

STATE OF CALIFORNIA
Finance Letter - Cover Sheet
 DF-46 (REV 08/15)

Fiscal Year 2016/17	Business Unit 3480	Department CONSERVATION	Priority No. 9
Budget Request Name 3480-009-BCP-BR-2016-A1		Program 2425 OIL, GAS, AND GEOTHERMAL RESOURCES	Subprogram 2425010 REGULATION OF OIL AND GAS OPERATIONS

Budget Request Description
 Underground Gas Storage Regulation

Budget Request Summary

The Department of Conservation, Division of Oil, Gas, and Geothermal Resources (Division), requests 20.0 permanent positions and a baseline appropriation increase of \$4,172,000 (\$3,269,000 ongoing) from the Oil, Gas and Geothermal Administrative Fund (3046). These positions and funds will be used for increased regulatory activities for underground gas storage facilities.

Requires Legislation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Code Section(s) to be Added/Amended/Repealed
---	--

Does this BCP contain information technology (IT) components? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes, departmental Chief Information Officer must sign.</i>	Department CIO	Date
--	----------------	------

For IT requests, specify the date a Special Project Report (SPR) or Feasibility Study Report (FSR) was approved by the Department of Technology, or previously by the Department of Finance.

<input type="checkbox"/> FSR <input type="checkbox"/> SPR	Project No.	Date:
---	-------------	-------

If proposal affects another department, does other department concur with proposal? Yes No
Attach comments of affected department, signed and dated by the department director or designee.

Prepared By <i>[Signature]</i>	Date 3/28/16	Reviewed By <i>[Signature]</i>	Date 3/28/16
Department Director <i>[Signature]</i>	Date 3/28/16	Agency Secretary <i>[Signature]</i>	Date 3/28/16

Department of Finance Use Only

Additional Review: Capital Outlay ITCU FSCU OSAE CALSTARS Dept. of Technology

BCP Type: Policy Workload Budget per Government Code 13308.05

PPBA	Original Signed By: Ellen Moratti	Date submitted to the Legislature 4-1-16
------	--------------------------------------	---

Analysis of Problem

A. Budget Request Summary

The Department of Conservation, Division of Oil, Gas, and Geothermal Resources (Division), requests 20.0 permanent positions and a baseline appropriation increase of \$4,172,000 from the Oil, Gas and Geothermal Administrative Fund (3046) the first year and \$3,269,000 ongoing. These positions and funds will be used for increased regulatory activities for underground gas storage facilities.

B. Background/History

The Division supervises the drilling, operation, maintenance, and plugging and abandonment of onshore and offshore oil, gas, and geothermal wells. The Division carries out its regulatory authority to encourage the wise development of oil and gas resources, while preventing damage to life, health, property, and natural resources. (See Pub. Resources Code, § 3106.) Among the injection wells the Division regulates are those that inject fluids or gas into large underground reservoirs for storage before the gas is later withdrawn for sale during peak load periods.¹ The Division is required to maintain surveillance over these facilities to ensure that the original reserves are not lost, that drilling of new wells is conducted properly, and that no damage occurs to the environment by reason of injection and withdrawal of gas. (Pub. Resources Code, § 3403.5.)

Written approval from the Division is required before any subsurface injection associated with underground gas storage can begin. (Cal. Code Regs., tit.14, §§ 1714, 1724.6.) The Division's regulations at Title 14, Division 2, Chapter 4 of the California Code of Regulations contain specific requirements that an applicant must satisfy before the Division will approve a subsurface injection project. These requirements include submission of engineering studies (including reservoir characteristics and casing diagrams), geologic studies (including structural contour and isopachous maps), and injection plans (including identification of the proposed maximum anticipated surface injection pressure and proposed monitoring system or methods to ensure no damage is occurring). (Cal. Code Regs., tit. 14, § 1724.7.) For underground gas storage projects, the applicant must also submit additional information about the proposed storage reservoir, a list of proposed surface and subsurface safety devices and measures to ensure the safety of the project, and the proposed waste water disposal method. (Cal. Code Regs., tit. 14, § 1724.9.)

Oil, Gas, and Geothermal Administrative Fund Resource History

(Dollars in thousands)

Program Budget	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Authorized Expenditures	26,677	28,957	34,278	35,882	53,851	53,699
Actual Expenditures	22,904	27,643	32,264	35,724	48,473	-
Revenues	25,286	29,055	30,552	30,931	61,607*	68,951*
Authorized Positions	164.9	177.9	195.9	194.8	244.9	266.0
Filled Positions	133.3	141.8	153.2	176.5	184.8	-
Vacancies	31.6	36.1	42.7	16.0	61.9	-

*Revenue covers fund appropriations to the Air Resources Board and State Water Resources Control Board

C. State Level Considerations

¹ California has primary responsibility for regulating "Class II" underground injection wells within its jurisdiction pursuant to a program approved by the United States Environmental Protection Agency under the federal Safe Drinking Water Act. Class II injection wells include wells that inject fluids brought to the surface in connection with natural gas storage operations, and wells that inject fluids for storage of hydrocarbons which are liquid at standard temperature and pressure. (40 C.F.R. § 144.6(b).)

Analysis of Problem

On October 23, 2015, a natural gas leak was discovered from a well being used for injection and production of gas in the Aliso Canyon Natural Gas Storage Facility in Los Angeles County. The leak represents a significant threat to the public peace, health, safety, and general welfare. The leak has forced the relocation of thousands of people from the nearby community, and many residents have reported adverse physical symptoms. The leaking gas is also highly flammable, posing an additional danger to public health and safety.

On January 6, 2016, Governor Edmund G. Brown Jr. issued an emergency proclamation in response to the Aliso Canyon natural gas leak, which directs the Division to promulgate emergency regulations imposing safety and reliability standards for all underground gas storage facilities in California. The Governor's emergency proclamation includes a mandate that the emergency regulations accomplish all of the following:

- Require at least a daily inspection of gas storage well heads, using gas leak detection technology such as infrared imaging.
- Require ongoing verification of the mechanical integrity of all gas storage wells.
- Require ongoing measurement of annular gas pressure or annular gas flow within wells.
- Require regular testing of all safety valves used in wells.
- Establish minimum and maximum pressure limits for each gas storage facility in the State.
- Require each storage facility to establish a comprehensive risk management plan that evaluates and prepares for risks at each facility, including corrosion potential of pipes and equipment.

Consistent with the mandate of the Governor's emergency proclamation, the Division finds that there is an immediate need to require implementation of performance standards specifically designed to require that operators of underground gas storage facilities are properly mitigating risks and taking all appropriate steps to prevent uncontrolled releases, blowouts, and other infrastructure-related accidents. The operation of existing underground gas storage facilities without the immediate implementation of such standards presents a direct and ongoing threat to public health, safety, and the environment.

On January 15, 2016, the Division issued a public notice of intent to adopt emergency regulations for natural gas storage facilities. Consistent with the mandate of the Governor's emergency proclamation related to the Aliso Canyon, these regulations are designed to require that operators of underground gas storage facilities are properly mitigating risks and taking appropriate steps to prevent uncontrolled releases, blowouts, and other infrastructure-related accidents.

This proposal supports the Division's Strategic Goal #2, "Facilitate the wise development of oil, gas, and geothermal resources to meet the State's demand for energy production while continuing to protect public safety and the environment."

D. Justification

Many of the gas storage facilities have been in operation for decades, and the aging wells and infrastructure need to be constantly monitored, inspected, and evaluated for potential threats to health and safety. The leak at the Aliso Canyon gas storage facility has highlighted some shortcomings in the existing regulations and associated oversight of gas storage facilities and operations. The new regulations will focus on the integrity of the wells, reservoir, and facilities, requiring all aspects of the gas storage operations are in compliance and the operations are safe. The emergency regulations address the following:

Require Complete Project Data The emergency regulations would require operators of underground gas storage facilities to provide the Division with complete data regarding the geologic characteristics of the storage reservoir. The regulations would also require data supporting the storage project to include the basis for establishing maximum and minimum reservoir pressure limits. This provision would enable the Division to obtain valuable information, which the Division could use to evaluate project-specific operational

Analysis of Problem

conditions such as pressure limits (described below). The added information would also help the Division and others respond more effectively in emergency situations.

Pressure Limits The emergency regulations would require the Division to impose minimum and maximum reservoir pressure limits on a project-specific basis, and would prohibit injection beyond pressure limits. Pressure is a critical factor in the safe operation of underground gas storage facilities. Failure to set and observe appropriate pressure limits causes unjustified risks to health, safety, and the environment. This performance standard would mitigate those risks by requiring that injection occurs at safe and appropriate pressures.

Monitoring for Annular Gas The emergency regulations would require operators to monitor wells that are part of an underground storage project for the presence of gas in the annuli of the well casings by monitoring annular pressure and annular gas flow in the well. Ongoing compliance with this performance standard would be required soon after the effective date of the emergency regulations, following an appropriate but brief grace period to allow for the readiness of monitoring systems. Because fluctuations in annular pressure or annular gas flow can signify a defect in the well casing or other subsurface well installation, compliance with this performance standard would help early detection and appropriate responses to potential risks before they develop into a larger danger to health, safety, and the environment.

Valve Testing The emergency regulations would require function testing of all surface and subsurface safety valve systems, master valves, and pipeline isolation valves. Testing of all valves would be required following an appropriate but brief grace period to allow for the readiness of testing systems and protocols, and thereafter at an appropriate regular interval. Valves help safeguard against uncontrolled gas releases and blowouts and, in some cases, defective valves can cause or exacerbate risks. Mandatory testing of valves at regular intervals are requirements that these important components of gas storage infrastructure are maintained in good working order and able to perform as expected. Compliance with this performance standard would help prevent accidents at gas storage facilities, and establish that valves will effectively control gas flow as needed.

Inspections of Wellhead Assembly and Attached Pipelines The emergency regulations would require operators to inspect the wellhead assembly and attached pipelines for each well used in the gas storage project. Operators would be required to conduct ongoing inspections and use effective leak detection technology such as infrared imaging. This performance standard would help prevent accidents at gas storage facilities with early discovery of leaks or other irregularities in the wellhead assembly and attached pipelines. Early detection enables operators and regulators to take appropriate responsive action before potential risks develop into a larger danger to health, safety, and the environment.

Risk Management Plans The emergency regulations would require operators to develop comprehensive Risk Management Plans within an appropriate time after the effective date of the emergency regulations. The plans, which would be subject to Division approval and routinely updated, would address data collection, hazard identification, risk analyses, preventative and monitoring processes to reduce risks, and periodic reassessment procedures. Operators would be required to include protocols for ongoing verification of mechanical integrity of the wells within the gas storage facility, corrosion monitoring and corrosion risk assessments, ongoing verification of reservoir integrity, and specific identification of potential threats and hazards associated with the project.

This requirement would compel all operators of underground gas storage facilities to undertake a holistic, project-scale risk assessment of their operations. The plan protocols would also serve the benefit of reducing risks to health, safety, and the environment by requiring operators to verify the mechanical integrity of their wells, reservoir, and other facility installations on an ongoing basis. It is anticipated that the Risk Management Plans would facilitate more effective oversight of operations and implementation of targeted prevention measures, thereby reducing risks and decreasing the overall chances of unmitigated infrastructure-related accidents.

Analysis of Problem

Below is a table of current gas storage projects throughout the State, by District. The number of active wells that will need regulating is 343, the majority of which are located in the Northern District.

GAS STORAGE PROJECTS in CA				
District	County	Field	Operator	Active Well Count
Southern	Los Angeles	Playa del Rey	So Cal Gas	22
		Aliso Canyon	So Cal Gas	92
		Honor Rancho	So Cal Gas	32
Coastal	Santa Barbara	La Goleta Gas	So Cal Gas	17
Inland	Madera	Gill Ranch Gas	Gill Ranch Storage LLC	12
Northern	Butte	Wild Goose Gas	Wild Goose Storage LLC	17
	Colusa	Princeton Gas	Central Valley Gas	8
	Contra Costa	Los Medanos Gas	PG&E	20
	San Joaquin	Lodi Gas	Lodi Gas Storage	9
		Lodi Gas	Lodi Gas Storage	8
		McDonald Island	PG&E	81
	Solano	Kirby Hill Gas	Lodi Gas Storage	9
		Kirby Hills Gas	Lodi Gas Storage	9
	Yolo	Pleasant Creek Gas	PG&E	7
Totals	9 Counties	12 Fields	6 Operators	343 Active GS Wells

Analysis of Problem

Staffing needs and associated responsibilities to accomplish the oversight of the above gas storage operations are as follows:

Associate Oil and Gas Engineers (AOGE) - 7.0

Associate Oil and Gas Engineer Workload	Time to perform	# of items	Hours
Monitor and evaluate all of the criteria that will inform the division on the potential of corrosion within the gas storage facility	103	14	1,442
Develop a comprehensive risk management plan structure for operators, and ensure operator compliance with the risk management plan	65	14	910
Conduct regular risk assessment reviews and document necessary mitigation measures as defined in the risk management plan	208	14	2,912
Act as lead to monitor and evaluate testing results of storage facilities	5	343	1,715
Verify and monitor injection and production rates and pressures for compliance	7	343	2,401
Act as lead to monitor and evaluate well mechanical testing results	6	343	2,058
Permit well activity	1	100	100
Conduct annual project reviews	5	343	1,715
Other duties as assigned			800
Total			14,053

Engineering Geologist (EG) – 9.0

Engineering Geologist Workload	Time to perform	# of items	Hours
Witness the mechanical integrity tests for each well used in an underground gas storage project	9	686	6,174
Review testing and monitoring data to ensure compliance with risk management plans	3	343	1,029
Conduct wellhead inspections and verification of normal annulus pressures as part of overall field inspection activity	6	343	2,058
Annual physical inspections and tests of, where installed, subsurface safety valve systems at gas storage projects throughout the State	17	343	5,831
Annual physical inspections and tests of pipelines at gas storage facilities throughout the State	4	343	1,372
Assist with annual project reviews	2	343	686
Other duties as assigned			700
Total			17,850

Analysis of Problem

Senior Oil and Gas Engineer (SOGE) – 2.0

Senior Oil and Gas Engineer Workload	Time to perform	# of items	Hours
Supervise the development of a gas storage risk management plans	125	14	1,750
Supervise staff performing well permitting, integrity testing, pipeline testing and inspection, and gas storage field monitoring	90	22	1,980
Interface with gas storage operators to ensure compliance with regulations, development of best practices, and encourage transparency and cooperation	85	6	510
Other duties as assigned			200
Total			4,440

Legal Analyst – 2.0

Legal Analyst Workload	Time to perform	# of items	Hours
Support legal staff research efforts and other administrative tasks associated with legal review and preparation	400	6	2,400
Receive and coordinate Public Records Act requests associated with gas storage facilities	13	75	975
Other Duties as assigned			400
Total			3,775

E. Outcomes and Accountability

Approving this request enhances the Division’s regulatory framework for underground gas storage facilities. The requested personnel will support Governor Edmund G. Brown Jr.’s emergency proclamation issued on January 6, 2016, which directed the Division to promulgate emergency regulations imposing safety and reliability standards for all underground gas storage facilities in California.

F. Analysis of All Feasible Alternatives

Alternative #1 – Approve requested 20.0 permanent positions and a baseline appropriation increase of \$4,172,000 (\$3,269,000 on-going) from the Oil, Gas and Geothermal Administrative Fund (3046).

Pros:

- The Division has the resources to support a comprehensive regulatory framework for gas storage facilities in California that will adequately protect the public and the environment.
- Does not require any support from the General Fund.

Cons:

- Requires additional resources.

Analysis of Problem

Alternative #2 – Deny this request.

Pros:

- No additional expenditures will be incurred.

Cons:

- Limits the Division's capacity to support the regulatory framework that has been developed to provide for increased monitoring and compliance of gas storage facilities throughout the State.
- Reduces the amount of inspections at gas storage facilities in the State.
- Increases the risk of uncontrolled releases, blowouts, and other infrastructure-related accidents at gas storage facilities in California.

Alternative #3 – Provide funding for positions for a five-year limited term.

Pros:

- Reduces the overall expenditure that will be required.
- May provide for some resources needed to fully implement increased regulatory framework.
- No impact to the General Fund.

Cons:

- Limits the Division's ability to permanently enforce gas storage regulations.

G. Implementation Plan

Provide funding and positions authority upon enactment of the Budget Act of 2016.

H. Supplemental Information

The Division has a current fleet of vehicles for field engineers who regularly travel to sites to perform their work. The Division is requesting an additional 6 vehicles for the added staffing from this BCP. The Division is also requesting 6 methane gas detectors that will be needed by staff performing tests and inspections at all gas storage projects. These will be one-time costs.

I. Recommendation

The Department recommends alternative #1 – approve requested 20.0 permanent positions and a baseline appropriation increase of \$4,172,000 (\$3,269,000 on-going) from the Oil, Gas and Geothermal Administrative Fund (3046).

BCP Fiscal Detail Sheet

BCP Title: Aliso Canyon: Underground Gas Storage Regulation

DP Name: 3480-309-BCP-DP-2016-A1

Budget Request Summary

	FY16					
	CY	BY	BY+1	BY+2	BY+3	BY+4
Positions - Permanent	0.0	20.0	20.0	20.0	20.0	20.0
Total Positions	0.0	20.0	20.0	20.0	20.0	20.0
Salaries and Wages						
Earnings - Permanent	0	1,903	1,903	1,903	1,903	1,903
Overtime/Other	0	9	9	9	9	9
Total Salaries and Wages	\$0	\$1,912	\$1,912	\$1,912	\$1,912	\$1,912
Total Staff Benefits	0	860	860	860	860	860
Total Personal Services	\$0	\$2,772	\$2,772	\$2,772	\$2,772	\$2,772
Operating Expenses and Equipment						
5301 - General Expense	0	249	50	50	50	50
5302 - Printing	0	5	5	5	5	5
5304 - Communications	0	34	34	34	34	34
5306 - Postage	0	2	2	2	2	2
5320 - Travel: In-State	0	24	24	24	24	24
5322 - Training	0	16	16	16	16	16
5324 - Facilities Operation	0	280	280	280	280	280
5346 - Information Technology	0	89	66	66	66	66
5368 - Non-Capital Asset Purchases - Equipment	0	681	0	0	0	0
539X - Other	0	20	20	20	20	20
Total Operating Expenses and Equipment	\$0	\$1,400	\$497	\$497	\$497	\$497
Total Budget Request	\$0	\$4,172	\$3,269	\$3,269	\$3,269	\$3,269
Fund Summary						
Fund Source - State Operations						
3046 - Oil, Gas, and Geothermal Administrative Fund	0	4,172	3,269	3,269	3,269	3,269
Total State Operations Expenditures	\$0	\$4,172	\$3,269	\$3,269	\$3,269	\$3,269
Total All Funds	\$0	\$4,172	\$3,269	\$3,269	\$3,269	\$3,269
Program Summary						
Program Funding						
Regulation of Oil and Gas Operations	0	4,172	3,269	3,269	3,269	3,269

2425010 - Res

3046 - Oil, Gas, and Geothermal
Administrative Fund

Total Revenue - All Funds

	\$0	\$4,172	\$3,269	\$3,269	\$3,269	\$3,269
	0	4,172	3,269	3,269	3,269	3,269
	\$0	\$4,172	\$3,269	\$3,269	\$3,269	\$3,269

