**HOW TO USE THIS FORM**

This form enables public health officials to gain a thorough understanding of a facility's water systems and assist facility management with minimizing the risk of legionellosis. It can be used along with epidemiologic information to determine whether to conduct *Legionella* environmental sampling and to develop a sampling plan. The assessment should be performed on-site by an epidemiologist and an environmental health specialist with knowledge of the ecology of *Legionella*. Keep in mind that conditions promoting *Legionella* amplification include water stagnation, warm temperatures (77-108°F or 25-42°C), availability of organic matter, and lack of residual disinfectant such as chlorine. For training and information, please visit CDC’s legionellosis resources webpage at: [http://www.cdc.gov/legionella/outbreak-toolkit/](http://www.cdc.gov/legionella/outbreak-toolkit/).

Complete the form in as much detail as possible. Do not leave sections blank; if a question does not apply, write “N/A”. If a question applies but cannot be answered, explain why. Where applicable, specify the units of measurement being used (e.g., ppm). Completion of the form may take several hours.

**BEFORE ARRIVING ON SITE**

- Request the attendance of the lead facility manager as well as others who have a detailed knowledge of the facility’s water systems, such as a facility engineer or industrial hygienist.
- Request that they have maintenance logs and blueprints available for the meeting.
- Bring a plastic bottle, thermometer, pH test kit, and a chlorine test kit that can detect a wide range of residual disinfectant (<1 ppm for potable water and up to 10 ppm for whirlpool spas).
- If the epidemiologic information available suggests a particular source (e.g., whirlpool spa, cooling tower), request that they shut it down (but do not drain or disinfect) in order to stop transmission.

**INSTRUCTIONS FOR MEASURING WATER PARAMETERS IN THE PREMISE PLUMBING (TABLE P. 8)**

It is very important to measure and document the current physical and chemical characteristics of the potable water, as this can help determine whether conditions are likely to support *Legionella* amplification.

**STEP 1:** 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 heater and another at the farthest point (distal) of the loop should be sampled.

**STEP 2:** For each sampling point (e.g., tap in an occupant room):

a. Turn on the hot water tap. Collect the first 50 ml from the tap. Measure the free chlorine residual and pH. Document the findings in the table on p. 8. Note: If there is no residual chlorine in the hot water, measure it in the cold water. Note: Total chlorine should be measured instead of free chlorine if the method of disinfection is not chlorine (e.g., monochloramine).

b. Allow the hot water tap to run until it is as hot as it will get. Collect 50 ml and measure the temperature. Document the temperature and the time it took to reach the maximum temperature.
LEGIONELLA ENVIRONMENTAL ASSESSMENT FORM

Persons completing the assessment:

Name: _______________________________ Job Title: ___________________ Organization: ________________
Telephone: __________________________ E-mail: ______________________

Name: _______________________________ Job Title: ___________________ Organization: ________________
Telephone: __________________________ E-mail: ______________________

Assessment details:

Facility Name: ___________________________ Date of Assessment: ________________
Facility Address: ___________________________________________________________
__________________________________________________________________________

Person(s) interviewed during assessment:

Name: _______________________________ Job Title: ______________________
Name: _______________________________ Job Title: ______________________
Name: _______________________________ Job Title: ______________________

Facility Characteristics

1. Is this a healthcare facility or senior living facility with skilled nursing care (e.g., hospital, long term care/rehab/assisted living/skilled nursing facility, or clinic)?
   - YES ➔ If yes, skip to Q.3 & also complete Appendix A.
   - NO

2. If NO, indicate type of facility (check all that apply):
   - Senior living facility (e.g., retirement home without skilled nursing care)
   - Other residential building (e.g., apartment, condominium)
   - Hotel, motel, or resort
   - Recreational facility (e.g., health club, water park)
   - Office building
   - Manufacturing facility
   - Restaurant
   - Other ______________________________

3. Total number of buildings on campus: ___________ Total number of buildings being assessed: ___________

4. Total number of rooms that can be occupied overnight (e.g., patient rooms, hotel rooms): ___________

5. Does occupancy vary throughout the year?  - YES - NO
   If YES, seasons with lowest occupancy (check all that apply):
   - Winter  - Spring  - Summer  - Fall

6. Are any occupant rooms taken out of service during specific parts of the year, e.g., low season?
   - YES - NO
   If YES, which rooms? ________________________________
7. Average length of stay for occupants (check one):
   - [ ] 1 night
   - [□] 2-3 nights
   - [□] 4-7 nights
   - [□] >7 nights

8. Does the facility have emergency water systems (e.g., fire sprinklers, safety showers, eye wash stations)?
   - [□] YES  [□] NO
   If YES, are these systems regularly tested (i.e., sprinkler head flow tests)?
     - [□] YES  [□] NO
   If YES, how often and when was the last test?

9. Are there any cooling towers or evaporative condensers on the facility premises?
   - [□] YES  [□] NO
   If yes, also complete Appendix B.
   - [□] YES  [□] NO
   If YES, are these systems regularly tested (i.e., sprinkler head flow tests)?
   - [□] YES  [□] NO
   If YES, how often and when was the last test?

10. Does the facility have emergency water systems (e.g., fire sprinklers, safety showers, eye wash stations)?
    - [□] YES  [□] NO
    If YES, are these systems regularly tested (i.e., sprinkler head flow tests)?
      - [□] YES  [□] NO
    If YES, how often and when was the last test? _____________________________________________________________________________

11. Are there any whirlpool spas, hot tubs, or hydrotherapy spas on the facility premises?
    - [□] YES  [□] NO
    If yes, also complete Appendix C.
    - [□] YES  [□] NO
    If YES, are these systems regularly tested (i.e., sprinkler head flow tests)?
      - [□] YES  [□] NO
    If YES, how often and when was the last test?

12. Does the facility have centralized humidification (e.g., on air-handling units) or any room humidifiers?
    - [□] YES  [□] NO
    If YES, describe their location and operation: _____________________________________________________________________________
    _____________________________________________________________________________
    _____________________________________________________________________________
    _____________________________________________________________________________

13. Has there been any recent (last 6 months) or ongoing major construction on or around the facility premises?
    - [□] YES  [□] NO
    If yes, also complete Appendix E.
    - [□] YES  [□] NO
    If YES, are these systems regularly tested (i.e., sprinkler head flow tests)?
      - [□] YES  [□] NO
    If YES, how often and when was the last test?

14. Has this facility been associated with a previous legionellosis cluster or outbreak?
    - [□] YES  [□] NO
    If YES, describe number of cases, dates, source if found, and any interventions (immediate and long-term) to prevent recurrence:
      _____________________________________________________________________________
      _____________________________________________________________________________
      _____________________________________________________________________________
      _____________________________________________________________________________

15. Does the facility have a water safety plan or Legionella prevention program?
    - [□] YES  [□] NO
    If YES, does the facility ever test for Legionella in water samples?
      - [□] YES  [□] NO
    If YES, obtain copies of results
    - [□] YES  [□] NO
    If YES, please describe the plan briefly here (does it include clinical disease surveillance and/or environmental Legionella surveillance?) and obtain a written copy of the program policy:
      _____________________________________________________________________________
      _____________________________________________________________________________
      _____________________________________________________________________________
      _____________________________________________________________________________
16. Describe each building that shares water or air systems, including the main facility

<table>
<thead>
<tr>
<th>Building Name</th>
<th>Original Construction</th>
<th>Later Construction (renovation, expansion)</th>
<th>Stories or Levels</th>
<th>Occupancy rate (%)*</th>
<th>Daily Census (yr. avg.)</th>
<th>Use (List all types of uses)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year Completed</td>
<td>From/To or “N/A”</td>
<td>#</td>
<td>Rate (%) or “N/A”</td>
<td>#/day or “N/A”</td>
<td>e.g., occupant rooms, utilities, heating/AC plant</td>
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<td>For healthcare, specify:</td>
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<td>Inpatient (acute) = I</td>
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<td>Transplant = Tx</td>
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</table>

1. 

2. 

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4. 

5. 

6. 

7. 

*occupancy rate = (# of rooms occupied overnight / total # of rooms) X 100]
### Water Supply Source

17. What is the source of the water used by the facility? (Check all that apply)

- **Municipal water** if YES:
  - Name of supplier ___________________________________________________
  - How is the municipal water disinfected? (Check one) ❑ Chlorine ❑ Monochloramine ❑ Other _________
  - Has treatment of municipal water changed in the past year? ❑ YES ❑ NO

- **Non-municipal well** if YES:
  - How is the well water disinfected? (Check one) ❑ Chlorine ❑ Monochloramine ❑ Other _________ ❑ Not disinfected
  - Is the water filtered onsite? ❑ YES ❑ NO

- **Other** ____________________________________________________________

18. Have there been any pressure drops, boil water advisories, or water disruptions (e.g., water main break) to the facility in the past 6 months? ❑ YES ❑ NO

If YES, describe what happened and which buildings or parts of buildings were affected: _________________________________

______________________________

19. Does the facility monitor incoming water parameters (e.g., residual disinfectant, temperature, pH)?

- ❑ YES ➔ If yes, obtain copies of the logs ❑ NO

If YES, what is the range of disinfectant residual, temperature, and pH entering the facility? _________________________________

______________________________

### Premise Plumbing System

**Note:** It is important to gain an understanding of where and how water flows, starting where it enters the facility and including its distribution to and through buildings to the points of use. Understand water processes, including but not limited to: heating, storage, filtration, UV irradiation, and addition of secondary disinfectants. Refer to a facility map and blueprints; obtain copies of these and/or draw a diagram and include with the completed assessment.

20. Are cisterns and/or water storage holding tanks used to store potable water before it’s heated?

- ❑ YES ❑ NO

21. 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 where it runs and delivery/return temperatures if they are measured: _________________________________

______________________________

22. Are thermostatic mixing valves used?

- ❑ YES ❑ NO

If YES, describe where they are located (ideally, mixing valves are close to the point of use): _________________________________

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

<table>
<thead>
<tr>
<th>Building name</th>
<th>Type of system (e.g., instantaneous heater, hot water heater with a storage tank, solar heating)</th>
<th>Name of system (e.g., Boiler #1, Loop #1)</th>
<th>Areas served (e.g., floor, rooms)</th>
<th>Date of installation</th>
<th>Total capacity (gallons)</th>
<th>Usual temperature setting (°F)</th>
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</table>

Comments/notes:  
________________________________________________________________________________________________________________  
______________________________________________________________________________________________________________________________  
______________________________________________________________________________________________________________________________
24. What is the maximum **hot** water temperature at the point of delivery permitted by state / local regulations?
   _______ °F or _______ °C

25. Are **hot** water temperatures ever measured by the facility at the points of use?
   ❑ YES ➔ If yes, obtain copies of the temperature logs
      If YES, what is the **lowest** documented **hot** water temperature measured at any point within the facility?
      _______ °F or _______ °C documented on (Month/Date/Year) ______/______/______
   ❑ NO

26. Are **cold** water temperatures ever measured by the facility at the points of use?
   ❑ YES ➔ If yes, obtain copies of the temperature logs
      If YES, what is the **lowest** documented **cold** water temperature measured at any point within the facility?
      _______ °F or _______ °C documented on (Month/Date/Year) ______/______/______
   ❑ NO

27. Are the potable water disinfectant levels (e.g., chlorine) ever measured by the facility at the points of use?
   ❑ YES ➔ If yes, obtain copies of the logs
      If YES, how often are they measured? _______________________________________________________
      If YES, list the range of disinfectant residuals ___________________________________________________
   ❑ NO

28. Does the facility have a supplemental disinfection system for long term control of _Legionella_ or other microorganisms?
   ❑ YES ❑ NO
   If YES, obtain SOPs for routine use and maintenance as well as maintenance logs and records of disinfection levels, and complete the table:

<table>
<thead>
<tr>
<th>Buildings with supplemental disinfection</th>
<th>Type of system (e.g., chlorine, chlorine dioxide, copper-silver)</th>
<th>Date installed</th>
<th>Describe any maintenance in the past year (include routine and emergency)</th>
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   Comments/Notes: ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

29. Please describe any maintenance (either routine or emergency) carried out on the potable water system in the past year. Obtain records/SOPs if available. ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
30. Measured Water System Parameters (see instructions on p. 1)

<table>
<thead>
<tr>
<th>Building name</th>
<th>Name of system (e.g., incoming water, Boiler #1, Loop #1)</th>
<th>Part of system (Central heater/boiler=C, Proximal occupant room=P, Distal occupant room=D)</th>
<th>Sampling site (e.g., heater #1, hot water tap in room #436)</th>
<th>Free chlorine (ppm)</th>
<th>pH</th>
<th>Maximum measured temperature (°F)</th>
<th>Time to reach max temp (min)</th>
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APPENDIX A.  HEALTHCARE FACILITIES

Note: Complete for all healthcare facilities, including but not limited to hospitals, long term care/rehab/assisted living/skilled nursing facilities, or clinics.

1. Type of healthcare facility (check all that apply):
   □ Acute care hospital
       If YES, does the facility have a solid organ or bone marrow transplant program?
       □ YES □ NO
   □ Long term care facility (i.e., nursing home, long term acute care)
   □ Rehabilitation facility or other skilled nursing care
   □ Assisted living facility
   □ Outpatient surgical center
   □ Other outpatient clinic (describe): ___________________________________________
   □ Other healthcare facility (describe): __________________________________________

2. Number of beds: __________

3. Are ice machines used to provide ice for patient consumption or processing medical equipment?
   □ YES □ NO
   If YES, list manufacturer and model or catalog number: _______________________________

4. Has this facility experienced previous Legionnaires' disease cases that were “possibly” or “definitely” facility-acquired?
   □ YES □ NO
   If YES, describe (e.g., number of cases, dates): _______________________________________
   _____________________________________________________________________________
   _____________________________________________________________________________
   _____________________________________________________________________________
## APPENDIX B. COOLING TOWERS AND EVAPORATIVE CONDENSERS

Note: It is important to gain an understanding of where the cooling towers are located, how they work, and how they are maintained. Cooling towers are frequently maintained by an outside contractor, and you may need to contact them directly if facility management does not have an in-depth knowledge of these systems. Request copies of the maintenance logs.

1. List all cooling towers and evaporative condensers on the facility premises:

<table>
<thead>
<tr>
<th>Name of device (e.g., CT1)</th>
<th>Date Installed</th>
<th>Manufacturer</th>
<th>Location of device</th>
<th>Distance to nearest air intake*/location of the air intake/ passive or forced</th>
<th>Drift eliminators used? (Y/N)</th>
<th>Party responsible for maintenance</th>
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*Intakes to air handling units (AHUs)

2. List details of how each cooling tower is chemically disinfected:

<table>
<thead>
<tr>
<th>Name of device from Table 1 (e.g., CT1)</th>
<th>List type/name of bactericide(s) used</th>
<th>Range in which the bactericide(s) is regularly maintained (e.g., 5–10 ppm)</th>
<th>Schedule and method of adding bactericide (e.g., daily, weekly, as needed, automatic, by hand)</th>
<th>Are cooling towers turned off at any time? (e.g., seasonally) (Y/N) If yes, include schedule</th>
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</tbody>
</table>
3. List recent (last 6 months) special (non-routine) treatments, maintenance, or repairs to cooling devices:

<table>
<thead>
<tr>
<th>Name of device from Table 1 (e.g., CT1)</th>
<th>Action taken</th>
<th>Date</th>
<th>Comments</th>
</tr>
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</table>

4. Does the cooling tower water come from a branch of the potable water system inside the facility?
   - ☐ YES   ☐ NO
   If YES, are backflow prevention devices in place to ensure cooling tower water is not introduced into the potable water system?
   - ☐ YES   ☐ NO
   If NO, what is the source of water for the cooling towers and evaporative condensers?

   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

5. Can any windows in any occupant rooms or common areas be opened?
   - ☐ YES   ☐ NO
   If YES, describe which rooms or which buildings have windows that can be opened:

   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
Note: Do NOT complete Appendix C for Jacuzzis or whirlpool baths that are filled from the tap and drained after each use. In many jurisdictions, whirlpool spas are publicly permitted and inspected by the local health authority. An environmental health specialist with expertise in pool and spa inspection should participate in assessment of spas and will be aware of local regulations and enforcement powers, as well as have access to a pool sampling kit. Request copies of the last inspection report as well as routine maintenance logs.

1. Who performs the spa maintenance (e.g., on-site facilities management, name of outside contractor)?

2. Describe each whirlpool spa and how it is disinfected:

<table>
<thead>
<tr>
<th>Spa Questions</th>
<th>Spa Descriptor/Location (e.g., main pool, private room #)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor or outdoor?</td>
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<tr>
<td>Max. bather load</td>
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<td>Filter type</td>
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<td>S = sand</td>
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<td>DE = diatomaceous earth,</td>
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</tr>
<tr>
<td>Date of last filter backwash</td>
<td></td>
</tr>
<tr>
<td>Compensation tank present?</td>
<td></td>
</tr>
<tr>
<td>Type of disinfectant used</td>
<td></td>
</tr>
<tr>
<td>(include chemical name, formulation, and amount used)</td>
<td></td>
</tr>
<tr>
<td>Current measured disinfectant level</td>
<td></td>
</tr>
<tr>
<td>(e.g., free chlorine, bromine) (ppm)</td>
<td></td>
</tr>
<tr>
<td>Current measured pH</td>
<td></td>
</tr>
<tr>
<td>Method used for adding disinfectant</td>
<td></td>
</tr>
<tr>
<td>(e.g., automatic feeder, by hand)</td>
<td></td>
</tr>
<tr>
<td>Method used for monitoring and maintaining disinfectant and pH levels</td>
<td></td>
</tr>
<tr>
<td>(e.g., automatic controllers)</td>
<td></td>
</tr>
<tr>
<td>Date last drained and scrubbed</td>
<td></td>
</tr>
<tr>
<td>Was there a recent disinfectant “shock” treatment?</td>
<td></td>
</tr>
<tr>
<td>Operating as designed and in good repair?</td>
<td></td>
</tr>
<tr>
<td>If no, describe issues.</td>
<td></td>
</tr>
</tbody>
</table>
### APPENDIX D. OTHER WATER FEATURES

Note: Complete for decorative fountains, water walls, recreational misters, etc. This can also be modified for industrial use water. If SOPs and/or maintenance logs exist, request copies.

<table>
<thead>
<tr>
<th>Water Feature Questions</th>
<th>Water Feature Descriptor/Location (e.g., lobby fountain, cabana misters)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indoor or outdoor?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Source of water</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Operates continuously (C) or intermittently (I)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Presence of a heat source?</strong> (e.g., incandescent lighting)</td>
<td></td>
</tr>
<tr>
<td><strong>Type of disinfectant used</strong> (include chemical name, formulation, and amount used)</td>
<td></td>
</tr>
<tr>
<td><strong>Current measured disinfectant level</strong> (e.g., free chlorine, bromine) (ppm)</td>
<td></td>
</tr>
<tr>
<td><strong>Current measured pH</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Is there a maintenance protocol?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Date last cleaned</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Operating as designed and in good repair?</strong> If no, describe issues.</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX E. RECENT OR ONGOING MAJOR CONSTRUCTION

1. Describe in general the extent of the construction:
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

2. Was temporary water service provided to the new construction area (i.e., separate meter)?
   ❑ YES    ❑ NO
   If YES, describe: __________________________________________
   __________________________________________________________
   __________________________________________________________

3. Has jack-hammering or pile-driving been used during the construction process?
   ❑ YES    ❑ NO
   If YES, list dates and locations: ________________________________
   __________________________________________________________
   __________________________________________________________

4. Have there been disruptions or changes to the existing potable water system during the construction?
   ❑ YES    ❑ NO
   If YES, describe: __________________________________________
   __________________________________________________________
   __________________________________________________________

5. Has the potable water changed in terms of taste or color during the construction process?
   ❑ YES    ❑ NO
   If YES, describe the changes including when they started and ended: ________________________________
   __________________________________________________________
   __________________________________________________________

6. Is there 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 (attach a copy if possible): ________________________________
   __________________________________________________________
   __________________________________________________________

7. Was the potable water system flushed before occupying the new building space?
   ❑ YES    ❑ NO
   If YES, what period of time passed between flushing and when the building was occupied? ________________________________
   __________________________________________________________
   __________________________________________________________

8. Complete table on next page.
8. Complete the table below:

<table>
<thead>
<tr>
<th>New Building/Wing Name or Remodeled Area</th>
<th>Date construction began</th>
<th>Estimated date of completion</th>
<th>Date water service began or restarted*</th>
<th>Relationship to existing potable water system</th>
<th>Stories and Square Feet Involved</th>
<th>Uses</th>
<th>Date occupants began occupying new or remodeled building</th>
<th>Floors currently occupied</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Independent=I Extension of existing system=E</td>
<td>(# and Ft²)</td>
<td>(e.g., rooms, dining, recreation, utilities)</td>
<td>For healthcare: Inpatient = I Outpatient = O Both = B Intensive Care = ICU Transplant = Tx</td>
<td></td>
</tr>
</tbody>
</table>

*If remodeling of existing structure, include water shut-down date and re-start date.