

UPDATED UNDERGROUND INJECTION CONTROL REGULATIONS

UPDATED INFORMATIVE DIGEST

There have been no changes in applicable laws or to the effect of the proposed regulations from the laws and effects described in the Informative Digest included with the Notice of Proposed Rulemaking Action for this rulemaking action.

The Updated Underground Injection Control Regulations update the Division of Oil, Gas, and Geothermal Resources' Underground Injection Control (UIC) regulations with improved, more transparent standards that better align with modern industry practices, and better implement the commitments expressed in the Primacy Agreement. These regulations modernize, clarify, and augment the regulatory standards applicable to underground injection operations associated with oil and gas development in California. The requirements will advance the Division's implementation of the Primacy Agreement and the Division's state law mandate to regulate oil and gas operations so as to prevent damage to life, health, property and natural resources.

These regulations are the result of consideration of extensive public input and consultation with other state regulatory agencies. After extensive pre-rulemaking stakeholder engagement, a public comment period on the originally proposed regulations was held from July 27, 2018, through September 13, 2018, pursuant to the Notice of Proposed Action mailed to interested parties and duly published in the California Regulatory Notice Register on July 27, 2018 (Register 2018, No. 30-Z (July 27, 2018)). During that public comment period, two public hearings were conducted: one in Bakersfield on September 12, and one in Los Angeles on September 13. After reviewing the comments received, engaging in further direct consultation with interested stakeholders, and revising the text of the proposed regulations, the Division held a final public comment period, from October 29, 2018, through November 14, 2018, to receive input on the first revised text of the proposed regulations.

The revised regulations are consistent in purpose and scope with the original Informative Digest for this rulemaking action. In response to stakeholder comments received, the Division crafted the regulations to be less burdensome and more cost-

effective, and equally or more effective to carry out the regulatory purposes discussed in the Informative Digest. Below is a section-by-section summary of the revisions made to the revisions the Division made to the originally proposed regulations.

SUMMARY OF 15-DAY REVISIONS

1720.1. Definitions

Definitions were updated for clarity based on feedback received during the public comment period and consultation with sister agencies. New definitions were added to facilitate their use in the text of the regulations and in response to concerns regarding differing types of surface expressions and low use steam wells. Substantive changes to the definitions included:

- Edits to the definition of “area of review” to ensure that the area of review is at least as broad as the area of influence, were made in response to commenters’ concerns regarding the protection of groundwater
- New definitions added:
 - “Project Approval Letter” clarifies the use of this important permitting document
 - “Water source well” distinguishes between those wells used by operators to supply water for operations, and those wells used by nonoperators for domestic water supply
 - “Low-energy seep” distinguishes between high energy surface expressions and low energy seeps affecting response requirements and violation status
 - “Low-use cyclic steam well” creates a category of wells that are subject to less frequent testing requirements based on usage
- Language was added to ensure that underground gas storage wells and projects were excluded from the definition of “injection well” and “underground injection project,” respectively

1724.5. Purpose, Scope and Applicability

Section 1724.5 was added to define the scope and purpose of Article 4, which was established as the Underground Injection Control article. This section specifies the applicability of Article 4 requirements to existing and new UIC projects and wells. UIC wells are specifically excluded from compliance with Article 5, the underground gas storage regulations.

1724.6. Approval of Underground Injection Projects

Revisions to Section 1724.6 addressed Project Approval Letter (PAL) requirements and procedures. Changes to this section included:

- A requirement for the Division to consult with the Water Boards when reviewing a new project
- A requirement that the PAL include identification of the approved injection zone, and specification that the approved injection zone must avoid USDW
- A statement that a PAL may have an expiration date
- The provision indicating that PAL's would expire and be deemed null and void following a specific period of no injection was deleted

1724.7. Project Data Requirements

Revisions to the requirements for project data supporting underground injection projects included:

- Requirements for a map including traces of geologic cross sections; the cross sections must be both along strike and perpendicular to strike and shall extend from the base of the deepest production or injection zone to surface; the location of the injection zone, the base of freshwater, and the base of USDW must be indicated
- Removal of the requirement to include ownership information for water supply wells
- Clarification that the electric log must be to a depth below the deepest production or injection zone and shall include the API number of the well
- Requirement that the injection plan include a map showing injection facilities related to the project, and piping and instrumentation diagram(s) for the injection facilities
- An update or addendum to the PAL will be required when wells are added to the project along with an update of data previously provided

1724.7.1. Casing Diagrams

Revisions to the casing diagram requirements in Section 1724.7.1 included:

- A requirement to include the date the well was spudded
- Minor edits to clarify the requirements for depths of perforations, open-hole completions, type and extent of casing damage
- Minor edits to remove the requirement for sand markers and add confining layers

- Addition of a requirement for measured depth of the wellbore path measurements

1724.7.2. Liquid Analysis

This section provides the specific analytes for which the liquid must be tested. Additions to the required list were developed in cooperation with the Water Board to ensure that all the data needed for thorough evaluation of the project is available. Specific additions included total petroleum hydrocarbons “as crude oil” and total alkalinity and hydroxide.

Other changes to this section included:

- A requirement to ensure that the analysis is representative of the native condition of a reservoir, as feasible
- Removal of the requirement that laboratory data be submitted in a format as specified by the Division

1724.8. Evaluation of Wells Within the Area of Review

Section 1724.8 establishes performance standards and process for the area of review evaluation for an underground injection project. Revisions to this section address:

- Evaluation of cementing records, which may include the requirement for a cement evaluation log
- Clarification that the Division may require any well, including plugged and abandoned wells, to be examined, remediated, re-entered, plugged and abandoned, or monitored if the well has the potential to allow fluid to migrate outside the approved zone
- Replacement of the cement specifications with a cross reference to the cement specifications of existing regulation Section 1723.1

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

Revisions to the operational requirements of Section 1724.10 included:

- A requirement for notice to the Division when the packer or tubing is set, reset, moved, or changed
- For additive reporting requirements, added a mechanism for the Division to enlarge the distance to a water source well that will trigger additional disclosure on a case-by-case basis based on geological conditions or other evidence that indicate that the injection might travel further to a water intake
- A requirement that a packer within the approved zone of injection shall not be set below open perforations

- The ability to use a technical equivalent of a packer provided the Division has approved the alternative as an effective means to isolate the production tubing from the casing
- A compliance period allowing wells that were not previously subject to the requirement of tubing and packer to comply by April 1, 2021
- A requirement for remedial work or subsequent testing after a failed test under Sections 1724.10.1 or 1724.10.2 up to and including plugging and abandonment
- Periodic land-surface elevation change measurements have been added to the list of examples of additional requirements which may be imposed
- The requirement for notice when resuming injection in an injection well that has become an idle well was moved to Section 1724.13
- Requirements for continuous recording of well-specific injection pressure were moved to Section 1724.10.4

1724.10.1. Mechanical Integrity Testing Part One – Casing Integrity

Section 1724.10.1 includes requirements for pressure testing injection wells. Revisions to this section included:

- A requirement that gas disposal wells be tested at least once a year
- More detailed parameters and protocols for pressure testing, including:
 - Pressure be recorded at least once per minute
 - Test results due within 60 days of test date
 - Operator choice for initial pressure of test, provided that it is at least 200 psi above surface pressure and that maximum allowable surface injection pressure must not exceed the pressure at which the well was tested
 - Depth of test to 100 feet measured depth above specific well elements or as determined by Division
 - Pressure test is successful if gauge does not show more than 3% change in pressure over a 30-minute period, except that cyclic steam wells are allowed up to a 10% increase
- If using the Alternative Pressure Monitoring option, specification that the maximum allowable surface injection pressure is the calculated maximum pressure under Section 1724.10.3(a)(1)
- Alternate testing methods may be approved if equally effective; if using such an alternative method then the maximum allowable surface injection pressure is the calculated maximum pressure under Section 1724.10.3(a)(1)

1724.10.2. Mechanical Integrity Testing Part Two – Fluid Migration Behind Casing, Tubing or Packer

Section 1724.10.2 includes requirements for periodic testing of injection wells to demonstrate that there is no fluid migration behind casing, tubing, or packer. Minor edits were made throughout this section for clarity including the addition of a date in lieu of “the effective date” and the removal of unnecessary specifications for individual test methods. Where a number was spelled out (twenty-four), it was replaced with numeric characters (24). Substantive changes to this section included:

- The removal of the three-year testing period for cyclic steam wells equipped with tubing and packer
- The addition of a five-year testing period for low-use cyclic steam wells; a well that ceases to be a low-use cyclic steam well must test within a year
- Thresholds for actions following an unplanned pressure variance were increased from 15% over a 24-hour period to 25% over a 48-hour period
- The addition of parameters to the Radioactive Tracer Survey requiring a dynamic temperature survey and a static temperature survey using a casing collar locator as well as tubing rate checks within 200 feet of the top and bottom of the tubing
- The removal of a parameter of the Radioactive Tracer Survey that required recording of a stationary tool over a period of three to five minutes at the two points that are representative of the extremes of natural radiation within the interval to be tested
- Except for specification of a repeat section of 200 feet, all specific parameters for noise logs have been removed from the regulation

1724.10.3. Maximum Allowable Surface Injection Pressure

Revisions to the requirements for determining maximum allowable surface injection pressure under Section 1724.10.3 included:

- Specification that any allowance for a friction loss factor must be conservative and calculated based on the new coated tubing of the largest diameter that will be used for injection; dual injection strings must be calculated separately
- Specification that a step-rate test is inconclusive if formation breakover is not clearly demonstrated
- The addition of recommended steps for step-rate tests
- A requirement for recording of the real-time surface pressure during step-rate tests using digital pressure gauges

1724.10.4. Continuous Pressure Monitoring

The original proposed regulations included requirements for continuous pressure monitoring of injection wells in Section 1724.10(f). Those requirements were revised and moved to Section 1724.10.4. Revisions to the continuous pressure monitoring requirements now found in Section 1724.10.4 included:

- Allowance for monitoring pressure at a manifold or header
- Ability to cease recording pressure if the injection well is “air-gapped” or disconnected from all injection lines
- Specification that injection pressure records must be maintained for as long as the well is approved for injection and three years after
- Requirement that operators report their highest instantaneous injection pressure for each injection well each month
- Specification that SCADA is an option for compliance but is not required
- The requirements of this section may be waived if the operator can demonstrate that the facilities are incapable of exceeding the maximum allowable surface injection pressure
- Allowance of two years to comply with the requirements of this section

1724.11. Surface Expression Prevention and Response

Section 1724.11 prohibits surface expressions and establishes surface expression prevention and response requirements. As originally proposed this section applied to all underground injection projects with a “potential” to cause surface expressions, but as revised this section applies to project that have “been known” to cause a surface expression, focusing the requirements on those projects that are at greatest risk of a surface expression. Other revisions to this section included:

- For underground injection project subject to the requirements of this section, operators will have six months to submit a surface monitoring and prevention plan
- The monitoring and prevention plan must now include a mass balancing surveillance plan *or* a real-time pressure/flow monitoring system, not both
- Field personnel working around surface expressions or in injection projects in diatomite must have relevant safety training
- A map of surface expression containment features must be provided and kept updated; access to those containment features must be restricted
- The first step for well shut-in after discovery of a surface expression will now be a 150-foot shut-in radius for 24 hours

- A low-energy seep is not prohibited and the response requirements do not apply; the prevention requirements do still apply though

1724.12. Surface Expression Containment

The word “continuously” was deleted from the monitoring requirement so that it is now a daily requirement to monitor the flow volume and rate of a surface expression, unless the Division has approved less frequent monitoring. Other changes included the addition of a paragraph to clarify that any surface expression (other than a low-energy seep) is a violation of the prohibition, notwithstanding any efforts taken to contain or otherwise mitigate risks.

1724.13. Universal Operating Restrictions and Incident Response

Section 1724.13 identifies situations that require the cessation of injection and immediate notification to the Division. This section was revised to allow that for an injection well that becomes an idle well the Division may allow the well to remain approved for injection while the well is idle. This section was also revised to cross reference the existing requirement that if there is no current approval to inject into a well, then the operator must disconnect all injection lines from the well.

1724.14. Monitoring and Evaluation of Seismic Activity in the Vicinity of Disposal Injection

This section was deleted in its entirety.

Article 4 and Article 5

Articles numbers were revised for organizational purposes. Article 4 is now the Underground Injection Control article and the Requirements for Underground Gas Storage Projects article is now Article 5.

1748. Underground Injection Control

A cross reference in this section was updated to be consistent with other revisions.