Updating Bulletin 74: California Well Standards

ACWA Groundwater Committee
August 7, 2019
Overview of Presentation

• Background
• Need for Updated Standards
• Plan to Update
• Ways to Participate
BACKGROUND
California Well Standards Documents
Bulletin 74 Overview

- Standards are for groundwater protection
- Standards cover four types of wells:
  - Water wells
  - Monitoring wells
  - Cathodic protection wells
  - Geothermal heat exchange wells
- Minimum statewide standards won’t address every scenario but are intended to be adaptive to a variety of conditions
Process of Implementation

Water Code §13800 et seq:
- DWR develops Standards
- DWR recommends to SWRCB
- SWRCB adopts Model Well Ordinance
- Cities, counties or water agencies adopt Local Well Ordinances
- Local Enforcing Agencies (LEAs) administer and enforce

http://leginfo.legislature.ca.gov/
NEED FOR UPDATED STANDARDS
California Well Standards Documents
Some Observations about the Current Standards

• Assume conditions won’t change
• Assume sealing materials perform independently of soil moisture conditions
• Contain ambiguous language
• Based on past best practices, experience
Current standards

- Upper Aquifer
- Lower Aquifer
- Aquitard

Seals:
- 20'-50' surface seal
- 5' transition seal

Operating life of well: 25–50 years?

Destroyed well: “forever”

No known pollution
Vulnerabilities

Operating life of well: 25 – 50 years?

No known pollution

Continuous gravel pack

Nebraska Grout Study

20’-50’ surface seal

5’ transition seal

Upper Aquifer

Aquitard

Clean fill

Destroyed well: “forever”

No known pollution

Lower Aquifer

No known pollution

No known pollution

California Department of Water Resources
WWTAC Recommendations

- 130 Comments
- Collaborative effort
  - CCDEH
  - CGA
- Initial: 2010-2013
- Revisited and submitted to DWR January 3, 2019

**Wells**

- **Sealing the Upper Space**
  - **Section 9**
  - **Ch II, Part II**
  - **Sealing Conditions**
    - Wells that penetrate zones containing poor-quality water, pollutants, or contaminants; if geologic units or fill known or suspected to contain poor-quality water; or, pollutants, or contaminants are penetrated during drilling and the possibility exists that poor-quality water, pollutants or contaminants could move through the borehole during drilling and well construction operations and significantly degrade groundwater quality in other units before sealing material can be installed then precautions shall be taken to seal off or isolate zones containing poor-quality water, pollutants, or contaminants during drilling and well construction operations. Special precautions could include the use of temporary or permanent conductor casing, use of "borehole liners," "Strata sealing-off procedures" described in Section 15 and specialized drilling equipment. The conductor casing is described in item 1 above.

- **Sealing Material**
  - Sealing material shall consist of neat cement, sand cement, cementite or bentonite. Cuttings from drilling or drilling mud shall not be used for any part of the sealing material.

- **Pozzolan** (also commonly known as "fly ash") combined with Portland cement contributes "cementitious" properties. Some principal benefits of the use of Type I cement fly ash as a component of cement sealing material include enhanced workability, less water demand, reduced permeability and chloride penetration, greater resistance to sulfate attack, and reduced shrinkage during curing. When a deep annular seal is to be employed, pozolann may be mixed up to a 50/50 ratio with cement. This mixture having lighter unit weight reduces the potential for borehole formation breakdown and the resulting lost circulation of sealing material.

Further research may be needed to determine if generally available fly ash can meet DWR standards ASTM C494 and ASTM C518 or the latest revisions thereof. Consideration should take into account possible metal contamination from the fly ash.
PROPOSED APPROACH & TIMELINE
Vision

• Updated Well Standards that are enforceable, protective, and based on current state of knowledge and best practices
## Timeline

<table>
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<tr>
<th>Task</th>
<th>Timeframe</th>
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<tr>
<td>Draft content, form expert panel, design expert panel process</td>
<td>Summer 2019</td>
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<tr>
<td>Develop content with guidance from Expert Panel</td>
<td>Fall 2019 – Fall 2020</td>
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<tr>
<td>Prepare Public Review Draft</td>
<td>Fall 2020 – Spring 2021</td>
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<tr>
<td>Release Public Review Draft</td>
<td>Spring 2021</td>
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<tr>
<td>Incorporate Comments, Finalize Bulletin 74</td>
<td>Summer 2021</td>
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<tr>
<td>Submit to Water Boards for MWO</td>
<td>Fall 2021</td>
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<tr>
<td>Training and Local Assistance</td>
<td>Fall 2021 – Spring 2022</td>
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Ways to Participate

• Visit our webpage: https://water.ca.gov/Programs/Groundwater-Management/Wells/Well-Standards
  – Comment Portal Bulletin 74: California Well Standards Comment Portal
  – Join email service for announcements/updates

• Contact us:
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Thank you

-The Bulletin 74 Project Team
The Bulletin 74 Project Team

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https://water.ca.gov/Programs/Groundwater-Management/Wells/Well-Standards