

NPS – Office of Public Health (OPH)

Presentation to Texas DSHS, October 2024



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U.S. Public Health Service

- The US Public Health Service has provided a Public Health Program for the National Park Service since 1921.
- The majority of our staff our Commissioned Officers in the U.S. Public Health Service, which was established in 1798



NPS Office of Public Health (OPH)

- DOI has ~55 CC Officers
- 20 work in OPH
- Most others work for NPS as engineers, etc.
- Some work for FWS

- OPH Program:
 - Field Service Branch
 - Epidemiology Branch
 - Health Promotion Branch

- We essentially act as a health department for NPS

- External Website: <https://www.nps.gov/orgs/1735/index.htm>

Protect and Promote Health

Home + New Send to Promote Page details Analytics

Health Promotion

Protection and Prevention

U.S. Public Health Service

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Office of Public Health

Welcome to the Office of Public Health!

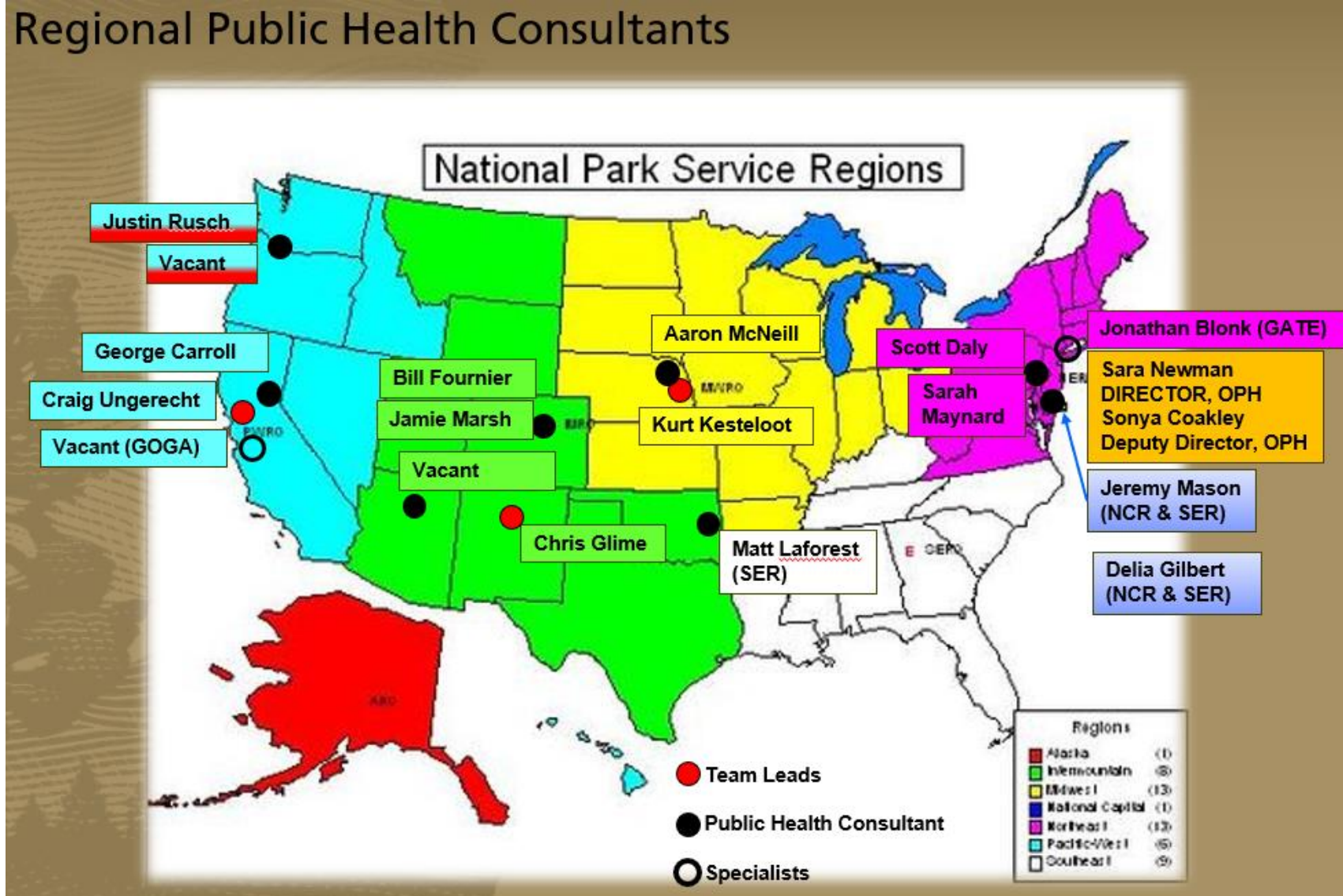
The Office of Public Health is a unique program in the National Park Service, headquartered in Washington, DC. Functioning like an internal health department, the OPH provides agency specific public health capability through disease surveillance and response, on site evaluation/hazard analysis, consultation, policy guidance, coordination with local, state and other Federal health jurisdictions and organizations. OPH professionals assist park superintendents and land managers to protect and promote health in parks. The OPH also serves as the official personnel office and primary liaison to the U.S. Surgeon General for all U.S. Public Health Service officers assigned to the DOI. Underlying all of its efforts, the OPH strives for a One Health model of public health practices and integrative effort of multiple disciplines, working collaboratively to attain optimal health for people, animals, and the environment. We are proud that the work we do every day saves lives and helps address public health issues impacting more than 300 million people who visit and work in parks.

Health Promotion
Explore the Health Promotion Branch →

Power of Parks for Health Campaign
Explore the 2021 Centennial Celebration →

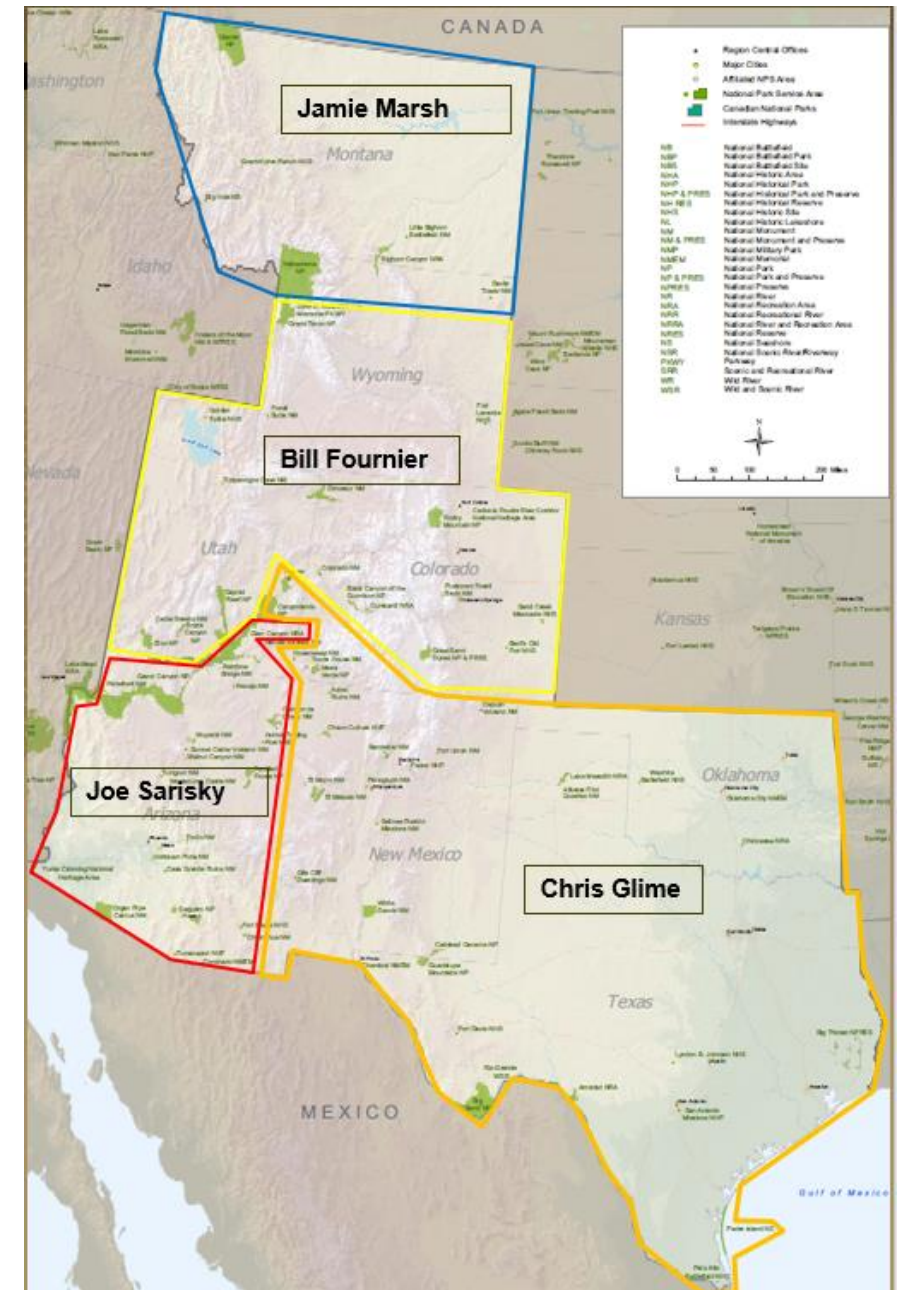
Health Protection and Disease Prevention
Learn About Health Efforts in Parks →

NPS – Office of Public Health (OPH) Field Services Branch (FSB)



NPS – Office of Public Health (OPH) Field Services Branch (FSB)

IMR Public Health Consultants &
Approximate Area Covered



DO 83 and Reference Manual RM-83A

Reference Manual – 83A

PUBLIC HEALTH: Protection and Prevention

Approved:

Louis Rowe
Acting Associate Director, Visitor and Resource Protection

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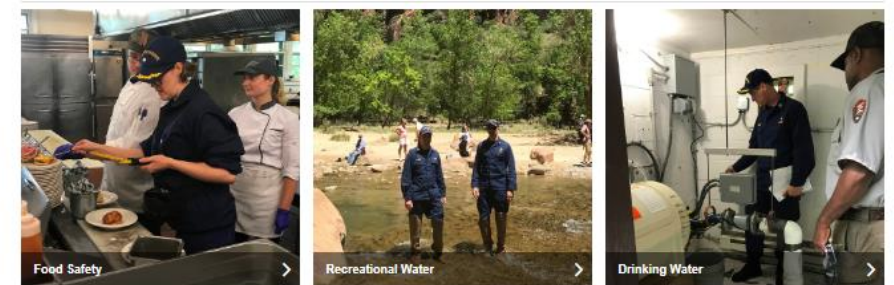
- CHAPTER 1 DRINKING WATER
- CHAPTER 2 WASTEWATER TREATMENT SYSTEMS
- CHAPTER 3 FOOD SAFETY
- CHAPTER 4 RECREATIONAL WATER
- CHAPTER 5 BACKCOUNTRY OPERATIONS
- CHAPTER 6 DISEASE MONITORING, SURVEILLANCE AND RESPONSE
- CHAPTER 7 COMMISSIONED CORPS SUPPORT FOR ALL HAZARDS INCIDENT AND EVENT MANAGEMENT
- CHAPTER 8 SANCTIONED PUBLIC CONTACT WITH ANIMALS

<https://www.nps.gov/orgs/1735/fieldservicesbranch.htm>



Field Services Branch

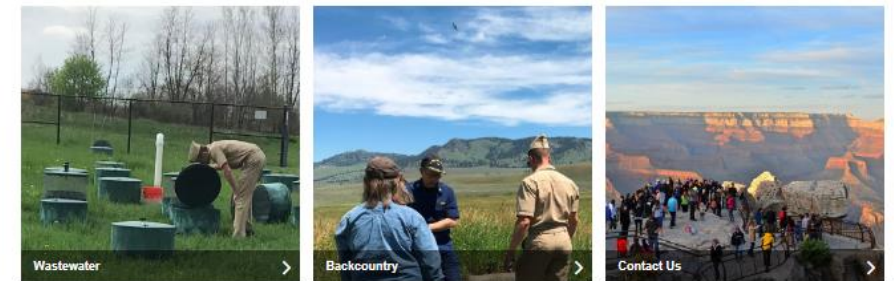
The Office of Public Health Field Services Branch is comprised of U.S. Public Health Service Officers who are equipped with the professional knowledge in environmental health and engineering. Through collaboration with the [Epidemiology Branch](#) and by conducting on-site system evaluations and providing consultations and trainings, officers are able to assist parks in ensuring the health and safety of employees and visitors. There are five priority areas within the Field Services Branch: Drinking Water, Wastewater, Recreational Water, Food Safety and Backcountry Operations. The Field Services Branch uses science-informed decision making, guided by the [NPS Public Health Policy, RM-83A](#). Explore the priority areas below and learn more about the work of the Field Services Branch!



[Learn more about food safety in parks!](#)

[Learn more about recreational water safety!](#)

[Learn more about Drinking Water Safety!](#)



[Learn more about wastewater safety!](#)

[Learn more about backcountry operations!](#)

[Let us know if you have questions!](#)

[Reference Manual - 83A PUBLIC HEALTH: Protection and Prevention \(nps.gov\)](#)

Consultants vs. Regulatory

- Water/wastewater systems are regulated by the Primacy Agency (State, or EPA (WY)).
- Public Health Consultants – consult and provide recommendations based on public health concerns
- RM-83A provides programmatic guidance for water/wastewater facilities, testing, etc.

OPH Field Service Branch (FSB) Core Activities

- Drinking Water
- Wastewater
- Food Safety
- Vector Borne/Zoonotic Diseases
- Recreational Water



What We Do – Field Services Branch

Core Program - Drinking Water/wastewater

The NPS owns and operates approximately 1,300 drinking water systems and 1600 wastewater systems.

- Water System Surveys
- Investigations
- Operator Training
- **Plan Review**
- EPA/States Compliance Monitoring



What We Do – Field Services Branch

Core Program – Water & Wastewater

Public Health Assessments (Environmental Health Surveys)

- Comprehensive survey of water and wastewater systems
- Frequency (annually or every 2 years, 3 years, or 5 years)

Water****	Surface / GWUDI	Annually (Every two years with records/virtual between)	DO-83A, RM-83A
	Groundwater	Every two <u>years</u> (Every three years with records/virtual between)	
	Municipal	Every three years (Every five years with records/virtual between)	
Wastewater** **	Wastewater Treatment System requiring NPDES permit	Annually. If the system seems to be failing, under designed, or the park has concerns - be sure to prioritize. (Every two years with records/virtual between)	DO-83A, RM-83A
	On-site	Every two to three years or as required by PHC (Every three years with records/virtual between)	
	Vault, Pit privies, Composting, and Evaporator toilets	As determined by the Public Health Consultant (PHC) a spot check <u>of records for pumping or onsite inspection</u> is recommended a minimum of every five years.	

What We Do – Field Services Branch

Core Program – Water & Wastewater

Public Health Assessments (Environmental Health Surveys)

- Complete in our new database/app: OPHIS

National Park Service Office of Public Health

Public Health Assessment - Mesa Verde National Park



A Public Health Assessment was conducted at Mesa Verde National Park on 8/16/2022 and 8/17/2022 by Chris Glime. This report contains a description of observations and recommendations pursuant to Directors Order 83 - Public Health.

Further information can be found at: <https://doimsp.sharepoint.com/sites/nps-in2-protect-and-promote-health/SitePages/home.aspx>

Executive Summary

The park utilities staff is doing an excellent job operating and maintaining the water and wastewater systems at Mesa Verde National Park. Several critical items have been corrected since the last survey. The operators should be commended for all their hard work. In addition, the concessioner has made several notable improvements to deficiencies since the last survey.

What We Do – Field Services Branch

Core Program – Water & Wastewater

Public Health Assessments (Environmental Health Surveys)

- Deficiency Level 5 (DL5): Imminent health hazard. These are the most severe deficiencies. (RED)
- Deficiency Level 4 (DL4): Moderate health hazard. These are also quite severe deficiencies. (RED)
- Deficiency Level 3 (DL3) : Health hazard. (ORANGE)
- Deficiency Level 2 (DL2): Low health hazard. (YELLOW)

Deficiency: Disinfection (gas) room is not properly vented and/or is not equipped with proper alarms (DL 4)

Observation: The 2 SCUBA respirators for operators to wear when entering the gas chlorination room at the water treatment plant have been out for service/replacement for approximately 2 years (see Photo 1). This is a safety issue, as operators have no way to enter the chlorination to repair leaks, if they occur.

Recommendation: *Recommend repairing/replacing the SCUBA respirators as soon as possible.*

Repeat Deficiency:

Deficiency: Overflow pipe not at least 12 to 18 inches above grade (DL 3)

Observation: The overflow pipes on the Wetherill and Chapin Mesa water storage tanks did not have adequate clearance underneath the pipe.

Recommendation: *Recommend providing a minimum of 12 to 18 inches of clearance underneath the overflow pipes. This may be achieved by extending the overflow pipe at Wetherill. Chapin Mesa may be more challenging since the overflow pipe terminates in a flat area.*

Repeat Deficiency:

What We Do – Field Services Branch

Water System Deficiency List

General Heading	Sub-Heading	System Type	Level #	Deficiency
Water Quality	Bacteriological	Public	5	ACUTE Maximum Contaminant Level (MCL) Violation
Water Quality	Bacteriological	Public	5	Repeat Positive Sample (total or fecal coliform)
Water Quality	Bacteriological	Public	4	Maximum Contaminant Level (MCL) Violation
Water Quality	Bacteriological	Public	4	Positive Sample (total or fecal coliform) reported and no or inadequate retesting conducted to verify safe
Water Quality	Bacteriological	Public	3	Positive Sample (total or fecal coliform) reported and retested as required
Water Quality	Bacteriological	Public	3	Collect <1 routine bacteriological test/month
Water Quality	Bacteriological	Non Public	5	Repeat Positive Sample (total or fecal coliform)
Water Quality	Bacteriological	Non Public	5	ACUTE Maximum Contaminant Level (MCL) Violation
Water Quality	Bacteriological	Non Public	4	Positive Sample (total or fecal coliform) reported and no or inadequate retesting conducted to verify safe
Water Quality	Bacteriological	Non Public	4	Maximum Contaminant Level (MCL) Violation
Water Quality	Bacteriological	Non Public	3	Positive Sample (total or fecal coliform) reported and retested as required
Water Quality	Bacteriological	Non Public	3	Collect <1 routine bacteriological test/month
Water Quality	Chemical	Multi	5	Maximum Contaminant Level (MCL) Exceedance of Nitrate or Nitrite
Water Quality	Chemical	Multi	5	Maximum Contaminant Level (MCL) Exceedance of Lead of 60 days or more user
Water Quality	Chemical	Multi	3	Missing or sporadic sampling for chemical contaminants that are an acute health concern
Water Quality	Chemical	Multi	1	Missing or sporadic sampling for contaminants that are not an acute health concern
Water Quality	Chemical	Public	4	Maximum Contaminant Level (MCL) Exceedance --other primary
Water Quality	Chemical	Public	3	Missing or sporadic sampling for chemical contaminants that are an acute health concern
Water Quality	Chemical	Public	3	No chemical sampling records
Water Quality	Chemical	Public	2	Maximum Contaminant Level (MCL) Exceedance -- secondary
Water Quality	Chemical	Public	2	Missing or sporadic sampling for contaminants that are not an acute health concern
Water Quality	Chemical	Public	2	Secondary chemical testing is not current
Water Quality	Chemical	Non Public	3	Maximum Contaminant Level (MCL) Exceedance --other primary
Water Quality	Chemical	Non Public	3	No chemical sampling records
Water Quality	Chemical	Non Public	3	Missing or sporadic sampling for chemical contaminants that are an acute health concern
Water Quality	Chemical	Non Public	2	Maximum Contaminant Level (MCL) Exceedance -- secondary
Water Quality	Chemical	Non Public	2	Missing or sporadic sampling for contaminants that are not an acute health concern

What We Do – Field Services Branch

Water System Deficiency List

Water Quality	Turbidity	SW	5	Turbidity not being tested
Water Quality	Turbidity	SW	4	2 exceedances of NTU limit/month
Water Quality	Turbidity	SW	3	1 NTU limit exceedance/month
Water Quality	Turbidity	SW	2	Turbidity not being tested at appropriate frequency
Water Quality	Turbidity	GW	3	Turbidity exceeds 1 NTU

What We Do – Field Services Branch

Water System Deficiency List

Treatment Processes	General Treatment	Multi	5	Inadequate monitoring of treatment process for primary contaminant
Treatment Processes	General Treatment	Multi	5	Inadequate treatment in place (primary contaminants)
Treatment Processes	General Treatment	Multi	5	Treatment facility operates 24 hrs./day
Treatment Processes	General Treatment	Multi	4	Inadequate monitoring of treatment process for secondary contaminant
Treatment Processes	General Treatment	Multi	4	Treatment in place for primary contaminant but ineffective
Treatment Processes	General Treatment	Multi	4	Treatment facility daily operating period is 18-22 hours
Treatment Processes	General Treatment	Multi	4	Inadequate treatment in place (secondary contaminants)
Treatment Processes	General Treatment	Multi	4	Corrosion control needed (Maximum Contaminant Level (MCL) violation)
Treatment Processes	General Treatment	Multi	4	Automatic chemical feed equipment not functional, resulting in no treatment
Treatment Processes	General Treatment	Multi	3	Treatment facility daily operating period is 12-18 hours
Treatment Processes	General Treatment	Multi	3	Treatment in place for secondary contaminant but ineffective
Treatment Processes	General Treatment	Multi	3	Corrosion control needed (no Maximum Contaminant Level (MCL) violation)
Treatment Processes	General Treatment	Multi	3	Automatic chemical feed equipment not functional, resulting in inadequate treatment
Treatment Processes	General Treatment	Multi	3	Deteriorated water treatment facilities NOT correctable by routine maintenance
Treatment Processes	General Treatment	Multi	3	No continuous residual disinfection monitoring equipment for surface water treatment (unless waived by state)
Treatment Processes	General Treatment	Multi	3	Not ANSI/NSF Standard 61 (equipment) or Standard 60 (chemicals) certified
Treatment Processes	General Treatment	Multi	3	Facility is not secured from unauthorized access
Treatment Processes	General Treatment	Multi	3	Inadequate chemical testing equipment available
Treatment Processes	General Treatment	Multi	3	Inadequate eye wash facilities if chemicals present
Treatment Processes	General Treatment	Multi	2	Inadequate chemical containment
Treatment Processes	General Treatment	Multi	2	Treatment facility daily operating period is 8-12 hours
Treatment Processes	General Treatment	Multi	2	Treatment equipment does not comply with current design standard (not required by regulations or because of history of microbial violations)
Treatment Processes	General Treatment	Multi	2	Water treatment chemical solution tank is dirty.
Treatment Processes	General Treatment	Multi	2	Water treatment chemical solution tank has openings where insects could enter the tank.
Treatment Processes	General Treatment	Multi	2	No flow switch installed to turn the chemical injection pump on and off, especially for a small system (10,000 gallons of storage or less) with potential to exceed the EPA Chlorine standard of 4 mg/l. Or, chemical disinfection is not controlled by a meter or other device to ensure proper dosage.
Treatment Processes	General Treatment	Multi	2	Old filters where parts are no longer available, or filters are not cleaned/changed frequently enough
Treatment Processes	General Treatment	Multi	2	Miscellaneous plumbing or O&M deficiencies
Treatment Processes	General Treatment	Multi	2	Deteriorated water treatment facilities correctable by routine maintenance

What We Do – Field Services Branch

Water System Deficiency List

Treatment Processes	Disinfection	SW	5	No Disinfection installed or disinfection system is not operable
Treatment Processes	Disinfection	SW	4	Inadequate Chlorine Contact Time (CT)
Treatment Processes	Disinfection	SW	4	Chlorine residual > 4 mg/L (MCL)
Treatment Processes	Disinfection	SW	4	No residual measured (0 mg/L)
Treatment Processes	Disinfection	SW	3	No test results for Disinfection Byproducts (public and non-public, see RM83A)
Treatment Processes	Disinfection	SW	3	Chlorine Contact Time (CT) not calculated daily
Treatment Processes	Disinfection	SW	3	<0.2 mg/L chlorine residual in distribution
Treatment Processes	Disinfection	GW	4	No Disinfection installed or disinfection system is not operable
Treatment Processes	Disinfection	GW	3	Inadequate Chlorine Contact Time (CT)
Treatment Processes	Disinfection	GW	3	Chlorine residual > 4 mg/L (MCL)
Treatment Processes	Disinfection	GW	3	Disinfection technology in use provides no disinfectant residual in the distribution system (e.g. UV systems/Ozone systems)
Treatment Processes	Disinfection	GW	3	No residual measured (0 mg/L)
Treatment Processes	Disinfection	GW	2	No test results for Disinfection Byproducts (public and non-public, see RM83A)
Treatment Processes	Disinfection	GW	2	<0.2 mg/L chlorine residual in distribution
Treatment Processes	Disinfection	Multi	4	Disinfection (gas) room is not properly vented and/or is not equipped with proper alarms
Treatment Processes	Disinfection	Multi	4	Chlorine residual > 4 mg/L (MCL)
Treatment Processes	Disinfection	Multi	4	No residual measured (0 mg/L)
Treatment Processes	Disinfection	Multi	3	Hazardous yet NSF 60 Approved Chemicals injected into a system at eye level or higher
Treatment Processes	Disinfection	Multi	3	No check valve in chemical injection line into water system
Treatment Processes	Disinfection	Multi	3	Automatic chlorination system is inoperable and operators manually dose the water system with chlorine by dumping chlorine into the water tanks, or operators choose to manually dose the water system with chlorine by dumping chlorine into water tanks resulting in inconsistent chlorine residuals in the distribution system.
Treatment Processes	Disinfection	Multi	3	No disinfection and no consultation with regional PHC, but the system is listed as "Non-potable".
Treatment Processes	Disinfection	Multi	3	Chlorine not NSF 60 Certified.
Treatment Processes	Disinfection	Multi	2	No standby disinfection equipment.
Treatment Processes	Disinfection	Multi	2	Outlet for chlorine pump not labeled.
Treatment Processes	Disinfection	Multi	2	Chlorine solution tank is dirty.
Treatment Processes	Disinfection	Multi	2	Chlorine solution tank has openings where insects could enter the tank.
Treatment Processes	Disinfection	Multi	2	Disinfection (solution) room is not properly vented
Treatment Processes	Disinfection	Multi	2	<0.2 mg/L chlorine residual in distribution
Treatment Processes	Disinfection	Multi	2	Miscellaneous plumbing or O&M deficiencies
Treatment Processes	Disinfection	Multi	2	Not checking accuracy of chlorine residual meter every 3 months (minimum) and/or not keeping a log of these activities

What We Do – Field Services Branch

Water System Deficiency List

Treatment Processes	Filtration	SW	5	Filters are not 1 micron absolute or smaller or doesn't remove cryptosporidium
Treatment Processes	Filtration	SW	4	No filter to waste option
Treatment Processes	Filtration	SW	4	Filter does not meet SDWA or State requirements. Or, filter is not NSF 61 certified.
Treatment Processes	Filtration	SW	3	Each filter does not have its own turbidity meter for continuous monitoring (unless waived by state)
Treatment Processes	Filtration	SW	3	Coagulants, polymers, and other water treatment chemicals are not NSF-60 certified
Treatment Processes	Filtration	SW	3	Filter media depth is not checked 2 or more time per month
Treatment Processes	Filtration	SW	2	Miscellaneous plumbing or O&M deficiencies
Treatment Processes	Filtration	SW	2	O & M manual does not exist and/or is not used

What We Do – Field Services Branch

Water System Deficiency List

Cross Connection	Backflow	Multi	5	Direct connection to health hazard with no/improper backflow protection in place
Cross Connection	Backflow	Multi	4	Potential health hazard with no backflow device in place
Cross Connection	Backflow	Multi	4	Backflow device for direct connection to health hazard not checked annually by certified backflow tester
Cross Connection	Backflow	Multi	4	Air Release Valves (ARV)s/Reduced Pressure Backflow Assembly (RPBA)s are vented inside a vault
Cross Connection	Backflow	Multi	3	No written backflow/cross-connection control program in place and proper protection and testing is limited.
Cross Connection	Backflow	Multi	3	Backflow device for potential health hazard not checked annually by certified backflow tester, or as required by policy
Cross Connection	Backflow	Multi	3	No backflow device in place for non-health hazard
Cross Connection	Backflow	Multi	3	Hose bib located in below ground vault where it is subject to becoming submerged
Cross Connection	Backflow	Multi	3	Backflow device in place, but not adequate for the application/risk.
Cross Connection	Backflow	Multi	3	Backflow device installed incorrectly
Cross Connection	Backflow	Multi	3	Air Release Valves (ARVs) improperly installed
Cross Connection	Backflow	Multi	2	No written backflow/cross-connection control program in place but everything is protected and tested as required
Cross Connection	Backflow	Multi	2	Valves located downstream of atmospheric vacuum breaker
Cross Connection	Backflow	Multi	2	Backflow device for non-health hazard not checked annually by certified backflow tester, or as required by policy
Cross Connection	Backflow	Multi	2	Hose bib vacuum breaker not in place
Cross Connection	Backflow	Multi	2	Standard frost-free yard hydrant with weep hole below grade
Cross Connection	Backflow	Dump Stations- Potable Tower	4	Hose has threaded connection for direct connection of RVs to potable water system w/o Reduced Pressure Backflow Assembly (RPBA)
Cross Connection	Backflow	Dump Stations- Potable Tower	4	Hose does not have threaded connection and is missing atmospheric vacuum breaker or AVB is malfunctioning
Cross Connection	Backflow	Dump Stations- Potable Tower	4	Hose bibb connection at base of towers w/o Reduced Pressure Backflow Assembly (RPBA) in place
Cross Connection	Backflow	Dump Stations- Potable Tower	3	RV dump station tower(s) w/o AVBs on top of towers, but have RPZ
Cross Connection	Backflow	Dump Stations- Potable Tower	2	Inadequate signage (words or signs)
Cross Connection	Backflow	Dump Stations- Potable Tower	2	No Reduced Pressure Backflow Assembly (RPBA) in place (with no threads on hose), or Reduced Pressure Backflow Assembly (RPBA) incorrectly installed
Cross Connection	Backflow	Dump Stations- Non-Potable Tower	4	No backflow protection (Atmospheric Vacuum Breaker (AVB) on top of tower)
Cross Connection	Backflow	Dump Stations- Non-Potable Tower	4	Malfunctioning atmospheric vacuum breaker
Cross Connection	Backflow	Dump Stations- Non-Potable Tower	2	Tower is in poor condition
Cross Connection	Backflow	Dump Stations- Non-Potable Tower	2	Threaded fittings on hose
Cross Connection	Backflow	Dump Stations- Non-Potable Tower	2	No stopper device on end of hose
Cross Connection	Backflow	Dump Stations- Non-Potable Tower	2	Inadequate signage

What We Do – Field Services Branch

Water System Deficiency List

Physical Facilities	SW Diversion	SW	5	Structural or functional deficiencies have compromised ability to divert adequate water
Physical Facilities	SW Diversion	SW	5	Source will not keep up with demand
Physical Facilities	SW Diversion	SW	4	Significant structural or functional deficiencies will likely result in failure or inability to divert adequate water
Physical Facilities	SW Diversion	SW	3	Structural or functional deficiencies may compromise function if uncorrected
Physical Facilities	SW Diversion	SW	2	Routine O&M needed on surface water intake
Physical Facilities	Well	GW	5	Potential Pollutant <50ft
Physical Facilities	Well	GW	5	Non-Sanitary or non-compliant well for potable drinking water
Physical Facilities	Well	GW	5	Unprotected well (open spring, open well)
Physical Facilities	Well	GW	4	Potential Pollutant <100ft
Physical Facilities	Well	GW	4	Inadequate capacity (well runs for more than 12 hrs/day)
Physical Facilities	Well	GW	4	Well Not in use and/or not properly abandoned within 25' of a well used for potable drinking water
Physical Facilities	Well	GW	4	Heavy corrosion of wellhead or well that could cause imminent failure.
Physical Facilities	Well	GW	3	Potential Pollutant <300ft
Physical Facilities	Well	GW	3	Inadequate backup pump capacity
Physical Facilities	Well	GW	3	Well Not in use and/or not properly abandoned within 100' of potable well
Physical Facilities	Well	GW	3	No piped water to a facility requiring water because of public health implications from no personal hygiene
Physical Facilities	Well	GW	3	Well cap not secure and/or not properly sealed in a manner that can result in contamination.
Physical Facilities	Well	GW	3	Well head subject to flooding (12" above PH floor, 18" above ground, and 5' above flood)
Physical Facilities	Well	GW	3	Corrosion of wellhead or well that could cause failure within 2 years.
Physical Facilities	Well	GW	2	Potential Pollutant (example: old well not sanitary, not maintained) >300ft
Physical Facilities	Well	GW	2	Well vent is screened but not terminated in a downward fashion.
Physical Facilities	Well	GW	2	Minor corrosion of wellhead or well.
Physical Facilities	Well	GW	2	Ground water under the influence of surface water is possible but not tested
Physical Facilities	Well	GW	2	Well located in a floodplain causing operational problems
Physical Facilities	Well	GW	2	Plumbing Deficiency or Routine O&M Needed
Physical Facilities	Well	GW	2	Well head is sealed to prevent contamination, but has deficiency (e.g. electrical conduit not properly connected, etc.)
Physical Facilities	Well	GW	2	Missing or unscreened vent (#24 mesh)
Physical Facilities	Well	GW	2	Controls are outdated (on/off hand or time clock operation only)
Physical Facilities	Well	GW	2	Well does not have concrete pad or has insufficient concrete pad or insufficient seal between casing and concrete pad
Physical Facilities	Well	GW	2	No written well head protection plan
Physical Facilities	Well	GW	1	A more reliable community water system is within a feasible distance to facility
Physical Facilities	Well	GW	1	Well Not in use and/or not properly abandoned within >300' of potable well but well is sanitary and maintained

What We Do – Field Services Branch

Water System Deficiency List

Physical Facilities	Spring Source	SPR	5	Source Unprotected, submerged, unsanitary, and/or deteriorating and there is no filtration on the system Potential Pollutant <50ft
Physical Facilities	Spring Source	SPR	4	Source unprotected/submerged and there is filtration on the system, but it does not meet the surface water rule. Potential Pollutant 50-300ft
Physical Facilities	Spring Source	SPR	4	MPA indicates GUDIS with no filtration
Physical Facilities	Spring Source	SPR	3	Source unprotected Potential Pollutant >300ft
Physical Facilities	Spring Source	SPR	3	Spring hatch < 24" above grade
Physical Facilities	Spring Source	SPR	3	Openings not adequately protected
Physical Facilities	Spring Source	SPR	3	No filtration, MPA test says low risk, but potential for surface water contamination
Physical Facilities	Spring Source	SPR	3	Evidence of SW infiltration into the Spring box/plumbing
Physical Facilities	Spring Source	SPR	2	Missing or unprotected vent or overflow
Physical Facilities	Spring Source	SPR	2	Other deficiency or routine O&M needed
Physical Facilities	Spring Source	SPR	2	Inadequate clearance above ground on overflow (< 12 to 18")
Physical Facilities	Rainwater/Cistern	Multi	5	Health hazard with high risk for disease transmission
Physical Facilities	Rainwater/Cistern	Multi	4	Health hazard with low risk for disease transmission
Physical Facilities	Rainwater/Cistern	Multi	3	Potential health hazard with moderate risk for disease transmission
Physical Facilities	Rainwater/Cistern	Multi	2	Potential health hazard with low risk for disease transmission

What We Do – Field Services Branch

Water System Deficiency List

Physical Facilities	Pump Station	Multi	4	Inadequate capacity
Physical Facilities	Pump Station	Multi	4	Pumphouse needs renovation to protect equipment from possible failure (structural or freezing issues)
Physical Facilities	Pump Station	Multi	4	Pumphouse does not have a functioning heater and is known to fall below 32 degrees F
Physical Facilities	Pump Station	Multi	3	Inadequate backup pump capacity
Physical Facilities	Pump Station	Multi	3	Deteriorated facilities not correctable by routine maintenance
Physical Facilities	Pump Station	Multi	3	System can no longer be maintained due to lack of availability of parts, etc.
Physical Facilities	Pump Station	Multi	3	Facility not secure
Physical Facilities	Pump Station	Multi	3	Automatic pump controls are down, system can only operation on hand (on/off) control
Physical Facilities	Pump Station	Multi	3	Only one booster station pump works in duplex pump station, or pump station only has 1 pump when 2 are recommended (resulting in water loss within 24 hours)
Physical Facilities	Pump Station	Multi	3	Only one sourcewater pump works in water system with 2 sources, or water system only has 1 source when 2 are recommended (resulting in water loss within 24 hours)
Physical Facilities	Pump Station	Multi	3	More than ten cycles per hour on individual pump
Physical Facilities	Pump Station	Multi	2	No standby electrical power for public water system
Physical Facilities	Pump Station	Multi	2	Pump station has deteriorated facilities correctable by routine maintenance
Physical Facilities	Pump Station	Multi	2	Pump control panels not equipped with O&M features to properly monitor pump performance (i.e. elapsed time meters (ETMs), pump cycle counters, etc.)
Physical Facilities	Pump Station	Multi	2	Miscellaneous plumbing or O&M deficiencies
Physical Facilities	Pump Station	Multi	2	Inadequate heating, lighting, or ventilation
Physical Facilities	Pump Station	Multi	2	Inadequate safety shields on equipment requiring them
Physical Facilities	Pump Station	Multi	2	GFCI outlets are not installed where it may get wet or within 6 feet

What We Do – Field Services Branch

Water System Deficiency List

Physical Facilities	Water Treatment Plant	Multi	4	Inadequate secondary containment of sewerlines over water treatment system DL4
Physical Facilities	Water Treatment Plant	Multi	3	Alarms are not functional
Physical Facilities	Water Treatment Plant	Multi	3	Inadequate backup capacity or single point of failure without spare (e.g. inadequate replacement filters, no backup generator, etc.)
Physical Facilities	Water Treatment Plant	Multi	2	Miscellaneous plumbing or O&M deficiencies
Physical Facilities	Water Treatment Plant	Multi	2	Backwash lagoon issues (e.g. liners need replacement, etc.)
Physical Facilities	Pressure Tank	Multi	4	Tank bladder has failed or has other unsanitary health concerns inside of it due to age or failures form original design
Physical Facilities	Pressure Tank	Multi	3	Facility not secure
Physical Facilities	Pressure Tank	Multi	3	Frequent pump cycling
Physical Facilities	Pressure Tank	Multi	3	Tank replacement needed. Tank is inadequate for the system.
Physical Facilities	Pressure Tank	Multi	3	No backup pump
Physical Facilities	Pressure Tank	Multi	2	Miscellaneous plumbing or O&M deficiencies
Physical Facilities	Pressure Tank	Multi	2	Inadequate heating, lighting, or ventilation
Physical Facilities	Pressure Tank	Multi	2	Tank working but installed incorrectly
Physical Facilities	Pressure Tank	Multi	2	Inadequate safety shields on equipment requiring them

What We Do – Field Services Branch

Water System Deficiency List

Physical Facilities	Gravity Storage	Multi	5	Water Storage Tank Drains to wastewater systems (not recommended and backflow is required if operated this way)
Physical Facilities	Gravity Storage	Multi	5	No water storage where required
Physical Facilities	Gravity Storage	Multi	4	Paint not NSF61 approved
Physical Facilities	Gravity Storage	Multi	4	Structural deficiency that could cause failure
Physical Facilities	Gravity Storage	Multi	4	Less than 1 days of storage for a multiple source system or less than 2 days of storage for a single source system
Physical Facilities	Gravity Storage	Multi	4	Overflow on tank is not properly covered (#24 mesh or better) and thus increases pest and rodent risk issues
Physical Facilities	Gravity Storage	Multi	4	Vent on tank is not properly covered (#24 mesh or better) and thus increases pest and rodent risk issues
Physical Facilities	Gravity Storage	Multi	4	Excessive corrosion or deterioration in a tank
Physical Facilities	Gravity Storage	Multi	4	Roof access not properly sealed and thus increases rodent and insect issues
Physical Facilities	Gravity Storage	Multi	4	Water tank overflow submerged or partially submerged > 50% of the time
Physical Facilities	Gravity Storage	Multi	4	Tank access is below grade
Physical Facilities	Gravity Storage	Multi	3	Openings not adequately protected
Physical Facilities	Gravity Storage	Multi	3	Porous materials above water level that could contribute to bacterial growth (non-closed cell roof hatch gasket)
Physical Facilities	Gravity Storage	Multi	3	Water tank outlet on the bottom of the tank where sediment can flow into the systems (no silt stop)
Physical Facilities	Gravity Storage	Multi	3	Less than 2 days of storage
Physical Facilities	Gravity Storage	Multi	3	Drain and overflow do not properly drain and create potential backflow concerns
Physical Facilities	Gravity Storage	Multi	3	Extensive buildup of sediment
Physical Facilities	Gravity Storage	Multi	3	Tank needs interior inspection or repainting (Inspection recommended every 3-5 years)
Physical Facilities	Gravity Storage	Multi	3	Tank non-transparent and no level indicator
Physical Facilities	Gravity Storage	Multi	3	Deteriorated water storage facilities not correctable by routine maintenance
Physical Facilities	Gravity Storage	Multi	3	Overflow pipe not at least 12 to 18 inches above grade
Physical Facilities	Gravity Storage	Multi	3	Water tank overflow has the potential to become submerged or partially submerged < 50% of the time
Physical Facilities	Gravity Storage	Multi	3	Tank roof vents and roof access hatches are not 24" above grade to an area that drains away
Physical Facilities	Gravity Storage	Multi	2	Tanks within the same pressure zone with different hydraulic grade lines cause improper use of one of the tanks
Physical Facilities	Gravity Storage	Multi	2	20 days or more of drinking water storage with water stagnation issue. No devices or practices to control problem such as: lowering tank level seasonally as possible, taking a tank off line seasonally, and/or baffles, or nozzles to mix water as it enters the tank
Physical Facilities	Gravity Storage	Multi	2	Overflow not equipped with flap valve downstream from screen
Physical Facilities	Gravity Storage	Multi	2	No Fencing
Physical Facilities	Gravity Storage	Multi	2	Tank does not meet current design standards (inadequate fall protection, inadequate access size, etc.)
Physical Facilities	Gravity Storage	Multi	2	Tank level indicator is not working and tank level cannot be observed in any present manner
Physical Facilities	Gravity Storage	Multi	2	Deteriorated water storage facilities correctable by cyclic maintenance (eg. tank needs exterior painting, lid needs repair/seal)
Physical Facilities	Gravity Storage	Multi	2	Inadequate safety equipment
Physical Facilities	Gravity Storage	Multi	2	Steel tank not equipped with cathodic protection
Physical Facilities	Gravity Storage	Multi	2	Miscellaneous plumbing or O&M def.
Physical Facilities	Gravity Storage	Multi	2	Fencing that requires repairing

What We Do – Field Services Branch

Water System Deficiency List

Physical Facilities	Distribution System	Multi	5	Demonstrated water quality problem attributed to distribution deficiency
Physical Facilities	Distribution System	Multi	5	Failure has occurred resulting in loss of service
Physical Facilities	Distribution System	Multi	5	System is creating acute health hazards such as contaminants entering the system
Physical Facilities	Distribution System	Multi	4	Inadequate system pressure (<20 psi at all times)
Physical Facilities	Distribution System	Multi	4	New installation w/o following State standards
Physical Facilities	Distribution System	Multi	4	Non-potable signs not posted when there is an acute health hazard
Physical Facilities	Distribution System	Multi	4	Deteriorated water distribution/ storage/treatment/ source facilities will likely fail
Physical Facilities	Distribution System	Multi	3	Low operating pressures (below 20 psi) some of the time
Physical Facilities	Distribution System	Multi	3	Deteriorated water distribution/ storage/treatment/ source facilities have the possibility of failure
Physical Facilities	Distribution System	Multi	3	Inadequate clearance between water/wastewater lines
Physical Facilities	Distribution System	Multi	3	Non-potable signs not posted when there is a potential health hazard
Physical Facilities	Distribution System	Multi	3	Inoperable valves
Physical Facilities	Distribution System	Multi	2	Modifications to increase efficiency and effectiveness, solve operational problems and reduce cost
Physical Facilities	Distribution System	Multi	2	Water hydraulic problems
Physical Facilities	Distribution System	Multi	2	Facility deficiencies such as inaccurate as-builts or equipment operating guides
Physical Facilities	Distribution System	Multi	2	Multiple water line breaks or unapproved materials
Physical Facilities	Distribution System	Multi	2	Miscellaneous plumbing or O&M deficiencies
Physical Facilities	Distribution System	Multi	2	Water source without automatic controls causing operational problems
Physical Facilities	Distribution System	Multi	2	Inadequate routine O&M
Physical Facilities	Distribution System	Multi	2	AWWA disinfection standards not followed
Physical Facilities	Distribution System	Multi	2	Water system vault with water in the vault
Physical Facilities	Distribution System	Multi	2	Valves and Fire hydrants have not been exercised or used within a year (this should be part of routine O&M)
Physical Facilities	RV Dump Station	Multi	3	Potable tower inoperable
Physical Facilities	RV Dump Station	Multi	3	Non-potable tower inoperable
Physical Facilities	RV Dump Station	Multi	2	Operational deficiencies with RV dump station towers or components
Physical Facilities	Quantity Requirements	Multi	5	Facilities closed or services restricted due to inadequate supply
Physical Facilities	Quantity Requirements	Multi	4	Insufficient quantity source and storage capacity
Physical Facilities	Quantity Requirements	Multi	2	Backup source recommended.
Physical Facilities	Security	Multi	3	No locked fence or facilities associated with the water system in restricted access areas preventing intentional or accidental contamination
Physical Facilities	Security	Multi	2	No locked fence or facilities associated with the water system in restricted access areas where contamination risk is low

What We Do – Field Services Branch

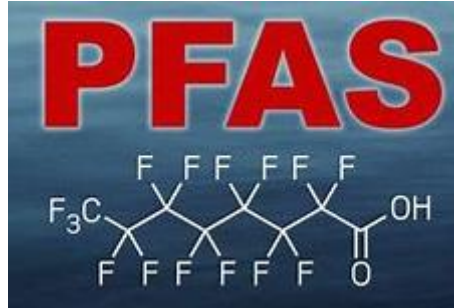
Administration	Operator Certification	Public	4	System is required by law to have a certified operator and does not
Administration	Operator Certification	Public	3	Certified operator does not live within one hour of the facility. Certified operator is not responsible for system.
Administration	Operator Certification	Public	2	Operator is certified in a different state then that they are working in. Operator is certified, but not at a high enough level and/or
Administration	Operator Certification	Public	2	there is no backup operator.
Administration	Operator Certification	Non Public	3	No certified backup operator
Administration	Operator Certification	Non Public	2	No certified operator
Administration	Operator Certification	Non Public	2	No certified backup operator
Administration	Operator Certification	Non Public	2	Certified operator does not live within one hour of the facility
Administration	Operator Certification	Non Public	2	Operator is certified in a different state then that they are working in.
Administration	Administrative Data	Multi	5	Data falsification in records, agency correspondence, etc.
Administration	Administrative Data	Multi	4	No plans for the plant for operators to reference (should be stamped by P.E.)
Administration	Administrative Data	Multi	4	No warnings to users when violations that should be posted and are not
Administration	Administrative Data	Multi	4	No wellhead protection plan and there are contaminant issues
Administration	Administrative Data	Multi	4	Park does not issue notifications for violations at required by EPA and NPS
Administration	Administrative Data	Multi	3	Park does not issue Consumer Confidence Report and is required
Administration	Administrative Data	Multi	3	Records collection does not meet RM-83A
Administration	Administrative Data	Multi	3	Seasonal water system startup/shutdown does not meet RM-83A and/or primacy requirements
Administration	Administrative Data	Multi	3	Site sampling plan not in place
Administration	Administrative Data	Multi	2	No designated person to keep records current for employees and reporting to agencies
Administration	Administrative Data	Multi	2	Park does not have written O&M plan and emergency response plan
Administration	Administrative Data	Multi	2	Records retention does not meet RM-83A
Administration	Administrative Data	Multi	2	Site sampling plan not followed
Administration	Administrative Data	Multi	2	System has little or no records as described in RM83A
Administration	Administrative Data	Multi	2	System does not have an Emergency Response Plan (e.g., line breaks etc.)
Administration	Administrative Data	Multi	2	FMSS is not current for all systems
Administration	Administrative Data	Public	4	No residual log
Administration	Administrative Data	Public	3	Log<3x/wk, and no indication of corrective action
Administration	Administrative Data	Public	2	Log<5x/wk and no indication of corrective action
Administration	Administrative Data	Public	2	Chemical testing is conduct; however, the location is not optimal or the variation of testing locations could be improved
Administration	Administrative Data	Public	2	FMSS is not complete with health risk for systems that are in need of repair
Administration	Administrative Data	Non Public	4	No residual log
Administration	Administrative Data	Non Public	3	Log<1x/wk and no indication of corrective action
Administration	Administrative Data	Non Public	2	Log<3x/wk and no indication of corrective action
Administration	Administrative Data	Non Public	2	Not updating drawings as changes are made to systems

What We Do – Field Services Branch

Water System Deficiency List

Administration	Sampling	Multi	4	System has frequent positive bacteriological tests (>2 per within 1year) and they do not record or notify Public Health Consultant (PHC)
Administration	Sampling	Multi	3	Incorrectly taking or transporting samples
Administration	Sampling	Multi	3	No chemical sampling records
Administration	Sampling	Multi	2	System does not report monthly, or as needed to Public Health Consultant (PHC)
Administration	Sampling	Multi	2	Unqualified person taking water samples
Administration	Sampling	Multi	2	System does not have a bacteria, lead/copper, etc. sampling site plan
Administration	Sampling	Multi	2	Primary chemical testing is not current
Administration	Sampling	Multi	2	Systems have a sampling plan; however, it is not followed
Administration	Sampling	Multi	2	Secondary chemical testing is not current
Administration	Customer/Visitor Complaint	Multi	5	Illness associated to water or waterborne disease outbreak
Administration	Customer/Visitor Complaint	Multi	3	Turbidity, pressure, water outages (3 or more complaints within a 12 month period)
Administration	Customer/Visitor Complaint	Multi	2	No form, system, or protocol available for visitors to provide feedback about the water systems
Administration	Customer/Visitor Complaint	Multi	1	Taste and odor problems
Administration	Water Hauling	Multi	5	Temp hauling from non compliant water source or system
Administration	Water Hauling	Multi	4	Water haul system with on-site storage and plumbing (chlorine residual is unacceptable) and/or piped water is feasible)
Administration	Water Hauling	Multi	3	Water hauling operations do not meet RM-83A policy
Administration	Water Hauling	Multi	3	No records of residuals for disinfected water hauled and delivered for potable use
General	Standard Language	Multi	5	Imminent health hazard resulting in injury or loss of life
General	Standard Language	Multi	4	Moderate health hazard with possible injury and low risk for loss of life
General	Standard Language	Multi	3	Health hazard with possible injury
General	Standard Language	Multi	3	Rodent droppings in water facilities that have the potential of contaminating water system
General	Standard Language	Multi	2	Rodent droppings in water facilities with no or remote chance of contaminating water system
General	Standard Language	Multi	2	Excessive vegetation over or around facilities that inhibit adequate O&M.
General	Standard Language	Multi	2	Equipment no longer used that should be removed from water system
General	Standard Language	Multi	2	Lack of routine O&M necessary for efficient operation of water system
General	Standard Language	Multi	2	Health hazard with risk of developing long-term health problems

Per- and Polyfluoroalkyl Substances (PFAS)



- Before the EPA set maximum contaminant levels (MCLs) for PFAS, DOI indicated that all drinking water systems will be tested for PFAS
- 974 NPS potable drinking water systems were tested for 29 PFAS contaminants
- 12 water systems had PFAS concentrations above EPA MCLs (once established).
- NPS-OPH developed guidance on which water systems with PFAS exceedances would be mitigated based on public health risk (lifetime health exposure)

What We Do – Field Services Branch

Core Program – Backcountry Operations

Present special challenges to water, wastewater, and food safety ...



What We Do – Field Services Branch

Core Program – Backcountry Operations: Drinking Water

- Hauled Water
- Treated River Water
 - Filter w/ 1 micron absolute filtration (cryptosporidium/giardia removal)
 - Chlorinate (virus inactivation)

Questions?



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