Waterworks Standards
ANSI/NSF Std 61 Compliance for Concrete Projects

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Std 61 Working Group

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City of Napa
Brief Background

• California Department of Public Health
• Drinking Water Program
  – North & South Drinking Water Field Operations
  – 23 Districts around the State.
• Regulates Public Drinking Water Systems
• Enforces the State & Federal Safe Drinking Water Act

• Drinking Water Program:

• Drinking Water related Laws and Regulations:
  http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Lawbook.aspx
Revised Waterworks Standards

• CCR Title 22
  Changes Effective March 9, 2008

• Updated and revised requirements for Waterworks projects

• Specific requirements for new wells, storage tanks, reservoirs, source capacity, permitting, water mains and additives
Revised Waterworks Standards

CCR Title 22

• Section 64590 - direct additives
  i.e. chlorine and coagulants.

• Section 64591 - indirect additives - chemicals
  leaching from materials in contact with drinking
  water
  i.e. pipes, storage tanks, coatings and any
  materials in contact.
Section 64591- Indirect Additives

(a) Except as provided in Section 64593 or where a more stringent statutory requirement exists, after March 9, 2008, a water system shall not use any chemical, material, lubricant, or product in the production, treatment or distribution of drinking water that will result in its contact with the drinking water including process media (carbon, sand), protective materials (coatings, linings, liners), joining and sealing materials (solvent cements, welding materials, gaskets, lubricating oils), pipes and related products (pipes, tanks, fittings), and mechanical devices used in treatment/transmission/distribution systems (valves, chlorinators, separation membranes) that has not been tested and certified as meeting the specifications of NSF International/American National Standard Institute (NSF/ANSI) 61-2005 / Addendum 1.0-2005 (Drinking Water System Components—Health Effects), which is hereby incorporated by reference. This requirement shall be met under testing conducted by a product certification organization accredited for this purpose by the American National Standards Institute.
ANSI and NSF

- ANSI approves standards and accredits certification organizations. ([www.ansi.org](http://www.ansi.org))

- NSF International is a standards development organization and also operates ANSI accredited certification programs.

- There are other ANSI accredited certification programs.
  - Water Quality Association
  - Underwriters Laboratories
  - Canadian Standards Association
  - IAPMO (R&T)
Brief Background

CA NV AWWA Water Treatment Committee
Std 61 Working Group

- Challenges with NSF/STD 61 compliance
- Projects delayed or on hold

Engaged CDPH Richmond Office
Brief Background

Initial Outcomes

• Drinking water defined
  ➢ Headworks of the Treatment Plant

• Technical Review
  ➢ District Engineers
  ➢ Elevate to central contact - Eugene Leung
NO TESTING REQUIRED:

Products, components or materials whose diluted surface area is less than 0.001 or 0.0001 for static or flowing conditions.
Section 64593 - Use of Uncertified Chemicals, Materials or Products

3 Options

(1) in the process of being tested and certified and there are no certified alternatives;

✓ explain the need for the chemical, material or product;
✓ the date that the chemical, material or product was submitted for testing;
✓ the name of the accredited product certification organization conducting the testing; and
✓ statement that certified alternatives are not available.

(2) previously approved by the Department for use or installation on or before March 9, 2008;
Section 64593. Use of Uncertified Chemicals, Materials or Products

3 Options

(3) a material or product constructed of components meeting the requirements of sections 64590 and 64591;

Concrete:  ad-mix, aggregate, cement
Section 64551.100. Waivers and Alternatives

To propose an alternative to CDPH:

(1) Demonstrate the alternative provides the same level of protection to public health; and

(2) Obtain written approval prior to implementation.
Typical Process

• Prior to construction and bidding

• Confirm if an amended permit is required.
  i.e. Reservoir $\geq 100$k gallons and any Water Treatment Plants.

• Submit an amended permit application to District Office with detailed Plans and Specifications.
Typical Process

- DWP District Office staff confirms compliance with Waterworks Standards and other applicable drinking water regulations.

- An amended permit will be issued for the proposed project.

- Propose an alternative to Waterworks Standards, if appropriate.
Current Project Options for Concrete

Option 1 - Certify concrete core samples per NSF/ANSI 61.

Option 2 - Use only certified components
i.e. use only NSF/ANSI 61 certified cement, admixtures and aggregates. (no Fly Ash)

Option 3 - Certify concrete mix based on a “site mix evaluation method” and test for specific constituents.

Option 4 - Propose an alternative to CDPH District Engineer per Section 64551.100.
✓ Provide at least the same level of protection to public health.
✓ Receive written approval from the Department prior to implementation of the alternative.
## Recent Projects Meeting Compliance

<table>
<thead>
<tr>
<th>Structure</th>
<th>Job Location</th>
<th>Testing Cost</th>
<th>Testing Duration</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0 MG Concrete Tank</td>
<td>San Bernardino CA</td>
<td>$3,000.00</td>
<td>6 Weeks</td>
<td></td>
</tr>
<tr>
<td>1.0 MG Concrete Tank</td>
<td>Lassen CA</td>
<td>$15,000.00</td>
<td>9 Weeks</td>
<td></td>
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<tr>
<td>0.9 MG Concrete Tank</td>
<td>Sonoma CA</td>
<td>$3,000.00</td>
<td>7 Weeks</td>
<td></td>
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<tr>
<td>1.1 MG Concrete Tank</td>
<td>Stanislaus CA</td>
<td>$3,000.00</td>
<td>14 Weeks</td>
<td>Different Lab Used Lead Longer Duration</td>
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<tr>
<td>Water Treatment Plant Expansion</td>
<td>Sacramento CA</td>
<td>$ -</td>
<td>-</td>
<td>Carollo Engineers Handled - Chris Cleveland</td>
</tr>
<tr>
<td>3.2 MG Concrete Tank</td>
<td>Yolo CA</td>
<td>$ -</td>
<td>0 Weeks</td>
<td>Same Concrete As Sacramento WTP Expansion Project</td>
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<tr>
<td>2.0 MG &amp; 5.8 MG Concrete Tank</td>
<td>Santa Clara CA</td>
<td>$2,500.00</td>
<td>10 Weeks</td>
<td></td>
</tr>
</tbody>
</table>

- Aggregate Test Only
- Soak Test
- Had Compliant Concrete from another project
Status of NSF Subcommittee

• NSF Std 61 Table 3.1 – Material Specific Analyses

• Dec 2012 Proposed tests for cement beyond regulated metals
  - GC/MS,
  - dioxins and furans,
  - radionuclides,
  - glycols and ethanolamines
Items Raised Oct 2013 NSF Stds Mtg

• Where is the data?
• Need recognition of exposure for barrier materials (pipes, fittings, device materials)
• 10% MCL and more factors of safety
  • Option: Assess diluted surface area exemption
  • Option: Large volume exemption
• Subcommittee Meeting TBD
  • NSF Data compiled
Status of NSF Std 61

• Next Annual NSF Standard Meeting

• Dec 4, 2013 5:00 AM (8:00 AM in Michigan)
Status of NSF Std 61

**GOAL**

- Compile test data sufficient to streamline approval process
ANSI – approves stds and accredits programs:
http://www.ansi.org/

Accredited Certification Programs

1. Canadian Standards Association

2. IAPMO
   http://www.iapmortl.org/Pages/ANSINSF.aspx

3. NSF International (also develops stds)

4. Underwriters Laboratory

5. Water Quality Association
   http://www.wqa.org  → “WQA Gold Seal”
   http://www.wqa.org/sitelogic.cfm?ID=1632
Useful Links

ANSI Std 61 Cement

• Catalina Pacific, Division of CalPortland Co
  CKerzic@calportland.com  Charles Kerzic
  Distributes to Stockton
Questions

• Joy Eldredge – Std 61 Working Group
  Jeldredge@cityofnapa.org

• Contact local District Engineer for questions related to specific projects.
  http://www.cdph.ca.gov/programs/Documents/DDWEM/OriginalDistrictMapCDPH.pdf

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