified?
- Is the brine tank full of water? (softener not working properly?)
- When (time of day) does the backwash cycle occur? (Backwash cycle should occur when water is not being used)

Requirements

- Ion exchange backwash waste water can be disposed of in a sanitary leach field or a Publically Owned Treatment Works (POTW.... a municipal sewer). Waste water may not be disposed of in a leach field built specifically for ion exchange backwash only. **(Minor)**
- Backwash waste water may not be disposed of on the ground or in a dry well. **(Minor)**

- Where backwash waste water lines drain into a sewer pipe, an air gap of two times the inlet diameter pipe must be maintained. Air gap fittings approved by the plumbing code are “listed and labeled”. **(Significant) (S.D.)**
- Use ANSI/NSF Std 60 Certified Salt **(Significant)**

Recommendations

- Have the ion exchange system serviced/maintained annually
- Keep brine tank filled with salt.
- Develop a written SOP for operating the ion exchange unit which will include how often to fill the brine tank with salt.

Corrosion Control - Inhibitor Addition

- What is the chemical being used?
- Is the chemical dose under the maximum recommended dose? (information on this should be on the MSDS or NSF literature)
- How is the dosage of this chemical measured?
- What criteria will be used to determine if a change in dosage is needed?
- Is the chemical ANSI/NSF Std 60 Certified?
- Is injection or delivery equipment working properly?
- Review Monthly Operating Reports

Sediment Filters (including cyclone type)

- How is it determined that a sediment filter needs to be replaced/cleaned?
- When was the last time a sediment filter was replaced/cleaned?

Recommendations:

- Create a schedule or SOP for sediment filter replacement (or cleaning if applicable)

Activated Carbon

- What is the purpose of the carbon?
- How is it determined that a carbon filter needs to be replaced?
- When was the carbon filter last replaced?
- Does the carbon remove chlorine at a system that is required to have a chlorine residual?

Requirements:

- A carbon filter cannot remove chlorine from a system that is required to chlorinate, except as point of use (POU) device for drinking purposes, such as a restaurant serving glasses of water. In this exception, routine bacteria sampling is not taken after the POU carbon filter. **(Significant) (S.D.)**

Recommendations:

- Create a schedule or a written SOP for carbon filter replacement

Ultraviolet (UV) Radiation

- Is the unit operating?
- Does the unit shut down flow upon a unit malfunction?
- Is there a piped bypass around the unit?

- Is there a pre-filter? Has it been maintained?
- Is the unit NSF 55 certified? (Certified units will shut down flow when there is an equipment failure)
- See DWP UV Policy DWP0047

Requirements

- UV systems can have a hard piped bypass as long as the bypass valve has a durable tag attached to it indicating that upon opening the bypass valve, the system will be on a Boil Water Order (whether the UV was required for disinfection or not) and to call the DWP.
- All UV systems used for disinfecting drinking water must be NSF 55 or ANSI/NSF Std 61 certified. **(Significant)**

Recommendations

- Have a maintenance plan for the UV device. Maintenance can be provided by a maintenance contract. Either keep a spare bulb(s) onsite, or have a method to rapidly obtain a spare if needed. Bulb manufacturers commonly recommend annual bulb replacement
- Refer to the DWP UV Policy DWP0047

Reverse Osmosis (RO)

- Is the unit operating properly?
- How is the discharge water disposed of?
- Is there a pretreatment filter and is it being maintained?

Requirements

- RO waste water can be disposed of in a sanitary leach field or a Publically Owned Treatment Works (POTW.... a municipal sewer). Waste water may not be disposed of in a leach field built specifically for Reverse Osmosis waste water only. **(Minor)**
- RO waste water may not be disposed of on the ground or in a dry well. **(Minor)**
- Where RO waste water lines drain into a sewer pipe, an air gap of two times the inlet diameter pipe must be maintained. Air gap fittings approved by the plumbing code are "listed and labeled". **(Significant) (S.D.)**

Recommendations

- Schedule regular pretreatment filter changes as needed.
- Have the RO unit maintained annually

Point of Use (POU) for regulated contaminants

- Does the POU device use a filter, reverse osmosis, adsorptive media, or other type of treatment?
- How long has it been since the filter or membrane has been replaced
- Is an operations and maintenance manual present that would supply a part number to use when replacing the filter or membrane
- Are samples taken from this point of use unit (refer to sampling plan)
- Are there permanent signs displayed over all other faucets in the facility directing consumers not to use the water for consumption
- Do signs direct individuals where to get water for consumption?

- Are the POU devices secured to avoid tampering by unauthorized personnel? (i.e. locked underneath the sink cabinet)

Requirements

- Routine monitoring samples can only be taken from the point of use if agreed upon by the DWP Compliance Officer. The PWS sampling plan should provide sampling details.

Recommendations

- Replace POU filters per manufacturer's recommendations

_____ pH Adjustment

- What is the chemical being used?
- Is the chemical ANSI/NSF Std 60 Certified?
- Is injection or delivery equipment working properly?
- Review Monthly Operating Reports if used (calcite contactors do not require a MOR)
- For Calcite Contactors, inspect to make sure there are solids in the contactor... chips can stain the contactor walls, making it appear that material is inside when is it actually empty.

_____ Iron and Manganese Removal

- What is the process/chemical being used?
- Is the chemical ANSI/NSF Std 60 Certified?
- Is injection or treatment equipment working properly?
- Review Monthly Operating Reports

_____ Other Treatment (Name)*: _____

(boiler water treatment, manufacturing process water treatment)

- What is the process/chemical being used?
- Are pipes providing treated process water labeled appropriately?
- Are potable water taps taken off from treated process water piping (eg. for an eyewash, water fountain, sink)?
- If a chemical is used in contact with potable water, is the chemical ANSI/NSF Std 60 Certified?
- Is the treatment equipment working properly?
- Review Monthly Operating Reports

Requirements

- The use of chemicals to treat water used in a boiler require that a Reduced Pressure Zone Backflow Preventer (RPZ) be placed on the line supplying water to the boiler. **(Significant if no backflow protection)**
- When water treatment is provided for manufacturing process water, an appropriate cross connection control device must be installed on the line supplying water to the manufacturing process, before the water treatment application. **(Significant if no backflow protection)**
- Treated process water cannot be used for potable purposes.

Recommendations

- Properly label all piping carrying treated waste with flow arrows so these lines are not confused with potable water lines.
- In a manufacturing environment, label all potable water lines and provide arrows to show flow direction.

Note: When a water treatment system wastewater is discharged to a water body, a dry well, or to a leach field that does not manage sanitary waste, the field inspector or supervisor needs to contact the DEP (by e-mail, phone, in person) about the issue. The only exception known at this time is for a water stream emitted by a continuous analyzer that does not use a reagent (straight water) discharged to a dry well.

___ Check for hard piped bypasses around required treatment

Requirements:

- Hard piped bypasses are not allowed on required treatment, but a removable pipe section (flexible or hard) with quick disconnect fittings is acceptable for use when equipment is being maintained. The only exception to this is for Ultra Violet systems (see UV treatment section below) **(either) (S.D. if bypass is around required disinfection)**

___ Identify Inactive Treatment Equipment

Requirement

- Physically disconnect any inactive treatment equipment to eliminate the potential of contamination due to a stagnant system being connected to the water system. **(Minor)**

___ Evaluate Cross Connections Related to the Treatment Equipment.

- Identify high hazard (health risk) and low hazard (no health risk) cross connections

Requirements

- All high hazard and low hazard cross connections must be protected by backflow prevention devices as specified in the Maine Internal Plumbing Code, Chapter 6. Water Supply and Distribution **(either) (may be a S.D., depending on the potential contamination)**
- All testable backflow protection devices must be tested on an annual basis. **(either) (may be a S.D.)**
- All Community PWS with a cross connection (low or high) and all non-community PWS with a high hazard cross connection must have a Cross Connection Control Program (See the Model Cross Connection Control Program for Non-PUC Regulated PWS, DWP0089) **(either)**

4. PUMPS (FACILITIES, CONTROLS, ETC.)

___ Inspect Pumping Facilities

Inspection Details

- Is all of the pumping equipment operable and in good condition? (submersible, jet-pump, centrifugal, vertical turbine, chemical feed pumps) e.g. leaking water, excessive vibration, noise?

- Are there redundant pumping facilities?
- Are replacement pumps and/or parts onsite or rapidly available?

Requirements:

- Repair any leaks **(Minor) (may be a S.D.)**

Recommendations:

- Create redundant pumping facilities
- Maintain pump spare parts or a complete replacement pump
- When pumping problems exist, ensure pump is sized appropriately (too big, too small) (leading to cavitation, inefficiency)

5. FINISHED WATER STORAGE

___ Inspect Atmospheric Storage Tanks

Inspection Details

- Is the tank structurally sound; is the tank damaged?
- Is there corrosion visible?
- Is algal growth visible on the inside or outside?
- Is the tank leaking?
- What is the tank's useable volume?
- Does the system run out of water; is the storage size adequate for the system?
- Are controls related to tank level adequate? (is there a high level cutoff of some kind?)
- Is the tank vented?
- If outside, is the vent protected so that rainwater does not enter the tank?
- Is the tank vent screened (inside or outside tank) with insect screen (24 mesh screen)
- Is stagnation a problem; does the tank turn over at least 25% of its volume each day?
- How long has it been since the tank has been cleaned?
- Is there an overflow pipe? Is it screened with insect screen (24 mesh)?
- Is the overflow pipe connected directly to a sewer (cross connection)
- Can the tank be isolated from the system for maintenance purposes?
- Is there a procedure to maintain water supply when the tank is out of service for maintenance?
- Is the tank made of a material that is compatible with water? (Yes = steel, stainless steel, galvanized steel [not preferred], food grade plastic, concrete, coated concrete, glass lined) (no= polyethylene, PVC, wood)
- Is the interior surface coating approved (ANSI/NSF 60 certified)?
- Is there a tank that is out of service yet still connected to the system (simply valved off)?

Requirements:

- Repair or replace tank if it is leaking **(Minor) (S.D.)**
- Screen tank vent and/or overflow **(Minor) (S.D.)**
- An overflow pipe outlet must have an air gap between it and a sewer line of 2x dia of the overflow pipe, but not less than 1 inch. **(Significant)(S.D.)**
- If the overflow is outside, the overflow must be constructed so that it drains freely and will not be impeded by snow or ice (terminates 12-24" above the ground) **(Minor) (S.D.)**

- Clean and/or disinfect tank if positive bacteria sample occurs and the tank has not been cleaned recently
- Tank material and inside coating must be compatible with water (See Maine Rules for NSF/ANSI Std 61 requirements and exemptions) **(Significant)**
- Physically disconnect any tank that is not in use yet is still hard-pipe connected to the system (only valved off from system). **(Minor) (S.D.)**

Recommendations:

- Clean atmospheric tanks approximately every 5 years (depending on water quality and system), and disinfect annually.
- Clean plastic atmospheric tanks annually.
- Plan for replacing tank if condition is poor or if heavy corrosion exists
- Provide adequate storage capacity to avoid running out of water
- Provide adequate controls to prevent overfilling
- Size storage to prevent excess stagnation (as evidenced by poor water quality or positive bacteria samples)
- Be able to isolate tank from system
- Create a written SOP for tank maintenance (cleaning), disinfection, and water system operation during maintenance activities (how to operate without the tank, or, water system will be shutdown).
- Plan for replacement of a galvanized steel storage tank
- Install a splash plate or rock bed for outfall from the overflow to prevent erosion.

___ Inspect Pressure (Bladder) Tanks

Inspection Details

- Is the bladder tank waterlogged (bladder broken): no sweat line (depending on the humidity, sweat will be present where water is in the tank, while there will be no sweat on the portion of the tank that is filled with air... look for a line demarking sweat from no-sweat), no change in tapping sound between top half and bottom half of bladder tank (thud everywhere=waterlogged). Another indicator of a waterlogged bladder tank is that the well pump comes on immediately as soon as there is any demand (faucet turned on)... pressure drops immediately and the well pump kicks on immediately.
- Is the tank structurally sound; is the tank damaged?
- Is there corrosion visible?
- Is the tank leaking?
- What is the tank's **useable** volume? This varies depending on the pressure switch range [20-40 psi, 30-50 psi, 40-60 psi] (see Manufacturer's Specs for details)
- Is the bladder storage size adequate for the system; does the pump run constantly or turn on frequently (refer to pump duty cycle if questions)?
- Is there a tank that is out of service yet still connected to the system (simply valved off)?

Requirements:

- Replace waterlogged bladder tanks (broken bladder). **(Minor) (S.D. if bacteria are present)**
- Replace leaking tanks **(Minor) (S.D.)**
- Physically disconnect any tank that is not in use yet is still hard-pipe connected to the system (only valved off from system) **(Minor) (S.D.)**

Recommendations:

- Plan for replacement of corroded tanks
- Provide adequate bladder tank volume to enable operation of the well pump within its rated duty cycle (how frequently it turns on an off)

___ **Inspect Hydro-pneumatic Pressure Tanks (air over water)**

Inspection Details

- Is the tank structurally sound; is the tank damaged?
- Is there corrosion visible?
- Is the tank leaking?
- What is the tank's useable volume?
- Does the system run out of water; is the storage size adequate for the system
- How is air space maintained/ensured above the water: is the tank waterlogged?
- If a lubricated air compressor is used, does the compressor use a food grade lubricant?
- Is stagnation a problem; does the tank turn over at least 25% of its volume each day?
- Can the tank be cleaned? If yes, how long has it been since the tank has been cleaned?
- Can the tank be isolated from the system for shock chlorination or maintenance purposes?
- Is there a procedure to maintain water supply when the tank is out of service for maintenance.
- Is there a tank that is out of service yet still connected to the system (simply valved off)?

Requirements:

- Repair or replace tank if it is leaking **(Minor) (S.D.)**
- Clean and/or disinfect tank if positive bacteria sample occurs and tank has not been cleaned recently
- If a lubricated air compressor is used, a food grade lubricant must be used. **(Minor)**
- Tank material and inside coating must be compatible with drinking water (See Maine Rules for NSF/ANSI Std 61 requirements and exemptions) **(Significant)**
- Physically disconnect any tank that is not in use yet is still hard-pipe connected to the system (simply valved off) **(Minor) (S.D.)**

Recommendations:

- Clean tank approximately every 5 years (depending on water quality and system characteristics), and disinfect annually.
- Plan for replacing the tank if condition is poor or if heavy corrosion exists
- Provide adequate storage capacity to avoid running out of water
- Size storage to prevent excess stagnation (as evidenced by poor water quality or positive bacteria samples)
- Be able to isolate tank from system
- Create a written SOP for tank maintenance (cleaning), disinfection, and water system operation during maintenance activities (how to operate without the tank, or, water system will be shutdown).
- Plan for replacement of a galvanized steel storage tank

6. DISTRIBUTION SYSTEM

___ Evaluate the Distribution System

Inspection Details

- Is there a map of the distribution system, is it accurate, and does it identify problem areas (low flow, low pressure)?
- Have there been breaks in the distribution system?
- Does the system have known leaks currently?
- Is there a sense of how much water is lost due to leaks?
- Is there an SOP for flushing the distribution system?
- For systems operating year round, are there sections of pipe that are susceptible to freezing?
- Does the distribution system pressure maintain 20 psi?
- Does the system have dead ends that create water quality issues?

Requirements:

- The system pressure must maintain a minimum of 20 psi at each service.
- The DWP Drinking Water Order Policy (DWP0061) must be followed for loss of pressure events.

Recommendations:

- Create an accurate map of the distribution system, identifying problem areas
- Create an SOP on how to properly flush the system
- For systems with service connections, install meters for identifying leaks by comparing water produced vs. water delivered
- Bury pipe with five feet of cover minimum to prevent freezing
- Loop dead ends whenever possible

___ Determine/ Evaluate Cross Connections in the Distribution System.

- Identify high hazard (health risk) and low hazard (no health risk) cross connections
- A community PWS with a high or low Hazard cross connection are required to have a Cross Connection Control Plan.
- A non-community PWS with a high hazard cross connection is required to have a Cross Connection Control Plan
- See the Model Cross Connection Control Program for Non-PUC Regulated Public Water Systems, DWP0089

Requirements

- All high hazard and low hazard cross connections must be protected by backflow prevent devices as specified in the Maine Internal Plumbing Code, Chapter 6. Water Supply and Distribution. **(either) (may be a S.D., depending on the possible contamination)**
- All testable backflow protection devices must be tested on an annual basis. **(either) (may be a S.D.)**
- All Community PWS with a cross connection (low or high) and all non-community PWS with a high hazard cross connection must have a Cross Connection Control Program (See the Model Cross Connection Control Program for Non-PUC Regulated PWS, DWP0089) **(either)**

Recommendations

- For critical equipment at a critical facility (hospital boiler using chemicals), recommend parallel backflow devices that will enable testing of each without service interruption.

____ **Create or Review an Existing Sampling Site Plan**

- Specify where routine bacteriological samples are taken on a sketch or simply write down on the sanitary survey report where the samples are taken from. (Consider taking a picture of the site for additional detail)

____ **Evaluate sanitary condition of the sampling location**

Requirements:

- If sampling point is inadequate, require that sampling point (faucet) be replaced or an alternate, adequate sampling point be used. **(either) (may be a S.D.)**

____ **Review Bacteria Sampling Technique with PWS Contact**

- Have PWS contact describe how they take a sample and provide training on sampling techniques as needed
- If the system chlorinates, have the individual take a residual in your presence. Provide training as needed
- Is the faucet strainer removed before sampling
- Is the faucet end disinfected with bleach one minute before turning on water
- If the base of the faucet is leaking water, disinfect the faucet base with bleach
- Run water for 5 minutes at a steady stream
- Turn water down to a slow and steady stream and allow to run for one minute
- If the unused bottle has a liquid or powder in it, do not remove it.
- Take cap off bottle, hold cap in hand and fill sample bottle to the fill line, which will leave an air space at the top of the bottle. If a fill line is not present on the bottle, leave a small (1/4 inch) air space at the top of the bottle.
- Remove bottle from stream of water and put cap back on bottle tightly.
- If cap or open bottle drops, do not use the bottle... get another bottle

____ **For Seasonal Systems, Evaluate Procedure for Shutdown and Startup**

Recommendations

- Drain above ground lines and/or purge with compressed air before shut down (air compressor needs to use food grade lubricant or be of the "oil-less" type)
- Disinfect well and distribution system upon startup
- Take an O&M bacteria sample before using system
- Recommend that the system create a written procedure on how to accomplish the above tasks

7. MONITORING & REPORTING AND DATA VERIFICATION

____ **Ensure PWS understands their sampling requirements**

Inspection Details

- The annual sampling schedule will be on the new System Summary

- Review annual sampling requirements with system (does the PWS contact understand the sampling requirements?)
- Refer PWS to DWP Compliance Officer for detailed questions
- A Designated Operator (DO) is responsible for ensuring that sampling is done correctly and on-time. Sampling may be done by a person other than the DO.

Requirements

- Samples must be processed by a Maine certified lab (make sure the lab is certified for the specific test being taken)
- Samples must be collected within the pre-determined compliance period

Recommendations

- Sample early within a compliance period to avoid problems with sample shipping or laboratory problems; don't wait until the last minute
- If the DO delegates sampling to another individual, recommend that the DO create a written procedure for the sampler.
- If your public water system personnel have questions, call the Compliance Officer for that water system

Review Monthly Operating Reports (MORs) with PWS

Inspection Details

- Ask to see recent MORs
- Briefly review data entries and provide training as needed
- Determine if MORs are being submitted for all chemical additions (chlorine, pH adjustment, corrosion inhibitors, etc.)
- If the system has a Designated Operator (DO), are the MORs being signed by the DO?
- For systems that chlorinate, verify that a chlorine residual is taken at the sample site when each routine bacteria sample is taken, and residual is recorded on MOR.

Requirements:

- MORs must be sent to the DWP before 10th of the following month. **(Minor)**
- Maine Rules Related to Drinking Water require that MORs be signed by the designated operator.
- Not taking residuals measurements at all when required is considered a **(Significant)** deficiency. **(S.D. if disinfection related)**

Recommendations:

- Send MORs to the DWP electronically
- PWS keeps a copy of all MORs submitted to the DWP

8. MANAGEMENT & OPERATIONS

Determine if the PWS has a written emergency response plan

- A PWS that is required to have a designated operator is required to have an adequate emergency response plan
- All public water systems in Maine should have a written emergency response plan
- Refer to the DWP Website (www.medwp.com) for the template **“Emergency Response Plan of Action for PWS serving less than 500”**

___ Review Management and Operations Practices

Inspection Details

- A PWS that is required to have a designated operator is required to have adequate operational procedures.
- Does the system have written SOPs for critical operations such implementing a Boil Water Order, disinfecting the system, isolating parts of the system, flushing the system, shutdown and startup for a seasonal PWS, etc.
- Have changes to equipment, system, or processes occurred without the necessary DWP prior approval?
- Is there water system equipment (valves, pumps, treatment, etc.) located in a confined space (valve pit, treatment pit)?
- Are current material safety data sheets (MSDS) available for the specific chemical being used, located where that chemical is used (not in a central office offsite)?
- Is the proper safety equipment, including personal protective equipment, available (e.g. chemical resistant gloves, safety glasses, splash shield, chemical apron, eyewash, hand washing sink, etc.)
- Are chemicals labeled properly? Are secondary chemical containers labeled? (e.g. bleach bottles labeled, day tanks labeled)
- Is secondary containment provided where needed (day tanks, drum chemicals)
- Is housekeeping adequate?
- Is electronic test equipment calibrated annually? (electronic meters including chlorine and pH)
- Are equipment maintenance logs kept? Are the logs kept at the equipment?
- Does the PWS have a plan in case the water system is unable to keep up with demand, potentially due to equipment malfunction?
- Does the system have an emergency generator to power their water system (note that if their sanitary wastewater system requires pumping, emergency generation must be provided for both water and wastewater in order to be valuable)
- Does the PWS have a long term plan for maintaining their water system?
- Are waste chemicals disposed of properly?

Requirements:

- A PWS that is required to have a Designated Operator is required to have “adequate operational and emergency response procedures”. **(Minor)**
- As described on the Maine Department of Labor website, private sector employers are required to comply with the OSHA Safety and Health Regulations. The rules for public sector employees generally follow but are not necessarily identical to OSHA regulations covering the private sector. **(either)**
- All changes and additions to the source, treatment, or storage must be approved by the DWP prior to making the changes or additions. System that have not received approval before making changes or additions have met the criteria for a violation. **(either) (may be a S.D.)**
- OSHA requires that current MSDS for chemicals used are kept at the location where the chemical is used. The DWP requirement to the PWS is that they follow OSHA requirements for MSDS. **(either)**

- OSHA requires that proper safety equipment, including personal protective equipment, be available for water system personnel. The DWP requirement is for the PWS to follow OSHA requirements for having/using proper safety equipment. **(either)**
- OSHA requires that chemicals are labeled properly, including secondary containers (e.g. day tanks). The DWP requirement is for the PWS to follow OSHA requirements regarding chemical container labeling. **(either)**
- OSHA has requirements regarding the use of secondary containment for chemical storage. The DWP requirement is for the PWS to follow OSHA requirements related to the secondary containment of chemicals. **(either)**
- Only use calibrated electronic test equipment (Calibrated per manufacturer's specs) **(either) (may be a S.D.)**

Recommendations:

- Create written SOPs for critical water system functions such as Boil Water Order, disinfecting the system, isolating parts of the system, flushing the system, shutdown and startup for a seasonal PWS, etc.
- Remove confined spaces to facilitate safe access to critical water system components (DWP Field Inspectors do not enter confined spaces)
- Keep good housekeeping practices regarding water system components and the facilities that they are located in
- Follow manufacturer's recommendations regarding the calibration of electronic test equipment.
- Keep maintenance logs for all appropriate water system equipment. Keep logs available at the equipment.
- Create a water conservation plan for use during emergencies
- Provide emergency generator power for water (and wastewater system if pumped)
- Develop a long term plan for maintaining the water system
- When a PWS has potential OSHA issues, refer the PWS to "Safety Works" – Maine Department of Labor (623-7900 or 1-877-723-3345), for free and confidential consultation.

9. OPERATOR COMPLIANCE (for surface water Transient, NTNC, and Small C PWS)

___ Complete system points calculation form and include form with the sanitary survey inspection report.

- Use Maine Rules Relating to the Licensure of Water System Operators, including Appendix A, to determine system classifications. The form comes from these rules.
- Verify both treatment and distribution classifications for the PWS.
- If the operator point tally shows that the PWS's current treatment and/or distribution system classification is different than what is show in SDWIS, change the operating category in SDWIS either up or down to reflect the points tally made at this sanitary survey [treatment and distribution classifications can be changed downward]. Work with the system as needed to ensure that the PWS has operators with licenses that meet the classification of the PWS.

___ Verify that the PWS has a properly licensed operator(s)

- Verify that the necessary Designated Operator forms have been submitted to the DWP. **(Significant)**

_____ **Explain licensed operator responsibilities (re. all quality and quantity decisions)**

- The Maine Rule Related to Drinking Water state that all operating personnel making process control system integrity decisions about water quality or quantity that affect public health must be licensed.
- For a contract operator, the contract must support the licensed operator being involved with all water quality and quantity decisions.
- Refer to the Owner & Licensed Operator Responsibilities sheet located in DWP0071, provide PWS with a copy.

10. SECURITY

_____ **Identify and convey potential security concerns**

Inspection Details

- Is water system equipment accessible by the public?
- Is the water system in a locked location?
- Does the system have a locking sanitary seal wellcap?

Recommendations:

- Keep water system equipment in a locked location, not available to the public.
- Install fencing around outdoor pumping and storage facilities
- Install a locking sanitary seal well cap. Contact the DWP for potential funding assistance regarding this.

11. FINANCIAL

_____ **Does the PWS have a financial plan if a major problem occurs with the water system?**

Recommendation

- It is recommended that a PWS plans in advance on how to financially deal with a major water system failure, should it occur.

C. INSPECTION REPORT:

1. The completed Small Groundwater System Sanitary Survey Inspection Checklist
2. A copy of the completed Sanitary Survey Summary Report
3. Completed "Inspection Report: Site Directions and Diagrams"
 - Include pictures with descriptive comments
 - Include a schematic of the system
4. Include sampling site plan information (where routine bacteria samples are taken) on the Inspection Report or provide a Supplemental Inspection Report (blank page) with a sketch of the sampling site plan
5. Include a Google Earth picture page or road map of the PWS location (optional)
6. Include a Google Earth picture with Potential Sources of Contamination (PSCs) identified within 300 feet of the well, or provide a sketch if Google Earth is not available.
7. Include any letter written to the PWS as a result of the sanitary survey

D. SDIWS Entry Related to a Sanitary Survey

1. Entering the Site Visit

- Open a new Site Visit in SDWIS
- Enter type of visit (SNSV)
- Enter Date of visit
- Enter for eleven elements (not applicable, not evaluated, no deficiencies/recommendations, recommendation(s) made, minor deficiency(ies), significant deficiency(ies))
- Enter inspector name and mark name as “priority”
- Associate names of others on site or not (?) TBD
- Calculate next visit date (SDWIS calculates this)
- Enter compliance schedules for any deficiency

2. Enter/Update SDWIS Inventory

- Bring up the PWS in SDWIS Inventory
- Update service connections
- Update population
- Update operating period if needed
- Initiate changes to Points of Contact (minor “Inventory” changes made by field inspector, for major changes involving changes to Legal Entities, use the Point of Contact Change (POC) form)
- Update well information/data
- Update setback indicators
- Update storage information/data
- Update Treatment information/data
- Update Facility Flows
- E-mail a SDWIS update summary to the DWP distribution

Note: refer to specific SDWIS procedures in the Electronic Field Manual

E. Equipment Needed for a Sanitary Survey

- Safety Glasses
- Chlorine Residual Test Kit
- Generic sample kits
- DWP handouts/forms
- Small Bottle of Clorox Bleach
- Camera
- Pen/Pencil
- clipboard
- Blackberry (cell phone)
- Flashlight
- 300 Foot Tape Measure
- Steel toed shoes/boots for construction or industrial environments where OSHA requires foot protection
- Blaze orange vest during hunting season

ASSOCIATED DOCUMENTS/REFERENCES:

40 CFR Sec 142.16 (b) 3 [requirements of a sanitary survey]
 Field Data “System Summary” for a specific PWS
 Form - Potential Sources of Contamination (PSC), Current or Past
[Drinking Water Orders Policy, DWP0061](#)
[DWP Multiplications Factors Policy, DWP0084](#)
[Source Water Sampling and Tap Installation Procedure, DWP0088](#)
 Maine Cross Connection Rules
 Maine Internal Plumbing Code
[Model Cross Connection Control Program for Non-PUC Regulated Public Water Systems, DWP0089](#)
[DWP UV Policy, DWP0047](#)
[Policy for Administering the Maine Rules Relating to Drinking Water Regarding a PWS Operating Without a Licensed Operator, DWP0071](#)
 Policy and Procedure for DWP’s Role in Addressing a Designated Operator’s Failure to Perform the Operator’s Duties for a PWS Properly (DWP0183)
 DWP Electronic Field Manual
 DWP Chlorination System Design Guidelines
 EPA Drinking Water Inspection Field Reference for Small Ground Water Systems
 EPA Drinking Water Inspection Field Reference for Small Surface Water Systems
 Sample Site Plan SOP (DWP0192)





SUPERCEDED DOCUMENTS:

Field Inspector Sanitary Survey Checklist (all versions are obsolete)

RETENTION:

This document is retained per the DWP Document Retention Requirements.

REVISION LOG

Section	Page	Rev.	Date	Description Of Change	Approved by:
		Original	3-14-2012		 Nathan Saunders
Appendix B	31	A	7-21-2014	Modified language related to the Notice of Noncompliance in Appendix B	 Nathan Saunders
Definitions. Inspection Procedure.	Several	B	3-4-2015	Defined each deficiency as Minor or Significant. Identified applicable deficiencies as “Sanitary Defects” Added related definitions and Appendix F – Sanitary Defects	 Nathan Saunders
Exec Sum. Inspection Procedure 2 Source. Survey Checklist Appndx G.	1, 6-8, 29,50	C	3-13-2015	Modified questions related to source water protection. Added inspection details for small “spring water” bottlers- Appendix G.	 Nathan Saunders

Appndx H	52	D	5-27-15	Added Appndx H: Small System Sanitary Survey Deficiency Bullets	Nathan Saunders
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Appendix A

Small System Sanitary Survey Inspection Checklist

See the following page



Maine Drinking Water Program Small Groundwater System Sanitary Survey Inspection Checklist

PWS Name: _____ **PWSID#** _____

Field Inspector: _____ **Date:** _____

Check all items evaluated. A blank line will denote that the item was not applicable (N/A) for this PWS.

- Review System Summary with PWS contact
- Discuss violations that have occurred since the last sanitary survey
- Inspect each well
- Identify potential sources of contamination within 300 feet each well
- Does PWS own entire source protection area of their water source(s)? ____ yes/no
- (NTNC & C only)** Are there zoning, ordinances, or other legal restrictions in place in the source water protection area to limit activities that may threaten the source? ____ yes/no
- (NTNC & C only)** Does PWS have an updated Source Water Protection Plan? ____ yes/no
 - If yes: Is the plan up to date and actively being used by PWS? ____yes/no
- If source is a spring, evaluate the general condition of the spring
- Review the water system's capability to meet the volume demands of the PWS
- Determine if the system has a raw water tap for each source
- Inspect treatment equipment and record components and connections on a schematic
 - Evaluate NSF/ANSI 60 Certification of all chemicals in contact with drinking water
 - Evaluate NSF/ANSI 61 Certification of all materials, products and coatings in contact with drinking water
 - Chlorination Adsorptive Media
 - Inspect Chlorine Contact Tanks Aeration
 - Ion Exchange (incl. water softening) Corrosion Control - Inhibitor Addition
 - Sediment Filters (including cyclone type) Activated Carbon
- Ultraviolet (UV) Radiation Reverse Osmosis (RO)
- Point of Use for Regulated Contaminants pH Adjustment
- Iron and Manganese Removal
 - Other Treatment (Name)*: _____
 - (*boiler water treatment, manufacturing process water treatment)
 - Check for hard piped bypasses around required treatment
 - Identify Inactive Treatment Equipment
 - Evaluate Cross Connections Related to the Treatment Equipment
- Determine/Evaluate Cross Connections in the Distribution System.
- Inspect Pumping Facilities
- Inspect Atmospheric Storage Tanks
- Inspect Pressure (Bladder) Tanks
- Inspect Hydro-pneumatic Pressure Tanks (air over water)
- Evaluate the Distribution System
- Create or Review an Existing Sampling Site Plan
- Evaluate sanitary condition of the sampling location
- Review Sampling Technique with PWS Contact
- For Seasonal Systems, Evaluate Procedure for Shutdown and Startup
- Ensure PWS understands their sampling requirements
- Review Monthly Operating Reports (MORs) with PWS
- Determine if the PWS has a written emergency response plan
- Review Management and Operations Practices
- Complete system points calculation form, include with survey inspection report.
- Verify that the PWS has a properly licensed operator(s)
- Explain licensed operator responsibilities (re. all quality and quantity decisions)
- Identify and convey potential security concerns
- Does the PWS have a financial plan if a major problem occurs with the water system
- Ask Appendix G questions for Small Water Bottlers or Small Bulk Load-out Stations with spring source.

Appendix B

Sanitary Survey Summary Report

See Following Page

For printing purposes, the electronic file for this form is located at

<G:\DWP\Field Inspection\Sanitary Survey\SS Forms\Sanitary Survey Summary Report X-XX-XXXX.doc>

The footer on the actual form cannot be replicated here in this document.

This form is printed on three page paper (front page white, and two carbon copy pages, yellow and pink)



Department of Health
and Human Services

Maine People Living
Safe, Healthy and Productive Lives

Maine Drinking Water Program Sanitary Survey Summary Report

Name of water system: _____ PWSID#: _____

Date of sanitary survey: _____ Survey by: _____

This document officially summarizes the results of your system's sanitary survey, authorized by 22 M.R.S. § 2612 (3).

Findings: No deficiencies were noted Deficiencies were noted as identified below Recommendations Only

For deficiencies identified below that require action, the Drinking Water Program requires you to complete the following actions on or before the due date(s) shown below. A copy of this engineering order and report indicating the date of completion of the required action(s) must be submitted to the Drinking Water Program Field Inspector completing this report. Failure to complete the required actions and submit written notice of completion may result in future enforcement actions, including but not limited to Administrative Orders and financial penalties (See 10-144 CMR 231 Section 1-C and 22 M.R.S. § 2616-2630). For any requirements below intended to correct a significant deficiency, this engineering order and report serves as Formal Notice of Noncompliance of Maine's Water for Human Consumption Act and *Rules Relating to Drinking Water* (See 22 M.R.S. § 2619 (1); and 10-144 CMR 231).

Deficiencies Noted (DWP inspector, identify the deficiency as Minor or Significant – M or S – circle one. Also, circle "S.D." if deficiency is a "Sanitary Defect") :

- Source: (M or S)(S.D.) _____ Due: _____
Action Required: _____ Completed: _____
- Treatment: (M or S)(S.D.) _____ Due: _____
Action Required: _____ Completed: _____
- Distribution: (M or S)(S.D.) _____ Due: _____
Action Required: _____ Completed: _____
- Finished Water Storage: (M or S)(S.D.) _____ Due: _____
Action Required: _____ Completed: _____
- Pumps: (M or S)(S.D.) _____ Due: _____
Action Required: _____ Completed: _____
- Monitoring & Reporting, Data Verification: (M or S)(S.D.) _____ Due: _____
Action Required: _____ Completed: _____
- Management & Operation: (M or S)(S.D.) _____ Due: _____
Action Required: _____ Completed: _____
- Operator Compliance: (M or S)(S.D.) _____ Due: _____
Action Required: _____ Completed: _____
- Other: (M or S)(S.D.) _____ Due: _____
Action Required: _____ Completed: _____

The Drinking Water Program makes the following recommendations:

- _____
- _____
- _____
- _____

Owner/Operator Signature

Printed Name

Drinking Water Program Official Signature

Appendix C

Inspection Report: Site Directions and Diagrams

See Following Page

Inspection Report: Site Directions and Diagrams

PWS Name:

Inspector:

Date:

PWSID:

District:

PWS Type:

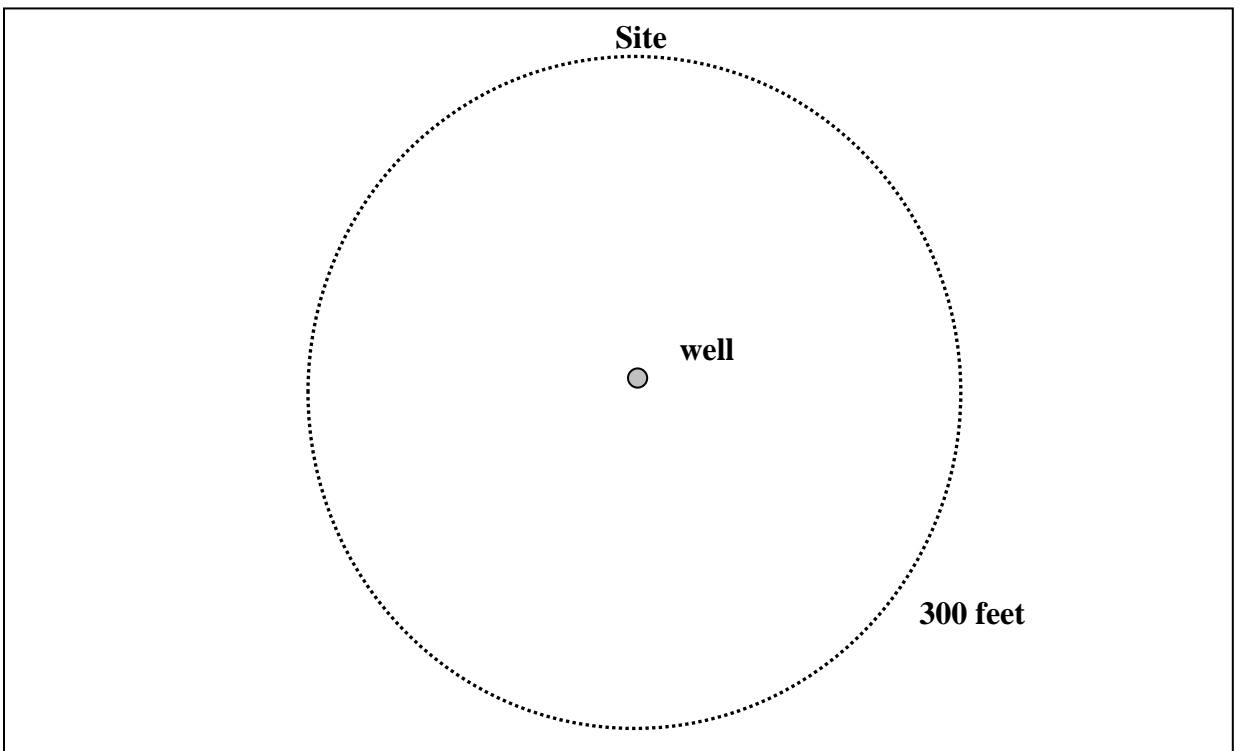
Inspection Type: Sanitary Survey

Contact

<p>Location Plan</p> <p>See Attached Map.</p>

<p>Source Detail</p>

<p>Schematic Drawing</p>



Appendix D

For large NTNC systems (such as paper mills) use the “Non-Community Surface Water Sanitary Survey Form” below.

Emergency Response Plan

Does the system have an emergency response plan? Yes No

Is it adequate? Yes No Is it up to date? Yes No

Who is notified and how? _____

Distribution System

Service Connections

Number of metered connections: _____ Number of unmetered connections: _____

Population: _____

Are there any low pressure points in the distribution system? Yes No

Where are they? _____

Are plans of the distribution system available and current? Yes No

Does the system have any booster stations (must be inspected)? Yes No

LOCATION				
# OF Pumps/Type				
Pressure Tanks				
Chemicals Applied?				
Notes?				

How often is the system flushed? Spring Fall Both

Are dead ends monitored for bacteria contamination? Yes No

Do distribution personnel have the proper equipment? Yes No

Are valves regularly exercised? Yes No

Cross Connection Control

Are there cross connections in the system? Yes No

Are approved backflow prevention devices installed? Yes No

How often are these devices checked? _____

Source(s) Information

SOURCE NAME	TYPE	EST. YIELD (GPD)	ACTIVELY USED	NOTES

Type: River, Lake, Stream, Impoundment Pond, Reservoir, etc.

Raw Water Monitoring

Does the system monitor for Giardia lamblia, and Crptosporidium? Yes No

Which of the following does the utility routinely monitor?

- | | | | |
|---|--|--------------------------------------|-------------------------------------|
| <input type="checkbox"/> Transparency (secchi disk) | <input type="checkbox"/> Total Phosphorous | <input type="checkbox"/> Temperature | <input type="checkbox"/> Herbicides |
| <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> Chlorophyll-a | <input type="checkbox"/> Alkalinity | <input type="checkbox"/> Pesticides |
| <input type="checkbox"/> Apparent Color | <input type="checkbox"/> pH | <input type="checkbox"/> Turbidity | <input type="checkbox"/> VOC's |

Which conditions change water quality? _____

Watershed Control

Is a shoreline buffer zone owned or controlled by the system? Yes No

Does the system have an active program for watershed acquisition or control? Yes No

Are portions of the watershed controlled by land owner agreements or zoning? Yes No

Is existing watershed control sufficient? Yes No

Is the watershed posted as a drinking water source? Yes No

Does the utility use GIS to delineate watershed? Yes No

Does the utility inspect septic systems and leach fields in the watershed? Yes No

Are there any agricultural runoffs in the watershed? Yes No

Industrial and Commercial Pollution Sources

Are there any industrial discharges in the watershed? Yes No

Describe operation and potential contaminants: _____

Are zoning restrictions in place that control manufacturing in the watershed? Yes No

Intake Restrictions

How many intakes are in use? _____ Are they at different locations/depths? Yes No

Is the intake marked with signs and buoys? Yes No

Are waterfowl a problem around the intake? Yes No

Raw Water Pumping

PUMP #	1	2	3	4	5
Source Name					
Capacity (GPM)					
HP Rating					
Pump Type					
Manufacturer					
Last Service Date					
condition					

Finish Water Pumping

PUMP #	1	2	3	4	5
Source Name					
Capacity (GPM)					
HP Rating					
Pump Type					
Manufacturer					
Last Service Date					
Condition					

Treatment Plant

Production Capacity

Average Daily Production: _____ Max. Daily Production: _____

Plant Design Capacity: _____

Does system have master meter? Yes No

How often is it calibrated? _____ (recommend annually)

How often is it replaced? _____ (recommend every five years)

Material Safety Data Sheets Available? Yes No
 Proper safety equipment available? Yes No
 Spill Containment adequate? Yes No
 ANSI/NSF STD 60 Certified? Yes No

Filtration and Backwashing

Filtration Process

Type: Conventional Direct Slow Sand Other _____

Filter Manufacturer: _____

Number of Filters in Use: _____ Design Flow Rate: _____

Depth (Ft): _____ Width (Ft): _____ Length (Ft): _____

Date the filter media last changed or regenerated? _____

Is air scour used to clean the filters? Yes No

Is there a turbidimeter on each filter? Yes No

Is there a combined effluent turbidimeter? Yes No

Notes: _____

Filter Media

Media Layer	Depth of Media (in)	Type of Media
1 (top)		
2		
3		
4		
5 (bottom)		

*Types of media: anthracite, garnet, GAC, sand, Gravel, support gravel, manganese greensand

How is media loss measured? _____

Is media occasionally sent to manufacturer for analysis? Yes No

Backwashing

Frequency (hrs)? _____ Volume (Gals): _____

Does the system backwash with clean water? Yes No

Is backwash recycled? Yes No If yes, percentage: _____%

Backwash is started by which if the following parameters?

Headloss Turbidity Particle Counts Time

Is filter to waste used? Yes No

What is the average filtered water turbidity? _____ NTU

What criteria are used to determine when a filter goes back on-line? _____

Do turbidity records indicate spiking after start-up? Yes No

Will the plant shut down on high turbidity? Yes No

Notes: _____

Other Treatment

Name: _____

Purpose: _____

Design Parameter: _____

Recommendations: _____

Storage Tanks

Tank Name:				
Location:				
Volume (gals)				
Type				
Manufacturer				
Date of Construction				
Date of Last Inspection				
Protected from vandalism?				
Can tank be isolated from system?				
Overflows/drains screened?				
General Condition: (good, bad, ugly)				

How many days of storage does the system have? _____ Days

Notes: _____

Sampling

How often are bacteriological samples taken? _____

Is this adequate based on the population of the water system? Yes No

Does the water system submit monthly reports? Yes No

Ask if the operator has questions concerning the monthly reporting forms

Does the DWP have a sampling site plan on file? Yes No

TC monitoring frequency for community water systems

<u>Population Range</u>		<u># of samples per month</u>
25	1000	1
1001	2500	2
2501	3300	3
3301	4100	4
4101	4900	5
4901	5800	6
5801	6700	7
6701	7600	8
7601	8500	9
8501	12900	10
12901	17200	15
17201	21500	20

Appendix E

For small surface water systems using bag or cartridge filters use the “Alternative Technologies Sanitary Survey Form” below.

Alternative Technologies Sanitary Survey Form

Date: _____

Date of last survey: _____

Inspector(s): _____, _____, _____

Location Plan (directions, include route # and road name)

PWSID: _____

System name: _____

Mailing address: _____

Other phone: _____

Contact person: _____

Alternate contact: _____

Telephone: _____

Fax: _____

Population

Number of connections: _____

Population: _____

System Information

Type of system: Campbell Bag filters other _____

Inspection Summary

Violations:

1. _____
2. _____
3. _____
4. _____
5. _____

Recommendations/requirements:

1. _____
2. _____
3. _____
4. _____
5. _____

Source Information

Name of source: _____ Source type (river, lake, etc.): _____

Size of source: _____ square feet

Treatment challenges presented by source include: _____

Is source treated w/ chemicals? yes no Describe: _____

Other sources/connections: _____

Pumps

Type: _____

Number of pumps: _____

Horsepower: _____

Production Capacity

Average production: _____

Maximum production: _____

Filtration Process

Type: Bag Cartridge Other: _____

Filter manufacturer: _____

Number of finish filter banks: _____ # filters per bank: _____ Filter size (μ) _____

Number of roughing filter banks: _____ # filters per bank: _____ Filter size (μ) _____

Design flow rate: _____ gpm

How often are filters changed out? _____

Average filtered water turbidity: _____ NTU

Log reduction assigned to filters is: _____ log

Is there a turbidimeter on site? yes no Calibration date: _____

Formazin standards calibration date: _____

Have records been kept up to date? _____

Notes: _____

Disinfection

Disinfectant used: sodium hypochlorite HTH other _____

Is disinfection chemical ANSI/NSF STD 60 Certified? Y/N _____

Are residuals monitored and recorded daily? _____

Average disinfectant residual at first customer is: _____ ppm

Is disinfectant stored and applied safely? _____

Describe disinfection system operation. _____

List recommended improvements: _____

Contact time

Engineer who calculated contact time: _____

Log reduction assigned to disinfection process is: _____log

Engineered minimum disinfectant leaving filtration building: _____ppm

Does contact time seem sufficient for the treatment type? _____

Disinfection / contact notes: _____

System schematic:

Chemicals used on site

Disinfection: _____

Other: _____

Notes: _____

System Storage

Type of tank: _____
_____gallons

Volume of tank: _____

Is tank suitable for use in contact equations? _____

Storage tank notes: _____

Notes: _____

Contact Time Worksheet

Step 1: Determine the time available in the basin at peak flow

- A. basin volume _____ gallons
- B. baffling factor _____
- C. Peak hourly flow _____ gallons per minute
- D. Time available _____ minutes

Step 2: Determine the contact time available at peak flow

- E. Time (from "D" above) _____ minutes
- F. Chlorine concentration _____ mg/l
- G. Actual CT _____ min mg/l

Step 3: Find the required CT from the tables at peak flow

- H. Required CT _____ min mg/l

Step 4: Does your water system meet CT requirements?

- I. Actual CT (from "G" above) _____ min mg/l
- J. Required CT (from "H" above) _____ min mg/l
- K. CT ratio (actual / required) _____
- L. Is CT ratio greater than or equal to 1.0 (yes or no)?* _____

Appendix F
List of “Sanitary Defects”
(as requested by the Revised Total Coliform Rule)
3/3/15

Sanitary Defect: *is a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place. (S.D. = Sanitary Defect)*

<u>Sanitary Defect</u>	<u>Minor Deficiency</u>	<u>Significant (Major) Deficiency</u>
<u><i>Physical/System Defect (pathway of entry for microbial contamination):</i></u>		
Well cap missing/off		X
No water (system dewatered)		X
Well head in a pit under water (including sanitary seal cover)		X
Well head flush to ground with bacteria problem		X
Improperly screened vent (wellhead, wetwell, clearwell, tank, etc.)		either
Messy/dirty around intake for an air eductor (aeration)		either
Inadequate sampling point		either
Inactive treatment or tank still connected to system		either
Large storage tank uninspected (may be a sanitary defect)		either
Loose well cap	X	
Conduit not secured to well cap	X	
No well vent (usually in well cap)	X	
Inadequate vent height (may be a sanitary defect)	X	
Leaking tank	X	
System leaks (may be a sanitary defect)	X	
Waterlogged bladder tank (failed bladder) S.D. if bacteria present	X	
<u><i>Failure of a Barrier to Microbial Contamination:</i></u>		
Not meeting 4-log inactivation when required by GW Rule		X
Carbon filter after required chlorination		X
Not taking disinfection residual measurements		X
Un-calibrated UV Intensity sensors (power/area)		X
Un-calibrated UV Transmissivity sensors (%)		X
Inadequate or failed disinfection when required for a GW source		either
Inadequate or failed disinfection for a system using SW		either
Inadequate or failed filtration for a system using SW		either
Unapproved changes to source, treatment, or storage (may be a S.D.)		either
Significant sources of contamination (e.g. manure) within 300 feet		either
<u><i>Cross Connection Related (Imminent Failure of a Barrier...):</i></u>		
Treatment backwash cross connection to sewer line		X
RO waste water line cross connection to sewer line		X
Hard piped bypass around required disinfection treatment		either
High hazard cross connection (may be a sanitary defect)		either
Testable backflow devices not tested annually (may be a sanitary defect)		either

Appendix G

Additional Sanitary Survey Procedure for Small “Spring Water” Bottlers and Small Bulk Load out Stations using a Spring Source

Small “Spring Water” Bottlers and Small Bulk Load-out Stations include those using a well that is not regulated by the DEP as a “Significant Groundwater Well” under 38 MRSA §480 requiring a Natural Resources Protection Act [NRPA] permit.

A list of small “spring water” bottlers and small bulk load-out stations using a spring source has been developed by the DWP Geologist, identified by Field Inspection Team District, that need to have their SS completed during the August timeframe of the year that they are due. This is the lowest anticipated flow of the year, barring unusual circumstances (an unusually wet period).

In addition to the inspection items for source through treatment only identified on the “Small Groundwater System Sanitary Survey Inspection Checklist” (see Appendix A, this document), follow the procedure included below:

1. Ask to see the spring
2. Take a picture of whatever can be seen
3. By your own evaluation, is the spring visibly “free flowing”? Answers to this question can be:
 - Flowing water is visible
 - A wet area is visible
 - A wet area is not visible
 - Other: describe
4. Ask the owner if the current condition of the spring is similar throughout the year or if there are seasonal differences.
5. Include the picture and your notes on the SS report and provide the report with a note indicating it is a small water-bottler or small bulk load-out station with a spring source. The FIT manager will route the SS report to the DWP Geologist for review.

Appendix H SMALL SYSTEM SANITARY SURVEY DEFICIENCY BULLETS

DEFINITIONS:

- ❖ **Deficiency:** A finding during a sanitary survey that results in a requirement, as detailed in this document or otherwise. Deficiencies can be “**Minor**” or “**Significant**”
- ❖ **(either):** In this document this term is used to identify requirements that can be either “**Minor**” or “**Significant**” deficiencies, depending on the circumstances.
- ❖ **(Minor):** A minor deficiency requiring resolution but not reaching a level that warrants a Notice of Non-Compliance at the time it is identified. When a minor deficiency is not resolved in the time frame given for resolution, pre-enforcement options are to be considered and potentially the PWS is issued a Notice of Non-Compliance and entered into the enforcement process.
- ❖ **Sanitary Defect (S.D.):** is a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.
- ❖ **(Significant):** A significant deficiency requiring resolution which serves as Formal Notice of Non-Compliance of Maine’s Water for Human consumption Act and *Rules Relating to Drinking Water*

SOURCE

12. Well cap off/missing **(Significant)(S.D.)**

- Secure/tighten well cap **(Minor)(S.D.)**
- Secure conduit to the well cap **(Minor)(S.D.)**
- PWS does not have a watertight well cap **(Minor)(S.D.)**
- No well vent present **(Minor)(S.D.)**
- Install bug (24 mesh) screen on vent **(Minor)(S.D.)**
- **A sanitary seal cover under water is not acceptable (Significant) (S.D.)**
- For a well in a pit, the pit must drain by gravity or have active pumping capabilities. **(Significant if water is above well head) (S.D.)**
- If the well head is flush to the ground and there are bacteria issues, require the casing to be raised to 18” above grade. **(Significant) (S.D.)**
- Remove significant sources of contamination within the 300 foot circle such as gasoline, paint, or chemical storage, manure piles, or provide secondary containment if applicable. **(either) (S.D.)**
- System must maintain a minimum of 20 psi at each service **(either)(Significant if no water)(S.D.)**
- No raw water sampling port **(Minor)**

TREATMENT

13. Chemicals in contact with drinking water not certified to meet ANSI/NSF Standard 60 **(Significant)**

- Tanks not labeled identifying the contents/chemical/mineral inside **(Minor)**
- Materials, products, and coatings that contact drinking water not certified to meet ANSI/NSF Standard 61. Check exemptions. **(Significant)**

Chlorination

- Systems triggered by a ground water rule violation must meet 4-log inactivation of viruses by a combination of proper dosing of chlorine and providing adequate contact time. **(Significant) (S.D.)**

Inspect Chlorine Contact Tanks

- Repair or replace tank if it is leaking **(Minor) (S.D.)**

Adsorptive Media

- Media disposal method must meet state and federal disposal requirements. **(Minor)**

Aeration

- For radon removal, the external vent needs to extend above roof level to avoid human contact with exiting air. **(Minor)**

- Vent must be screened (¼ " to ½" mesh) to prevent birds from entering. **(Minor)**
- Area surrounding an air inlet eductor must be clean and free of dust and debris.**(either) (S.D.)**

Ion Exchange (including water softening)

- Ion exchange backwash waste water can be disposed of in a sanitary leach field or a Publically Owned Treatment Works (POTW.... a municipal sewer). Waste water may not be disposed of in a leach field built specifically for ion exchange backwash only. **(Minor)**
- Backwash waste water may not be disposed of on the ground or in a dry well. **(Minor)**
- Where backwash waste water lines drain into a sewer pipe, an air gap of two times the inlet diameter pipe must be maintained. Air gap fittings approved by the plumbing code are "listed and labeled". **(Significant) (S.D.)**
- Use ANSI/NSF Std 60 Certified Salt **(Significant)**

Activated Carbon

- A carbon filter cannot remove chlorine from a system that is required to chlorinate, except as point of use (POU) device for drinking purposes. **(Significant) (S.D.)**

Ultraviolet (UV) Radiation

- All UV systems used for disinfecting drinking water must be NSF 55 or ANSI/NSF Std 61 certified. **(Significant)**

Reverse Osmosis (RO)

- RO waste water can be disposed of in a sanitary leach field or a Publically Owned Treatment Works (POTW.... a municipal sewer). Waste water may not be disposed of in a leach field built specifically for Reverse Osmosis waste water only. **(Minor)**
- RO waste water may not be disposed of on the ground or in a dry well. **(Minor)**
- Where RO waste water lines drain into a sewer pipe, an air gap of two times the inlet diameter pipe must be maintained. Air gap fittings approved by the plumbing code are "listed and labeled". **(Significant) (S.D.)**

Other Treatment (Name)*: _____ (boiler water treatment, manufacturing process water treatment)

- The use of chemicals to treat water used in a boiler require that a Reduced Pressure Zone Backflow Preventer (RPZ) be placed on the line supplying water to the boiler. **(Significant if no backflow protection)**
- When water treatment is provided for manufacturing process water, an appropriate cross connection control device must be installed on the line supplying water to the manufacturing process, before the water treatment application. **(Significant if no backflow protection)**
- Hard piped bypasses are not allowed on required treatment, but a removable pipe section (flexible or hard) with quick disconnect fittings is acceptable for use when equipment is being maintained. The only exception to this is for Ultra Violet systems (see UV treatment section below) **(either) (S.D. if bypass is around required disinfection)**
- Physically disconnect any inactive treatment equipment to eliminate the potential of contamination due to a stagnant system being connected to the water system. **(Minor)**
- All high hazard and low hazard cross connections must be protected by backflow prevention devices as specified in the Maine Internal Plumbing Code, Chapter 6. Water Supply and Distribution **(either) (may be a S.D., depending on the potential contamination)**
- All testable backflow protection devices must be tested on annual basis. **(either) (may be a S.D.)**
- All Community PWS with a cross connection (low or high) and all non-community PWS with a high hazard cross connection must have a Cross Connection Control Program (See the Model Cross Connection Control Program for Non-PUC Regulated PWS, DWP0089) **(either)**

PUMPS (FACILITIES, CONTROLS, ETC.)

- Repair any leaks **(Minor) (may be a S.D.)**

FINISHED WATER STORAGE

14. Repair or replace tank if leaking **(Minor) (S.D.)**
- Screen tank vent and/or overflow **(Minor) (S.D.)**
 - An overflow pipe outlet must have an air gap between it and a sewer line of 2x dia of the overflow pipe, but not less than 1 inch. **(Significant)(S.D.)**
 - If the overflow is outside, the overflow must be constructed so that it drains freely and will not be impeded by snow or ice (terminates 12-24" above the ground) **(Minor) (S.D.)**
 - Tank material and inside coating must be compatible with water (See Maine Rules for NSF/ANSI Std 61 requirements and exemptions) **(Significant)**
 - Physically disconnect any tank that is not in use yet is still hard-pipe connected to the system (only valved off from system). **(Minor) (S.D.)**
 - Replace waterlogged bladder tanks (broken bladder). **(Minor) (S.D. if bacteria are present)**
 - If a lubricated air compressor is used, a food grade lubricant must be used. **(Minor)**

DISTRIBUTION SYSTEM

- All high hazard and low hazard cross connections must be protected by backflow prevent devices as specified in the Maine Internal Plumbing Code, Chapter 6. Water Supply and Distribution. **(either) (may be a S.D., depending on the possible contamination)**
- All testable backflow protection devices must be tested on an annual basis. **(either) (may be S.D.)**
- All Community PWS with a cross connection (low or high) and all non-community PWS with a high hazard cross connection must have a Cross Connection Control Program (See the Model Cross Connection Control Program for Non-PUC Regulated PWS, DWP0089) **(either)**
- If sampling point is inadequate, require that sampling point (faucet) be replaced or an alternate, adequate sampling point be used. **(either) (may be a S.D.)**

MONITORING & REPORTING AND DATA VERIFICATION

- MORs must be sent to the DWP before 10th of the following month. **(Minor)**
- Not taking residuals measurements at all when required is considered a **(Significant)** deficiency. **(S.D. if disinfection related)**

MANAGEMENT & OPERATIONS

15. A PWS that is required to have a Designated Operator is required to have "adequate operational and emergency response procedures". **(Minor)**
- As described on the Maine Department of Labor website, private sector employers are required to comply with the OSHA Safety and Health Regulations. **(either)**
 - All changes and additions to the source, treatment, or storage must be approved by the DWP prior to making the changes or additions. System that have not received approval before making changes or additions have met the criteria for a violation. **(either) (may be a S.D.)**
The DWP requirement to the PWS is that they follow OSHA requirements
 - OSHA requires that current MSDS for chemicals used are kept at the location where the chemical is used. **(either)**
 - OSHA requires that proper safety equipment, including personal protective equipment, be available for water system personnel. **(either)**
 - OSHA requires that chemicals are labeled properly, including secondary containers (e.g. day tanks). **(either)**
 - OSHA has requirements regarding the use of secondary containment for chemical storage. **(either)**
 - Only use calibrated electronic test equipment (Calibrated per manufacturer's specs) **(either) (may be a S.D.)**

OPERATOR COMPLIANCE (for surface water Transient, NTNC, and Small C PWS)

- Necessary Designated Operator forms have not been submitted to the DWP. **(Significant)**

OTHER: _____