



June 26, 2017

Department of Conservation
801 K St.
Sacramento, CA

Re: UIC discussion draft comments

To Whom it May Concern,

The undersigned groups submit these comments on the discussion draft Underground Injection Control regulations released on April, 26, 2017.

The discussion draft is a positive step forward, but falls well short of achieving the goals of the Safe Drinking Water Act (SDWA) to protect drinking water sources. The UIC Class II program, federally and at the state level, has primarily served as the permitting mechanism to facilitate oil and gas production and wastewater disposal. California must take this opportunity and restore the goals of this program to uphold SDWA and provide adequate protections for drinking water.

General Comments

- **Require annual reviews of injection projects**, ensuring compliance with these regulations, and all other applicable laws and regulations, for existing and proposed projects. Ensure annual reviews are posted to the Division’s website.

- **Require groundwater monitoring for all injection projects that present risk of contaminating nearby aquifers that have potential beneficial uses.** Section 1724.7(a)(3)(C) needs more specificity by requiring groundwater monitoring and quality modeling to ensure zonal isolation, and designating the State Water Resources Control Board (SWRCB) as the responsible agency for approving groundwater monitoring/modeling plans or concurring with exemption requests, rather than the current language that requires documentation of “consultation” with the SWRCB or a Regional Water Board.

- **Update well integrity and construction standards.** Ensuring well integrity throughout its active period and after abandonment has been a high priority task for the Division for many years (per the “Road Map”, DOC/DOGGR, 2012, and in the Aug. 17, 2015 Discussion Paper. Yet these regulations do not include well construction standard improvements or integrity monitoring requirements.

- **Strengthen injection fluid analysis section 1724.7.2 by:**
 - **Improving the chemical testing requirements.** Test for a broader set of injectates that are more consistent with the chemical additives introduced into wells, including maintenance and rework. Require the identification of chemical constituents and that test results are made available on the Division's website within 30 days. Require monthly chemical analysis tests. must be increased to at least monthly or whenever new sources are proposed – whichever is more frequent. Allowing up to two years between tests is totally inadequate. Sec 1724.10 (d).
 - **Requiring complete and public chemical disclosure of additives.** Require that any additive - including, but not limited to routine well cleanouts, additives used in Enhanced Oil Recovery (EOR), and other downhole activities be reported and made publicly available. Require reporting requirements and disclosure of added chemicals be consistent with SB 4.
 - **Requiring disclosure of the sources of injected fluids.** Specify that operators report the source of any fluids injected downhole, such as the specific production well where wastewater originated, and any treated or freshwater used for EOR.

- **Define different UIC activities and include specific requirements that apply to each activity.** Clearly define each activity and specific requirements. These regulations do not differentiate between disposal, various EOR subcategories, gas storage, or other activities that may fall in the UIC Class II program..

- **Require specific regulations for each type of steam injection.**

- **Require emergency response plans for all injection projects and wells.** Require operators to submit an emergency response and contingency plan for consideration by the Division, and the relevant agencies, prior to receiving a Project Approval Letter. Require that the plans account for potential leaks, breaches, blowouts and any other unauthorized releases, as well as authorized releases.

We also submit additional recommendations, some of which may not necessarily be addressed in the discussion draft, but might be incorporated in supporting documents, such as a statement of need for this revision, Memoranda of Agreements (MOA's) with other agencies, and submittals demonstrating compliance and fulfillments of EPA concerns and requests.

- **Specify periodic (every five years) review of the UIC program, with regulatory updates if deficiencies are identified.**
- **Complete an updated MOA** with the State Water Resources Control Board (SWRCB) and other relevant agencies, including the California Public Utilities Commission (CPUC), the Office of Environment Health Hazard Assessment, and Office of Emergency Services.
- **Define and clarify "Permit"/"Letter" application process requirements.** Discussion Draft regulations mention an "Approval Letter" but without a specified process We recommend:
 - Standardized forms to be submitted, posted, and circulated electronically.
 - Opportunity for public to comment on applications prior to issuance of permits or approval letters.
 - Direct notice to neighbors, nearby water providers, and other interested stakeholders prior to the permit/letter approval.
 - Clarifications and definitions for consideration of an injection project or an individual well, including requirements that injection projects with one or more wells and individual injection wells, outside or within an existing project, receive Project Approval Letters or permits.
 - Defining what qualifies as an injection project, including how many wells, what geographic or geologic areas/zones/formations, or types of activities can be grouped into a single project.
 - Clarifying that additional wells in an existing project, cannot be granted an approval letter without providing updated project-wide analyses and modeling.
 - Specifying in the permit/letter application process which agencies in addition to the Division are required to review the application. For example, requiring the applicant to certify that local and regional land use permits have been issued. Requiring that the SWRCB review and approve permits. Requiring that the CPUC review permits for utilities-related projects, such as gas storage).

Additionally, the USEPA Region 9 critique of the UIC program (2011, Horsley-Witten report) contained many findings and recommendations relevant to these regulations. We recommend

that the Division provide an updated status report as to how deficiencies and recommendations from that critique have been met or incorporated through the promulgation of these new regulations. It is important to clearly state to the public, the Legislature, and EPA that the findings and recommendations have been met by these regulations or will be met with future efforts. For example, an MOA regarding such removal of deficiencies would be appropriate.

1720.1 Definitions

(a) "Area of review"

(2) "A fixed one quarter mile radius." More specificity is needed about where in the injection zone the one quarter mile radius is centered. It should be based on either a quarter mile radius around the injection well within the zone of injection, or an engineering calculation of the Zone of Influence, whichever is larger.

(c) "Freshwater." TDS should be determined by chemical analysis, not by Dual Induction Log determination, which is inexact and an indirect method.

(e) "Mechanical integrity" cannot be ensured for cyclic steam projects if the wells have no packers isolating the casing from the injection zone. Also, as steam injection is through the tubing-casing annulus, there is no protection to higher freshwater zones if the casing fails.

(g) "Surface expression containment measure" the specifics of this definition should be included in the Project Approval Letter.

(i) "Underground injection project." Entrained solids should not be permitted for injection because the injection interval can be fractured. Moreover, this is not permitted by USEPA and would violate SDWA.

1724.6. "Approval of Underground Injection Projects." Require at a minimum a 30-day comment period and a public hearing.

1724.7.3. "Step Rate Tests." Downhole pressure recording should be mandatory.

1724.8. "Data Required for Cyclic Steam Injection Project Approval." Was this section deleted because separate regulations are being developed for cyclic steam projects? If not, this needs to be addressed in these regulations.

1724.10. "Filing, Notification, Operating, and Testing Requirements for Underground Injection Projects."

(f) The piping should meet at minimum, the original design pressure, and not the highest maximum allowable surface pressure of wells.

(g) Cyclic steam wells should be equipped with packers so that the production casing is protected from the pressurized, high-temperature steam of a mechanical integrity test (see below).

1724.10.1. "Mechanical Integrity Testing Part One – Casing Integrity"

1724.10.1 (a) (2) This should be amended to: "The casing shall be tested to the maximum allowable **'injection'** surface pressure..."

1724.10.2 "Mechanical Integrity Testing Part Two – Fluid Migration Behind Casing, Tubing or Packer." Cyclic steam wells that alternate to steam injection should be required to have a mechanical integrity test.

1724.11. "Surface Expression Prevention and Response." Prompt public notification should be required as a response.

1724.11. "Monitoring and Evaluation of Seismic Activity in the Vicinity of Injection Activity." Include measures to mitigate seismic risk, such as reporting of daily injection pressures, emergency shutdown protocols for any induced seismic activity, and analysis of pressure changes that could result from operating hundreds of injection and production wells within a project area.

Comments on USEPA Aquifer Exemption Criteria

USEPA's aquifer exemption criteria, promulgated at 40 C.F.R. § 146.4, are more than 30 years old and are not protective of potential sources of drinking water in a number of ways. Therefore, California should incorporate its own criteria in the UIC regulations. Current criteria:

- Do not account for current understanding of the importance of groundwater;
- Do not consider the latest groundwater depletion data, both nationally and in California;
- Do not account for changing water treatment and pumping technologies;
- Allow for arbitrary aquifer boundaries that are not justified by geologic analysis;
- Do not require adequate modeling or monitoring to ensure that contamination cannot migrate beyond exemption boundaries;
- Are not justified by scientifically-based water quality data;
- Do not take into account the future use of groundwater, the economic value of groundwater, climate change impacts on water supply, population increases;
- Do not consider the cumulative impacts of multiple exemptions.
- Prioritize fossil fuel production over drinking water and inappropriately allow exemptions solely on the basis that the aquifers are mineral, hydrocarbon, or geothermal energy producing, without any analysis of potential beneficial uses.

Questions that must be answered prior to considering approval of dozens of exemptions include:

1. What is the total volume of water contained in all the proposed exemption zones?
2. How much potential drinking water would be sacrificed?
3. Has the cost/feasibility analysis for treatment considered the efficiencies of scale resulting from treating multiple water sources, many of which are in fairly close proximity to each other in Kern County?

In early 2016 the U.S. Government Accountability Office (GAO) issued a report critiquing EPA's UIC program, including specific issues with Aquifer Exemptions. The report concluded

that EPA and states do not collect adequate information to assess whether groundwater is protected from class II injection.¹ EPA has failed to effectively inventory AE's, collect adequate data, and adequately oversee the program.

Thank you for the opportunity to provide comments. We look forward to your response.

Sincerely,

Jason Flanders
Aqua Aera Terris Law Group

Colin Bailey
Environmental Justice Coalition for Water

Caroline Cox
Center for Environmental Health

Caryn Mandelbaum
Environment Now

Paul Ferrazzi
Citizens Coalition for a Safe Community

Bill Allayaud
Environmental Working Group

Kimberly Rivers
Citizens for Responsible Oil and Gas

Helen L. Hutchison
League of Women Voters of California

Keith Nakatani
Clean Water Action

Jeff Kuyper
Los Padres Forest Watch

Sarah Kent
Coastal Environmental Rights Foundation

Ron Sundergill
National Parks Conservation Association

Jennifer Krill
Earthworks

Kyle Jones
Sierra Club California

Dan York
The Wildlands Conservancy

David Braun
Rootskeeper

¹ US Government Accountability Office. "Report to Congressional Requesters: Drinking Water. EPA Needs to Collect Information and Consistently Conduct Activities to Protect Underground Sources of Drinking Water. GAO-16-281" Feb 2016