Drinking Water Safety

Brief

<table>
<thead>
<tr>
<th>Title:</th>
<th>Drinking Water Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publication date:</td>
<td>4/2/2013</td>
</tr>
<tr>
<td>Effective date:</td>
<td>7/31/2012</td>
</tr>
</tbody>
</table>

BRIEF

Policy Summary

The Drinking Water Safety program outlines the management of the drinking-water system at Berkeley Lab. This includes:

- Modifications
- Repairs
- New additions
- Maintenance

This policy describes how the drinking-water quality at Berkeley Lab meets all federal, state, and Department of Energy (DOE) guidelines as well as recognized good practice.

Who Should Read This Policy

Berkeley Lab employees, visitors, affiliates, and subcontractors who either use drinking-water systems or perform work pertaining to drinking-water systems at Berkeley Lab

To Read the Full Policy, Go To:

The POLICY tab on this wiki page

To Read the ES&H Program Details, Go To:

http://www.lbl.gov/ehs/pub3000/CH42.html

Contact Information

For concerns about drinking-water quality:

Facilities Division Work Request Center, ext. 6274

Or visit the Facilities Division Work Request Center Web page

For guidance on disinfection of drinking-water systems, or for requests for sampling of drinking water:

EHSS Subject Matter Expert for Water Quality: Drinking Water (Potable Water Systems)

Policy

<table>
<thead>
<tr>
<th>Title:</th>
<th>Drinking Water Safety</th>
</tr>
</thead>
</table>
POLICY

A. Purpose

The Drinking Water Safety program outlines the management of the drinking-water system at Berkeley Lab. This includes:

- Modifications
- Repairs
- New additions
- Maintenance

This policy describes how the drinking-water quality at Berkeley Lab meets all federal, state, and Department of Energy (DOE) guidelines as well as recognized good practice.

B. Persons Affected

Berkeley Lab employees, visitors, affiliates, and subcontractors who either use drinking-water systems or perform work pertaining to drinking-water systems at Berkeley Lab

C. Exceptions

Not applicable

D. Policy Statement

1. Most drinking-water hazards fall within a few common areas:
   a. Some drinking-fountain units and copper-pipe dead legs (dead-end pipes) that are not flushed or used frequently can produce copper contamination in excess of allowable levels.
   b. Rust from iron piping is observed in some older facilities. Occasionally, other various off Colors and tastes are reported.
   c. When designing/installing potable water systems that supply chemical-containing systems, adequate backflow devices that prevent back-siphoning of toxic materials into the potable water system must be installed (Work Process A).

2. All drinking-water fountains must have baseline testing for lead and copper concentrations in the water (Work Process B).

3. Water systems must be isolated from the main water system and not put into service (excluding small jobs, see below) as potable water until the water is confirmed free of coliform bacteria (Work Process C).
   a. New piping installations in drinking-water systems must be tested for coliform bacteria before they are released for use with potable water unless the work is of a small scale, and provided the parts are individually disinfected.
   b. Routine monitoring. The drinking-water system for each building must be tested for coliform bacteria annually (Work Process D).

4. It is recommended that these dispensers be cleaned at least every six months by Maintenance & Operations (M&O) or the user group (Work Process E).

E. Roles and Responsibilities

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Facilities Division – Architecture & Engineering (A&E) | • Ensures that all written contracts involving repair, modifications, and additions to the drinking-water system comply with the Berkeley Lab Drinking Water Safety program and include disinfection and testing requirements  
• Issues written Stop Work notice to contractors in noncompliance with the Berkeley Lab Drinking Water Safety program  
• Informs and coordinates with M&O and the Industrial Hygiene Group on all upcoming work involving water systems |
| Facilities Division – Inspection Group | • Reviews disinfection procedure with M&O and provides oversight to ensure contractors perform work in compliance with the Berkeley Lab Drinking Water Safety program  
• Issues Stop Work notice to contractors in non-compliance with the Berkeley Lab Drinking Water Safety program  
• Approves new piping tie-ins to the main water system. Note: This is a jointly shared responsibility with M&O.  
• Notifies M&O when the contractor is ready to start the disinfection procedure |
| Facilities Division – Maintenance and Operations (M&O) | • Completes annual inspection and function check of all backflow preventers by or under the guidance of a certified employee  
• Provides the Industrial Hygiene Group with samples for coliform and total heterotrophic bacteria samples  
• Audits work performed by contractors to ensure compliance with the Berkeley Lab Drinking Water Safety program. Informs the Inspection Groups of noncompliance.  
• Disinfects and/or cleans water coolers, drinking fountains, backflow preventers, etc., as needed  
• Supplies potable water to all Berkeley Lab employees. Takes corrective action to resolve issues. Corrective action may include cleaning and/or replacing drinking fountains, pipes etc.  
• Approves all tie-ins to the main water system. Note: This is a jointly shared responsibility with the Inspection Group.  
• Ensures that there are backflow preventers at all locations where it may be necessary to run hoses from potable water systems into tanks or other receptacles containing hazardous liquids |
| Environment, Health, Safety, and Security (EHSS) Division – Industrial Hygiene Group | • Provides site-specific guidance and recommendations  
• Approves waivers or exceptions to guidelines in the Berkeley Lab Drinking Water Safety program, provided such exceptions comply with all applicable regulations and will not compromise water quality  
• Sends water samples to accredited laboratories for analysis  
• Provides M&O with drinking-water sample results and recommendations |
| All Berkeley Lab supervisors and building managers | Ensure that there are backflow preventers at all locations where it may be necessary to run hoses from potable water systems into tanks or other receptacles containing hazardous liquids |

### F. Definitions/Acronyms

See ES&H Manual *Drinking Water Safety program* for technical terms related to the details of this policy and its implementation.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backflow Preventer</td>
<td>A device installed in a water line to prevent water traveling in the reverse direction</td>
</tr>
<tr>
<td>Coliform Bacteria</td>
<td>A type of bacteria whose source is human and animal fecal matter. Although not necessarily disease-causing themselves, coliforms can be indicators of organisms that can cause dysentery, hepatitis, typhoid fever, cholera, etc.</td>
</tr>
</tbody>
</table>
Contractor | A contractor employed by Berkeley Lab. Both contractor and work crew will be non-Berkeley Lab employees.
---|---
Disinfection | Sanitizing a system or its components to kill any coliform bacteria that may be present
Drinking-Water Fountain | A fountain piped to a building’s domestic water supply that may be capable of cooling and/or heating the water
Potable Water | Water approved for drinking that meets all federal and state guidelines and standards

G. Recordkeeping Requirements

None

H. Implementing Documents

<table>
<thead>
<tr>
<th>Document number</th>
<th>Title</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>07.07.010.001</td>
<td>Drinking Water Safety</td>
<td>Program</td>
</tr>
<tr>
<td>07.07.010.002</td>
<td>Work Process A, General Requirements</td>
<td>Process</td>
</tr>
<tr>
<td>07.07.010.003</td>
<td>Work Process B, Drinking Fountain Testing</td>
<td>Process</td>
</tr>
<tr>
<td>07.07.010.004</td>
<td>Work Process C, Disinfection of Water Testing</td>
<td>Process</td>
</tr>
<tr>
<td>07.07.010.005</td>
<td>Work Process D, Bacteria Testing</td>
<td>Process</td>
</tr>
<tr>
<td>07.07.010.006</td>
<td>Work Process E, Water Dispensers (Bottled Water)</td>
<td>Process</td>
</tr>
</tbody>
</table>

I. Contact Information

For concerns about drinking-water quality:

Facilities Division Work Request Center, ext. 6274

Or visit the Facilities Division Work Request Center Web page

For guidance on disinfection of drinking-water systems, or for requests for sampling of drinking water:

EHSS Subject Matter Expert for Water Quality: Drinking Water (Potable Water Systems)

J. Revision History

<table>
<thead>
<tr>
<th>Date</th>
<th>Revision</th>
<th>By whom</th>
<th>Revision Description</th>
<th>Section(s) affected</th>
<th>Change Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2/2012</td>
<td>0</td>
<td>H. Madison</td>
<td>Reformat for wiki (brief)</td>
<td>All</td>
<td>Minor</td>
</tr>
<tr>
<td>4/2/2013</td>
<td>1</td>
<td>H. Madison</td>
<td>Reformat for wiki (policy)</td>
<td>All</td>
<td>Minor</td>
</tr>
</tbody>
</table>

Document Information

**DOCUMENT INFORMATION**

| Title: | Drinking Water Safety |
Document number | 07.07.010.000
Revision number | 1
Publication date: | 4/2/2013
Effective date: | 7/31/2012
Next review date: | 4/2/2016
Policy Area: | Industrial Hygiene and Safety
RPM Section (home) | ESH
RPM Section (cross-reference) | none
Functional Division | EHSS
Prior reference information (optional) | PUB-3000 Section 4.3 moved to Chapter 42

Source Requirements Documents

Implementing Documents

<table>
<thead>
<tr>
<th>Document number</th>
<th>Title</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>07.07.010.001</td>
<td>Drinking Water Safety</td>
<td>Program</td>
</tr>
<tr>
<td>07.07.010.002</td>
<td>Work Process A, General Requirements</td>
<td>Process</td>
</tr>
<tr>
<td>07.07.010.003</td>
<td>Work Process B, Drinking Fountain Testing</td>
<td>Process</td>
</tr>
<tr>
<td>07.07.010.004</td>
<td>Work Process C, Disinfection of Water Testing</td>
<td>Process</td>
</tr>
<tr>
<td>07.07.010.005</td>
<td>Work Process D, Bacteria Testing</td>
<td>Process</td>
</tr>
<tr>
<td>07.07.010.006</td>
<td>Work Process E, Water Dispensers (Bottled Water)</td>
<td>Process</td>
</tr>
</tbody>
</table>

Other References
- 40 CFR 141 and 142, EPA National Primary Drinking Water Regulations
- 40 CFR 143, EPA National Secondary Drinking Water Regulations
- California Health and Safety Code, Part 12, Chapter 4, California Safe Drinking Water Act.
- AWWA C651-99, American Water Works Association, Disinfecting Water Mains (guidance)
- AWWA C652-92, American Water Works Association, Disinfection of Water-Storage Facilities (guidance)