



**California Department of Conservation
Division of Oil, Gas, and Geothermal Resources**

**Underground Injection Control Program Report
On Permitting and Program Assessment**

Reporting Period of October 1, 2015 - March 31, 2016
Prepared pursuant to Senate Bill 83
(Ch. 24, Stats. Of 2015)



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Introduction

Section 45 of Senate Bill (SB) 83 (Chapter 24, Statutes of 2015) requires the Department of Conservation's (Department) Division of Oil, Gas, and Geothermal Resources (Division) and the State Water Resources Control Board (State Water Board) to semi-annually report to the relevant committees of the Legislature on the following nine topics related to the Division's Underground Injection Control (UIC) Program:

- (1) The number and location of underground injection wells, permits and project approvals issued by the Department, including permits and projects that were approved but subsequently lapsed without having commenced injection.
- (2) The average length of time to obtain an underground injection permit and project approval from date of application to the date of issuance.
- (3) The number and description of underground injection permit violations identified.
- (4) The number of enforcement actions taken by the Department.
- (5) The number of shut-in orders or requests to relinquish permits and the status of those orders or requests.
- (6) The number, classification, and location of underground injection program staff and vacancies.
- (7) Any state or federal legislation, administrative, or rulemaking changes to the program.
- (8) The status of the review of the UIC projects and summary of the program's assessment findings completed during the reporting period, including any steps taken to address identified deficiencies.
- (9) Summary of significant milestones in their compliance schedule agreed to with the United States Environmental Protection Agency (US EPA), as indicated in the March 9, 2015, letter to the Division and the State Water Board from the US EPA, including, but not limited to, regulatory updates, evaluations of injection wells, and aquifer exemption applications.

SB 83 extended the reporting requirements outlined in SB 855 (Chapter 715, Statutes of 2010), and added requirements (8) and (9) to the report. The most recent SB 855 Report, which reported on the UIC Program activities for 2011-2014, was submitted to the Legislature on October 8, 2015. The Department also submitted a Renewal Plan that outlines Department efforts to overhaul the UIC Program. The Department and State Water Board are working closely on UIC-related issues. The two organizations hold regular meetings and are documenting processes, identifying roles and responsibilities, conducting oilfield visits, and participating in trainings.

This second SB 83 report is due July 31, 2016. Subsequent reports are due every six months thereafter until March 1, 2019. This report includes information from October 1, 2015, to March 31, 2016, (reporting period), unless otherwise noted. This reporting period aligns with the federal budget year, and the Division's reporting to the US EPA. There are nine categories of information included in this report.

(1) The number and location of underground injection wells, permits, and project approvals issued by the Department, including permits and projects that were approved, but subsequently lapsed without having commenced injection.

Number and Location of Injection Well Permits

During the October to March reporting period, the Department issued 1,084 injection well permits involving 1,078 wells. Of the 1,084 total injection well permits, 79 did not lead to injection. The breakdown is below:

District Office/County	No. of UIC Well Permits
Southern District Office	39
Los Angeles	20
Los Angeles Offshore	14
Orange	4
Orange Offshore	1
Coastal District Office	31
Los Angeles	20
Ventura	5
Monterey	2
Santa Barbara	4
Inland District Office	1,012
Kern	1,010
Fresno	1
Kings	1
Northern District Office	2
Colusa	1
Solano	1
Total	1,084

Project Approvals

During the reporting period, the Department approved seven projects.

Location / County	No. of UIC Projects Approved
Southern District Office	0
Coastal District Office	1
Santa Barbara	1
Inland District Office	6
Kern	5
Kings	1
Northern District Office	0
Total	7

- (2) **The average length of time to obtain an underground injection permit and project approval from date of application to date of issuance.**

UIC Project Approval

On average, the Department required 181 days to process and approve an injection project. Injection project review involves Division staff evaluating detailed engineering and geologic studies, an injection plan, and conducting an area of review analysis (among other tasks). A project may implicate hundreds of wells in the area of review analysis. The State Water Board must also review and concur with Department approval of the project, and all projects are required to go through a public comment period.

UIC Well Permit Issuance

The average time required to issue a well permit was 7.6 days during the reporting period. UIC well permits are generally issued within an approved UIC project area, the review of which takes an average of 181 days. To issue a well permit in a UIC project area, Division staff may rely upon the project review and must ensure that the well meets construction standards.

- (3) **The number and description of underground injection permit violations identified.**

During the reporting period, the following number of permit violations were identified:

Permit Violations Identified	
Unauthorized Injection	4
Mechanical Integrity	51
Operations and Maintenance	149
Plugging and Abandonment	17
Monitoring and Reporting Violations	394
Other Violations	7
Total	622

(4) The number of enforcement actions taken by the Department.

During the reporting period, the following enforcement actions were undertaken:

Enforcement Actions Taken	
Notices of Violations Issued	578
Administrative Orders	0
Well Shut-Ins	10
Other Enforcement Actions	31
Total	619

(5) The number of shut-in orders or requests to relinquish permits and the status of those orders or requests.

Ten wells were shut in voluntarily by the operator, in lieu of the Supervisor issuing an order to shut in.

(6) The number, classification, and location of underground injection program staff and vacancies.

Department of Conservation			
Location	Job Classification	No. of Positions	No. of Vacancies
Sacramento (HQ)	Associate Oil & Gas Engineer	3	0
	Senior Oil & Gas Engineer	1	0
	Research Program Specialist-GIS	2	0
	Attorney	1	0
	Governmental Program Analyst	3	0
Cypress Office	Associate Oil & Gas Engineer	6	0
	Engineering Geologist	8	2
	Senior Oil & Gas Engineer	2	1
Coastal Office	Associate Oil & Gas Engineer	2	1
	Senior Oil & Gas Engineer	1	0
Inland Office	Associate Oil & Gas Engineer	8	2
	Senior Oil & Gas Engineer	2	1
	Engineering Geologist	8	0
Northern Office	Associate Oil & Gas Engineer	1	0
	Engineering Geologist	1	0
Unassigned Positions	Associate Oil & Gas Engineer	3	0
Total		52	7

(6) Continued

State Water Board and Regional Water Quality Control Boards			
Location	Job Classification	No. of Positions	No. of Vacancies
State Water Board (Sacramento)	Engineering Geologist	6	1
	Water Resources Control Engineer	2	0
	Attorney	1	0
Central Valley Regional Board (Fresno)	Engineering Geologist	2	0
	Water Resources Control Engineer	3	0
Central Coast Regional Board (San Luis Obispo)	Engineering Geologist	2	0
	Water Resources Control Engineer	1	0
Los Angeles Regional Board	Engineering Geologist	1	0
	Water Resources Control Engineer	1	0
Total		19	1
Total (Both Organizations)		71	8

(7) Any state or federal legislation, administrative, or rulemaking changes to the program.Federal Legislation

Nothing to report.

State Legislation

SB 83 expanded upon the process for the state to follow when proposing new aquifer exemptions to US EPA (Public Resources Code, Sections 3130, 3131, and 3132). Prior to proposing an aquifer exemption to US EPA, the Division must do the following: (1) Consult with the State Water Board and the appropriate regional water quality control board to ensure that the aquifer meets applicable criteria; (2) Provide a public comment period; (3) Conduct a public hearing with the State Water Board; and (4) Until March 1, 2019, notify the relevant legislative policy committees before submitting the exemption proposal to US EPA.

UIC Regulatory Changes
Aquifer Exemption Compliance Regulations

On April 20, 2015, the Office of Administrative Law approved the Division's Aquifer Exemption Compliance Schedule Regulations pursuant to an emergency rulemaking process. The regulations give legal effect to a compliance schedule directed by US EPA to phase out injection into non-exempt aquifers that meet the federal regulatory definition of an underground source of drinking water. The first compliance deadline occurred on October 15, 2015, which

resulted in the cessation of injection operations at 33 wells. All of the affected operators voluntarily complied with the shut-in deadline established in the emergency regulations, which obviated the need for Division-issued enforcement orders.

The Division is currently in the later stages of promulgating the Aquifer Exemption Compliance Schedule Regulations as permanent regulations, and this process is expected to be completed in late 2016. The permanent regulations would implement the next rounds of compliance deadlines, proposed to occur on December 31, 2016, and February 15, 2017.

The Aquifer Exemption Compliance Schedule Regulations are an important cornerstone of the Division's overall effort to bring the UIC Program into compliance with the federal Safe Drinking Water Act, and the compliance deadlines are the product of extensive discussions between US EPA, the Division, and State Water Board.

Performance Standards for Gas Storage Projects

On January 15, 2016, the Department issued notice of its intent to propose the adoption of emergency regulations to help ensure that operators of underground gas storage facilities properly mitigate risks and take all appropriate steps to prevent uncontrolled releases, blowouts, and other infrastructure-related accidents. The emergency regulations will be established under the emergency rulemaking process to ensure that protective standards are in place until permanent regulations are finalized.

The proposed emergency regulations are consistent with the mandates outlined in the Governor's emergency proclamation related to the Aliso Canyon Gas Storage Facility. The emergency proclamation mandated, among other things, daily inspection of gas storage wellheads, ongoing verification of the mechanical integrity of all gas storage wells, regular testing of all safety valves used in wells, and the establishment of a comprehensive risk management plan. On July 8, 2016, the Department released a discussion draft of the Gas Storage Regulations, which build on the emergency regulations with more specific requirements. The public comment period for the draft ends August 22, 2016.

Anticipated Updates to UIC Regulations

Additionally, on January 21, 2016, the Division released a discussion draft of proposed amendments to the Division's UIC regulations. Formal rulemaking is anticipated to begin in the fall of this calendar year. The proposed regulations are intended to accomplish the following:

- Clarify standards to ensure zonal isolation of injection projects.
- Expressly define the quality of water to be protected when constructing wells.
- Establish permitting and regulatory requirements specific to cyclic steam operations.
- Codify best practices for well construction.
- Clarify the process and standards to establish maximum allowable surface pressure for injection operations.

The Division is also in the process of developing regulatory language that outlines the permitting and other regulatory requirements specific to cyclic steam operations.

(8) The status of the review of the UIC projects and summary of the program's assessment findings completed during the reporting period, including any steps taken to address identified deficiencies.

The Division is in the process of reviewing UIC projects. In most areas, Division staff are inventorying and prioritizing projects, and have begun a file review of active UIC project files to identify data or documentation deficiencies. Operators will be required to update their project documentation and supply any missing and/or deficient data. Following completion of the data and file review, Division staff will ensure that the project is up to standard, and will identify and address any issues related to injection exemption, confinement, and protection of underground sources of drinking water and waters of current and potential future beneficial use with updated Project Approvals. The second phase review of projects will be conducted with the State Water Board in consultation with the appropriate regional water quality control boards.

To facilitate project-by-project reviews and improve UIC data management, the Division is in the process of overhauling the current database management systems. The Department has engaged the Ground Water Protection Council to customize and implement their Risk Based Database Management System (RBDMS) as the future backbone of the Division's databases and UIC data repository, which will be called WellSTAR.

RBDMS is currently used by oil and gas regulatory agencies in 23 states. Using this widely used system will minimize the time required to test and deploy this complex data management system. The proof-of-concept phase of implementation was completed in early 2016, and the project is currently in the analysis stage for full implementation.

Since the initial stage of the project-by-project review will require operators to submit substantial amounts of data, the Division is working with major operators and industry associations to arrange for large-scale data transfers to populate the UIC well database, and to provide a working database for the detailed evaluation of projects. The Division anticipates that WellSTAR will be completed, as committed to the US EPA in the compliance agreement, by February 2017.

(9a) Summary of significant milestones in their compliance schedule agreed to with the United States Environmental Protection Agency (US EPA), as indicated in the March 9, 2015, letter to the Division and the State Water Board from the US EPA, including, but not limited to, regulatory updates, evaluations of injection wells, and aquifer exemption applications.

Aquifer Exemptions

The Division and State Water Board proposed a schedule to the US EPA to eliminate all injection into non-exempt aquifers. For those zones with water quality of less than 3,000 milligrams per liter, the deadline to stop injecting for waste disposal was October 15, 2015. This October 15, 2015, deadline resulted in the cessation of injection operations at 33 wells. All of the affected operators voluntarily complied with the shut-in deadline.

In August 2015, the Division, in consultation with the State Water Board and the Central Coast Regional Water Quality Control Board, sent the initial public notice regarding the proposal to expand the current aquifer exemption designation for the Dollie sands of the Pismo formation in the Arroyo Grande oil field. The proposed aquifer exemption would allow the State, in compliance with the federal Safe Drinking Water Act, to approve Class II injection into the identified area, either for enhanced oil recovery or for injection disposal of fluids associated with oil and gas production. This initial public comment period was held from August 20 through September 21, 2015, with a public comment hearing on September 21, 2015, in San Luis Obispo.

Public comments for a subsequent 15-day public comment period regarding additional information was due on December 16, 2015.

The Department and the State Water Board are currently considering a proposal to expand the current aquifer exemption for the Santa Margarita formation in the Fruitvale Oil field in Kern County. A public hearing to discuss this proposed exemption will be held on August 15, 2016, and public comments will be accepted until August 29, 2016.

Evaluations of Injection Wells

The Division identified 6,157 permitted UIC wells that were potentially injecting into non-exempt aquifers: 532 water disposal wells and 5,625 enhanced oil recovery wells. The Division and State Water Board employed a risk-based review to help determine any potential risks to groundwater with a current beneficial use.

During the reporting period, 28 information orders were issued by regional water quality control boards to the operators of 79 UIC wells that met the screening criteria outlined in Enclosure D of the February 6, 2015, letter from the Division and State Water Board to the US EPA. During the previous reporting period, 40 information orders were issued to the operators of 170 UIC wells. In total, 68 information orders were issued to the operators of 249 UIC wells during this and the previous reporting periods.

The State Water Board and regional water quality control boards are currently evaluating the data and information submitted by the operators to determine whether the injection wells subject to the section 13267 orders are impacting current groundwater resources. Wells found to be shut-in, idle, converted to a production well, perforated in an exempt zone, or that demonstrate no impact to current beneficial uses of groundwater are not considered a risk to current groundwater resources.

Of the 249 injection wells issued information orders, 220 were determined not to pose a potential risk to nearby water supply wells. Operators of 28 of the 249 wells have not submitted all of the required information to complete an evaluation of potential impacts to groundwater resources. Many operators are cooperating with regional water quality control board staff to resolve these issues, and to assemble the required information. Operators who have failed to respond to the information orders either have been issued or are in the process of being issued a Notice of Violation.

Division Staff Trainings

The Department has engaged the following training providers to implement the training component outlined in the Division's Renewal Plan:

1. TOPCORP – A consortium of the Colorado School of Mines, Pennsylvania State University, and The University of Texas at Austin. TOPCORP specializes in providing energy-related training courses for regulators and policymakers. The Division has contracted with TOPCORP to conduct various trainings, including environmental management technology, petroleum geology and engineering, and petroleum engineering. Access to training modules began in February 2016.
2. PETEX – An extension campus of The University of Texas at Austin that develops, produces, and delivers technical and nontechnical training courses and publications for employees in various sectors of the petroleum industry. The Division is working with PETEX to produce a series of modules specifically designed for Division staff.

(9b) By January 30, 2016, and every six months thereafter, the department shall report on progress addressing the program's assessment findings and shall deliver that report to the fiscal and relevant policy committees of each house of the Legislature.

The Division will submit the report to the relevant policy and fiscal committees of each house on January 30 and July 30 of each year. These reports will also be available on the Division's website.

(9c) By January 30, 2016, and every six months thereafter, the State Water Board shall post on its Internet website a report on the status of the regulation of oil field produced water ponds within each region. The report shall include the total number of ponds in each region, the number of permitted and unpermitted ponds, enforcement actions, and the status of permitting the unpermitted ponds.

The number and status of oil field produced water ponds within each regional water quality control board as of June 30, 2016, is available at:

http://www.waterboards.ca.gov/water_issues/programs/groundwater/sb4/index.shtml

Appendix

The initial SB 83 report, submitted on January 30, 2016, included the inventory of UIC wells in existence as of the first day of that first reporting period. That original data is provided here for reference. The well information from the first six month reporting has not been added to these baseline well counts.

A total of 56,881 active, idle, and new wells existed in California during the reporting period. This total includes all disposal, enhanced oil recovery, and gas storage wells. Ninety-six percent of these are enhanced oil recovery wells, and slightly more than 89 percent are located in the area managed by the Division's District Office based in Bakersfield. A detailed breakdown is shown here.

Location/ County	No. of UIC Wells*			Total
	Disposal	Enhanced Oil Recovery	Gas Storage*	
Southern Office	32	2,005	32	2,069
Los Angeles	22	1,711	32	1,765
Orange	9	292	0	301
San Bernardino	1	2	0	3
Coastal Office	322	3,435	161	3,918
Los Angeles	40	392	143	575
Ventura	102	766	0	868
Monterey	46	1,044	0	1,090
San Luis Obispo	18	315	0	333
Santa Barbara	114	916	18	1,048
Santa Clara	2	2	0	4
Inland Office	1,432	49,256	13	50,701
Kern	1,337	45,813	0	47,150
Kings	1	0	0	1
San Luis Obispo	0	5	0	5
Tulare	7	0	0	7
Fresno	78	3,430	0	3,508
Kings	5	7	0	12
Madera	3	0	12	15
San Benito	1	1	1	3
Northern Office	27	0	166	193
Alameda	2	0	0	2
Butte	1	0	17	18
Colusa	2	0	8	10
Contra Costa	0	0	20	20
Glenn	2	0	0	2
Sacramento	3	0	0	3
San Joaquin	5	0	96	101
San Mateo	2	0	0	2
Solano	4	0	18	22
Sutter	3	0	0	3
Tehama	3	0	0	3
Yolo	0	0	7	7
Total	1,813	54,696	372	56,881

* This includes all new and idle wells. A new well is a well that has been approved for injection, but has yet to report data indicating that injection has occurred. An idle well is defined in Public Resources Code Section 3008 as "any well that has not produced oil or natural gas or has not been used for injection for six consecutive months of continuous operation during the last five or more years."