

California Department of Conservation  
DIVISION OF OIL, GAS, & GEOTHERMAL RESOURCES

APRIL 2017

# RENEWAL PLAN

**NEW 2017  
UPDATE**

To usher in a  
new era of oil  
and gas regulation



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# RENEWAL PLAN FOR OIL & GAS REGULATION 2017 UPDATE

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## INTRODUCTION

The Renewal Plan released in October of 2015 provided the roadmap for the necessary reforms to the Department of Conservation's Division of Oil, Gas, and Geothermal Resources (Division) that would make the Division a modern oil and gas regulator. This update to the Renewal Plan demonstrates the Division's significant progress toward meeting its goals and highlights the Division's handling of unexpected challenges that arose along the way. The Division has grown significantly since it was established in 1915, and this updated Renewal Plan demonstrates the steps being taken to ensure the Division will be able to manage California's oil and gas industry for another 100 years.

When the Division was established in 1915, the initial focus of regulation was the protection of oil and gas resources in the state from production practices that could harm the ultimate level of hydrocarbon recovery. Early Division regulations included well spacing requirements and authority to limit production rates. However, those regulations and the focus of the Division evolved and came to include the protection of public health, safety, and the environment.

California oil and gas operators produce approximately 600,000 barrels of oil each day, and about 35 percent of the oil used in California comes from California oil and gas reservoirs. These resources are produced through more than 80,000 active oil and gas wells owned and operated by more than 450 operators and service companies. Most of the production comes from the San Joaquin Valley, but operators also produce oil and gas from coastal areas like the Los Angeles Basin, Ventura, Santa Barbara, and around Santa Maria. The Division oversees that production from field offices located across California, with a present staff of over 275 engineers, geologists, and support staff.

As the Division approached its 100<sup>th</sup> year, the need for a thorough assessment of its performance and capacity became clear. The call for that review came in many forms including a U.S. Environmental Protection Agency audit that identified shortcomings in the Underground Injection Control (UIC) Program. Significant public concern about the practice of hydraulic fracturing raised questions about the Division's data collection and transparency, leading to growing oversight by the California State Legislature.

All of these developments helped drive the development of the original Renewal Plan for the Division released in October 2015. That plan set forth a guide for Division reforms over the next several years, and accelerated the progress under way since 2012. This update of the Renewal Plan demonstrates the progress the Division has made to develop an effective regulatory program over the past year, and highlights the next steps in the Division's ongoing commitment to reforms that will ensure the protection of public health and the environment in the oil and gas fields of California.

The Renewal Plan features four themes, each with multiple objectives:

- Regulatory Overhaul
- New Regulations for New Realities
- Modernized Data Management
- Ensuring a High-Quality Workforce



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## SUMMARY OF RENEWAL PLAN SCHEDULE

### OBJECTIVE 1: REGULATORY OVERHAUL

Activity	Start	Finish	Status
<b>Action 1.1 – Review Injection Projects</b>			
Injection Project Reviews (all districts)	10/15/15	Aug '17	IP
Revisions to PALs, if needed (all districts)	Varies	Oct. '18	IP
<b>Action 1.2 – Aquifer Exemption Review</b>			
Obtain Exemption or Shut-In Injection Wells in Non-Exempt Aquifers	June '14	Sept. '17	IP
<b>Action 1.3 – Review / Revise Existing Regulatory Standards</b>			
Phase 1 Rulemakings	July '15	May '16	IP
Phase 2 Rulemakings	Fall '16	Dec. '18	IP

Key: ✓ = Complete      IP = In Progress

### OBJECTIVE 2: NEW REGULATIONS FOR NEW REALITIES

Activity	Start	Finish	Status
<b>Action 2.1 – Adopt New Rules for Well Stimulation (WST)</b>			
Adopt Interim WST Regulations	12/13/13	Jan. '14	✓
Adopt Permanent WST Regulations	11/15/13	Jul. '15	✓
<b>Action 2.2 – Adopt New Rules for Underground Injection Control</b>			
Underground Injection Control Rulemaking	July '15	Nov. '17	IP
<b>Action 2.3 – Develop Capacity to Anticipate Regulatory Needs</b>			
Establish Emerging Technologies and Regulations Unit	July '14	Feb. '16	✓
<b>Action 2.4 – Improve Statewide Gas Storage Operations</b>			
Adopt New Rules for Gas Storage Operations	Feb. '16	Aug. '18	IP

Key: ✓ = Complete      IP = In Progress

### OBJECTIVE 3: MODERNIZE DATA MANAGEMENT

Activity	Start	Finish	Status
<b>Action 3.1 – Improve Well Information Management System and Business Processes</b>			
	July '15	Spring '19 *	IP
<b>Action 3.2 – Improve Transparency of Division Data</b>			
Interim Well Stimulation Treatment Notice System Implemented	Oct. '13	Mar. '14	✓
Well Finder Application Launched	Oct. '13	Jan. '14	✓
SB4-Compliant Post-WST Chemical Disclosure Site On-Line	Oct. '13	Jan. '16	✓
SB1281 Reporting On-line	Oct. '14	Aug. '15	✓
<b>Action 3.3 – Develop e-Permitting Functionality</b>			
	July '15	Late '18 *	IP

Key: ✓ = Complete      IP = In Progress

\* = Dates are rough estimates/targets for IT development project

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**SUMMARY OF RENEWAL PLAN SCHEDULE (cont.)**

**OBJECTIVE 4: ENSURE HIGH-QUALITY WORKFORCE**

<b>Activity</b>	<b>Start</b>	<b>Finish</b>	<b>Status</b>
<b>Action 4.1 – Obtain Adequate Staffing</b>			
FY10-11 -> FY12-13 BCPs			✓
FY14-15 -> FY15-16 BCPs		Fall '16	✓
FY15-16 -> FY16-17 BCPs		Fall '17	IP
<b>Action 4.2 – Improve Recruitment and Outreach</b>			
Develop on-line exam functionality for technical job classes	Fall '14	Spring '15	✓
Improve recruitment beyond traditional efforts	Spring '14	Ongoing	IP
Review/revise classifications to recognize work experience	July '15	Jan. '16	✓
<b>Action 4.3 – Reorganize Division</b>			
Administrative reorganization under existing authority	Sept. '15	Sept. '16	✓
Review statutory organizational requirements for necessity	Sept. '15	Nov. '15	✓
Request and implement statutory organizational changes	Jan. '16	Sept. '17	IP
<b>Action 4.4 – Implement Comprehensive and Continuous Training</b>			
Hire Technical Training Coordinator	Sept. '15	Dec. '17	IP
Improve Training Plan	July '15	Ongoing	IP
Establish safety video library and mandatory training	Sept. '15	Aug. '17	IP
<b>Action 4.5 -- Develop Best Practices for Staff / Managers</b>			
Internal assessment of current policies and procedures	Mar. '15	June '16	✓
Development of Best Practice Standards	Fall '15	July '16	IP
Implementation of Best Practice Standards	July '16	Ongoing	IP

Key: ✓ = Complete      IP = In Progress



## OBJECTIVE 1: Regulatory Overhaul



## OBJECTIVE 1: REGULATORY OVERHAUL

The Division's existing regulations—and how they are applied—are under review. Some regulations have been in effect without change for decades. Some fail to take into account advances in drilling technology and our understanding of environmental and public health protection. The Division enforced some regulations inconsistently and, in some cases, incorrectly—such as permitting injection wells into areas not previously approved for injection. To correct the Division's past practices on underground injection control, oilfield operators will either: (1) receive authorization to continue to inject into formations because the formation fluids were already unsuitable for drinking or agricultural use; or (2) be ordered to cease injection into those formations.

### **Action Item 1.1: Review Injection Projects**

As part of the Underground Injection Control (UIC) Program, oil and gas operators apply to conduct “projects,” which usually comprise multiple wells drilled as a part of an overall system to extract oil and gas. Some wells in a “project” inject water, steam, or other gas into a hydrocarbon formation. That injection moves oil and gas toward production wells that are also part of the “project” and that bring the oil to the surface. A project may also include disposal wells. Thousands of projects have been approved since 1983, the year the U.S. EPA recognized the Division’s UIC Program as being suitable to meet the requirements of the federal Safe Drinking Water Act for injection of fluids associated with oil and gas production.

The Division will conduct a review of every project it has approved. This review will examine all active injection projects in the state to determine if project files contain all required documentation and that the project reflects appropriate protection of groundwater sources. Mechanical integrity tests will be confirmed. If additional conditions or reporting requirements are identified as necessary during the review, new Project Approval Letters (PAL)—which describe Division requirements of individual operators on each project—will be required.

As a result of this review, and through technological advancements, the Division now has a better understanding of the subsurface that may not have been accounted for when receiving permitting applications in prior years when technology could not provide the same level of detail. To reconcile this, the Division has committed to collect, validate, and consolidate all active UIC projects into a single searchable database.



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**Timeline:**

Activity	Start	Finish	Status
<b>Injection Project Reviews</b>	10/15/15		
Districts 3 (Coastal) and 6 (Northern)		April '17	IP
Districts 2 (Coastal) and 5 (Inland)		July '17	IP
District 1 (Southern)		Aug. '17	IP
District 4 (Inland)		April '17	IP
<b>Revisions to PALs (if needed)</b>			
Districts 3 (Coastal) and 6 (Northern)		April '17	IP
Districts 2 (Coastal) and 5 (Inland)		April '17	IP
District 1 (Southern)		Oct. '18	IP
District 4 (Inland)		July '19	IP

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*Note: Reviews to be conducted at the Division's District Office level. Schedule for completion varies by district because of the varied number of projects in each district and available staffing.*

**Action Item 1.2: Aquifer Exemption Review**

The Safe Drinking Water Act (SDWA) was passed in 1974 and required the U.S. EPA to develop regulations to protect underground sources of drinking water from contamination or damage associated with injection activity. Water with less than 10,000 milligrams per liter of Total Dissolved Solids (TDS) must be protected under the SDWA. The U.S. EPA found that the Division's UIC program satisfied federal SDWA provisions related to injection of Class II fluids into the ground and delegated the Division primary responsibility, or "primacy," in the regulation of Class II injection in 1983. Class II fluids are those associated with the production of oil and gas, and most commonly salty water that comes to the surface with the oil and gas from the underground reservoir. When the primacy agreement was reached, certain underground formations were identified by the Division and U.S. EPA as appropriate to receive injection of Class II fluids. These are called "exempt aquifers" because they are formations/aquifers that contain water that meets the standard for protection under the SDWA, but some other characteristic makes the water in that formation unsuitable for drinking (i.e, it contains oil or some other naturally-occurring chemical like arsenic or boron). The data the Division and the U.S. EPA have historically relied upon is of limited value and has subsequently allowed for injection into some formations that were not approved to receive such injection.

The Division identified this problem to the U.S. EPA in mid- 2014. Since then, the Division, U.S. EPA, and the State Water Resources Control Board have developed a plan to address wells injecting into non-exempt aquifers. The wells injecting into non-exempt aquifers have been identified, categorized by type (water disposal or enhanced oil recovery), and prioritized by the relative risk the injection wells pose to existing water supply wells. Some injection wells were found to pose an immediate threat and, as a result, the Division either ordered the wells shut in or obtained permit relinquishment for 23 of the thousands of wells reviewed.

In 2015, the State estimated that there were approximately 50,000 class II injection wells located throughout California. Of the 50,000 class II wells that were identified, the State found that 5,625 injection wells in 75 fields warranted further review. Shortly thereafter, the Division adopted regulations establishing a compliance schedule. In the initial stages of this compliance schedule, the State found that 155 wells were injecting into aquifers with no hydrocarbons and less than 3,000 TDS. All 155 of these wells have since been brought into compliance with the SDWA.

A component of the compliance plan required that the Division reach out to operators with injection wells in non-exempt aquifers, providing them with an opportunity to prepare technical proposals to support exemption of those aquifers under State and federal law. Operators have provided proposals for 42 fields, covering more than 2,000 wells. For 13 of the 42 fields, a shut-in date of February 15, 2017 was required. This impacted 460 wells throughout the state. Operators had not provided the state with sufficient data to support an aquifer exemption proposal in accordance with the SDWA. The remaining 29 of the 42 fields, which includes approximately 1,650 wells, have not been shut-in due to findings by the state that show the proposal merits consideration by the U.S. EPA, or the proposal meets State and federal criteria for exemption.

Additionally, the Division identified ten fields with injection occurring in non-exempt zones. The 15 wells in the ten fields identified were subject to the February 15, 2017



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deadline. The Division required a February 15, 2017 deadline of 475 injection wells in total, covering 23 fields, and will allow injection in 1,650 injection wells, covering 29 fields that either warrant U.S. EPA review or meet State and federal exemption criteria.

***Timeline:***

<b>Activity</b>	<b>Start</b>	<b>Finish</b>	<b>Status</b>
Obtain Exemption or Shut-In Injection Wells in Non-Exempt Aquifers	June '14		IP
WD Wells into sub-3000 mg/L TDS aquifers		Oct. '15	✓
WD or EOR Wells into Historically Treated As Exempt Aquifers		Dec. '16	✓
WD Wells into Non-Oil-Containing Aquifers With Water 3,000-10,000 mg/L TDS		Sept. '17	IP
EOR Wells into Oil-Containing, sub-10,000 mg/L TDS Aquifers		Sept. '17	IP

Key: ✓ = Complete      IP = In Progress

- Shut-In Orders can and have been issued prior to the target completion dates above.
- WD = Water Disposal well and is generally not into an oil-bearing formation.
- EOR = Enhanced Oil Recovery Injection for these projects is implicitly into a hydrocarbon bearing zone, the water within which could only be fit for beneficial use following extensive and expensive purification.

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## **Action Item 1.3: Review / Revise Existing Regulatory Standards**

All regulations administered by the Division are being reviewed and evaluated. In some cases, regulations that previously left broad latitude for interpretation will be made more specific. The Division is currently in the process of updating, and where necessary, revising regulatory standards related to the production of oil and gas in the State of California. In some cases, new regulations are needed to address new technologies and to facilitate best practices. Some practices that were once too expensive for operators are now, thanks to improved technology, financially feasible and need to be regulated.

The Division will consider revisions to existing regulations in two phases. In the first phase, the Division will make changes based on legislative mandates. The second phase includes changes that remain a priority, but do not have an approaching statutory deadline. During the first phase, the Division intends to address the following issues:

- Updating of gas storage regulations
- Clarifying UIC regulatory requirements
- Adopting new guidelines for cyclic steaming
- Revising idle well testing requirements
- Revising guidelines for active gas pipelines within the Division’s jurisdiction

In the second phase, the Division will address the following issues:

- Modernizing well construction standards
- Updating the regulatory framework for geothermal operations
- Clarifying civil penalty guidelines
- Revising requirements for waste gas disposal

### ***Timeline:***

<b>Activity</b>	<b>Start</b>	<b>Finish</b>	<b>Status</b>
<b>Phase 1 Rulemakings (incl. informal and formal)</b>	July '15		
Update of Gas Storage Regulations		Aug. '17	IP
Clarification of UIC Regulatory Requirements		May '18	IP
Adopting new guidelines for Cyclic Steaming		May '18	IP
Revision of Idle Well Testing Requirements		Feb. '18	IP
Revising Guidelines for Active Gas Pipelines within the Division’s Jurisdiction		Oct. '17	IP
<b>Phase 2 Rulemakings (incl. informal and formal)</b>	Fall '17		
Modernizing Well Construction Standards		Dec. '18	IP
Updating the Regulatory Framework of Geothermal Operations		Dec. '18	IP
Clarifying Civil Penalty Guidelines		Dec. '18	IP

Key: ✓ = Complete      IP = In Progress

## **OBJECTIVE 2: New Regulations for New Realities**



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## OBJECTIVE 2: NEW REGULATIONS FOR NEW REALITIES

Until 2013, the Division regulated the oil and gas industry under a statutory and regulatory construct that had changed little in the preceding five decades. Meanwhile, industry practices evolved steadily over those years. In some cases, the Division simply continued to apply existing general rules to practices that warranted more specific rules. In other cases, existing rules loosely fit the evolving practices, and new regulations should have been developed to regulate those practices. The Division lacked the staff, skills, and processes to monitor evolving industry production practices and thus did not adequately anticipate or adapt to changing industry operations.

### **Action Item 2.1: Adopt New Rules for Well Stimulation (WST)**

Prior to 2010, hydraulic fracturing and other forms of formation stimulation (often called “well stimulation”) were considered “downhole” maintenance practices that did not require specialized regulation. To prevent damage to groundwater, the Division relied upon existing rules governing well integrity and provisions against fluid migration out of intended zones. In 2012, the Legislature gave clear direction to the Department of Conservation (Department) to begin rulemaking for hydraulic fracturing and other forms of well stimulation, and the Department began such a process. In December 2012, Senate Bill 4 (Pavley) was introduced to require permitting for well stimulation. Senate Bill 4 set aggressive deadlines for Department implementation of regulations.

The Department launched a rulemaking process for SB 4 as soon as it was signed into law in September 2013. The Department drafted Emergency Interim Regulations that took effect the same date as SB 4, January 1, 2014. Those Interim Regulations were extended twice by the Department and once by the Legislature, and were in place until July 1, 2015. Along with the adoption of Interim Regulations, the Division initiated and completed a formal rulemaking process. The formal regulations went into effect on July 1, 2015, the day after the expiration of the Interim Regulations, and they are the strongest well stimulation regulations in the nation. The first two WST permits issued pursuant to the permanent regulations were issued on September 1, 2016, and as of February 7, 2017, 78 total WST permits have been issued.

#### ***Timeline:***

Activity	Start	Finish	Status
<b>Adopt Interim WST Regulations</b>			
Initiate rulemaking		12/13/13	✓
Issue Interim Rules		12/13/13	✓
Interim Rules effective		1/1/14	✓
<b>Adopt Permanent WST Regulations</b>			
Initiate rulemaking	11/15/14		✓
Circulate draft regulations for public review/comment, including public hearings	11/15/13	1/14/14	✓
Circulate second draft of regulations for public review/comment, including public hearings	6/13/14	7/28/14	✓
Circulate third draft of regulations for public review	10/9/14	10/24/14	✓
Office Of Administrative Law approves regulations		12/30/14	✓
Permanent Regulations effective (by statute)		7/1/15	✓

Key: ✓ = Complete      IP = In Progress



# RENEWAL PLAN FOR OIL & GAS REGULATION 2017 UPDATE

## **Action Item 2.2: Adopt New Rules for Underground Injection Control**

The previous iteration of the Renewal Plan focused on adopting new guidelines for cyclic steam operations. During the review process of that practice, it became apparent that modernizing the operational guidelines for all underground injection control operations, which include cyclic steam, would be needed as well.

The Division remains committed to protecting groundwater resources and recognizes that in order to ensure compliance with the SDWA, reviewing and revising the Division’s regulations of the underground injection control program may be necessary. The Division has released a “discussion draft” that revises the existing underground injection control regulations and is intended to modernize and further protect public health, safety, and the environment. Specifically, the revisions address the following issues:

- Clarifying and strengthening standards to ensure “zonal isolation” of injection projects – that is, making sure that what is injected goes into and stays in the proper geologic zone to protect groundwater.
- Strengthening and clarifying permitting and ongoing project data requirements for all underground injection control operations, including cyclic steam—in which a well is injected with steam to enhance oil production and then used to pump up oil.
- Strengthening and clarifying mechanical integrity testing requirements for all underground injection control operations, including cyclic steam.
- Establishing permitting and regulatory requirements for cyclic steam operations.
- Establishing a process and standards to determine maximum allowable surface pressure for injection operations.
- Defining key water quality protection criteria.

The revisions to the underground injection control program are designed to modernize and enhance the practices and capabilities of the Division while also maintaining its commitment to protecting groundwater resources, state resources, and public health.

### ***Timeline:***

<b>Activity</b>	<b>Start</b>	<b>Finish</b>	<b>Status</b>
Underground Injection Control Rulemaking	July '15		
Identify interested parties and solicit concerns and/or suggestions		Oct. '15	✓
Draft proposed regulations and conduct pre-regulatory consultations		Nov. '16	IP
Begin formal rulemaking processes		July '17	IP
Conclude rulemaking		Nov. '17	IP

Key: ✓ = Complete      IP = In Progress

# RENEWAL PLAN FOR OIL & GAS REGULATION 2017 UPDATE

## **Action Item 2.3: Develop Capacity to Anticipate Regulatory Needs**

The Division historically has reacted to changes in oil and gas production industry practices by applying existing regulations and trusting that risks have been ameliorated. The Division has been slow to react to emerging production trends. In the case of hydraulic fracturing, for example, the Division was focused on application of current law instead of strategizing how regulation should evolve with production practices.

To create a regulatory culture that proposes solutions to risks posed by evolving production practices, the Division is establishing a new “Emerging Technologies and Regulations” unit. A precursor is the “New Program Development” unit, which was charged with leading the development of well-stimulation regulations in 2013-14. This unit works with the industry, academia, and others to identify emerging production techniques, assess corresponding risks, and determines whether existing regulations sufficiently guard against risk. Where they do not, this unit is charged with developing draft regulations and working to adopt appropriate changes.

### ***Timeline:***

Activity	Start	Finish	Status
<b>Establish Emerging Technologies and Regulations Unit</b>			
Formation of New Program Development Unit in headquarters	July '14	Dec. '14	✓
Reorganization of Division	Sept. '15	Sept. '16	✓
Formal establishment of ETR Unit	Sept. '15	Feb. '16	✓

Key: ✓ = Complete      IP = In Progress

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## **Action Item 2.4: Improve Statewide Gas Storage Operations**

In response to the significant uncontrolled gas leak at Aliso Canyon, the Division has implemented a number of regulatory changes to strengthen the oversight of gas storage operations in California, including significant new testing, inspection, and monitoring requirements for all gas storage wells in the state.

On February 5, 2016, the Office of Administrative Law approved emergency regulations for gas storage operations that were submitted by the Division in response to Governor Edmund G. Brown Jr.'s January 6, 2016 declaration of a state emergency due to the gas leak at Aliso Canyon. The emergency regulations include a number of safety and reliability measures intended to serve as a foundation for the permanent regulations. These safety and reliability measures include:

- Requiring at least daily inspection of gas storage well heads, using gas leak detection technology.
- Requiring ongoing verification of the mechanical integrity of gas storage wells.
- Requiring ongoing measurement of annular gas pressure or annular gas flows within wells.
- Requiring regular testing of all safety valves that have been installed and are being used in wells.
- Establishing minimum and maximum pressure limits for each gas storage facility in the state.
- Requiring each gas storage facility to establish a comprehensive risk management plan that evaluates and prepares for risks at each facility.

### ***Timeline:***

Activity	Start	Finish	Status
<b>Update Gas Storage Regulations</b>			
Emergency Regulations Approved by OAL	Jan. '16	Feb. '16	✓
First Public Comment Period	June '16	Aug. '16	✓
Second Public Comment Period	May '17	Jul. '17	IP
Submit Final Package to OAL	Aug. '17	Aug. '17	IP
Permanent Regulations Approved	Sept. '17	Sept. '17	IP

Key: ✓ = Complete      IP = In Progress

## OBJECTIVE 3: Modernize Data Management



Department of Conservation (DOC)  
Division of Oil, Gas, and Geothermal Resources (DOGGR)

### Well Statewide Tracking and Reporting (WellSTAR)

Monthly Status Report: 02/03/17

<p>Executive Sponsor: Ken Harris Project Sponsor: Clayton Haas Project Director: Andrea Hoffman</p>	<p>Release 1 Start Date: 11/17/16 Release 1 Go Live Date: 8/31/17 Baseline Project Cost: ** (see note) Project Cost Expended (Nov '16 thru Dec '16): \$1.5 million</p>	<table border="1"> <thead> <tr> <th>Overall Status</th> <th>Schedule</th> <th>Scope</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td style="background-color: #008000;"></td> <td style="background-color: #008000;"></td> <td style="background-color: #008000;"></td> <td style="background-color: #008000;"></td> </tr> </tbody> </table> <p>**Note: The Financial Analysis Worksheets are being finalized between DOC, Dept of Technology and Dept of Finance to define Baseline Project cost. Reported cost expended does not include overhead. Discuss at the next Executive Steering Committee meeting.</p>	Overall Status	Schedule	Scope	Cost				
Overall Status	Schedule	Scope	Cost							
<p><b>Project Objectives:</b></p> <ol style="list-style-type: none"> <li>Obtain and maintain long term compliance with laws/regulations for SB 4, SB 1281 and UIC</li> <li>Yield immediate value/demonstrate progress towards compliance</li> <li>Address and prioritize immediate issues of key stakeholders such as Legislature, U.S. EPA, Governor's Office, DOC</li> <li>Standardize regulatory business practices across the Division and apply practices consistently</li> <li>Become a data-driven organization where decisions are made based on quality and robust analysis</li> </ol>		<p><b>Release 1 Scope:</b> Develop and validate WellSTAR's technical architecture using the GWPC Risk Based Data Management System new core technology. Assess how functionality and users interact with the new system. Release 1 introduces users to the system with Bond Management, Entity Management, General and Administrative functions.</p> <p><b>Release 2 Scope:</b> Build upon the technical architecture that is tested and proven in Release 1. Implement eight business capabilities core to WellSTAR including, Well Management, Transfer, Production, Payments, Facility Management, UIC, CEQA Permit Info and Wellbore Diagram. Additional General and Administrative capabilities also are delivered.</p>								
<p><b>Status Summary:</b> The Project is on track. January Release 1 key activities focused on planning activities with the completion of several deliverables (see milestone table below). The Technical Architecture team continued to build the architecture components and the Application Development team started the software design for Entity and Bond. The DOC and Dept of Technology CalCloud agreement was finalized and the initial technical environment provisioned in CalCloud. The Release 2 uses cases for Production, Transfers, Payments and the As Is Process Models for Facility, Well Management, Underground Injection Control are complete. A DOC/DOGGR Training Workgroup has been established. District all staff and operator outreach meetings were conducted in Northern, Coastal and Southern Districts. The UIC project by project review database and tool was completed and met the US EPA required deadline. The Knowledge Management Program was initiated with a focus on knowledge transfer with the Enterprise Services Division.</p>										



# RENEWAL PLAN FOR OIL & GAS REGULATION 2017 UPDATE

## OBJECTIVE 3: MODERNIZE DATA MANAGEMENT

For decades, the Division relied upon paper filing to manage information. Oil production was tracked electronically, but data about permitting of wells, well construction details, and well logs were maintained in paper form. Operators submit applications to drill wells on paper forms, for instance, and Division staff enter some of the data manually into Division systems. New regulations for well stimulation require review of sophisticated industry analyses, including 3-dimensional subsurface modeling. The Division lacks the technology to recreate such models, which limits its ability to independently verify industry submittals. Lack of digital record-keeping hampers the Division's ability to analyze data and respond to legislative and public inquiries.

### Action Item 3.1: Improve Well Information Management System and Business Processes

The Division is partnering with the Ground Water Protection Council (GWPC) to begin the implementation of a centralized well management system. In November 2016, the Well Statewide Tracking and Reporting (WellSTAR) system was formalized as a project for implementation over four defined releases. WellSTAR will leverage the Risk Based Data Management System (RBDMS) from GWPC. RBDMS is a data information management system developed to track oil, gas, injection well, and source water protection that is currently used in 23 states. California will implement a modernized version of RBDMS to include newer technology as well as functionality unique to California resulting from enacted legislation.

The Division developed comprehensive business requirements needed to design and develop the WellSTAR system. WellSTAR will receive and store Division data and automate many Division processes. The project will implement functionality that the Division presently lacks in its current systems. Program development, testing, training, and launch will follow each release. The WellSTAR project is utilizing an incremental approach to deliver additional capability throughout the project timeline.

The Division is also working closely with the Department of Technology to adhere to the Project Approval Lifecycle and project oversight requirements. A defined governance structure with change control processes has been developed to make decisions in a timely manner and at the lowest level possible within the project organization.

#### *Timeline:*

Activity	Start	Finish	Status
<b>WellSTAR Project</b>			
Project Initiation	Apr. '16	Nov. '17	✓
Release 1	Nov. '16	Aug. '17	IP
• Release 1 Development	Nov. '16	July 17	IP
• Release 1 Testing	Mar. '17	July '17	PEN
• Release 1 Training	July '17	Aug. '17	PEN
Release 2	Nov. '16	Apr. '18	PEN
Release 3	Fall '17	Fall '18	PEN
Release 4	Spring '18	Spring '19	PEN

Key: ✓ = Complete      IP = In Progress      PEN=Pending

# RENEWAL PLAN FOR OIL & GAS REGULATION 2017 UPDATE

## **Action Item 3.2: Improve Transparency of Division Data**

For most of the Division’s history, the Division publicly presented data about the oil and gas industry once a year through an annual report of the State Oil and Gas Supervisor. The Division answered inquiries about particular wells (1) in an ad hoc manner or (2) by allowing operators or members of the public to review data on microfiche files physically held in district offices. The Division began scanning well records to PDF format files in 2004, though some districts experienced difficulties with the contractors who conducted the scanning jobs. Once those files were scanned to PDF format, however, the data was not significantly more useful because the PDF files were no more searchable than paper or microfiche, making data analysis an insurmountable chore.

With the 2013 enactment of Senate Bill 4 (Pavley), the Division is required to make more information available to the public. The Division met the requirement to begin providing disclosure of chemicals used in well stimulation jobs in an interim fashion, and developed a disclosure system to provide the information on an ongoing basis as of January 1, 2016. The Department’s information technology staff worked with the Division to develop a Well Finder application that works in conjunction with the disclosure webpage to provide a degree of web-based GIS capability for the public. Additionally, the Department is placing oil operators’ water use records online, as required under the provisions of SB 1281 (Pavley), enacted in 2014. The Division now has over one year’s worth of oil operators’ water use records and will begin the process of analyzing that data to identify important questions regarding the water life cycle in California’s oil and gas production that may better inform the future decisions that impact water use in the production of oil and gas in California.

### ***Timeline:***

<b>Activity</b>	<b>Start</b>	<b>Finish</b>	<b>Status</b>
Interim Well Stimulation Treatment Notice System	Oct. '13	March '14	✓
“Well Finder” application	Jan. '13	Jan. '14	✓
Interim post-WST chemical disclosure site on-line	Oct '13	Jan. '14	✓
SB4-compliant post-WST chemical disclosure site on-line	Oct. '13	Jan. '16	✓
SB1281 Reporting On-line	Oct. '14	Aug. '15	✓
Analyze and report out SB 1281 data	June '17	Dec. '18	IP

Key: ✓ = Complete      IP = In Progress

## RENEWAL PLAN FOR OIL & GAS REGULATION 2017 UPDATE

### **Action Item 3.3: Develop e-Permitting Functionality**

While many operators submit digital applications to drill wells or perform other oil field activities, the Division still incorporates the information by hand, sometimes printing the application and re-entering data. In some cases, the Division can accept electronic files from operators, provided the operators format the data in a manner that can be read by the Division's data management systems. In such cases, the electronic filing is conducted not by design of the permitting process, but as a work-around alternative to hand-entering the data.

The Division needs to establish electronic permitting. This would free Division staff to perform more productive regulatory duties, such as reviewing and analyzing proposals and conducting field inspections. Electronic functionality is being built as part of the overall Well Information Management System discussed in Action 3.1, and the timetable is not different than the final launch deliverable.

Activity	Start	Finish	Status
Incorporate e-permitting in Well Information Management System	July '15	Late '18	IP

Key: ✓ = Complete      IP = In Progress

## **OBJECTIVE 4: ENSURING A HIGH QUALITY WORKFORCE**





**OBJECTIVE 4: ENSURING A HIGH QUALITY WORKFORCE**

Until recent budget cycles, the Division did not request—and therefore was not given—additional staff and resources necessary to fulfill its growing mandates. The result was a dramatically understaffed organization that had to (1) take short-cuts, (2) establish work-around solutions to meet regulatory requirements, or (3) simply not complete the requirements. The staff in the Division have not received consistent high-quality training about the role of the regulator or about the industry practices it regulates. The industry work experience some staff brought to the Division is now outdated. Current industry pay rates far exceed entry-level pay rates for civil service, and retention of new staff is difficult. Lack of consistent training about evolving industry practices puts the Division at a disadvantage when staff evaluate proposed permits or conduct field inspections. Furthermore, the Division's organizational structure is outdated, having been built at a time when communication was slower and permitting decisions had to be made independently in district offices proximate to oil fields. That structure fostered insular thinking, a lack of cooperation, and inconsistent application of statewide rules.

**Action Item 4.1: Obtain Adequate Staffing**

The Division has requested resources for additional staff in six consecutive budgets and has been granted those staff. Some staff have been dedicated to UIC Program review and reform, others to implement recent legislation such as SB 4 (Pavley) from 2013 and SB 1281 (Pavley) from 2014.

These are welcome steps toward the Division having sufficient resources to meet workload requirements. However, bolstering staff is a slow process. Civil service hiring processes must be completed, and new staff must be trained.

Newly-hired staff need to be brought to a functioning level before it can be determined whether resource levels need adjustment. The assessment is complicated when the Division is, at the same time, taking on new regulatory duties. The renewal process for the Division must proceed in a step-wise manner that allows for time to implement the last new mandate before imposing the next.

In all, the division made 75 hires in 2016 and 11 thus far in 2017. The Division has hosted several hiring workshops across the State. Most recently, the Division held a workshop in mid-February of 2017 that was focused on navigating the State's hiring process and the variety of classification and opportunities that are available within the Division.

The Division continues to aggressively recruit and is currently working to schedule additional hiring workshops in its most impacted districts located in Bakersfield and Cypress. The Division has also conducted a workshop via videoconference with the University of Texas to recruit entry-level field engineers.

## RENEWAL PLAN FOR OIL & GAS REGULATION 2017 UPDATE

<b>Activity</b>	<b>Start</b>	<b>Finish</b>	<b>Status</b>
FY10-11 Budget Change Proposal (BCP) for UIC Program (34 PY)			✓
FY 11-12 BCP for Permitting and Enforcement staffing (36 PY (6LT))			✓
FY 12-13 BCP for Compliance and Support staff (18 PY)			✓
FY 14-15 BCP for SB 4 Implementation (65 PY (5LT))	July '14	March '16	✓
FY 15-16 BCP for UIC Program (23 PY)	July '15	June '16	✓
FY 15-16 BCP for Oil and Gas Data Management (21 LT PY)	July '15	June '16	✓
FY 16-17 BCP for AB 1420 Implementation (10PY)	July '16	June '17	IP
FY 16-17 BCP for Underground Gas Storage (20 PY)	July '16	June '17	IP

Key: ✓ = Complete      IP = In Progress

# RENEWAL PLAN FOR OIL & GAS REGULATION 2017 UPDATE

## **Action Item 4.2: Improve Recruitment and Outreach**

Technical positions such as Associate Oil and Gas Engineer and Senior Oil and Gas Engineer are critical to the Division's mission. Exams have been offered in the past, and the number and quality of candidates have been low. As a result, the Division lacked enough qualified candidates to fill all of its vacancies. Due to the Department of Human Resources (CalHR) process, Division recruitment and outreach had been limited to posting job announcements in publications obscure to most non-governmental employees.

To get better-qualified job candidates, the Division contracted with CalHR to develop an online exam series for two specialized and technical classifications. The Division and CalHR entered into an agreement in late 2014 to develop online exams continuously open to applicants. Development of the exams was expected to require approximately 12 months. The Division and CalHR dramatically shortened this timeline. These exams are now online and consistently generating quality applicants.

To improve the reach of the Division's recruitment efforts, the Division is embarking on outreach in non-traditional venues. The Division advertised in professional journals targeting petroleum engineers and geologists. CalHR staff visit undergraduate and graduate student recruitment fairs. The Division continues to work with LinkedIn to use online professional networking to promote Division employment to people with experience in engineering, petroleum geology, and related subjects.

The Division has learned through discussions with interested candidates that the technical competence required for these specialized classifications may be acquired in ways other than education and the earning of degrees. Work experience may meet the classification specifications for knowledge, skills, and abilities, but minimum educational requirements disqualify some otherwise experienced potential candidates. The Department continues to work with CalHR on the minimum educational qualifications to determine if work experience can be substituted in certain cases.

### ***Timeline:***

<b>Activity</b>	<b>Start</b>	<b>Finish</b>	<b>Status</b>
Develop on-line exam functionality for technical job classes	Fall '14	Spring '15	✓
Improve recruitment beyond traditional efforts	Spring '14	Ongoing	IP
Review/revise classifications to recognize work experience	July '15	Jan '16	✓

Key: ✓ = Complete      IP = In Progress

# RENEWAL PLAN FOR OIL & GAS REGULATION 2017 UPDATE

## **Action Item 4.3: Reorganize Division**

Traditionally, the Division was divided into six regional districts, each with a district office. These geographically-based districts were structured around California's oil fields. Historically, district offices, headed by a "District Deputy," were authorized to make decisions on behalf of the State Oil and Gas Supervisor—a necessary feature of implementing statewide permitting requirements. The alternative would have created slow permitting processes as applications made their way to the Division's headquarters in Sacramento before the Internet.

A review of Division business processes shows that this district model can lead to inconsistent application of statewide rules. There are some rules for which legitimate differences exist field-by-field. For instance, an oil field where wells are drilled to productive depths of 6,000 feet might legitimately have different well casing requirements than a field with wells drilling to 800-foot depths. However, some programs do require statewide consistency.

In spite of the challenges a district model poses, the district model must be maintained for other reasons. Division staff must regularly visit wells for inspections. Division district staff must be familiar with industry operations in order to be effective regulators, and familiarity requires frequent, direct contact.

The Division is in the process of reorganizing districts. This reorganization will maintain the Division's presence in the oil fields, but also recognize efficiencies by utilizing modern travel options and modern communication tools. The reorganization will ensure a more consistent application of statewide priorities and regulations.

### ***Timeline:***

<b>Activity</b>	<b>Start</b>	<b>Finish</b>	<b>Status</b>
Administrative reorganization under existing authority	Sept. '15	Sept. '16	✓
Review statutory organizational requirements	Sept. '15	Nov. '15	✓
Request and implement statutory organizational changes	Jan. '16	Sept '17	IP



## RENEWAL PLAN FOR OIL & GAS REGULATION 2017 UPDATE

### **Action Item 4.4: Implement Comprehensive and Continuous Training**

The Division's technical staff have had little opportunity for professional training. As a result, many of the Division's regulatory staff are significantly less aware of the industry practices they regulate than are the operators the Division regulates.

The Division is establishing the position of a Technical Training Coordinator who will implement the Division's training plan. That plan will be developed and include necessary training requirements for each level of engineer or other professional staff, as well as a list of knowledge, skills, and abilities that the Division will require professional staff to maintain.

Training opportunities will include regular cross-district meetings of Division staff to develop teamwork and share important information gained from field oversight and observations. This forum will also serve as a means of sharing information gained from independent training courses completed by professional staff. In particular, the Division is exploring establishing ongoing training course commitments with academic and/or research institutions to ensure that Division personnel have the highest-level, current state-of-the-industry understanding of the production practices the Division regulates.

The Division already has begun implementing some training. The Division contracted with TOPCORP, a partnership between The University of Texas, Colorado School of Mines, and Penn State University, and facilitated a three-module training program. The three modules—Petroleum Geology & Engineering, Environmental Management Technology, and Communication and Hot Topics—are all geared towards regulating the oil and gas industry. Over 120 engineers have attended the 80 hours of technical training presented by TOPCORP. Additionally, the Department of General Services has agreed to produce a video safety library for the Division. The Division has also developed a four-hour well site safety course that all engineering staff will attend. In 2015, the Division had almost 90 engineers go through this four-hour course and another 65 engineers certified in Hazardous Waste Operations and Emergency Response (HazWOPER) training.

#### ***Timeline:***

<b>Activity</b>	<b>Start</b>	<b>Finish</b>	<b>Status</b>
Hire Technical Training Coordinator	Sept. '15	Dec. '17	IP
Improve training plan	July '15	Ongoing	IP
Establish safety video library and mandatory training	Sept. '15	Aug. '17	IP

Key: ✓ = Complete      IP = In Progress

# RENEWAL PLAN FOR OIL & GAS REGULATION 2017 UPDATE

## **Action Item 4.5: Develop Best Practices for Staff / Managers**

The Division has been reviewing its internal practices. The review occurred as a result of the establishment of new leadership in the Division in 2014, but also as a part of the review of internal business processes for use in establishing new data management systems. These reviews made clear that detailed, up-to-date training manuals for new employees did not exist. Further, Division practices differed widely among districts for the implementation of Division regulations, worker safety, and administrative processes.

The Division has taken active steps to implement best practices policies and procedures for its employees. The ongoing efforts include a comprehensive assessment of current Division practices, the development of best practice standards, and implementation of standardized policies and training to define best practices and increase Division effectiveness.

The initial step in improving the Division's practices was a comprehensive internal assessment of current policies and procedures. The Division now seeks to achieve consistent best practices standards and procedures. When they are completed, these standards will be applied across the Division.

### ***Timeline:***

<b>Activity</b>	<b>Start</b>	<b>Finish</b>	<b>Status</b>
Internal assessment of current policies and procedures	Mar. '15	June '17	IP
Development of Best Practices Standards	Fall '15	July '17	IP
Implementation of Best Practices Standards	July '16	Ongoing	IP

Key: ✓ = Complete      IP = In Progress

## CONCLUSION

In the year since the Renewal Plan was initially released, the Division has undergone significant change. Over a half-dozen additional items from the Renewal Plan have been completed, including the full implementation of the Division's hydraulic fracturing permitting and regulatory oversight program. In response to the leak at the Aliso Canyon Storage Facility, the Division significantly strengthened oversight of natural gas storage facilities across California. The draft regulations released by the Division represent the strongest gas storage regulatory program in the nation and preparations for the formal rulemaking are underway. The Division continues to make progress strengthening the aquifer protection program, and plans to promulgate stronger underground injection control regulations in 2017.

Since the Renewal Plan was released, the Division has completed the development of its Emerging Technologies Unit, and been developing WellSTAR, a significant update to the Division's data management systems. The Division continues to grow its professional regulatory staff, filling 75 vacancies in 2016, and commenced the reorganization of the Division's regional divisions.

As the Division continues to meet the objectives in this Renewal Plan, new challenges are bound to arise. The natural gas leak at the Aliso Canyon Storage Facility, and the Division's response to the incident, accelerated the gas storage review of the original Renewal Plan while simultaneously forcing the Division to reprioritize other aspects and timelines. However, the Renewal Plan continues to provide a framework to ensure that the Division will be able to handle any challenge in a manner consistent with public expectations for a modern, efficient, collaborative, science-driven regulatory agency. Safety continues to be a cultural norm within the Division, and cutting-edge oil research plays an ever-growing role in the Division's decision making process. The Division remains committed to improvement, transparency, safety, and protection of the public and the environment.



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