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Public Water System Significant Deficiency Policy Office of Drinking Water Quality Revision Date May 4, 2009

“Significant deficiency” is defined in the *Rules and Regulations pertaining to Public Drinking Water* [R46-13-DWQ] at section 5.9.24 (b) for surface water systems and at 13.4 (a)(1) for groundwater systems as follows: “significant deficiencies include, but are not limited to, defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the Director determines to be causing, or have potential for causing, the introduction of contamination into the water delivered to consumers.”

The sanitary survey forms highlight items that have the potential to be significant deficiencies. The surveyor will evaluate these items and determine on a case-by-case basis if the situation merits a significant deficiency designation under the above definition. Other deficiencies may be elevated to significant status, if in the option of the surveyor, they are causing, or have the potential to cause, risk to public health.

1. Source:

- a. Visible raw water leaks in sanitary seal, casing or piping prior to treatment.
- b. Raw water quality that is indicative of an immediate sanitary risk.
- c. Dam not in good repair.
- d. Buried well casing.
- e. Top of well can be flooded.
- f. PWS storing unsanitary or hazardous material or debris in close proximity to well.
- g. Source is not approved by DWQ.
- h. Well cover not intact and/or secured.
- i. The well vent is not shielded and screened so as to prevent the entrance of contaminants into the well.
- j. The well casing is not free from flaws or defects and/or exhibits signs of significant deterioration indicating that the sanitary or structural integrity of the casing is impaired.
- k. The casing or sidewalls of a dug well are not constructed of watertight concrete. Any joints between concrete casing tiles shall be watertight.
- l. The opening, manhole or hatch installed in the vault or pit is not curbed, sealed watertight and/or overlapping to prevent the entrance of any foreign matter or substance.
- m. The foundation of a turbine pump is not constructed such that the well opening is adequately covered and all openings through the base are sealed watertight.
- n. The well pit is not constructed and/or maintained watertight (including all conduits, piping, appurtenances or similar connections) or suitably drained via a

gravity drain (or a sump pump system if a gravity drain is not feasible) to insure dry, sanitary conditions.

- o. There is evidence that new or failing septic or sewer systems located within the protective radius of the well have created an elevated risk of introducing microbial pathogens into the well or there is evidence that sewage is impacting, or has the potential to impact the well due to construction or maintenance deficiencies, regardless of the proximity of the source to the well. There are known raw sewage discharges to the surface of the ground within the zone of influence of the well.
- p. The well pit drain may be cross-connected with a sewer or septic system.
- q. There are known stables, pigpens, chicken houses or other structures or instances where the excrement of animals or fowls is improperly maintained or stored within the zone of influence of the well.
- r. The wellhead is susceptible to vehicle traffic (street, parking lot, etc.) and is not adequately protected from physical damage with bollards or other protective measures.
- s. Bedrock well casing extension- unacceptable method.
- t. Not having the required number of operative wells (This could be a well is inoperative, or one of the wells that are manifolded together is inoperative)

2. **Treatment:**

- a. Having an inoperative treatment facility.
- b. Surface Water Treatment Deficiencies: No alarm for high turbidity.
- c. For Membrane Filtration: no daily integrity testing.
- d. Disinfection Deficiencies:
- e. DPD test kit not used;
- f. Free chlorine residual not maintained;
- g. Safety restraints not in place for cylinders.
- h. UV Disinfection Deficiencies:
- i. Lamp sleeve not cleaned;
- j. No intensity or lamp out sensor with alarm or shut-off.
- k. Non-NSF approved chemicals.
- l. Treatment basin or tank condition, state of repair and maintenance that could result in a sanitary hazard or affect the reliability of the water system.
- m. Inadequate disinfection, when disinfection is necessary or required by the Department and/or due to a history of bacteria contamination.
- n. Inadequate chemical treatment efficacy monitoring, including but not limited to pH, fluoride residual, and chlorine residual.
- o. No fail safe provisions provided to prevent chemical overfeed during no flow situations.
- p. Treatment systems with unprotected cross connections, including but not limited to: make-up water lines, carrying water lines, and backwash discharge lines.

3. **Distribution System:**

- a. Pressure in distribution system is less than 20 psi. No list of areas having difficulty maintaining required pressure.
- b. Inadequate chlorine residual and/or inadequate monitoring.
- c. Does not maintain records of high hazard connections.
- d. New and repaired water mains not flushed and disinfected.

- e. Presence of cross-connections without appropriate back-flow prevention devices.
 - f. Failure to maintain proper blending of sources to meet blend definition (e.g., we usually require manifolded wells to run and shut off at the same time.)
4. **Finished Water Storage:**
- a) Any visible holes or cracks in storage tanks, tank manholes, access plates, vents or screens through which contaminants could be introduced into the storage tank.
 - b) Storage tank condition, state of repair and maintenance that could result in a sanitary or physical hazard or affect the reliability of the water system.
 - c) Hatch not locked or adequately secured.
 - d) No flapper valve or equivalent over drain
 - e) No screened vent.
5. **Pumps, pump facilities, and controls:**
- a) Visible leaks in pipes or pump casings.
 - b) Inadequate or insufficient pump redundancy, capacity, location, power supply, or controls result in negative pressures, repetitive low pressures or water quality problems.
 - c) All chemical feed and process pumps not operational.
 - d) Flooding or standing water in pump house or pit.
 - e) Well pump inoperative.
 - f) Inadequate/unsanitary pump house design, construction or maintenance.
 - g) Electrical Hazards in pump house (wires on ground/wet floor)
6. **Monitoring, reporting, and data verification:**
- a) The water system is missing 6 months or more of operating data.
 - b) No disinfectant residual log book maintained.
 - c) Turbidity from individual filters is not continuously monitored and recorded at least every 15 minutes.
 - d) Combined filter effluent turbidity is not monitored by collecting grab samples at least every 4 hours or continuously monitored?
 - e) Turbidity meters are not calibrated and verified according to manufacturer's operation manuals.
 - f) Required plans or records are not available:
 - i. microbiological site sampling plan,
 - ii. disinfection byproducts monitoring plan,
 - iii. lead and copper monitoring plan,
 - iv. cross connection control plan where applicable,
 - v. analytical results of water quality compliance sampling.
 - g. Not having individual sampling taps for each source;
 - h. No treated water sample tap.
7. **System Management and Operation:**
- a) No responsible management authority.
 - b) Management does not provide the necessary budget, personnel, and maintenance or repair parts to ensure operation of critical treatment or distribution components

necessary to meet regulatory requirements and provide for the production or storage of an adequate quantity of safe drinking water.

- c) Inadequate follow up to deficiencies noted in previous surveys.
- d) Failure to meet demands/ interruption of service.
- e) Major modifications not approved (plan review.)
- f) Emergency notification: system does not notify DWQ of major breakdown or loss of water service. System does not have a current emergency plan.

8. Operator Compliance with state requirements:

- a) No certified operator.
- b) The operator(s) or responsible person(s) in charge of the treatment facility and/or distribution facilities do not have the required State certification. "Operator" means the individual whose routine duties involve performing operational activities or making decisions regarding the daily operational activities of a public water system that may directly impact the quality and/or quantity of drinking water.
- c) The designated operator of the water system is not maintaining applicable operator duties and responsibilities. This significant deficiency can be cited for one or more of the following reasons:
 - i. Failure of the PWS by making process control/system integrity decisions about water quality and quantity (that affect public health) without the involvement of the designated operator, who is therefore not directly responsible for the management, operation and maintenance of the water system.
 - ii. The designated operator is not knowledgeable about the water system infrastructure, operation and maintenance and therefore cannot effectively make process control/system integrity decisions about water quality or quantity (that affect public health).
 - iii. Failure of the PWS to have documented with the RI DOH the appropriately certified operator who is directly responsible for the management, operation and maintenance of the water system, or the method by which operations of the water system will continue when the designated operator is not available.

9. Inadequate security measures:

- a) Pump house/wells, tanks, vaults not locked;
- b) Alarms not functional.
- c) System does not have a current vulnerability assessment/emergency plan.

Approved by June Swallow on 5/4/09