

## Environmental Assessment of Water Systems

Assessor's Name: \_\_\_\_\_ Facility Name: \_\_\_\_\_  
Assessor's Title: \_\_\_\_\_ Facility Address: \_\_\_\_\_  
Assessor's Organization: \_\_\_\_\_  
Assessor's Address: \_\_\_\_\_  
Assessor's Telephone Number: \_\_\_\_\_  
Date of assessment: \_\_\_\_\_ Type of Assessment: *(Circle one)*  
Time of assessment: \_\_\_\_\_ On-site assessment  
Time needed to complete assessment: \_\_\_\_\_ Telephone assessment

### Note to Assessor:

This environmental assessment instrument may be used where a thorough understanding of a facility's water system is needed to assist facility management in minimizing the risk of legionellosis either in the presence or absence of disease transmission. It should be completed in as much detail as possible. Not all the information specified may be available for or applicable to every facility.

For very large, complex facilities, completion of the form may take several hours. Please keep in mind that this initial investment of time is important. If reassessment is needed in subsequent months or years, the information contained in this document will be very valuable. Do not leave sections blank. If a question does not apply, write "N/A". If a question cannot be answered, explain why. Where applicable, specify the units of measurement being used (e.g., ppm). It is recommended that if the form is being completed electronically, a different font and/or italics should be used. This will make the information much easier to read if additional information is added in the future.

### A. Facility Characteristics

1. Type of facility *(Circle one)*:

- a. Healthcare facility
  - Hospital with bone marrow or solid organ transplant patients
  - Hospital without bone marrow or solid organ transplant patients
  - Outpatient facility with bone marrow or solid organ transplant patients
  - Outpatient facility without bone marrow or solid organ transplant patients
  - Long-term care facility
  - Outpatient surgical center
- b. Hotel, motel
- c. Residential building (e.g., apartment, condominium)
- d. Office building
- e. Manufacturing facility
- f. Restaurant
- g. Recreational facility (e.g., health club, water park)
- h. Other \_\_\_\_\_

2. Total number of buildings in facility \_\_\_\_\_

3. Total number of rooms that can be occupied overnight (e.g., patient rooms, occupant rooms, hotel rooms) : \_\_\_\_\_

4. Total overnight occupant capacity: \_\_\_\_\_

5. Average occupancy over previous 12 months as a percentage of total capacity: \_\_\_\_\_

6. If occupancy varies throughout the year, indicate seasons with highest occupancy (*circle all that apply*):

Spring          Summer          Winter          Fall

7. Are any occupant rooms taken out of service during specific parts of the year, e.g., low season? If yes, indicate which rooms

\_\_\_\_\_

8. Average length of stay for occupants (*Circle one*):

- a. 1 night
- b. 2-3 nights
- c. 4-7 nights
- d. >7 nights

9. Owner of facility is (*Circle one*) :

Private individual(s)          Corporation          Other \_\_\_\_\_

10. Description of each building that shares water or air systems with the facility (and including the main facility):

Building Name <i>List main facility building first</i>	Original Construction	Later Construction (renovation, expansion)	Stories	Sq. feet	Occupant rooms*	Census (yr. avg.)	Use <i>List all types of uses</i>
	Year Completed	From/To or N/A	#	Ft <sup>2</sup>	# or NA	#/day or NA	e.g., occupant rooms, utilities, heating/AC plant, potable water
1.							
2.							
3.							
4.							
5.							
6.							
7.							

\*Occupant room is defined as a room that can be occupied overnight such as a patient room or a hotel room.

11. Can windows in any occupant rooms be opened? Yes No  
a. If only some occupant rooms have windows that can be opened, what is the overall proportion of occupant rooms with windows that can be opened? \_\_\_\_\_

12. Are there decorative fountains, misters, water features, or any other aerosol-generating devices anywhere on the facility premises?  
Yes No  
If yes, please describe and indicate their location and operation \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

13. Has this facility been associated with a previous legionellosis cluster or outbreak? Yes No  
*If yes, please describe (e.g., number of cases, dates):*  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

14. Does the facility have a *Legionella* prevention or monitoring program? Yes No  
If yes, please describe \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**B. Outside water supply**

1. What is the source of the water used by the facility?

*[Check all that apply]*

- \_\_\_ Municipal water
- \_\_\_ Well
- \_\_\_ Other \_\_\_\_\_

***If facility is served by municipal water, please answer the remaining questions, otherwise skip to section C.***

2. Name of supplier \_\_\_\_\_

3. How is municipal water disinfected? (*Circle one*)

- Chlorine      Monochloramine      No residual disinfectant      Other \_\_\_\_\_

4. Has treatment of municipal water changed in the last six months? Yes No

If yes, specify \_\_\_\_\_  
\_\_\_\_\_

C. Design of the existing potable water system(s) [Note: A schematic diagram on a separate page and facility blueprints are useful for demonstrating the design]:

1. What type of heating system is used for the potable hot water system?

[Check all that apply]

- Instantaneous heaters without storage of hot water
- Heaters with hot water storage tanks
- Other [Please describe] \_\_\_\_\_

2. How is the hot water system configured to deliver water to each building?

Building name	Type of system (I=Instant H=Heater/boiler)	Name of system (e.g., Boiler #1, Loop #1)	Date of installation	Total capacity (gallons)	Usual temperature setting (°F/°C)

3. Is there a recirculation system (a system in which water flows continuously through the piping to ensure constant hot water to all endpoints) for the hot water?    Yes    No

If yes, please describe (including delivery and return temperatures):

\_\_\_\_\_

\_\_\_\_\_

4. What is the maximum hot water temperature at the point of delivery permitted by state / local regulations?

\_\_\_\_\_ °F or \_\_\_\_\_ °C

5. What are the **lowest** documented **hot** water temperatures measured at any point within the facility?

\_\_\_\_\_ °F or \_\_\_\_\_ °C

When were these measurements made (Month/Date/Year)? \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

6. What are the **highest** documented **cold** water temperatures measured at any point within the facility?

\_\_\_\_\_ °F or \_\_\_\_\_ °C

When were these measurements made (Month/Date/Year)? \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

7. Are thermostatic mixing valves used anywhere in occupant areas? Yes No

If yes, where? Please describe \_\_\_\_\_  
\_\_\_\_\_

8. Does the facility have a water softener on site? Yes No

If yes, please describe (including routine service)  
\_\_\_\_\_  
\_\_\_\_\_

9. Are the potable water chlorine levels measured? Yes No

If yes, how often? \_\_\_\_\_  
If yes, what is the range of residuals in each system \_\_\_\_\_

Please describe any regularly scheduled maintenance carried out on the hot water system.

10. Measured parameters:

The following page includes a table for documenting the physical/chemical characteristics of the potable water system. Before performing these measurements, it is useful to plan a sampling strategy that incorporates all central hot water heaters/boilers and various points along each loop of the potable water system. For example, if the facility has one loop serving all occupant rooms, an occupant room near (proximal) the central hot water system and another at the farthest point (distal) of the loop should be sampled. Also, if there are aerosol-generating devices (e.g., misters, decorative fountains) that are not located in occupant rooms, these should also be assessed. Because Legionella amplifies in warm (25-42°C), stagnant water, it is useful to document temperatures, chlorine residuals, and pH in hot potable water.

Recommended procedure for measuring physical/chemical characteristics

For each sampling point (e.g., tap in an occupant room):

- a. Turn on the hot water tap. Collect the first 50cc from the tap. Measure the temperature, pH, and chlorine residual. Document the findings in the table on the following page.
- b. Allow the hot water tap to run for 2-3 minutes. Collect 50cc and measure the temperature, pH, and chlorine residual. Document the findings in the table on the following page.

Measured parameters

<i>Copy from table for question C-2</i>		Area of system (Central heater/ boiler=C; proximal occupant room=P; distal occupant room=D)	Sampling site (e.g., heater #1, tap in occupant room #436)	Type of sample (First, 2- minute)	Temperature (°F/°C)	Chlorine residual (ppm)	pH
Building name	Name of system (e.g., Boiler #1, Loop #1)						

D. Whirlpool spas & hot tubs

1. How many total spas and/or hot tubs are located on the premises? \_\_\_\_\_

2. Spa features

Spa number	1	2	3	4
Location				
Max. bather load				
Filter type				
Age of filter				
Filter maintenance routine				
Type of disinfectant used (include chemical name, formulation, and amount used)				
Method used for adding disinfectant				
Date last drained and scrubbed				

3. Have any of the spas been "shocked" recently? If so, when and why? \_\_\_\_\_



D. Cooling towers and evaporative condensers.

1. Use the following table to list all cooling towers and evaporative condensers on the facility premises:

Name of device (e.g., CT1, EC2)	Manufacturer	Water capacity (gallons)	Tonnage	Type of disinfects / chemicals used & frequency (continuous, daily, weekly, irregular/intermittent)	Drift eliminators used (Y/N)	Location of device	Distance to nearest air intake*/ location of the air intake	Are cooling towers turned off at any time (Y/N)? If yes, include schedule

\*intakes to air handling units (AHUs)

2. Recent (last 6 months) special (non-routine) treatments, maintenance or repairs to cooling devices:

Location	Name of device (e.g., CT1, EC2)	Action taken	Date	Comments

3. What is the source of water for the cooling towers and evaporative condensers?

*[Please specify]* \_\_\_\_\_  
 \_\_\_\_\_

4. Does the cooling tower water come from a branch of the potable water system inside the facility?    Yes    No

E. For recent (last 6 months) or ongoing construction (*Summarize the construction activities in the following table*):

New Building Name	Date construction began	Relationship to existing potable water system	Date water service began	Estimated date of completion	Stories	Sq. feet	Used by occupants?	Uses <small>e.g., occupant rooms, dining, recreation, utilities, heating/AC plant, potable water</small>	Date occupants began occupying building	Floors currently occupied by occupants
		Independent=I; Extension of existing system=E			#	Fl <sup>2</sup>	Y/N			

1. Was temporary water service provided to the new construction area (i.e., separate meter)?

Yes                  No

If so, describe: \_\_\_\_\_

2. Has jack-hammering or pile-driving been used during the construction process?

Yes                  No

If so, describe (dates, location): \_\_\_\_\_

3. If the new building construction includes an extension of the existing potable water system, what part of the new building does the existing potable water system serve? \_\_\_\_\_

4. If the new building construction includes an extension of the existing potable water system, have disruptions/changes to existing potable water system during the construction been reported?

Yes                      No

If so, describe:

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5. Do you have a standard operating procedure (SOP) for shutting down, isolating and refilling/flushing for water service areas that have been subjected to repair and/or construction interruptions?

Yes                      No

If yes, briefly describe the steps used in the SOP (attached a copy if possible):

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6. Has the potable water changed in terms of taste or color during the construction process?

Yes                      No

If so, describe the changes including when the potable water change started and ended:

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7. Have there been any water main breaks, interruptions, or potable water malfunctions in the past 6 months?

Yes                      No

a. If "Yes", describe (which buildings were affected, beginning and end dates, etc.):

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b. If "Yes", was any soil material introduced into the pipe(s) during these times?

Yes                      No

c. If "Yes", please describe any steps taken to remediate the water.

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8. Before occupying the new building space, was a commissioning process undertaken?

Yes                      No

a. If "Yes", describe (who performed the commissioning, when was it completed, etc.):

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b. Is a commissioning report available for review?

Yes                      No

9. Does the facility regularly test the fire protection system (i.e. sprinkler head flow tests)?

a. If so, how often? \_\_\_\_\_

b. What precautions are taken to protect staff and patrons from aerosols during testing of sprinkler heads?

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10. Additional Comments:

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*Please return to front page and indicate time needed to complete assessment.*