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# Significant Deficiencies: A Quick Fact Sheet for Hawaii PWSs

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**Definition:** *Significant deficiencies* are currently defined in HAR 11-20-46.2 as any defect in a system's design, operation and maintenance, as well as any failure or malfunction of any system component, that the director determines to cause, or have the potential to cause, *an immediate sanitary risk to health*.

*Proposed standard significant deficiency language is provided in italics.*

## WHAT IS A SIGNIFICANT DEFICIENCY??! (EXAMPLES)

- Sources

- Source in a flood zone **or** not appropriately protected from surface runoff or potentially contaminating activities (chemical, bacteriological, man-made, vandalism or other malicious activities);
  - *The well is located in a flood zone and should be protected from surface runoff by grading the surrounding area to drain away from the wellhead, elevating the top of the well casing and/or by providing another adequate means to protect the wellhead from surface runoff and flooding.*
- Groundwater sources under the direct influence of surface water (GWUDI) in service without required DOH designation as a GWUDI, source approval or treatment;
  - *The groundwater source under the direct influence of surface water (GWUDI) is in service without the required treatment. The use of the source shall be discontinued until approved treatment is operational.*
- Poorly constructed spring or tunnel enclosure, is damaged, shows root intrusion, is subject to flooding or other potentially contaminating activities (chemical, bacteriological, man-made, vandalism or other malicious activities);
  - *The spring or tunnel enclosure is not secured, poorly constructed, is damaged, shows root intrusion, and/or subject to flooding. The water system shall seal all openings, reconstruct the spring or tunnel enclosure and/or grade the surrounding area to drain away from the spring or tunnel entrance.*
- Pathways exist for surface runoff water or other contaminants to directly enter the source, e.g., poor grading around surface water intakes, spring

- enclosures, tunnel entrances or holes in the well baseplate for power cable, sounding tubes, etc.;
- *The well casing is cracked or improperly sealed, including openings in the well baseplate. Repair the crack and seal the well casing, including all openings in the well baseplate.*
  - Grading conditions that could lead to rain runoff ponding around the wellhead and surface water reservoirs;
    - *The well/reservoir shall be protected from surface runoff and ponding by grading the surrounding area to drain away from the wellhead/reservoir.*
  - Shimmed well pump foundation, which allows rain runoff to enter the well;
    - *The well pump foundation is shimmed. The well pump foundation shall be sealed to prevent the entrance of runoff water into the well.*
  - Abandoned wells not securely sealed or protected from vandalism or have open pathways into the aquifer;
    - *Seal abandoned wells in accordance with Department of Land and Natural Resources, Commission on Water Resource Management's "Hawaii Well Construction & Pump Installation Standards."*
  - Raising of animals on drinking water source sites (treatment and storage too), including but not limited to cows, horses, goats, sheep, donkeys and domestic birds;
    - *Raising of animals on drinking water facility sites, including but not limited to cows, horses, goats, sheep, donkeys and domestic birds is not allowed. Animals shall be immediately removed from drinking water facility sites and the sites secured with appropriate fencing to keep out animals.*
  - Inappropriate storage of materials/equipment around the source, with open pathways into the surface source or the aquifer (e.g. fuel storage tank or diesel generator without proper containment, pesticides, insecticides, fertilizers, petroleum products);
    - *Remove all pesticides, insecticides, fertilizers, petroleum products, paints, solvents, etc. from the wellhead area and store appropriately. Fuel storage tanks shall be double-contained near the wellhead area.*
  - Leaking oil lubricant that can enter the wellhead;
    - *Repair all leaking oil lubrication systems near the wellhead.*
  - Well baseplate vent opening and riser is not pointing down and lacks insect screen or insect screen is broken;
    - *Point the well vent down and provide/repair insect screen.*

- Pump-to-waste line with no screen, flapper or duckbill check valve;
  - *Provide a flapper or duckbill check valve or insect screen at the discharge of the pump-to-waste line.*
- Pump-to-waste line outlet is or can be submerged, or become buried by erosion;
  - Eliminate conditions that allow the pump-to-waste line outlet to be submerged/buried.
- Air release valve vents are not turned **down** and/or lacks an insect screen.
  - *Point the air release valve vents down and/or provide/repair insect screen.*
- Control valves diaphragm test ports on well pump discharge/blowoff lines are open;
  - *Cap or plug control valve diaphragm test ports on well pump discharge/blowoff lines.*
- Control valve dump/bleed copper tubing is not screened;
  - *Screen control valve dump/bleed copper tubing.*
- Blowoff ports on hydropneumatic tanks is not screened.
- Use of an unapproved source.
  - *The water system is using an unapproved source to supply the water system. Use of the unapproved source shall cease immediately.*

- **Finished Water Storage**

- Tank vents lacking insect screen, insect screen is broken/has holes or screen retaining bands or brackets are not securely fitted around the vent screen perimeter;
  - *Provide/repair insect screen on tank vents to provide a complete seal to insects.*
- Rust holes in tank that can allow insects, rain runoff to enter the tank;
  - *Repair all rust holes in tank to provide a watertight seal.*
- No gasket on tank access and observation hatches or gaskets are warped, loose or poorly seated;
  - *Provide/repair gasket on tank access and/or observation hatches to provide a watertight seal.*
- Access hatch covers are warped or poorly fitted and create openings for contaminants to enter tank.
  - *The access hatch is warped or poorly fitted. Repair or replace the access hatch cover to meet the following AWWA recommendations and gasket requirement.*

*The AWWA recommendations are: All roof openings shall be atop curbs at least 4 inches high. All covers should turn down at least 2 inches over the curbs. All frames and covers should be galvanized steel, fiberglass, or aluminum at least 3/16 inch thick. Personnel hatches shall be at least 2 feet square and provided with OSHA handrails conformation to OSHA specification, if required.*

*The SDWB also requires a gasket between the curb and the cover to provide a watertight seal.*

- Overflow and/or drain lines with no flapper or duckbill check valve or insect screen;
  - *Provide a flapper or duckbill check valve or insect screen on the overflow and/or drain lines.*
- Valve station “blowoffs” (manual or with control valve) with no flapper or duckbill check valve or insect screen;
  - *Provide a flapper or duckbill check valve or insect screen on the valve station “blowoff” lines.*
- Open end of level indicator cable pipe is not restricted or lacks insect screen;
  - *The level indicator cable passes through an open pipe leading into the tank with no restriction or insect screen. Install a cap with a hole for the cable to restrict the opening or provide an insect screen.*
- An oily sheen and/or particulate matter was observed on the water surface;
  - *During the inspection, an oily sheen and/or particulate matter was observed on the water surface.*
- Tank vent piping (partial gooseneck) is not pointing **down** and lacks insect screen or insect screen is broken;
  - *Point the vent piping down. Provide/repair insect screen as necessary.*
- **Pumps, Pump Facilities, and Controls**
  - Air release valve vents are not turned down and/or lacks an insect screen;
    - *Point the air release valve vents down and/or provide/repair insect screen.*
  - Inadequate building drainage that allows flooding of the pump house;
    - *Pump building drainage is inadequate. Provide adequate building drainage to prevent flooding of the pump house.*

- Inappropriate storage of chemicals in the pump house that could be introduced into the water system (e.g. rat poison that could fall into the disinfection unit tank);
  - *Relocate and/or remove chemicals inappropriately stored in the pump house.*

- **Treatment (for Subpart H water systems or groundwater systems required to treat, including disinfection)**

- Lack of adequate disinfection, including:
  - Chlorine system not provided with equipment failure alarms;
  - Lack of redundant mechanical disinfection components where required;
  - Inadequate contact time where required;
  - Potential to bypass required disinfection;
  - *Provide adequate disinfection for the water system by installing flow-switch controls and alarms, providing redundant mechanical disinfection components (e.g. chemical injection pumps), provide adequate contact time and/or remove all abilities to bypass disinfection.*
- Raw water can bypass treatment.
  - *The on-site piping allows raw water to bypass the required treatment. The water system shall physically disconnect the bypass and all raw water shall be treated as required.*
- Use of unapproved treatment chemicals
  - *The water system is using unapproved treatment chemicals. The water system shall use only approved treatment chemicals, meeting NSF 60 standards or other chemicals, as approved by the SDWB, and in accordance with HAR 11-20-38.*
- Unlabeled or mislabeled chemical containers
  - *The water system is using an unlabeled or mislabeled chemical container. The water system shall ensure all chemical containers are properly labeled to prevent chemical misuse or inadvertent mixing.*

- **Distribution & Transmission**

- Un-protected cross-connections, including connections to irrigation or other non-potable systems, wastewater treatment plants, etc.
  - *The following unprotected cross-connections were observed during the sanitary survey: hose bibb without a vacuum breaker, connection to irrigation or other non-potable water system, water*

*service to wastewater treatment plant. Install a vacuum breaker on the hose bibb or install a reduced pressure principle backflow preventer at all other cross-connections.*

- Backflow preventers not tested annually by a certified tester.
- Emergency interconnections between two regulated water systems do not require a backflow prevention device, but they are strongly recommended if one system wants to protect itself when serving another system. If two-way flow is necessary, then a backflow device would not be appropriate, and another means of protection needs to be utilized.

- **Monitoring, reporting and data verification**

- Water system is not using a certified laboratory
  - *The water system is not using a certified laboratory. The water system shall use a laboratory certified or approved by the Hawaii Department of Health, State Laboratories Division for all regulatory monitoring.*
- Water system is not monitoring required parameters or maintaining the required records.
  - *The water system is not monitoring [parameter] at the [sample point] as required by [Rule].*

- **System Management and Operation**

- Water system failed to comply with enforcement actions and compliance agreements.
  - *The water system failed to comply with enforcement actions and compliance agreements. The water system shall comply with enforcement actions and compliance agreements as indicated in previous correspondence.*
- Improper standard operating procedure allows for potential contamination of the water system.
  - *The water system's standard operating procedure of ... allows for potential contamination. This practice is unacceptable and shall be immediately discontinued. Modify the standard operating procedure for ... to reduce potential contamination.*
- **Water system infrastructure not made safely accessible to SDWB inspectors will be called out as a significant deficiency until satisfactory photo documentation is provided.**
- No formal Cross Connection Control Plan (CCCP) in accordance with SDWB guidance.

- No emergency response plan in accordance with SDWB guidance.

- **Operator Compliance with State Requirements**

- Operator is not certified at the grade required by the State or system has no certified operators.
  - *The water system operator is not certified at the grade required or higher by the State or the water system has no certified operators. The water system shall obtain the services of a certified distribution system or water treatment plant operator at the grade required or higher.*

## WHAT'S NOT A SIGNIFICANT DEFICIENCY?!?! (MORE EXAMPLES)

- Serious safety concerns such as electrical tag-out procedures not being followed or lack of safety cages on equipment;
- Chlorine gas concerns:
  - No restraints on a chlorine gas cylinder;
  - No leak detection (e.g. ammonia bottle or other type of sensor);
  - Lack of chlorine gas warning signs outside of the chlorination room;
  - Lack of adequate floor ventilation in a chlorine gas room;
  - Lack of panic bars and/or outward swinging doors;
  - Lack of viewing room into the chlorination room;
  - Lack of self-contained breathing apparatus for operators and adequate operator training;
- Chlorine system not provided with flow-switch controls or alarms;
- Lack of updated, on-site SDS for chemicals;
- Leaking tank or reservoir;
- A tank or reservoir with an identified significant deficiency, *but taken out of service and properly isolated from the system*, is not a significant deficiency
- Rust in and outside of tank (subject to inspector's interpretation);
- Security issues, including holes in security fence, overgrown trees around fence or lack of a security fence;
- Badly rusted fasteners (nuts and bolts) on flanged joints;
- Lack of flushing program;
- Lack of leak detection control program.
- Use of NSF H2 lubricants on pump motors (i.e. non-food-grade lubricants) but system must follow manufacturer's recommended uses and restrictions and the lubricant should be designed to be isolated from contact with the well water at all times.
- Lack of plugs or caps on backflow prevention device test ports.