SB 463: Chemical Inventory and Root Cause Analysis Regulations

PUBLIC COMMENT SUMMARY AND RESPONSE

Public Comment Period:
April 19, 2024 – June 5, 2024

Public Comment Hearing:
Virtual – June 4, 2024

INTRODUCTION

The following comments, objections, and recommendations were made regarding the proposed Underground Gas Storage SB 463: Chemical Inventory and Root Cause Analysis Regulations rulemaking action during a public comment period beginning April 19, 2024, and ending June 5, 2024. During that public comment period, a virtual public comment hearing was conducted on June 4, 2024. Over the course of the public comment period, the California Geologic Energy Management Division (CalGEM) of the Department of Conservation (Department) received a number of public comments via email and public comment hearing. These comments ranged from support for and opposition to the regulations to general concerns about underground gas storage operations and suggested modifications to the regulations.

To facilitate the process of reviewing and responding to comments, the Department assigned a unique numerical signifier to each comment. This signifier consists of three components: first, a unique commenter number assigned to each commenter (listed in the table below); second, a separating hyphen; and, third, a sequential number assigned to each comment from the identified commenter. Within this document, you will find either grouped or individual numerical signifiers, followed by a comment summary or a specific comment repeated verbatim, followed by the Department's response (italicized). Comments are grouped by subheadings indicating similar comment topics.

INDIVIDUAL COMMENTERS

Commenter Number	Name and/or Entity
001	Val Carrick
002	Lisa Hammermeister
003	Daren Black
004	N Scott
005	Rebecca Swanson
006	Richard Bratkovich
007	Joseph Goldstein
008	Adam Joselson
009	Craig Barry
010	Patty Gluek
011	Tracy Hunckler, Day Carter Murphy on behalf of Central Valley Gas Storage LLC, Gill Ranch Storage LLC, Lodi Gas Storage LLC, and Wild Goose Storage LLC
012	Tom McMahon, Southern California Gas Company (SoCalGas)
013	Lucy Redmond, Pacific Gas & Electric Company (PG&E)
014	Marcia Hanscom

ACRONYMS

AOC	Abnormal Operating Condition
API RP	American Petroleum Institute Recommended Practice
AQMD	Air Quality Management District
ASTM	American Society for Testing and Materials
Blade RCA	Blade Energy Partners. "Root Cause Analysis of the Uncontrolled Hydrocarbon Release from Aliso Canyon SS-25," Main report and Volumes 1-4. May 16, 2019.
CalGEM	California Geologic Energy Management Division
CARB	California Air Resources Board
CCR	California Code of Regulations
CCST	California Council of Science and Technology
CPUC	California Public Utilities Commission
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency
ERP	Emergency Response Plan
FAA	Federal Aviation Administration

FAQ	Frequently Asked Questions
IPR	Inflow Performance Relationship
NTO	Notice to Operators
PHMSA	Pipeline & Hazardous Materials Safety Administration
PG&E	Pacific Gas & Electric Company
PRC	Public Resources Code
RMP	Risk Management Plan
SoCalGas	Southern California Gas Company
SS-25	Designation of well at Aliso Canyon which leaked in 2015
SSSV	Subsurface Safety Values
UCLA	University of California, Los Angeles
UGS	Underground Gas Storage

COMMENTS

General Comments

002-1
Commenter was a victim of Aliso Canyon, which is still operating in a residential neighborhood, and she does not believe the Southern California Gas Company was forthcoming regarding the SS-25 leak. Commenter and her family were relocated but not before Commenter's granddaughter was affected by methane. She had to go to the emergency room for breathing problems. Commenter doesn't trust the gas company.

Response: *NOTED. Comprehensive regulations that took effect in 2018 mitigate the threat of another gas storage well blowout by ensuring mechanical integrity of gas storage wells and providing more comprehensive oversight of underground gas storage* (UGS) *facilities.*

These new regulations further address community concerns. First, in the event of a reportable leak, operators must provide a complete inventory of the chemicals that could be emitted from the well. These regulations also add new or enhanced requirements to address key findings of the Blade Energy Partners "Root Cause Analysis of the Uncontrolled Hydrocarbon Release from Aliso Canyon SS-25," (Blade RCA) that were not already addressed in CalGEM's 2018 regulations.

004-1
These are common sense regulations and should be implemented in due course to prevent another Aliso Canyon disaster.

Response: *NOTED. Thank you for your comment.*

005-1
Commenter is in favor of the most regulation possible to ensure safety to the environment, hence to plants, animals, and people.

Response: *NOTED. Thank you for your comment.*

008-1
Commenter writes to express support for the proposed regulations. The oil and gas industries are able to exist and profit solely due to their ability to externalize the significant deadly costs associated with oil and gas extraction, storage, and processing. It is a great injustice that these externalizations have been allowed to persist for as long as they have. Commenter commends CalGEM for advancing the causes of environmental justice and holding the oil and gas industries accountable for the environmental and public health risks they are imposing on the communities and ecosystems of California. Commenter thanks CalGEM for its good work, hopes to see this regulation come to pass, and for CalGEM to continue to protect Californians and the environment through stricter regulations on these destructive extractive industries.

Response: *NOTED. Thank you for your comment.*

010-10
Commenter recommends the following references for consideration:

The Blade Energy RCA supplemental report: blob:resource://pdf.js/e72a4f03-cbe2-4742-9569-a1b7a0c4d459#filename=Aliso%20Canyon%20Regional%20and%20Local%20Seismic%20Events%20Analysis%20Final%20May%2031%2C%202019.pdf [sic]

The CCST report: https://ccst.us/wp-content/uploads/Full-Technical-Report-v2_max.pdf

The LA County Dept. of Public Health CASPER survey report: http://publichealth.lacounty.gov/media/docs/CASPERFinalReport.pdf

UCLA Health Study meeting about low birth weights after the Aliso blowout: https://alisostudy.ucla.edu/events/meeting-3/

Study of particulate matter disseminated through prevailing winds: http://publichealth.lacounty.gov/media/docs/AlisoCanyonAirMonitoring-ModelingReport.pdf

Commenter has compiled information from these links and others, as well as from various hearings held in connection with Aliso Canyon since 2015, into an online book, https://adobe.ly/48SmVF4.

Response: *NOTED. Thank you for your comment.*

012-1
Commenter recommends the draft regulations harmonize with existing industry guidance such as American Petroleum Institute Recommended Practice (API RP) 1171 or in current Federal Underground Natural Gas Storage Regulatory Guidelines under the Pipeline and Hazardous Materials Safety Administration (PHMSA), where applicable, for consistency and to help clarify similar and overlapping requirements. Commenter also recommends the Division provide clarity to avoid creating ambiguity as to which utility assets and operations they apply and to avoid creating inconsistency or conflicting or duplicative requirements.

Response: *ACCEPTED. Where appropriate, the regulatory text has been updated to better harmonize with API RP 1171 (2015 edition) and PHMSA requirements. Updates include using the terms "abnormal operating condition" and "safety related condition" and revising the emergency response plan update interval to align with PHMSA's emergency response plan deadlines. Where these regulations supplement or differ from API RP 1171 or PHMSA*

requirements, the supplementation or differentiation is needful to fulfill CalGEM's purposes and to support the safe operation of UGS facilities operating in California.

013-6
Commenters respectfully request that the Division continue to hold joint operator workshops during the rulemaking process, as well as prior to any implementation of the regulations to provide instruction and clarity to operators on any final regulations. Commenters anticipate that such workshops would also benefit the Division by providing insight into operators' progress on implementation and a forum to discuss opportunities for potential clarification. An initial workshop was held with operators in 2018 as the Underground Storage Regulations, § 1726, were being drafted, and it was helpful for Commenters to better understand the intent of the regulations and align on implementation.

Response: *ACCEPTED IN PART. CalGEM has met with operators and other stakeholders throughout this regulation development process. As implementation proceeds, if need for a workshop arises, CalGEM can schedule one. Additionally, operators may submit questions regarding compliance with these regulations to CalGEM's UGS Program team.*

013-7
Because Cal. Code tit. 14, § 1726 et seq. is currently under revision, we respectfully suggest that a conversation with operators about previously adopted regulations may be warranted to inform how implementation is progressing and identify potential revision areas to improve safety and risk reduction.

Response: *NOT ACCEPTED. The purpose of this regulatory process is to implement Senate Bill 463 statutory requirements, and a complete reevaluation of CalGEM's existing UGS regulations is out of scope of this rulemaking. Any future rulemaking effort focused on California Code of Regulations, title 14 (CCR), sections 1726, et seq. would include an opportunity for CalGEM engagement with the public, including UGS operators.*

013-8

Commenters would encourage the Division to use Notice to Operators (NTO) to provide clarification of any final regulation similar to PHMSA-Issued Frequently Asked Questions (FAQs) to provide consistency and guidance on common issues.

Response: *ACCEPTED IN PART. CalGEM may consider issuing written guidance where there are common questions and will issue a Notice to Operators if needed. Where operators have specific questions, the operators should contact CalGEM directly.*

013-9
In the final process for these proposed regulations, Commenters encourage CalGEM to communicate and coordinate with the California Public Utilities Commission (CPUC), the Pipeline and Hazardous Materials Administration (PHMSA - Office of Pipeline Safety), and California Air Resources Board (CARB) to help ensure adoption of terminology consistent with these agencies that avoids reporting of similar requirements and potential miscommunication. (For example, safety related condition report, AOCs, reportable vs noticed leak, and blowout).

Response: *ACCEPTED IN PART. CalGEM notified the CPUC, PHMSA, and CARB about this rulemaking and the regulation content, and CalGEM comprehensively reviewed relevant state and federal requirements for UGS operations. Where appropriate, CalGEM has harmonized provisions and made targeted changes to enhance consistency, reduce potential confusion, and support safety.*

013-28
1726.9 Commenter proposes language modifications to 1726.9 to provide clarity when a leak is required to be reported to the Division. Current language could be interpreted that a leak of any size and consequence, even a non-hazardous, fugitive leak would fall under this reporting criteria. Commenter suggests revising the noted sections to align with overlapping and duplicative reporting requirements in place with CARB Oil and Gas Rules. We believe this would more accurately match the intent of SB 463 and SB 887, and subsequently Public Resources Code (PRC) section 3183, which reads, "The regulations shall require

an operator to immediately report to the division a leak that poses a significant present or potential hazard to public health and safety, property, or to the environment." Commenter recommends revising this section to clarify and align with the CARB rules, specifically removing criteria that would ostensibly include fugitive emissions as reportable leaks and instead refer to Cal. Code tit. 17, § 95673 for notification and reporting of these leaks. This will help operators discern when chemical inventories must be submitted in response to a reportable leak.

Suggested language: Remove 1726.9 paragraphs (a)(1) and (2). In paragraph (a)(4) add the following language: "(4) Refer to CARB oil and gas rules for notification requirements of non-hazardous leaks." And in paragraph (b) add the following language: "If a gas storage well has a reportable leak, that poses significant present or potential hazard (i.e. blowout), then the operator shall immediately, or as soon as practicable, inform the Division. Non-hazardous leaks shall be reported in alignment with the CARB oil and gas rule.

Response: *NOT ACCEPTED. CCR section 1726.9, which defines what is a reportable leak, is not being amended in this rulemaking. CalGEM's definition of reportable leak was developed in consultation with CARB, in accordance with PRC section 3183(a), and is to be reviewed, and if necessary revised, again in consultation with CARB, pursuant to PRC section 3183(d). Any future rulemaking effort focused on section 1726.9 would include an opportunity for CalGEM engagement with the public, including UGS operators.*

Chemical Inventory

010-1
Commenter explains the importance of obtaining an inventory of all materials used in the underground gas storage facilities, including chemicals used for filtering and storing materials. Commenter would also want to know chemicals that were used at the origin of the gas (e.g., Texas or other states), including fracking soups. Commenter also writes they should not have to wait until the next blowout to find out what the community has been poisoned with, especially as the gas company often obfuscates any problems it has with the wells. We know there has been an increase in cancer and other life-threatening

conditions since the blowout so there's a strong public health reason for the state to compel a full list from SoCalGas…not just for the Aliso facility, but for all of their underground gas storage sites. In light of SoCalGas's refusal to act in the public interest, the state needs to compel the company to release the much-requested information about the composition of materials, many of which are listed on the Proposition 65 list, used at the site.

Commenter writes that we also know that since the damaged well was sealed, the remaining wells continue to leak, that health complaints did not go away, and that studies show that houses and the air outside continue to be contaminated with chemicals.

Response: *ACCEPTED IN PART. Chemical inventories will now be required for all underground gas storage facilities. This will include all chemicals placed in the well that may be emitted during a reportable leak and chemicals identified in baseline analytical testing. If a specific chemical not currently identified as a chemical of concern becomes a concern at a specific UGS facility CalGEM may require the operator to test for the presence and if possible, quantity of that chemical.* ***I****nventories will be submitted annually, after permitted well work, and in response to reportable leaks. The inventories will be made available through CalGEM's public website.*

010-4, 014-1
Commenter states that residents are aware that the SoCalGas chemical engineer in charge of testing for various chemicals had testified in 2018 about finding high levels of benzene by the wells in 2003. At that point, the testing for this carcinogen was discontinued by the gas company. Commenter states that residents are also aware that a professional who used to work at the Department of Conservation admitted at a state Senate hearing that there will be off gassing at the wells for an unknown amount of time. In light of SoCalGas's refusal to act in the public interest, the state needs to compel the company to release the much-requested information about the composition of materials, and more than 200 chemicals that are used for injection and extraction, many of which are listed on the Proposition 65 list, used at the site.

Response: *ACCEPTED IN PART. All operators will now be required to provide up-to-date chemical inventories to CalGEM, and the inventories will be publicly available.*

011-14
1726.4.3 The Division's economic impact assessment anticipates that this testing will be performed once per reservoir. Commenters agree that testing each reservoir once is suitable for the purposes of the regulation. Commenters have already conducted some testing that would be responsive to this requirement. The Division should accept sample analyses from prior to the effective date of the regulation as part of the workplans for completing testing and analysis.

Response: *ACCEPTED. To the extent earlier records are responsive and of sufficient quality and reliability, they would be accepted. PRC, section 3181.5, subdivision (a)(2), requires the Division to consider information collected pursuant to its existing regulations when determining what information satisfies the requirements of the well chemical inventory requirement.*

011-15
1726.4.3. Commenter states that operators have various strategies for managing storage gas, and the gas injected into the reservoir through one well can be withdrawn from the reservoir by a different well. Tracking the chemical inventory information about the reservoir level instead of the well level would better reflect Commenter's operations. Commenter states that he suggested alternative is more effective in carrying out the purpose for which the action is proposed.

Suggested Alternative: "…the Gas Storage Well Chemical Inventory shall identify on a ~~well-by-well~~ reservoir basis all chemical constituents found in materials of any phase that may be emitted from the well."

Response: NOT ACCEPTED. The statute requires a "well" chemical inventory, not a reservoir chemical inventory, thus it must be reported by well. To the extent that reservoir testing data applies to multiple wells, that shared data should be reported in each affected well chemical inventory.

011-16
1726.4.3(d)(1). In the event of a reportable leak, Commenter, as an operator, has the ability to quickly identify the reservoir inventory level which is updated daily. UGS operators are required to track volumes of storage gas in existing systems for various regulatory, commercial, operational, and business purposes. The proposed requirement to report the storage gas placed in a way as part of the inventory is repetitive of existing requirements, including section 1726.4(a)(6)(E) and Form OG110B. The suggested additional language is more effective in carrying out the purpose for which the action is proposed and consolidates and simplifies reporting requirements.

Suggested Additional Language: "…(D) If dates, volumes, and cumulative volumes of storage gas are tracked in a separate manner that can be promptly provided to the Division in the event of a reportable well leak, then storage gas can be omitted from the Gas Storage Well Chemical Inventory."

Response: *ACCEPTED IN PART. Operators should report storage gas in the inventory as something that can be emitted from the well but do not need to include volumes and dates of storage gas injection and withdrawals. An analysis of storage gas is already required by section 1726.4(a)(6)(E) to be reported annually and a cross reference to that section has been added. The regulations have been updated to exempt storage gas from the additional dates and volume requirements.*

011-17
1726.4.3(a)(2). There can be situations where Commenter's wells produce small amount of gravel, packed sand, or in-situ reservoir components like sand, shale, or coals. It is not practicable to study the reservoir fabric present at each well. The Division should clarify that in-situ solids are exempt from lab analysis. If it is required that the in-situ "entrained solids" be included in the inventory, this should be on a reservoir level, not a well level. Commenters request that the Division provide guidance on which methods of solids testing are expected. This suggested alternative takes into account the resources available to operators.

Response: *ACCEPTED IN PART. In-situ reservoir components like sand, shale, or coals, where present, should be listed in the baseline inventory for each well but volumes of such components are not required.*

011-18

1726.4.3(d)(4). The gas storage well chemical inventory is to be prepared on a well-by-well basis. If Commenter makes one small change to its kill fluid design, this may require a re-submission following each workover. As written, this is inefficient. An annual submission would be more reasonable. The Division should also extend the deadline for the initial provision of the inventory from six months to twelve months. This suggested alternative established a different timetable taking into account the resources available to operators and consolidates and simplifies reporting requirements.

Response: *ACCEPTED IN PART.* PRC section 3181.5 requires a "complete" chemical inventory and in the event of a reportable leak, an updated inventory that CalGEM must post online. The statute already requires inventory submittal at least annually (or more often as CalGEM determines) and within five days of the use of well control fluids to kill the well in response to a leak. If additional chemicals are added to the well during well work, the inventory should be promptly updated to include the additional chemicals added to or used on the well. Requiring submission of an updated inventory after such work ensures that operators keep their well specific inventories appropriately updated, and that CalGEM has the most up-to-date version of the inventory ready for posting in the event of a reportable leak. Given that inventories are to be submitted in a digital format, CalGEM expects that inventories will be maintained in digital format and that updates and electronic submission can be easily accomplished. CalGEM has extended the deadline for the initial inventory submission to twelve months, in recognition of the need to develop and submit inventory protocols, and to complete required testing.

011-19

1726.4.3(d)(4). As written this text could be interpreted to require reporting of storage gas placed in wells during normal operations within 60 days. Commenters believe that the Division did not intend to require submission of updated inventories every 60 days solely to report that gas storage wells are being used for normal storage operations. The suggested alternative consolidates and simplifies reporting requirements for operators.

Suggested Alternative. "…Any chemicals place in a well outside of permitted well work, excluding gas placed in a well for storage, shall be reported to the Division within 60 days of placement."

Response: *ACCEPTED IN PART. CalGEM has removed the 60-day requirement, relying upon the requirements for inventories to be submitted 1) annually, 2) after permitted work, and 3) after a reportable leak. These three triggers will ensure that the inventories are appropriately up to date if needed in response to a reportable leak. Additionally, CalGEM has edited the regulations to focus on the contents of the gas rather than volumes and dates injected. Reporting dates and volumes of gas injected would make the inventory cumbersome and difficult to read due to many records for gas injection and would be duplicative of existing monthly injection and withdraw reporting requirements. The section 1726.4(a)(6)(E) requirement to submit gas composition information annually has been cross-referenced to incorporate those results into the inventory.*

011-20
When providing data to public health officials, only the most recent several years of data will be of use to them, and it will make their analysis more effective by only reviewing data which reflect the current condition of the wells and reservoirs.

Response: *NOT ACCEPTED. The well chemical inventory provides a list of chemicals that may be emitted from the well. Historic records of all chemicals added to the well since the regulations took effect are more likely to provide a comprehensive record of what may be emitted. Public health officials can then choose, as necessary, what timeframe and chemicals may be relevant to a given public health study.*

012-19
Commenter notes this section seems to require that any chemical constituents introduced into a well would be produced in the event of a reportable leak, which, in some cases, could be as low as 10,000 ppm. Commenter seeks clarification on sampling and testing frequencies, detection, and testing methodology for detected chemical constituents, among other things.

In subsection 1726.4.3(a), Commenter seeks clarification on the frequency to test for chemical constituents and the need to test each gas storage well.

Response: *ACCEPTED IN PART. Language clarifying that these requirements are to establish a baseline and triggered by the operator's emergency response plan have been added to the regulations; CalGEM does not intend the operator to perform analytical testing beyond that required by 1726.4.3(c), baseline testing, and 1726.3.1(c)(16) testing triggered by their emergency response plan. When establishing the baseline, discrete portions of the reservoir that are not connected should each be tested, but testing every well is not required for baseline materials. To the extent the reservoir is not homogenous, testing should be conducted for each unit.*

012-20
In subsection 1726.4.3(c), Commenter recommend CalGEM specify detection levels and testing methodology for any additional constituents CalGEM requires operators to test and analyze.

Response: *NOT ACCEPTED. Any valid testing methodology for a given chemical can be used. Operators should determine the most appropriate testing method and identify laboratory resources and include that information in their testing protocols.*

012-21
In subsection 1726.4.3(d)(1), certain chemical constituents may be introduced into a gas storage well that are later recovered as part of a treatment plan or as part of a well workover. Commenter seeks clarification on the extent those chemicals need to be included in the chemical inventory.

Response: *CLARIFICATION. Chemicals that may have been recovered must be included in the chemical inventory at their original volumes. Where those chemicals have been recovered, this can also be reported in the inventory in a separate data field.*

012-22
Commenter recommends against the duplication of reporting certain chemicals if they have already been reported in a well chemical inventory.

Response: *NOT ACCEPTED. It is not clear what Commenter means by duplication. Dates that chemicals have been added to the well are required as are volumes, thus it is not duplication.*

012-23, 013-29
In subsection 1726.4.3(d)(2), Commenter recommends CalGEM clarify the instance of the use of "kill fluids" to instead be referred to as "Well Control Fluids" specifically used in the event of an uncontrolled well leak and that they be used "to control a loss of containment event".

Response: *ACCEPTED. Subdivision (d)(2) was updated, and the relevant text moved to subdivision (d)(3) which clarifies that the requirement applies to well control fluid used to kill the well in response to a leak.*

012-24
In subsection 1726.3.4(d)(6), Commenter is concerned the time between the protocol submittal and initial sampling may give operators as little as 3 months to sample their wells and reservoir which may be difficult for operators with over 100 wells. At minimum, Commenter recommends that the timeline be revised to 6 months.

Response: *ACCEPTED. Operators will now have six months to submit their protocol and twelve months after the effective date of the regulation to complete sampling and submit their inventories. The protocol should provide for testing methods that can be completed within this timeframe and testing of individual wells is unlikely to be necessary to perform the baseline testing for chemicals of concern. Operators may request CalGEM's early review of the Operator's proposed testing methods and procedures prior to finalizing and submitting the entire protocol.*

013-5
Commenters propose additional language to identify with more granularity the fluids that must be analyzed once placed into wells. Commenters are concerned that the current draft language could lend itself to an interpretation that any fluids used in the operation and maintenance of transmission pipelines or facilities would need to be tested because these could be inadvertently carried into gas storage wells from the gas stream. Such a broad interpretation could exceed the intent of the regulation and impose a significant burden on operators. Additionally, it is Commenters' understanding that the testing requirements would not be retroactive, and operators would be required to establish a current day baseline and track incremental materials and fluids introduced. Commenters would encourage that this point be made explicit in the regulations.

Response: *ACCEPTED. Section 1726.4.3(d)(1) specifies that the chemical inventory procedures for tracking apply to material intentionally placed in a well. CalGEM does not intend the operator to perform analytical testing beyond that required by 1726.4.3(c), baseline testing, and 1726.3.1(c)(16) testing triggered by their emergency response plan. Section 1726.3.4 of the regulations limits the testing of chemicals of concern to the reservoir. Section 1726.3.1 specifies that testing and monitoring methods are utilized at the site of the release.*

013-19
Commenter recommends further clarifying that the intent of SB 463 is to provide the Division with a chemical inventory of all chemical constituents that might be emitted from a gas storage well in the event of a reportable leak that poses a significant present or potential hazard to public health and safety, property or to the environment. That is, the intent is not to require operators to provide a chemical inventory list for fugitive, non-hazardous leaks.

Suggested language: 1726.4.3(a). "…in the event of a reportable leak <u>that poses a significant present or potential hazard to public health and safety, property, or to the environment,</u> as defined in …that may be emitted from the well <u>in the event of an uncontrolled release</u>.

Response: *NOT ACCEPTED. The statutory language uses only reportable leak without the modifier. Operators should keep their inventory updated for every reportable leak but only need to submit the inventory based on the triggers outlined in the regulation. Section 1726.4.3 has been modified to require regular submission of the chemical inventory only after permitted well work, accompanying a well summary, within five days after well control fluids are used to kill a well, annually, and after a reportable leak if the inventory on file is not current and complete.*

013-20
1726.4.3(a)(1)(D). Commenter recommends using the term "well control fluid" in place of "kill fluid." Additionally, Commenter recommends clearly stating that the inventory is limited to well work materials specifically, and the scope does not include upstream facilities.

Suggested language: (D)…dissolved salts, ~~kill~~ well control fluid, radioactive…Materials that are used in upstream facility processes that may exist in diminutive amounts are excluded.

Response: *ACCEPTED IN PART. Kill fluid has been replaced with the more inclusive term well control fluid. Additionally, intentionally was add to (D) to clarify that only materials placed intentionally in the well are included in the well chemical inventory.*

013-21
1726.4.3(c). Commenter recommends adding clarifying language to capture the intent of the regulation to create a baseline inventory going forward. Additionally, Commenter recommends requiring chain-of-custody documentation to be maintained and available for audit as necessary; submission of chain-of-custody testing documentation would add additional administrative burden without apparent reductions to risk or safety. It could also conflict with privacy laws and sharing of personnel and vendor names and information that would require confidentiality treatment.

Suggested Language: Storage operators shall establish a baseline presence and, if possible, quantification of chemical constituents…~~Initial tests shall be~~

~~performed to establish presences, and if possible, quantification of chemical constituents~~…chain of custody documentation shall be maintained by the operator.

Response: *ACCEPTED IN PART. The term baseline has been added to the section to clarify that the initial tests are to establish a baseline. Information in chain of custody documentation would not be considered confidential and should be submitted with the lab test results. The chain of custody documentation is an important part of a lab report and provides information necessary to confirm that indicated sampling procedures consistent with testing methods were followed. Historically, CalGEM has received these reports without modification. Phone numbers and personal emails may be redacted.*

013-22
Commenter recommends providing clarity as noted in section (d)(1) on the meaning of what is placed in a well. Based on the current language it could be interpreted that any fluids that may be used in the operation and maintenance of the transmission pipelines or facilities would need to be tested as these may be inadvertently carried in the gas stream and placed in a gas storage well.

Suggested language: 1726.4.3(d)(1) The protocol shall include procedures to ensure that whenever material is intentionally placed in the well for well completion, well maintenance, or well testing, or inspection of a well for integrity purposes, all the chemical constituents…

Response: *ACCEPTED IN PART. CalGEM has limited the requirement to materials that are intentionally placed in the well. Specifying reasons why the materials were placed in the well is not necessary to the goal of developing an inventory of all materials that may be emitted from the well in the event of a reportable leak.*

013-23
Regarding volumes, Commenter recommends changing the tolerance to a reasonable margin of error versus a precise 10% and volumes recovered also be recorded for the date they are placed, and that the cumulative volume be adjusted for the recovered. Operators monitor volumes brought onto the site

and hauled for disposal with accuracy; however, due to the nature of the work, it is difficult to measure liquids with precision and accuracy for placement into and out of the well.

Suggested language: 1726.4.3(d)(1)(B) and (C). (B) The volume, within a ~~10 percent~~ reasonable margin of error, of each chemical constituent placed in the well on a given date and recovered; and (C) The cumulative volume, within a ~~10 percent~~ reasonable margin of error, of each chemical constituent placed in the well adjusted for the volume of fluid that was recovered.

Response: *NOT ACCEPTED. The 10% margin was recommended by public health professionals and provides clarity about what is required. What is a "reasonable" margin of error is ambiguous and subject to differing interpretation, and potentially reduces the reliability of reported volumes of materials. Operators are welcome to reflect elsewhere in the inventory that some materials are recovered but this should not affect the reporting of the original volumes.*

013-24
1726.4.3(d)(4). Commenter recommends that a baseline inventory be submitted within six months of the effective date of the regulation and that no annual submission be required. Re-submission of the entire chemical inventory on an annual basis would be unnecessary because it will be duplicative for most of the data included assuming that well-by-well submissions are made as any materials or fluids are introduced during the course of the year.

Suggested language: 1726.4.3(d)(4) "…within six months of the effective date of this section ~~and provide an updated Gas Storage Well Chemical Inventory to the Division every twelve months thereafter~~.

Response: *NOT ACCEPTED. The statute requires periodic submission, no less than annually. Additionally, the requirement to submit when chemicals have been added outside of permitted work has been removed. Operators will ensure that CalGEM has current inventories through permitted work submissions and annual submissions. Operators are responsible for keeping their inventories current regardless of submission triggers and will verify that the inventory for a well on file*

with CalGEM is up to date, or, if not, provide an updated inventory to CalGEM upon a reportable leak.

013-25
For added clarity, Commenter suggests revising "submission of updates on a per well basis" such that it is separated from the well summary, as the uploading process to the public WellSTAR database is likely to be separate. To coordinate submission and reduce administrative burden, Commenter recommends the Division specify that well-by-well updates are to be submitted within 60 days of work completion.

Suggested Language 1726.4.3(d)(5) The protocol shall also call for submittal of ~~an~~ update~~d~~s to Gas Storage Well Chemical Inventory to the Division after key changes occur~~ring~~ on a well-by-well basis, such as when ~~new~~ chemicals are introduced due to well work which includes but is not limited to well completion, well maintenance, or well testing. Updated chemical inventories for affected wells shall be submitted within 60 days; this includes chemicals introduced outside of permitted well work. ~~along with well summaries for permitted well work in accordance with section 1724.1. Any chemicals placed in a well outside of permitted well work shall be reported to the Division within 60 days of placement.~~

Response: *ACCEPTED IN PART. The well specific well chemical inventory can be uploaded with the well summary in the Document Upload step in WellSTAR and it was intended that this information should stay together. Striking of "new" was accepted.*

013-26
It is the operator's responsibility to produce a protocol and Commenter recommends the protocol be submitted to CalGEM for transparency rather than review. Introducing a required review may place some burden of liability onto CalGEM. Because the anticipated effective date is October 1, Commenter suggests protocol submission to be within six months of the effective date. As currently written with a three-month timeline, submissions would be required by January 1. This is a peak business time for many operators closing out year-end

and starting a new fiscal year. Extending the submission timeline by several months would help facilitate on-time and complete operator submissions.

Suggested language: 1726.4.3(d)(6). "The protocol shall be submitted within six ~~three~~ months [of the effective date] to the Division ~~for review~~ and when the protocol is updated.

Response: *ACCEPTED IN PART. The protocol submission requirement has been extended to six months. CalGEM staff may provide feedback on the protocol to improve it after submission, so a review is appropriate.*

Corrosion

011-6
Investigations of the composition and corrosivity of fluids in formations above the storage zone and of surface and near surface hydrology can help operators assess potential corrosion risks and select appropriate risk mitigation measures ahead of constructing a new storage project, and the Division can require this data collection in its judgment on a case-by-case basis under section 1726.4(a). For examining underground gas storage projects, the existing requirements for casing wall thickness inspections to detect any occurrence of internal or external casing corrosion lead to higher-confidence corrosion risk assessments than the study of fluids in formations above the storage zone and surface and near surface hydrology. Existing requirements for noise and temperature logs inform operators of active bulk flows in near surface hydrology that could potentially impact gas storage wells. For these existing gas storage projects, the regulations should be clarified to enable to Division to exercise its due judgment to reduce overall risk through the use of section 1726.4(a) instead of broadly prescribing the collection of this specific data. The suggested alternatives reduce risk, are more effective in carrying out the purpose for which the action is proposed and are more cost effective.

Suggested Alternative A – Remove section 1726.3.2(a)(1)(E)(ii) and (iii). This suggested alternative is a simplification of compliance and reporting requirements as anomalies identified by Mechanical Integrity Tests already must

be considered under section 1726.3(a)(1)(C) and takes into account the resources and information available to operators.

Suggested Alternative B – Section 1726.3.2(a)(1)(E)(ii) ~~Composition and~~ Corrosivity of all formation fluids ~~including fluids in formations above the storage zone~~. Alternative B is a performance standard for operators to consider available evidence instead of a prescriptive standard; such a performance standard would take into account the resources and information available to operators.

Response: *NOT ACCEPTED. These corrosivity assessments are part of the baseline assessment for corrosivity. Operators can use historical records to identify the composition of formation fluids until a new well is drilled and primary samples can be captured. Edits have been made to this section to clarify that where baseline assessments and testing do not indicate corrosion, mitigation plans are not required, however, the operator should re-evaluate each well's metal loss after every casing wall thickness testing to verify that corrosion is not a risk for each well.*

011-7
1726.3.2(a)(3)(B) and (C). Commenters may perform multiple casing wall thickness inspections each year (in some cases 5-10), which would mean multiple re-evaluations each year. This is costly and inefficient for Commenters to prepare and for the Division to review constant resubmissions of the Risk Management Plan. Operators already must immediately report anomalies that indicate a possible loss or threat to the mechanical integrity of wells to the Division under section 1726.6. The suggested alterative is as effective and less burdensome than that proposed action and consolidates compliance and reporting requirements for operators.

Suggested Alternative: The operator shall reevaluate the corrosion risk mitigation strategies in use every time the <u>results of a</u> casing wall thickness inspection conducted under section 1726.6(a)(2) <u>demonstrate an unexpectedly high rate of corrosion, and during the regular periodic risk assessment review under section 1726.3(c)(9)</u> and any…

Response: *ACCEPTED IN PART. Edits to this section clarify that where baseline assessments and testing do not indicate a corrosion risk, mitigation plans are not required, however, the operator shall re-evaluate each well's metal loss after each casing wall thickness testing to verify the corrosion risk for each well. Additionally, the language was clarified to require that corrosion risk mitigation protocols be updated when changes are made, and any update must be provided to CalGEM along with RMP updates. Records of the evaluation of corrosion risk and mitigation effectiveness must be provided to CalGEM upon request.*

012-5
1726.3.2(a). Commenter is concerned the Division is requiring operators to evaluate, mitigate, or monitor for corrosion in situations where there is no metal loss due to corrosion or when a corrosive environment does not result in corrosion which would adversely affect the safe and continued operation of the applicable well. Commenter seeks clarification and recommends the following amendments:

- (1) Each applicable gas storage well's corrosion risks shall be evaluated, and the risk assessment of each well shall consider…
- (2) The prevention and mitigation protocols shall include corrosion risk mitigation strategies for each applicable gas storage well…

Response: *NOT ACCEPTED. All wells must be monitored for corrosion and the need for mitigation evaluated because corrosion risk may change over time. The evaluation may indicate that mitigation is not necessary, however, this evaluation should be documented. A corrosive environment, even if corrosion is not evident in the well, can contribute to a corrosion risk and any mitigation measure may need to be evaluated and documented.*

012-6
Commenter notes that section 1726.3.2(a)(1)(A) uses the term "corrosion potential" instead of the proposed revised term "corrosivity."

Response: *ACCEPTED. This change has been made.*

012-7
In subsection 1726.3.2(a)(1)(E)(ii), the Division proposes evaluation of composition and corrosivity of formation fluids above the storage zone. Commenter notes formation fluids above the storage zone are not accessible at all gas storage fields, and proposes the following amendment: (ii) Composition and anticipated corrosivity of all accessible formation fluids…

Response: *ACCEPTED IN PART. It is possible to review historical data, logging reports, etc. to assess corrosivity of formation fluids above the storage zone, so "accessible" cannot be a limiter on the formation fluids. However, it is acceptable to anticipate the corrosivity using this historical data, so this change has been made. When drilling a new well, samples should be taken of higher zones to validate any historic data from tests or calculated from logs.*

012-8
In subsection 1726.3.2(a)(1)(E)(iii), The Division proposes evaluation of surface and near surface hydrology. Commenter seeks clarification on the definition of "near surface hydrology."

Response: *CLARIFICATION: Near-surface hydrology is the study of the movement, distribution, and quality of water in the uppermost surface layers of soil and rocks.*

012-9
In subsection 1726.3.2(a)(1)(E)(iv), the Division proposes evaluation of surface well soil conditions. Commenter recommends this subsection be moved to 1726.3.2(D). This provides historical context aligning with (D) as opposed to the evaluation of current environment in (E).

Response: *NOT ACCEPTED. Surface soil conditions are a part of the current environment and are in the correct place in the regulation. Data previously collected related to soil conditions can be applied to this evaluation as long as the testing and data remains relevant to current soil conditions.*

012-10
In subsection 1726.3.2(a)(2)(B), Commenter is concerned the Division is proposing requirements which may not bring about the intended result and instead could prevent operators from developing the appropriate corrosion mitigation methods for their wells. Commenter recommends the following amendment: (B)…Mitigation strategies for each well shall consider, at a minimum, evaluating the feasibility of cathodic protection, coatings…"

Response: *NOT ACCEPTED. Note that the relevant text is now relocated to section 1726.3.2(b)(1). Adding the word "consider" makes evaluation of a strategy optional, thereby diluting the requirement. For cathodic protection, feasibility is not the only relevant factor that needs to be evaluated and feasibility does not necessarily mean that a strategy is appropriate under the given circumstances.*

012-11
In subsection 1726.3.2(a)(3), Commenter seeks clarification on how operators would measure/interpret effectiveness of corrosion mitigation actions and recommends the following amendment: (3) The prevention and mitigation protocols shall include corrosion monitoring protocols for each applicable gas storage well…

Response: *ACCEPTED IN PART. Note that the relevant text is now relocated to section 1726.3.2(c). This section was modified to clarify that the corrosion evaluation is recurrent and should determine if there is corrosion risk. Where there is corrosion risk, and corrosion mitigation measures are utilized, the effectiveness of those measures should be periodically evaluated. For example, if well testing indicates that corrosion rates remain unchanged or increase after a mitigation measure is in place, the operator should consider altering their mitigation strategies.*

012-12
In subsection 1726.3.2(a)(3)(B), Commenter reiterates its concern that the Division is requiring operators to evaluate, mitigate, or monitor for corrosion in situations where there is no metal loss due to corrosion or when a corrosive

environment does not result in corrosion which would adversely affect the safe and continued operation of an applicable well.

Response: *ACCEPTED IN PART. Note that relevant text is now relocated to section 1726.3.2(b). Periodic evaluation and consideration of new information is a critical way to know whether corrosion loss is occurring. Where it can be confirmed, on an ongoing basis, that there is no corrosion taking place, mitigation would not be necessary. Known corrosive environments may require mitigation of corrosion risk, such as selecting appropriate materials for new wells.*

012-13
1726.6(a)(2). The current required well casing inspection frequency may interfere with implementation and evaluation of the effectiveness of the corrosion risk mitigation strategy.

Response: *NOT ACCEPTED. The testing frequency should not interfere with the ability of the operator to evaluate or implement mitigation strategies. CalGEM is approving alternative testing frequencies as appropriate.*

013-10
Commenter's gas storage facilities are essential to ensure the reliability of gas service to its customers, and further support the grid to avoid resource shortages in electricity during periods of critical peak demand. Commenter proposes modifications to Cal. Code tit. 14, § 1726.6 based on the inspections and data acquired over the past six years demonstrating the relative lack of corrosion within its storage fields. Data from the inspections have identified physically induced metal loss from downhole well work activities as the primary observed finding. However, Section 1726.6 has been interpreted at times to require two complete corrosion inspections in order to determine a corrosion rate. Commenter submits that such a requirement would be unnecessary for many wells where corrosion is not present; there would be no meaningful corrosion rate to calculate with a second inspection. Additionally, second inspections on wells solely for purposes of establishing a baseline corrosion rate requires Commenter to take wells out of service, thus reducing its ability to provide reliable service. Further, Commenter would contend that ratepayer funds would be unnecessarily expended upon second inspections on such wells, and those

funds could be deployed to higher risk work within the system. Based on the inspections completed on Commenter's wells to date, the regulation should be modified to explicitly allow for consideration of predominant threats to well integrity to guide inspection frequencies rather than the single threat of corrosion.

Response: *NOT ACCEPTED. Mechanical integrity testing requirements in section 1726.6 were addressed in CalGEM's previous UGS rulemaking that became effective in 2018 and section 1726.6 is outside the scope of this current rulemaking. CalGEM is approving variances to testing intervals on a case-by-case basis at this time consistent with mechanical integrity testing requirements.*

013-16
Commenter suggests minor language revisions to this section as described below. Commenter recommends striking "no later than 30 days" to update plans as depending on the extent of the changes, collaboration with various stakeholders and their review, and such changes may take longer than 30 days.

1726.3.2(a)(2)(B): Strategies to mitigate each corrosion risk and the anticipated effectiveness of each strategy. Mitigation strategies evaluated for each well shall at a minimum consider ~~include~~: cathodic protection; coatings; inhibitors; and material selection or replacement.

1726.3.2(a)(3)(C): The monitoring plan shall be updated ~~no later than 30 days~~ after changes to mitigation strategies.

Response: *ACCEPTED IN PART. Note that the relevant text is now located in sections 1726.3.2(b)(1) and 1726.3.2(d). Adding the word "consider" makes evaluation of a strategy optional, thereby diluting the requirement. However, the text has been modified to remove the "no later than 30 days" requirement. An updated monitoring plan should be provided to the Division consistent with the approved schedule for updating the RMP, and when requested by CalGEM.*

013-27
Commenter proposes language modifications to 1726.6 Mechanical Integrity Testing section (a)(2) to address casing wall thickness inspections based on an

initial inspection finding that corrosion is not present based on an initial casing wall thickness inspection and any other available data provided by the operator. Generally, initial inspections have not indicated the presence of corrosion on various storage wells; yet the removal of tubulars for maintenance of liners, tubing and packers, and downhole safety valves have caused induced metal loss. Additionally, studies sponsored by PHMSA indicate that the intervention risk associated with performing a casing inspection should be weighed in determining the frequency of inspections. Wells that are more complicated in downhole completion—for example, dual barrier construction required under 1726.4-- present more risk when performing casing inspections than wells that are simpler (single barrier construction) or that do not require rigs to perform the inspection. Additionally, the casing inspections seeks to understand the condition of the secondary confinement. When the casing inspection rule was first introduced, the goal was to assess the barrier that had been used as the primary means of containment. Now that the construction regulations are in place, the need to inspect the casing is diminished with the additional barrier and redundancy added. Even within the CCST report it is noted, "Well work-overs themselves can provide inherent risk and have the potential for accidental releases."

Suggested language: 1726.6(a)(2). "…data to determine the corrosion rate, where corrosion is identified. If the casing wall…corrosion rate is low enough or where corrosion is not present based on the initial casing wall thickness inspection and any other available data that biennial inspection is not necessary. Additionally, the Division may approve an alternate inspective frequency based on individual operator conditions and predominant risks identified where performing frequent casing inspections would introduce an increased risk to personnel, the public, the environment, and increase the likelihood of a loss of containment event occurring.

Response: *NOT ACCEPTED. Mechanical integrity testing requirements in section 1726.6 were addressed in CalGEM's previous UGS rulemaking that became effective in 2018 and section 1726.6 is outside the scope of this current rulemaking. CalGEM is approving variances to testing intervals on a case-by-case basis at this time consistent with mechanical integrity testing requirements.*

Definitions

011-1
Commenters discuss section 1726.1(a)(8) "Inflow Performance Relationship." Commenters note that the use of a standard industry definition is appreciated, however, this definition should be tailored to underground gas storage to clearly recognize that gas storage wells are operated differently than production wells and do not have "production" rates. The suggested alternative definition clarifies the ability of storage operators to use typical industry practices to generate well performance data needed to create IPRs, which can include backpressure tests and inflow tests (SPE-923-A at https://doi.org/10.2118/923-A. The suggested alternative definition also focuses operators and the Division on the Absolute Open Flow Potential of wells. The suggested alterative is more effective in carrying out the purpose for which the action is proposed:

Suggested Alternative: "Inflow Performance Relationship" or "IPR" means a mathematical tool used ~~in production engineering~~ to assess well performance ~~by plotting the well production rate against~~ and estimate the Absolute Open Flow or "AOF" potential of a well by comparing the well's flow rate to the flowing bottomhole pressure (BHP). The data required to create the IPR are obtained by measuring the ~~production~~ flow rates under various ~~drawdown~~ pressure~~s~~ regimes. The AOF potential is the theoretical rate at which the well would withdraw gas at zero flowing BHP. The reservoir fluid composition and behavior of the fluid phases under flowing conditions determine the shape of the curve.

Response: ACCEPTED IN PART. This change was made to the regulations, however after subsequent comments it was altered again to provide the definition in simpler terms that are still in technical alignment with this suggested definition.

011-2
Commenters discuss section 1726.1(a)(8) "Inflow Performance Relationship" and notes that the IPR and underlying data and modeling meet the definition of "interpretive data" in Division regulations (14 California Code of Regulations (CCR) §1996.4). Commenters recommend that the proposed definition be

revised to provide that the IPR and underlying data and modeling of storage providers who provide competitive storage services shall be classified as interpretive data that shall be maintained as confidential by the Division for the life of a project. The clarification is critical to protect confidential Commenter geotechnical and engineering data and maintain the competitive market in which Commenters participate, to the benefit of customers and ratepayers. The clarification will also eliminate the burden on competitive storage service providers to request confidential status each time an IPR and underlying data and modeling is updated and the impact on the Division of having to review and address multiple such requests. The suggested alternative simplifies compliance and reporting requests for Commenter and would be as effective and less burdensome than the proposed action.

Suggested language: …of the curve. The IPR and the data and modeling required to create the IPR of a natural gas storage service provider that provides competitive underground gas storage services shall be classified as interpretive data and shall be maintained by the Division in confidential status for the lifetime of the relevant underground natural gas storage project pursuant to Title 14 CCR §§1997.1 and 1997.2.

Response: *ACCEPTED IN PART. Data and modeling underlying an IPR will be maintained by the operator but provided to CalGEM upon request. Where requested, the data utilized to create the well control plans and model would likely qualify as interpretive data under PRC section 3234(d), but under CCR section 1997.1, operators must submit a request to have the data treated as confidential at the time the records are submitted.*

013-2

Commenter discusses the term anomaly. Cal. Code Regs. tit. 14, § 1726 et seq. currently uses the terms "anomaly," "anomalous," and "anomalies," but these terms are not defined. The lack of a consistent definition has created ambiguity and differing interpretations of what the term "anomaly" means and the thresholds at which reporting is necessary. Commenter proposes a definition for "anomaly" to improve the current rules and allow for consistent interpretation by operators and regulatory staff alike. Anomaly should be defined as a deviation from the expected or baselined results of mechanical integrity testing and

monitoring in 1726.6 or 1726.7(a) - (b). Although features may be present on casing inspection surveys, there may not be active threats to the integrity of the well that require mitigative actions, and wall thickness may still remain within allowable limits for expected loading conditions. The definition of anomaly for a noise and temperature log is similar; however, noise and temperature results are not defined by a casing thickness measurement, rather an actionable deviation from expected curves as some features are detected due to lithological changes or fluid movement within other subsurface zones.

Proposed definition: "Anomaly," "Anomalous," or "Anomalies" means a feature or features identified that pose a threat to the integrity of a well as identified on a casing inspection log such that action must be taken to mitigate a significant present or potential hazard to public health and safety, property, or the environment.

Response: *NOT ACCEPTED. CalGEM applies the common definition of anomaly: something that deviates from expected. Commenter's proposed definition is more limited and would exclude from evaluation deviations from the expected that need to be considered.*

013-3
Commenter proposes that the terms "reportable leak" and "blowout" be defined to operate similarly to the framework used by CARB in Cal. Code tit. 17, §§ 95667(a)(3) and(a)(33). In particular, we would request that the Division define a "reportable leak" as any leak that poses a significant present or potential hazard to public health and safety, property, or to the environment and adopt CARB's notification process for non-hazardous leaks. Because operators must report leaks and blowouts to CalGEM and CARB, consistent terminology would help to remove ambiguity as to the meaning of "blowout" and clarify the level of severity or urgency at which a leak is reportable and notifications must be provided to each agency. Operators are required to report leaks and blowouts to both CalGEM and CARB, and the use of consistent terminology across regulatory reporting reduces ambiguity and uncertainty over what constitutes a blowout.

Proposed definition: "Blowout" means the uncontrolled flow of gas, liquids, or solids (or a mixture thereof) from a well to the surface.

Response: *NOT ACCEPTED. Where blowout is used it is in a limited context consistent with Commenter's recommended definition.*

013-12
Commenter suggests including the definition and use of the term "well control fluid" in lieu of "kill fluid" in section §1726.4.3. To better capture the intent of the regulation and avoid ambiguous language, Commenters recommend this term be used and defined because, kill fluid can also be used to specifically mean fluid used in response to a well control event.

Proposed Definition: "Well Control Fluid" means fluids commonly referred to as "kill fluids" used in response to controlling a blowout, or fluids used during well maintenance and intervention for well control during planned work activities.

Response: *ACCEPTED IN PART. Some instances of kill fluid have been updated to well control fluid where the more general term is appropriate. In the places where kill fluid was retained, it was used to specifically mean fluid used in response to a well control event and is the appropriate term for the context. Section 1726.4.3(d)(3) was modified to say "… if well control fluids are used to kill the well in response to a leak..." This clarification will separate the well kill fluids from fluids used in routine well maintenance and intervention during planned work activities, consistent with PRC section 3181.5(b).*

Economic Impact Analysis

011-21
Commenters reviewed the Division's Economic Impact Assessment and appreciate its detailed analysis and documentation of assumptions. At a high level, Commenters believe that the costs of Emergency Response Plan updates, well-specific control plans, methods to detect chemicals in a reportable leak, and the gas storage well chemical inventory will be higher than estimated by the Division. Commenters have identified that:

- The Division's calculations anticipate that only one person is involved in a particular task for regulatory compliance. As prudent operators, Commenters typically have multiple individuals review new and existing protocols for technical rigor and adherence to the regulations prior to submission to the Division.
- The methodology underestimates the cost of "hourly" work because the data source does not include typical employee compensation elements such as retirement benefits and health insurance or company payroll taxes.
- Some tasks require external technical experts that command far higher hourly rates, especially for Commenters who may not have full-time technical staff members in every function.
- The costs of specialized software which may be required for the creation of IPR and quantitatively developed well control plans could exceed $100,000 per operator in the first year, with additional recurring costs.

Response: *ACCEPTED. CalGEM does its best to estimate economic impacts based on imperfect information available at the time of rulemaking. Where these costs exceed our estimates, we appreciate the awareness and will incorporate the new information into our understanding of the cost-effectiveness of the regulatory provisions as we consider updates and changes to the regulation text.*

013-11
Commenter has evaluated the cost impact for establishing the chemical inventory requirements and maintaining them going forward and estimates the cost to establish a baseline presence for each of the 108 wells in the first year for the chemical constituents and radon-222 is $1.7 million. Reoccurring updates and monitoring of fluids placed in wells is estimated to be an additional $1.3 million annually.

Commenter has conducted various sample analysis on a routine basis capturing representative samples for each field. As the regulations require well-by-well, PG&E estimates this would require the addition of 1 full-time employee equivalent to manage the chemical inventory reports.

Reporting, investigating, and mitigating all minor events and reportable leaks would result in an incremental cost of approximately $2 million annually given the expected increase in administrative workload and additional full-time employees to support processing and tracking.

Response: *CLARIFICATION. The Commenter indicates that well-by-well testing is required both initially and on an ongoing basis. CalGEM does not intend the operator to perform analytical testing beyond that required by 1726.4.3(c), baseline testing, and 1726.3.1(c)(16) testing triggered by their emergency response plan. The Commenter's estimate overestimates the requirement significantly. Additionally, the requirements for off-normal occurrences were modified significantly to better align with existing risk-related incident reporting requirements of local, state and federal agencies. Operators should already be investigating, mitigating, and reporting relevant situations so additional workload in developing a protocol and reporting to the Division should be limited. Similarly, reportable leaks should already be investigated and are required to be reported.*

Emergency Response Plan

010-5
Commenter indicates that any risk or emergency plans should consider evacuation for any vulnerable residents during leaks.

Response: *NOT ACCEPTED. Evacuation is under the purview of local first responders who will make the determination when evacuation is necessary. However, under existing section 1726.3.1(d), the operator must provide local emergency response entities at least 30 days to review and provide input on the emergency response plan and those plans are updated at least annually. This gives first responders an opportunity to provide feedback on best practices related to evacuation and communication with impacted communities.*

010-6
At the very least, operators should be required to provide notifications of any leaks, equipment failures, planned acidization, and any other situations that could impact the health and safety of the community. Residents made it clear

at AQMD abatement hearings that the gas company failed to provide notifications to the public. The operator's response was that any notifications would be "courtesy" ones, which is dismissive of the harm the company has done to us.

Response: *NOT ACCEPTED. The well chemical inventory requirement is intended to ensure sufficient chemical tracking and information to inform the determination of public health impacts in the event of a reportable leak. Additionally, existing requirements in section 1726.3.1 include public notice of a large and uncontrollable leak.*

011-3
1726.3.1(c)(5) Commenters reviewed the Rager Mountain Well #2244 RCA, public by Blade Energy Partners in 2023, and suggest implementation of its recommendation for "developing a broad well control plan that has individual well deliverability" (Rager Mountain Well #2244 RCA p. 244). Under this more recent recommendation, operators and the Division would not need to manage creating and reviewing substantial and largely repetitive documentation to develop an entire separate well control plan for every well. The reference to the current configuration of the well should be removed; IPR Is used to evaluate the inflow of fluids from the reservoir to the bottom hole. Changes to the well configuration can change the "outflow' of fluids from the bottomhole to the surface, but changes to the well configuration do not change the IPR. If the suggested alternative is not adopted, Commenters request that the Division provide additional guidance to operators on what is required in a well-specific well control plan. The suggested alternative is more effective in carrying out the purpose for which the action is proposed. It is also a simplification for compliance and reporting requirements for Commenters and would be as effective and less burdensome than that proposed action.

Suggested Alternative: Q~~uantitatively developed well-specific~~ Field-specific well control plans that include~~s well -~~specific Inflow Performance Relationship~~s~~ and ~~the data or transient modeling that the Inflow Performance Relationship is based upon for the current configuration of the well~~ consideration of the Absolute Open Flow potential at reservoir pressures corresponding to the maximum operational storage inventory.

Response: *ACCEPTED IN PART. The statute requires CalGEM to consider the findings of the Blade RCA including well control plans (PRC 3186.3). The mitigation solutions included in section 5.3.1 of the Blade RCA include solution 8: Well Specific Well Control Plans. This recommendation from the Blade RCA to include well specific IPR curves and well specific well control plans that are created based on transient modeling, addresses a root cause that was not fully addressed by the regulations currently in effect. CalGEM's evaluation of this root cause and related mitigation, supports well specific well control plans, not field specific plans. Consideration of the absolute open flow potential has been incorporated into the definition of IPR, which definition has been updated consistent with comments received.*

011-4
1726.3.1(c)(16) In the event of a reportable leak, Commenters will work safely to quickly repair the leak. The regulation should clarify that testing done at the request of the Division is not intended to slow efforts to safety repair leaks because slowing repair efforts would result in additional emissions of chemicals of concern. The suggested alterative is more effective in carrying out the purpose for which the action is proposed.

Suggested Alternative: …This testing will be completed <u>as soon as practicable</u> at the request of the Division, <u>but repair of the leak shall not be delayed for the purposes of this testing</u>. …

Response: *ACCEPTED IN PART. Prompt leak repair is important and section 1726.3.1(c)(16)(B) has been modified to reflect that repair should not be delayed for testing. This section was also modified to require ERP protocols to provide for engagement with the Division to ensure testing is timely completed. This does not alter the Division's ability to request testing in response to a leak but provides more framework and context for this testing.*

011-5
1726.3.1(c)(16) and 1726.4.3(c) Radon-222 is listed as a chemical of concern. Commenters are uncertain of the applicability of water and air test methods to produced water and natural gas samples. Without proven standard testing

protocols, radon-222 test results may be unreliable and could mislead operators and the Division. Remove radon-222 from the testing requirement. This suggested alternative takes into account current testing constraints and the resources available to operators.

Response: *NOT ACCEPTED. Public health professionals specifically requested testing for this chemical of concern, and air and water test methods are available.@. While testing is not required to be performed by laboratories certified for each testing method, the Environmental Laboratory Accreditation Program (ELAP) within the California Waterboards lists two laboratories certified for Radon testing. The ELAP's public laboratory look up search tool can be accessed here:* *https://waterboards.maps.arcgis.com/apps/webappviewer/index.html?id=bd0bd8b42b1944058244337bd2a4ebf* .

012-2
1726.3.1(c)(16). Commenter seeks clarification on the quantification method for chemical of concerns including Radon-222 and the circumstances in which sampling would be required. If the intent of this requirement is to sample every instance of a reportable leak, it would not always be operationally feasible because, in some instances, sampling a reportable leak would take much longer than repairing the leak. In addition, Commenter is concerned that compliance with this subsection may interfere with compliance with CARB's Oil and Gas Rules because operators have as little as two days to repair reportable leaks which may not be enough time to sample them.

Commenter recommends modifying this requirement to large uncontrollable leaks instead of reportable leaks. As defined in 1726.3.1(c)(14), an uncontrollable leak is a large leak that cannot be controlled within 48 hours of discovery.

Suggested Alternative: "(16) Identification of monitoring, sampling, and testing methods, that may be utilized to detect, and if possible, quantity each chemical of concern during a large uncontrollable leak."

Response: *ACCEPTED IN PART. Testing for chemicals of concern, including Radon-222, should be done in accordance with the selected method for each chemical which may vary depending on the test method selected. Whether sampling is required would depend on the emergency situation. This would probably be in the event of a large reportable leak, but public health necessity may require sampling in other situations.*

012-3
Chemicals of concern could be analyzed according to the EPA, ASTM or equivalent methods. It is not clear if the required "chemical of concern" testing is for representative wells' liquid or gas samples.

Response: *ACCEPTED IN PART. Section 1726.4.3((c)(1)(B) has been updated to clarify that baseline testing for metal shall be done from a liquid sample if available. For non-metal testing, testing of liquid or gas samples is acceptable; whatever is available and more effective. Specific testing methods are not prescribed so the operator should consult with its chosen laboratory on appropriate and reliable methodologies.*

012-4, 013-15
1726.3.1(d) Commenter recommends revising the language to clearly state the expectation that reviews of the emergency response plan must take place once every calendar year. With the requirement to review plans every 12 months, Commenter recommends aligning the timeline with CPUC practice and existing emergency response plan cycles that allow for reviews once every calendar year, not to exceed 15 months (given these plans are included as part of the corporate emergency response structure). Commenter suggests striking "after key personnel changes" as the frequency tightens from triennially to annually. Management of change practices dictate that operators manage key personnel changes and training, and this would be duplicative and excessive as it could be interpreted when personnel leave for short periods for vacation or other personnel matters this could interpreted to trigger a review and update. Commenter recommends revision to align with federal standards under 49 CFR 192.605(a).

Suggested language: The operator shall review and update the emergency response plan once every calendar year not to exceed 15 months ~~after key personnel changes, but no less often than once every three years every 12 months.~~

Response: *ACCEPTED IN PART. The proposed change to the review interval has been made to the regulation language, however, key changes should be reflected in real time to ensure that ERPs can be immediately enacted in case of an emergency and key personnel understand their responsibilities.*

013-14
Commenter recommends the language in 1726.3.1 be revised as suggested, using simpler language, to more clearly explain that operators are required to develop an Inflow Performance Relationship (IPR) for each well based on configuration and well performance data. Commenter proposes to strike the language as shown as the intent is already captured in the proposed draft definition clarifying a mathematical tool be used and requires data to create an IPR.

Suggested language: ~~Quantitatively developed well specific well control plans that include an Inflow Performance Relationship and the data or transient modeling that the Inflow Performance Relationship is based upon for the current configuration of the well.~~ Operators must develop an Inflow Performance Relationship for each well based on the current configuration of the well and known well performance data.

Response: *ACCEPTED IN PART. Edits have been made to section 1726.3.1 which should address Commenter's concerns including removing the language referencing quantitatively developed plans.*

Questions

001-1
Do these talks [sic] take earthquakes into consideration? Could there be a fire hazard related to underground storage in case of a large seismic event?

Response: *CLARIFICATION. While the new regulations focus on well chemical inventories and other requirements in response to PRC section 3186.3, existing regulations address seismic risks. Seismicity is a risk that must be considered under the RMP requirement in section 1726.3(d)(2)(L). Regardless of the cause, section 1726.3(d)(11) also requires consideration of fire hazards. Operator emergency response plans must address well fires and blowouts (sections 1726.3.1(b)(2) and 1726.3.1(b)(5)), natural disasters and emergencies.*

009-2
What are the potential health effects of all these chemicals used in the gas storage? Is the public informed about these hazards in their neighborhoods?

Response: *CLARIFIATION. These are important questions that must be answered by public health professionals. The chemical inventory requirements in this rulemaking focus on ensuring that sufficiently accurate and precise information is available to inform the determination of public health impacts from the release of these materials to the environment. Chemical inventories will be available publicly through CalGEM's online services.*

012-25
Commenter seeks clarification on whether the timeline compliance requirements set forth in the draft regulations are based on calendar days or business days.

Response: *CLARIFICATION. The timelines in the regulations are based on calendar days. Under standards of statutory interpretation, calendar days are the default unless otherwise specified.*

Health Impacts

010-2
Along with acute effects from the emitted chemicals, residents feel they have a sword of Damocles hanging over their heads because of cumulative effects from years of chemical exposure. Attempts were made to acquire information about the chemical composition of underground storage facilities that would provide important information about health risks. The California Council of

Science and Technology also made repeated attempts to acquire chemical information that would provide important information about health risks.

Blade Energy Partners conducted the root cause analysis of the 2015 Aliso Canyon blowout and determined that SoCalGas caused the blowout due to its negligence. But whether leaks and even blowouts are due to negligence or other risks such as earthquakes and wildfires, the end result is that several million Californians are put at risk due to UGS facilities, with prevailing winds in the San Fernando Valley causing particulate material to disseminate among some 1.2 million residents, according to a study conducted in 2016.

The UCLA Health team conducting the Aliso health study is also seeking the list of chemicals. The researchers need to know what chemicals are in use at the site in order to do a proper investigation of what residents were exposed to. But because SoCalGas is being uncooperative, some of the money allocated by the 2018 consent decree to the study is being used to determine what chemicals were emitted from well SS-25, when that money could be devoted more to the clinical part of the study.

Commenter urges the Department to compel SoCalGas to release a comprehensive list of materials used at the Aliso Canyon site as well as its other facilities. Many entities including the CCST have requested this list in order for the proper evaluation of public health impacts caused the emissions.

Response: *CLARIFICATION. These regulations implement the statutory intent to develop and prospectively update chemical inventories for UGS facilities. There was no inventory requirement previously, so this rulemaking does not require SoCalGas to provide a retroactive chemical inventory.*

010-3
In February 2024, the UCLA team wanted to inform the community about a disturbing finding early on in their investigation of short- and long-term health effects. They found a statistically significant number of FULL-TERM babies born with low birth weights (less than 5.5 pounds) to women who were in their third trimester during the blowout. It was even suggested during the community meeting, that if there's another leak, all pregnant women should leave the area

immediately, even before any determination of the intensity of the leak. Many in the community wonder if it would be safe for children, senior citizens, and chronically ill residents to remain in these situations. The danger to residents would be further understood if those concerned with public health know what chemicals are being spewed by these wells.

Response: *NOTED. These are important questions that must be answered by public health professionals. The chemical inventory requirements in this rulemaking focus on ensuring that sufficiently accurate and precise information is available to inform the determination of public health impacts from the release of these materials to the environment. Chemical inventories will be available publicly through CalGEM's online services.*

Off-Normal Occurrences

010-7
For RMPs and ERPs, Commenter agrees with the CCST, which recommends "requiring all events to be included, even if corrected." The CCST 2018 report discussed the need for this database for many reasons. I would even request that these "events" include any "venting or maintenance" as well as increases in observed chemicals such as methane, benzene, and other ones of concern, even if the gas company doesn't consider these "leaks." The reason is that on many occasions SoCalGas has failed to notify the communities and even agencies, as noted above. There is a lack of trust when it comes to the utility's transparency. (The CCST report discussed how many industries such as commercial aviation have prioritized safety, and enacted a system for reporting any incidents, no matter how small. The events are entered into a publicly available database to enable the implementation of improvements.) As the CCST recommends, the database should be available to the public.

Response: *NOT ACCEPTED.* The intent of this section as originally proposed was to supplement existing risk management requirements and address the Blade RCA finding that SoCalGas did not adequately investigate previous well failures and ensure that all UGS operators are aware of the risks at their facilities. Other Commenters identified a lower impact solution that provides similarly effective

results by utilizing existing incident tracking requirements. For this reason, this section has been removed and a new requirement has been added to the RMP section in 1726.3(d)(7).

011-8
1726.3.3(a) The Division's Initial Statement of Reasons cites the Blade Main Report recommendation to require investigations of casing failures and all failure of pressure equipment, and Commenters agree that such failures should be investigated. The Division also cites the recommendation of the California Council on Science and Technology for the creation of an off-normal occurrence database. Commenters encourage the Division to incorporate specific elements of the report's recommendation, including reporting under a no-fault protocol. The suggested alternative is more effective in carrying out the purpose of which the action is proposed.

Suggested Alternative: "A Risk Management Plan under section 1726.3 shall include prevention and mitigation protocols for defining, investigating, tracking, and no-fault reporting to the Division…"

Response: *ACCEPTED IN PART.* This section has been removed and a new RMP requirement has been added to require retention and review of safety related conditions, incidents, abnormal operating conditions, near misses and other related event tracking. Well failure tracking and review is included in the existing requirements. The events documented and reviewed by the operator shall be used to inform the risk addressed in the operator's RMPs.

011-9
1726.3.3(a) Commenters recommend that that Division adopt the API RP 1171 definition and recommendations for "abnormal operating condition" (AOC) instead of adding complexity to the regulatory reporting requirements. Underground gas storage facilities are subject to a multitude of overlapping reporting requirements, and Commenter personnel are already trained on AOC reporting requirements. The suggested alternative is equally effective in carrying out the purposes of the proposed regulations and less burdensome to operators, consolidates and simplifies reporting requirements for operators.

Suggested Alternative: "…reporting to the Division abnormal operating conditions as defined with API RP 1171, related to…" The language in section 1726.3.3(b), (c), and (d) should be modified to replace the no-longer defined term "off-normal occurrence" with the term "abnormal operating condition."

Response: *ACCEPTED IN PART.* This section has been removed and a new RMP requirement has been added as 1726.3(d)(7). The new RMP requirement adds retention and review of safety related conditions, incidents, abnormal operating conditions, near misses and other related event tracking. Well failure tracking and review is included in the existing requirements. The events documented and reviewed by the operator shall be used to inform the risk addressed in the operator's RMPs.

011-10
1726.3.3(a) and 1726.3(d)(7) Commenter suggests use of the section 1726.1(a)(6) defined term "underground gas storage project" instead of "facility", which will clarify the applicability of the regulation and reduce potential incompatibilities with federal requirements. The suggested alternative is equally effective in carrying out the purposes of the proposed regulations and simplifies compliance and reporting requirements for operators. The language in section 1726.3(d)(7) should be adjusted similarly.

Suggested Alternative: "…related to the ~~facility~~ underground gas storage project, health and safety…"

Response: *NOTED. Section 1726.3.3 and the reference to the word "facility" in 1726.3(d)(7) have been removed.*

011-11
1726.3.3(a) Commenter states that if the suggested alternative for aligning with existing "abnormal operating condition" reporting is not adopted by the Division, then Commenters request specific guidance as to what constitutes an "off-normal occurrence" to make sure Commenters can develop responsive protocols and train personnel accordingly. The regulation should also clarify that operations which occur infrequently are not off-normal. The suggested alternative is equally effective in carrying out the purposes of the proposed

regulations and less burdensome to operators and consolidates and simplifies compliance and reporting requirements for operators.

Suggested Alternative: "…or natural resources. Off-normal occurrences do not include infrequent operations that occur within approved permit conditions.

Response: *ACCEPTED IN PART:* This section has been removed and a new RMP requirement has been added as 1726.3(d)(7).

011-12
1726.3.3(a)(1) It appears that the word "well" was inadvertently omitted. The suggested alternative consolidates and simplifies compliance and reporting requirements for operators.

Suggested Alternative: "(1) Loss of well containment or failure of a well casing"

Response: *ACCEPTED IN PART.* This section has been removed and a new RMP requirement has been added as 1726.3(d)(7).

011-13
1726.3.3(a)(2) and (9). The use of the defined term "underground gas storage project" which includes "to the extent that they are subject to regulation by the Division, attendant facilities, and other appurtenances," will improve the clarity of the regulation. This suggested alternative consolidates and simplifies compliance and reporting requirements for operators.

Suggested Alternative: "(2) Damage to a well head or other ~~surface or subsurface~~ underground gas storage project equipment…" With the use of the defined term in (2), (9) can be removed.

Response: *ACCEPTED IN PART:* This section has been removed and a new RMP requirement has been added as 1726.3(d)(7).

012-14
1726.3.3. Commenter seeks clarification of the definition of "off-normal occurrences." The definition as currently written is vague and may be

interpreted and applied subjectively. Furthermore, it is not a term used by PHMSA nor API. As written, the subsection creates instance of hypotheticals and interpretations which would make reporting very difficult and compliance with the section confusing. For example, "Could have led to harm" at minimum requires operators to essentially report on every close call, but also creates debatable instances whether particular situations "could have" led to something harmful. Without discernible thresholds such as monetary amounts, this section is very subjective.

For a workable and consistent definition, Commenter recommends this section be separated into 2 sections: 1) To be aligned with API 1171 definition of "Abnormal Operating Condition" and 2) to be aligned with the PHMSA definition of an incident and the immediate notice of certain incidents.

Response: *ACCEPTED IN PART:* This section has been removed and a new RMP requirement has been added as 1726.3(d)(7).

012-15
Commenter seeks confirmation that the requirements under this section apply to natural gas storage wells and reservoirs. For example, 1726.3.3(a)(8) through (13) should be re-evaluated for applicability to natural gas storage wells and reservoirs.

Response: *ACCEPTED IN PART:* This section has been removed and a new RMP requirement has been added as 1726.3(d)(7). Additionally, the RMP applies to the entire UGS project, which is defined in section 1726.1(a)(6). An underground gas storage project includes the reservoir used for storage, the confining strata, gas storage wells, observation wells, and any other wells approved for use in the project. An underground gas storage project also includes the wellheads and, to the extent that they are subject to regulation by CalGEM, attendant facilities, and other appurtenances.

012-16
Commenter is concerned subsection 1726.3.3(b) appears to be insufficiently considered, adopting a broad-brush approach rather than a carefully calibrated and precise application. For example, under the current proposed

rulemaking, terms such as "damage" are not defined nor are thresholds established. Notwithstanding, in other instances, reporting of incidents such as trespassing on a Critical Infrastructure facility (such as a Gas Storage Fields) should not be made public and requires a more careful reporting process. Further, Commenter believes a 30-day compliance timeline for "off-normal occurrence" reporting is insufficient time to effectively complete an investigation while ensuring appropriate corrective and remediation measures are taken place. Commenter recommends the timeline be relative to the size/impact of the incident itself.

Response: *ACCEPTED IN PART:* This section has been removed and a new RMP requirement has been added as 1726.3(d)(7).

012-17
Commenter recommends that the timeline be revised to 90 days to align with existing PHMSA requirements for conducting and reporting of failures and incidents. (See 49 CFR 192.617(d))

Response: *ACCEPTED IN PART:* This section has been removed and a new RMP requirement has been added as 1726.3(d)(7). As part of the RMP the new requirement would require update on the same schedule as the rest of the RMP.

012-18
Commenter recommends subsection 1726.3.3(d) be updated to be relative to the incident. For example, based on the current language, every incident needs an incident review irrespective of impact or size of incident.

Response: *ACCEPTED IN PART:* This section has been removed and a new RMP requirement has been added as 1726.3(d)(7). The new RMP requirement adds retention and review of safety related conditions, incidents, abnormal operating conditions, near misses and other related event tracking. Well failure tracking and review is included in the existing requirements. The events documented and reviewed by the operator shall be used to inform the risk addressed in the operator's RMPs. These evaluations are a critical part of ensuring that operators are tracking their actual risks based on real data and that risk management mitigation measures and strategies address the actual risks of each UGS project.

013-1
Abnormal Operating Condition. In lieu of the term "Off-Normal," we recommend adoption of the "Abnormal Operating Conditions" terminology included in 49 Code of Federal Regulations (CFR) Section 192.12 via American Petroleum Institute standards (incorporated by reference by 49 CFR Section 192.7). Using this language would promote consistent usage and understanding by storage operators who rely on the term "Abnormal Operating Conditions" to report events to other state and federal agencies and incidents involving gas storage wells, storage facilities, and other pipelines and facilities used in the transportation of natural gas. Further, it is not clear how the term "Off-Normal" might differ from "Abnormal Operating Conditions."

Additionally, operator personnel are currently trained on and familiar with the term "Abnormal Operating Conditions." Commenter has a comprehensive event reporting program that covers all operated assets (electric, gas, gas storage, and generation). Adding a new term such as "Off-Normal" would require a significant change to Commenter's training programs and impact a large number of the employees and contractors of which the majority do not support gas storage well and facility operations. For example, the causal evaluation team would need to be trained on the definition of "Off-Normal" and how it differs from "Abnormal Operating Conditions." Also, because various supporting departments may manage the reporting of events and incident investigations for the organization's assets, the introduction of non-standard terminology could potentially result in misunderstandings, increasing the risk of compliance misses.

Recommended Definition: "Abnormal Operating Conditions" has the meaning as defined in 49 CFR Section 192.12, API RP 1171 Functional Integrity of Natural Gas in Depleted Hydrocarbon Reservoirs and Aquifer Reservoirs, Section 3.1.1 (incorporated by reference into 49 CFR Part 192 by Section 192.7), or any of the Safety-Related Conditions defined in 49 CFR Section 191.23.

Response: *ACCEPTED IN PART.* This section has been removed and a new RMP requirement has been added as 1726.3(d)(7).

013-4
Changes In the current proposed Cal. Code Regs. Tit. 14, § 1726.3.3, regarding "Off-Normal" reporting criteria, thirteen examples of potential reportable scenarios are provided. We believe these examples are likely to lead to differing interpretations by operators and state inspectors as personnel changeover occurs, and thus, we propose that this language be revised to permit the operator to define the examples of an abnormal operating condition. Additionally, we note that operators' procedures are often written in broad terms so as to encompass many different types of abnormal conditions. We typically would not specifically identify the examples themselves in the procedures because the language would presumably be written broadly enough to encompass both the examples and the many other potential scenarios. Were specific examples required to be included in our risk management plans, our concern would be that those examples would not necessarily be expressly mentioned in our procedures (even though those examples would be encompassed by the more general procedure language). In the interest of consistency internally and externally, as well as using broader language to encompass more potential scenarios, we recommend that the examples be stricken from the proposed regulation.

Response: *ACCEPTED IN PART.* This section has been removed and a new RMP requirement has been added as 1726.3(d)(7).

013-13
1726.3(d)(7) Commenter recommends adoption of storage industry standard terminology found in 49 CFR Part 192 via incorporated American Petroleum Institute standards, such as "Abnormal Operating Conditions" in lieu of "Off-Normal" as described in prior comments. The adoption of this definition would also address the reporting of an occurrence that did not result in harm or damage to the asset, environment, or person.

Commenter also recommends defining a reportable occurrence to ensure that only significant occurrences are reported and suggests removing the language requiring operators to report occurrences that "could" have adverse effects. Removing this language would ensure that the reporting process includes only actual incidents and not hypothetical incidents. Requiring operators to report on

hypothetical incidents requires them to engage in speculation as to what should be reported, without defined criteria. It is important that the framework is well defined so that operators have a clear path to compliance. Reporting of hypothetical incidents creates an administrative and resource burden for both operators and CalGEM with little to no measurable risk reduction or safety benefits. Insignificant and non-consequential events can be tracked by operators and audited; however, reporting of non-events is overly burdensome.

Suggested Language 1726.3(d)(7): Protocols in accordance with the requirements of Section 1726.3.3 for defining, investigating, tracking, and reporting to the Division ~~any off-normal~~ the occurrence of an abnormal operating condition that ~~could~~ adversely affects an operator's facilities or operations, health and safety, the environment, or natural resources ~~even if the occurrence did not result in harm~~.

Response: *ACCEPTED IN PART.* This section has been removed and a new RMP requirement has been added as 1726.3(d)(7).

013-17
Commenters note that some of the specific examples raise confidentiality concerns. For instance, subparagraph (12) requires reporting unauthorized entry, arson, sabotage, or removal of security barriers. However, due to confidential information on the physical security of its Transportation Security Administration TSA Critical Facilities (which includes storage wells and projects), it would be inappropriate to report on these facilities in a public database.

Response*: ACCEPTED.* This section has been removed and a new RMP requirement has been added as 1726.3(d)(7).

013-18
1726.3.3(c) Commenter recommends striking the language that refers to "the Division's satisfaction." Such language injects additional subjectivity into the requirement, introducing uncertainty and speculation for operators. PG&E believes that striking this language will not alter the intent of the provision because the Division will receive supplemental reports on qualifying occurrences and the well is subject to inspection. Further, it is not clear whether

this language contemplates that the Division will provide feedback or acknowledgement to operators before operators may consider occurrences to be fully remediated. We propose instead that operators should maintain the records for the Division to review if requested.

Response: ACCEPTED IN PART. This section has been removed and a new RMP requirement has been added as 1726.3(d)(7). The new requirement is incorporated into the RMP and is therefore reviewed and approved by CalGEM. Records related to this requirement must be maintained for the life of the facility.

Recommendations for Additional Requirements

003-1
Commenter requests that the following points be included to manage all gas storage and/or extraction sites or facilities:

- CalGEM will not allow any highly toxic, toxic, moderately toxic, and/or cancer-causing chemicals to be used in conjunction with any facility or site.
- Every gas storage facility, well, drilling site and proposed drilling sites must have a complete list of all possible chemicals which they intend to use or might use.
- These lists must be submitted prior to any further action being taken on any facility, well or drill site.
- No action at any facility, well or drill site is allowed until the entire list of chemicals has been approved by CalGEM.
- CalGEM will not allow any highly toxic, toxic, moderately toxic, and/or cancer-causing chemicals to be used in conjunction with any facility or site.

Response: *NOT ACCEPTED. CalGEM does not have the expertise or authority to regulate chemicals based on toxicity which is covered by the Department of Toxics Substances Control. Instead, CalGEM is asking operators to report all chemicals used in wells as required by PRC section 3181.5. The well chemical inventory requirement is intended to ensure sufficient chemical tracking and information to inform the determination of public health impacts in the event of a reportable leak.*

006-1
Commenter would like CalGEM to take an action to require underground gas storage companies to have shut-off valves at the bottom of every well that has a home, business, or public roadway within a radius of five miles. Commenter believes that if such a valve had existed in the 2015 Aliso Canyon blowout, it would have been a minor event, instead of a multi-billion-dollar event, not to mention the human cost. The current radius requirement used by SoCalGas is 300 feet. The 300-foot radius requirement is totally inadequate and CalGEM tolerates it. You state that CalGEM has the "regulatory authority" to "prevent damage to life, health, property and natural resources." CalGEM should step up and use this authority to require these valves before the inevitable next blowout.

In a public meeting last year, a SoCalGas employee stated that they did not use these valves because they were unreliable. If this is true (maybe it isn't) a reliable valve should be developed. There is no doubt that this could be done. The cost of developing and installing these valves would be a small fraction of the cost of another prolonged blowout.

Response: *NOT ACCEPTED. Existing RMP requirements already require evaluation of whether to employ surface and/or subsurface automatic or remote-actuated safety valves. Subsurface safety valves are not necessary in every well, can fail, and as extra downhole equipment could require additional entry into the well, which increases risk.*

Additionally, the comment is specific to concerns about content in SoCalGas's RMP documentation, which is out of scope for this rulemaking.

007-1
Commenter states that SoCalGas prepared a position paper in response to regulatory requirements under Section 1726.3. This position paper is known as S-POS 002 "Employment of Surface Controlled Subsurface Safety Values". SoCalGas concludes in the paper that the seismic risks at Aliso Canyon are relatively low and can be reasonable managed or mitigated over the life of the facility. Commenter has reviewed the paper and notes that there are flaws in the report's ability to address the safety of the new configuration of the Aliso

Canyon storage field relative to its prior blowout. Four premises of the report are flawed:

- Maximum well distance from structures, dwellings, for requiring underground safety values – 300 feet.
- Earthquake categorization of the Aliso field as a "building" rather than a dam or bridge (with higher impact potential).
- Consequent decisions that a 10% probability of catastrophic failure is acceptable, which power is below the pressure/temperature, normal stress structure requirements for the tubing, thus able to state that earthquake threat is not a problem.
- Utilizing well tubing failure and consequential efflux at on a 50-percentile impact rather than a consideration of up to a 90-percentile difference. Efflux used in the study is only 1/400th of what happened at Aliso.

Commenter has documented his analysis in a book available for purchase on Amazon, Blow-Out at Aliso Canyon: Is it Safe Yet, and cited in the comment. Consequences of these premises is that there remains a 7% probability of repeat or worse of the Aliso Canyon blowout efflux, community disruptions, and evacuations with even more damage.

Response: *NOT ACCEPTED. This comment is specific to concerns about content in SoCalGas's RMP documentation, which is out of scope for this rulemaking. The scope of this rulemaking is well chemical inventory development and reporting, and what is needed to address the root causes identified in the Blade RCA on the 2015 leak at the Aliso Canyon gas storage facility.*

007-2

Commenter states: In consideration of the fact that SoCalGas report S-POS 002 was used as the basis for configuration definition, a more stringent set of rules for portions of SB 463 oversight and control would be appropriate, regarding the safety of the public, the community, the environment, the economy. Suggested modifications to section 1726.3 Risk Management Plans:

- Add text in paragraph (a): "…and schedule with review dates and milestones during preparation for the Division for review and approval, of both the preliminary material and the final report…there will be

retroactive compliance required for projects completed during or after development of this text of SB 43." [sic]

- Add text in paragraph (c): the appropriate methodology shall be identified by the operators "and preapproved by the Division…"
- Add text in paragraph (d): "This evaluation will fully document and report to the Department and require pre-approval of the methodology, premises, ground rules, basic third-party data, and intended use. Such report will have its results retroactively applied if necessary. Department review and approval will be applied at various strategic development points of this report at status meetings and at completion."

Response: *NOT ACCEPTED. The scope of this rulemaking is well chemical inventory development and reporting, and what is needed to address the Blade RCA on the 2015 leak at the Aliso Canyon gas storage facility. Commenters suggested edits are out of scope for this regulation.*

007-3
Commenter suggests that an appropriate change would be to require subsurface shut of values for any facility and that any study would conclusively have to prove that such are not required. This would be in the best interests of any community residents, land, environment, and economy that would be impacts if there were a blowout similar to the Aliso failure. Recommend that section 1726.3(d) be marked up to add language "…there is a requirement to locate sub-surface shut-off valves at the well tube base interface with the storage points and an evaluation will be conducted to determine whether employment of such surface and/or subsurface automatic or remote-actuated safety values is NOT appropriate based on consideration…"

Precedents for this type of system design configuration can be found in existing policy for earthquake gas shutoff valves, water shut off valves, FAA policy regarding high pressure designs. These policies/precedents would indicate that the installation of sub-surface shut off valves would respond to the problem.

Response: *NOT ACCEPTED. Existing RMP requirements already require evaluation of whether to employ surface and/or subsurface automatic or remote-actuated safety valves. Subsurface safety valves are not necessary in every well, can fail,*

and as extra downhole equipment could require additional entry into the well, which increases risk.

009-1
Commenter states that we are heading into a heat wave now and each month has recorded the hottest temperatures on record. The time is NOW that we stop all methane gas storage and production and look for alternative clean energy sources (This does not include hydrogen). Commenter would like a cleaner and greener world for their grandchildren to live in. A world with clean air and clean water. Please consider shutting down Aliso Canyon and the Playa Del Rey gas storage facilities.

Response: *NOT ACCEPTED. Other California state agencies are empowered to determine whether and which UGS facilities are needed to meet the energy needs of California. The California Public Utilities Commission (CPUC) has so far determined that both the Aliso Canyon and Playa Del Rey facilities are still needed. CalGEM is responsible for ensuring the safe operation of these facilities and has proposed these regulations to help ensure that these facilities continue to operate safely.*

014-2
Commenter states that two weeks ago, the secretary of EPA for California put out a statement that methane gas is 25 times more potent of a pollutant than CO2 toward our climate issues, and therefore, commenter would like California to stop importing gas from other states into these storage facilities. Commenter is concerned that California does have some gas that's actually here in California that California brings out of the ground but if we could at least stop these storage facilities from transporting methane gas when we really should have to be weaning ourselves off of it – you know, these storage facilities really need some review as to how to close them down, not how to make them better.

Response: *NOT ACCEPTED. Other California state agencies are empowered to determine whether and which UGS facilities are needed to meet the energy needs of California. The CPUC has so far determined that both the Aliso Canyon and Playa Del Rey facilities are still needed. CalGEM is responsible for ensuring*

the safe operation of these facilities and has proposed these regulations to help ensure that these facilities continue to operate safely.

Seismic Risks & Other Hazards

010-8
Commenter states that the Santa Susana Earthquake Fault runs through every well at the Aliso site and they know that there's a major site earthquake fault that nears that Playa del Rey facility too. They request that CalGEM review a presentation from a professor at Cal State Northridge on the seismic risks to the facility that was given in August 2019 to the Senate Natural Resources and Water Committee and the joint Legislative Committee on Emergency Management on the Aliso Canyon disaster. He goes through the possibilities, if one well fails, eight wells fail. Dr. Matthew d'Alessio expanded on his presentation in this video: https://www.youtube.com/watch?v=-9kXC6nkUml.

Response: *NOTED. Thank you for providing the reference.*

010-9
Commenter is concerned that earthquakes are not the only danger to the wells. The Aliso Canyon facility is in a Very High Fire Hazard Severity Zone according to CalFire. Commenter states that there have been several fires that have occurred in the area since the storage facility opened, with many of these fires starting on gas company land there. The Saddle Ridge Fire started in Sylmar around 9pm on a Thursday night in October 2019, but reached the Porter Ranch area, six miles to the west, just a few hours later. Firefighters were fighting flames that came within a few feet of the wells early Friday morning.

Response: *NOT ACCEPTED. This topic is already covered in existing regulations which are not the subject of this rulemaking. The scope of this rulemaking is well chemical inventory development and reporting, and what is needed to address the root causes identified in the Blade RCA on the 2015 leak at the Aliso Canyon gas storage facility. Existing regulations address seismic risks. Seismicity is a risk that must be considered under the risk management plan requirement in section 1726.3(d)(2)(L). Regardless of the cause, section 1726.3(d)(11) also requires consideration of fire hazards. Operator emergency response plans must*

address well fires and blowouts (sections 1726.3.1(b)(2) and 1726.3.1(b)(5)), natural disasters and emergencies.

007-4
[Verbal comment] What the operator's safety studies showed – this is erroneous – "overall the studies found the seismic risks at Aliso Canyon are relatively low and indicate these risks can be reasonably managed and/or mitigated over the life of the facility." That is absolutely not true.

Response: *NOT ACCEPTED. This comment is specific to concerns about SoCalGas which are out of scope for this rulemaking. The scope of this rulemaking is well chemical inventory development and reporting, and what is needed to address the root causes identified in the Blade RCA on the 2015 leak at the Aliso Canyon gas storage facility.*