

How Do Water Systems Conduct a Level 1 Assessment?

In general, in performing a Level 1 assessment, systems should follow a progression starting with the **(1)** location of the initial coliform positive samples and working through the **(2)** distribution system to the **(3)** treatment plant and **(4)** source, then **(5)** storage. Depending on the system's configuration, not all these components may be present.

Sampling Procedures & Conditions	Typical Items to Evaluate
TC + Location	Has the tap been used for TC sampling before?
	Has it tested positive previously?
	Is the aerator removed?
	Is it clean upon visual inspection?
Sample Procedure	Was the tap properly disinfected & flushed?
	Was the sample properly transported & stored on ice?
	Was the proper sample collection technique used?
What were the conditions at the time the sample was taken?	Was the weather extreme?
	Has your system experienced runoff?
	Has there been construction in the area?
	Has your system had high flow events such as flushing or fireflow?
Prevention programs	Is your Cross Connection program current?
	When was the last cross connection?
	Does your system employ someone with backflow training?
	Has a Hazard Assessment been completed in the last 12 months?
If system treats:	Does your system provide public education about cross-connection?
Disinfectant residual concentration	Throughout the dist. system, including total coliform sampling sites as specified in the sampling site plan.
	At storage tanks throughout the dist. system.
	At the entrance to the dist. system at each source.

Distribution System	Typical Items to Evaluate
Pump stations	Proper operation of pumps and valves
	Recent losses of power
	Recent losses of pressure
	Proper operation of surge control appurtenances
Dist. system pressure	Maintenance of adequate pressure
Air-relief / Air-vacuum valves	Proper operation of valves
	Valve vault free of standing water and debris
Fire hydrants	Proper operation of shut-off valves
	Leaks at connection to lateral piping
Flushing	Do you flush the system regularly?
	Is it a unidirectional flush?
	Most recent flush?
Pipes	Recent main breaks
	Recent leaks
	Recent installation of new mains or construction activity
Dist. system isolation valves	Recent operation resulting in breakage
Vandalism	Any signs of vandalism?

Storage Tank Element	Typical Items to Evaluate
Access hatches	Signs of vandalism or forced entry
	Ability of hatch to seal tightly when closed
	Rust, holes, or other breaches
Vents	Signs of vandalism or forced entry
	Absence of screen; holes or other breaches in screens
Overflow piping	Rust, holes or other breaches in vent piping and penetration through tank wall
	Absence of screen; holes or other breaches in screens
Control valves	Correct operation of level control valves, altitude valves and related appurtenances
Tank exterior	Signs of deterioration, rust, or other breaches
Tank interior	Integrity of lining material
	Presence and extent of floating material and sediment within tank; existence of microbes within sediment
	Presence of dead animals
Disinfectant residual	Level of disinfectant in tank, ideally at different tank levels

“A Level 1 Assessment of the distribution system should include the collection and review of operational data and information on the physical condition of the distribution system components. The area of the distribution system that should be evaluated depends on the system’s configuration along with the extend of coliform positive samples.”

- EPA RTCR Guidance



LEVEL 1 Assessments

Field Checklist

What is a Level 1 Assessment?

A Level 1 assessment is a basic examination of the source water, treatment, distribution system (including storage facilities) and relevant operational practices. It is intended as a self assessment and can be performed by a responsible party of the system.

Why do systems need to conduct a Level 1 Assessment?

The purpose of performing a Level 1 assessment is to identify the presence of sanitary defects and correct all such defects identified. In other words: FIND and FIX all sanitary defects. Performing assessments will also help identify if there are deficiencies or problems in the sampling practices.

Timeline: 30 days after exceeding a trigger
Penalty: 40 IPS points

This is only a field checklist.



You **MUST** fill out DDW's L1 Assessment form **ONLINE:**

<https://waterlink.utah.gov/deqWater/public/level1.html>
(case sensitive)

Treatment Facility Element (if system treats)	Typical Items to Evaluate
Equipment (pumps, mixing units, settling pipes, valves, chemical feed units, filters)	Status of equipment - operational and maintained in accordance w/the treatment plant Operations & Maintenance procedures Recent installations or repairs
Treatment Process	Introduction of new sources or changes in source water
	Recent changes in the treatment process
	Interruptions in treatment - lapses in chemical feed or proper mixing
	Turbidity measurements at all appropriate locations in the treatment process (source, settled water, pre- and post-filtration, finished water, etc)
	Disinfectant residual measurements and C x T (concentration x time) calculations
	Flow rates at each plant process

Source Element	Typical Items to Evaluate
For wells:	
Well house/ enclosure	Signs of vandalism or forced entry Unsanitary conditions like the presence of rodents or other animals
Well cap/well seal	Tightness of well cap and seals, presence of gaps or openings
Well vent	Vent properly screened, angled to be self-draining and has sufficient height above ground
Well casing	Holes, breaks, corrosion or deformation in casing and welds
Annular grout seal	Missing, sunken, bridged or channeled grout surrounding the well casing
Pump & pump assembly	Attached to casing with no unprotected openings and has watertight seal
Pitless adapter	Integrity of pitless adapter connection
Inundation	Signs of inundation by floodwater or runoff; depressions around wellhead
For springs:	
Overflow	Void of vegetation and adequate free fall with screen
Collection	Ponding or surface water in collection area
	Collection lines free of roots
	Access lid tightly sealed
Vents	All vents downturned
	All vents screened with #14 mesh screen
Misc:	
Sources	Has your system recently changed sources?

A Level 1 Assessment is triggered if any one of the following occurs:

1. For systems collecting 40 or more routine coliform samples per month that have more than 5% coliform positive routine
2. For systems collecting less than 40/month routine coliform samples that have more than one coliform positive
3. For any system that fails to take repeats after an E. coli positive routine

DDW Contacts

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