UNDERGROUND GAS STORAGE REGULATIONS
PUBLIC COMMENT SUMMARY AND RESPONSE

Second 15-day Public Comment Period:
March 26, 2018 through April 10, 2018

INTRODUCTION

After consideration of the input received regarding the proposed Requirements for California Underground Gas Storage Projects rulemaking action during the first 15-day public comment period held from February 12, 2018, to February 27, 2018, the Department of Conservation's Division of Oil, Gas, and Geothermal Resources (Division) again revised the proposed regulations. The Division then published a second revised version of the proposed regulations and opened a second 15-day public comment period to receive input on those revisions. This second 15-day public comment period began on March 26, 2018, and ended on April 10, 2018.

Over the course of the second 15-day public comment period, the Division received numerous comments. To facilitate the process of reviewing and responding to comments, the Division assigned to each comment a unique numerical signifier. This signifier consists of three components: first, a unique code number assigned to each commenter; second, a separating hyphen; third, a sequential number assigned to each comment from the identified commenter. The chart below lists the code number for each commenter. Within this document, you will find either grouped or individual numerical signifiers, followed by a summary or specific comment, followed by a response (*italicized*).

COMMENTERS

Number	Name and/or Entity
0001	Joseph Goldstein
0002	Richard Bratkovich
0003	Patricia Glueck
0004	ISPs – Central Valley Gas Storage, Gill Ranch Storage, Rockpoint Gas Storage
0005	Environmental Defense Fund and Pipeline Safety Trust
0006	SoCalGas
0007	Tom Williams
0008	PG&E

ACRONYMS AND OTHER SHORTHAND REFERENCES

AOR	Area of Review
API RP	American Petroleum Institute Recommended Practice
CalEPA	California Environmental Protection Agency
CalOSHA	California Occupational Safety and Health Administration
CARB	California Air Resources Board
CCST report	Report issued by the California Council on Science and Technology "*Long-Term Viability of Underground Natural Gas Storage in California*" released January 2018
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CPUC	California Public Utilities Commission
Division	Department of Conservation, Division of Oil, Gas, and Geothermal
ERP	Emergency Response Plan
ISOR	Initial Statement of Reasons
Legislature	Legislature of the State of California
MIT	Mechanical Integrity Testing
National Labs	Lawrence Berkeley, Lawrence Livermore, and Sandia National Laboratories
PAL	Project Approval Letter
PHMSA	Pipeline and Hazardous Materials Safety Administration, Dept. of Transportation
QRA	Quantitative Risk Assessment
PRC	Public Resources Code
RMP	Risk Management Plan
the Act	California Administrative Procedures Act
UGS	Underground Gas Storage
ZEI	Zone of Endangering Influence

COMMENTS IN SUPPORT

0005-1
Comment commends the Division for highlighting the importance of preventative, in addition to mitigatory, measures in the risk management planning process outlined in the current draft. Overall, the proposed regulation is strong, and when final, will likely be the most rigorous gas storage regulatory program in the country – appropriately so, given the proximity of large population centers to California's gas storage facilities.

***Response**: Noted. Thank you for your comments.*

0006-6
Commenter supports the Division's overall monitoring requirements and seeks to provide effective monitoring and analysis methods. Commenter has concerns that increased frequency of field shut-in tests may adversely impact system reliability and could potentially be disruptive to our ability to serve our customers if instituted at a frequency greater than an annual basis. Commenter appreciates the provisions of Section 1726.7(b)(2) that offers alternative methods besides semiannual field shut-in tests, and looks forward to future discussions with the Division to develop a Risk Management Plan that will meet the requirements of Section 1726.7 with consideration for system reliability. Commenter appreciates the efforts of the Division to bring forth consistency and alignment with other regulations where appropriate, such as in Section 1726.7(f), which provides for Monitoring Requirements of the proposed regulation to be superseded by the California Air Resources Board (CARB), should they approve a monitoring plan under its regulation for that facility.

***Response**: Noted. Thank you for your comments.*

0008-1
Commenter appreciates the revisions made to provide additional clarity and the modification to allow operators more time to provide the required data for existing underground gas storage projects, given the amount of new information that is required in this regulation as well as implementing concurrent requirements from PHMSA.

***Response**: Noted. Thank you for your comments.*

0008-12
§1726.4(a)(5)(L): Commenter appreciates and agrees with the clarification of the definition of boundaries for this section.

***Response**: Noted. Thank you for your comments.*

0008-13
§1726.6(a)(2): Commenter appreciates the clarification that operators may employ the technology that is best suited for their wells and both magnetic flux and ultrasonic technologies are not required.

***Response**: Noted. Thank you for your comments.*

GENERAL COMMENTS

0001-1
The document speaks to new, existing, or modified well fields. Commenter believes that the regulations should clearly state that retrofit will be required where deficiencies are identified. This means that if a field exists in either planning stage, installation phase, or operating phase, retrofit to this document is requirement.

***Response**: NOT ACCEPTED. The proposed regulations apply to all underground gas storage activities regardless of project stage. This is made clear by the requirement for a Project Approval Letter (PAL) which will, by its express terms, require a project to remain in compliance with then-current regulations as they exist at the time of issuance and as updated going forward. No additional language is needed to clarify that these requirements are applicable to all underground gas storage wells and their injection projects.*

0002-1
The adding back of the word "prevention" in many places is a good thing. The current language however, says "prevention or mitigation." Commenter doesn't think offering a choice to companies, whose safety record is poor, is a good idea.

***Response**: NOT ACCEPTED. A**s** recommended by multiple commenters, the Division has modified the regulations to recognize that total prevention is often an impossibility, but should always be the goal. Thus, "prevention or mitigation" is not a bifurcated choice, but a continuum of the required protocols from, at minimum, mitigation of harm below a probability or impact threshold, to complete and total prevention of that harm.*

0006-8
Commenter would appreciate the opportunity to engage with the Division in a future operator workshop or meeting to review expectations and requirements for compliance, and in support of new concepts introduced such as quantitative risk assessments and human factor variables.

***Response**: ACCEPTED. This workshop will be scheduled after the regulations are finalized. Additionally, all operators will have opportunity to discuss their risk management plans and other compliance efforts directly with Division program staff during the initial submission process.*

0007-1
The entire article is poorly written, technically inadequate, and appears to be biased for protecting the
"operator" rather than for protection of life, health, safety, the environment, and natural resources. All records for permit compliance must to submitted, verified, and stored with the State agencies and be accessible to the public, forever; not held by operator with access only to the agency and not to the public.

***Response**: NOT ACCEPTED. All comments received during the development of the proposed regulations have been carefully considered. Modifications to the proposed language were made where appropriate. Generally, records submitted to the Division for compliance purposes are maintained in the corresponding well files and project files. Well files, project files, and other records maintained by the Division are available to the public in a manner consistent with the California Public Records Act and other applicable laws. Many of these records may be accessed online through the Division's website.*

0008-11
In the finalization process for these proposed regulations, commenter encourages the Division to continue its close communication and counsel with the CPUC, PHMSA-Office of Pipeline Safety, and the California Air Resources Board to ensure that there will be no conflicting or overlapping regulations.

***Response**: ACCEPTED. The Division maintains working relationships with other agencies to ensure that the proposed regulations are effective without conflict and is confident that the proposed regulations work well with other existing and planned regulatory requirements.*

SECTION BY SECTION COMMENTS

<u>1726.1 DEFINITIONS</u>

0007-4

§1726.1(a)(3) and (a)(4), 1726.4(a)(5)(D), 1726.4.2(a)(1), 1726.5(a), (b)(1), (b)(4), 1726.7(a), (b), 1726.7(b)(2)(D), (d)(3)(A), (d)(3)(B): In multiple locations throughout the text, commenter recommends the addition of "and gases" in relationship to "fluids". Commenter suggests this definition is used inconsistently throughout the proposed regulations. Similarly, where "gas" appears in the definition of gas storage well, commenter would add "and fluids".

***Response**: NOT ACCEPTED. "Fluid" is defined in the proposed regulations to mean liquid or gas. Thus, the inclusion of "and gas" or "gases" after "fluid" is redundant and unnecessary for regulatory purposes. Where the text is focused on gas, it is focused on the specific injection and withdrawal of target product to and from the storage reservoir; incidental injection and withdrawal of fluids associated with maintenance is not a primary activity of UGS project wells and is not at issue in this definitional context.*

0007-5

§1726.1(a)(5): Commenter recommends the inclusion of the following at the end of this definition: "Zones shall include all intervals used for injection and withdrawal of fluids that may influence the storage zones during gas withdrawal and injection."

***Response**: NOT ACCEPTED. Zones are defined in the previous sentence as depth intervals; this is sufficient for the proposed regulatory purpose.*

0007-6

§1726.1(a)(6) and 1726.4(a): Commenter recommends this definition be modified to include gas "and fluid" for "storage." Commenter also references the need to include water/fluid injection/withdrawal wells for pressure and volume controls. Commenter adds "and fluid" or "fluids and liquids."

***Response**: NOT ACCEPTED. These modifications are inconsistent with the use of this definition throughout the regulations. The regulations focus on injection and withdrawal of gas; fluids and liquids are incidental to the primary storage purpose and are handled differently than the product of the storage reservoir.*

0001-2

§1726.1(new): Commenter recommends the addition of a definition for “prevention” that would quantify it by imposing a probability requirement of $x10^{-9}$. Commenter also recommends the addition of a definition for “effective mitigation” and “mitigation” that would quantify it by defining both a time frame for the mitigation to be in place and effective, such as one month and a reduction in cause by 99%. (Given that mitigation means that the problem or failure already has occurred, and therefore that the prevention techniques have failed, thus the addition of a definition for prevention has even more substantiality.)

Response: *NOT ACCEPTED. A definition for prevention and/or mitigation as proposed by commenter would be inconsistent with the site-specific, risk-based approach that forms the basic structure of the proposed regulations. Instead, operators must identify what they believe to be the appropriate probability requirements based on their quantitative risk analysis, the results of which must then be used to determine the necessary prevention and mitigation measures that will be incorporated into the Risk Management Plan.*

1726.2 APPROVAL OF UNDERGROUND GAS STORAGE PROJECTS

0007-9

§1726.2(b) and (c): Commenter suggests language edits so that the Division “shall” review project approval letters (PALs) no less than once every four years and would subject these letters to verification of compliance with PAL terms.

Response: *NOT ACCEPTED. The project review process is scheduled to take place at least once every three years and will verify that on the ground conditions are consistent with PAL requirements.*

1726.3 RISK MANAGEMENT PLANS

0007-10

§1726.3(a): Commenter recommends the addition of the following to this section: “The Risk Management Plan shall include a comprehensive risk assessment, control and response measures, and potential for emergency responses and preparedness which must be fully integrated with the terms and conditions of the Project Approval Letter.”

Response: *NOT ACCEPTED. The RMP section makes it clear that risk assessment, mitigation and prevention measures, and emergency response are a required part of the* *plan. By the terms of a Project Approval Letter, projects must be in compliance with all regulations and letter conditions. Additional summarizing language as provided by commenter would be duplicative without regulatory purpose.*

0007-11

§1726.3(b): Commenter recommends the addition of "on-site equipment" and "training for Project personnel" to this section.

Response: *NOT ACCEPTED. The items of concern to commenter are already included later in the regulation as part of the specific requirements for the Risk Management and Emergency Response plans.*

0001-3

§1726.3(c): This section speaks to prevention and mitigation protocols, but allows third party guidance. It appears to me that DOGGR should be the approving authority on such things in order to assure highest integrity and validity of the sources used. Therefore add "…third party guidance as approved by DOGGR."

Response: *NOT ACCEPTED. The goal of the RMP is to incorporate any and all guidance which may provide meaningful information or analysis that will improve risk assessment and response. This should include any and all guidance which may be helpful to understanding the probable effectiveness of planned prevention and mitigation protocols. To require that all third-party guidance meet a minimum standard for Division approval is inconsistent with this broadly inclusive goal for third party information. Where the Division does not believe an assessment or protocol is adequately supported, it will work with the operator to address that concern, but exclusion of valuable guidance simply because it does not meet a non-specific standard for integrity or validity is not the goal of this requirement.*

0007-12

§1726.3(c)(1): Commenter recommends that the important accident scenarios be required to include failure scenarios known to be associated with "any U.S." underground storage project such as migration through poorly abandoned wells at Montebello, blowout through surface systems at Playa Del Rey, operating well blowouts through annular spaces at Aliso Canyon, as well as many others.

Response: *NOT ACCEPTED. Operators are required to focus on the accident scenarios most likely to be of concern at their location, rather than a default list based on other locations. Site specific geology, different operating procedures, infrastructure age, and* *volume can all have significant impacts on the likelihood of a specific failure scenario becoming an issue. Operators are encouraged to use industry best practices and experience of other operators to identify their risk scenarios, but should remain focused on what is appropriate for their site and operating conditions.*

0007-14

§1726.3(c)(2): Commenter would replace "uncertainties" with "probabilities" would add the term "risks," and require "responses to realization" of threats and hazards as part of the QRA analysis.

Response: *NOT ACCEPTED. This proposed section requires the operator to address any uncertainties that would affect the accuracy of quantitative values used during risk assessment and hazard analysis. These uncertainties are items that could affect outcomes but which cannot be quantified; this is very different from a probability which is the calculated likelihood that something will take place. QRA is focused on the assessment and quantification of risk, mitigation measures are covered later in the proposed section.*

0007-13

§1726.3(c)(2), (d)(2), (d)(8), (d)(9), (d)(15): Commenter recommends that the QRA section define and contrast risk-threat-hazard as specifically applicable to California, their consequences, and control/mitigation.

Response: *NOT ACCEPTED. As discussed by other commenters, the QRA process is new to underground gas storage. Over time it is likely that clear California usage and definitions will arise for these terms, but at this time they are still in development. The RMP section will require significant monitoring over the next few years and additional regulatory action is likely as lessons are learned and applied for more effective QRA analysis.*

0008-2

§1726.3(c)(2), (d)(12): Commenter suggests that QRA and human factors in operations and maintenance are developing and nascent fields and it is premature to include them as prescriptive requirements. Commenter suggests that API RP 1173, which addresses human safety factors, should be used as a reference, rather than requiring an assessment for which methodologies and tools are still being developed.

Response: *NOT ACCEPTED. QRA and human factors analysis are somewhat new fields for the underground gas storage industry, but have been in use in other hazardous* *industries, such as nuclear power, for some time. In addition, companies which are overseen by the CPUC are already using QRA processes to perform risk mitigation assessment work, and the formulas developed for the risk mitigation phase filing should inform the QRA analysis that must be completed for the RMP. Similarly, human factor analysis may be still developing, but there are sufficient references from other industries for operators to begin meaningful calculation of risks associated with human failures even if a tried and true method has not yet achieved industry-wide acceptance. The Division believes these provisions are needed to help drive the development of QRA and human factors analysis for UGS operations.*

0007-22

§1726.3(d)(16): Commenter recommends that the requirement to request notices from local land use agencies be expanded to include first responder entities as well.

Response: *NOT ACCEPTED. This expansion is inconsistent with the purpose of this proposed section, which is to require the operator to monitor land development around their project. The issue of concern is risk to the UGS project from the development or to the development from operational activities. Although activities by local first responder entities should be of interest to operators as they must comply with all local laws, for Division regulatory purposes there is no risk associated with responder regulatory action, so notice requests are not required in the RMP.*

0006-1

§1726.3(c)(3): Commenter observes that as defined in Section 1726.3(c)(3), it would be more accurate for the Division to use the term "preventive and mitigative" throughout Section 1726.3 rather than "prevention and mitigation", as any "prevention protocol" would preclude the need for a "mitigation protocol". Commenter interprets the intent of the Division's use of the phrase "Prevention and Mitigation Protocol" to equivalate to API 1171's use of "Preventive and Mitigative", and encourages the Division to update the proposed regulations with this change to clarify the regulation and avoid enforcement ambiguity.

Response: *NOT ACCEPTED. The Division does not see any functional difference between a requirement for "preventative and mitigative" actions versus "prevention and mitigation" protocols. The goal of preventing and mitigating risk remains the backbone of the proposed regulations and the language is used consistently throughout the proposed section.*

0008-3

§1726.3(c)(3): Commenter reiterates its recommendation to remove the requirement to include cost effectiveness of prevention protocols in operator Risk Management Plans, since DOGGR does not have purview over funding.

Response: *NOT ACCEPTED. Proposed subdivision (c)(3) does not dictate how operators obtain or allocate funding. Proposed subdivision (c)(3) requires that an operator evaluate the cost-effectiveness of the possible risk prevention and mitigation protocols identified as part of the operator's RMP. Cost-effectiveness in this context refers to a comparison of the benefit provided by a protocol relative to the expense of the protocol. Understanding the cost-effectiveness of possible prevention and mitigation protocols is an important step for developing an effective RMP. Completion of that step is among the criteria that the Division will examine when evaluating whether an RMP meets the regulatory standard for approval.*

0007-15

§1726.3(c)(3) through (d)(1), (e): Throughout this section, commenter recommends the use of prevention, response, and mitigation protocols.

Response: *NOT ACCEPTED. Prevention and mitigation protocols are protocols that are implemented in response to an event or hazard that reduce or otherwise prevent harm. The addition of "response" is duplicative in this context.*

0003-2

§1726.3(d): Commenter is concerned about seismicity. Given that California has major faults includes the San Andreas fault, which have the power to release immediate and devastating energy that could collapse wells, seismic risks should be taken seriously. Thus, a facility such as Aliso Canyon which has the Santa Susana fault that transverses each well on the site, should be decommissioned. It's not just the danger of the fault or the other faults in close proximity, but, according to a well-known earthquake expert, an eruption on the southern San Andreas fault could produce enough energy to set off the faults that are located in Southern California. Such an incident could mean thousands of deaths of residences and any site workers if the wells became so damaged that the gas is released. We know that one well had become damaged at that site in 1994 as a result of the Northridge Quake. Just think of the 2015 blowout, but highly intensified. It is irresponsible on the part of DOGGR and the CPUC to allow a potentially dangerous facility to continue operation. And any other similar facilities need to be examine for possible seismic and other safety problems.

Response: *NOT ACCEPTED.* ***Evaluation and mitigation of risks from*** *seismicity and associated hazards are incorporated is several parts of the proposed requirements as hazards which must be assessed using quantitative risk analysis. This analysis will identify the type of hazards associated with seismicity, quantify their probability and impact, and provide a guide to needed mitigation measures that will minimize harm in case of an earthquake. This analysis must be site specific and appropriate response will be determined well by well.*

0007-16

§1726.3(d)(1): Commenter would include a requirement for "complete cementing from well bottom to top for casings and annular spaces within the Area of Review."

Response: *NOT ACCEPTED. Cementing requirements are covered in existing regulations. The Division does not intend to change those requirements at this time.*

0007-17

§1726.3(d)(1): Commenter recommends that non-conforming wells be given only three years to comply, with 30 percent of nonconforming wells being addressed each year.

Response: *NOT ACCEPTED. The Division has determined that rig availability and reliability concerns require additional time for compliance where an operator has a large number of non-conforming wells. The three-year accelerated period recommended by commenter does not appear realistic given available resources.*

0008-4

§1726.3(d)(1): Commenter appreciates the clarifications on the percentages of nonconforming wells that must be addressed during the seven-year phase-in period but believes that the revised language can still be interpreted in different ways. Edits are recommended along with a start date for the seven-year period to begin on January 1, 2019 which will assist in planning by aligning with the fiscal calendar of most operators.

Response: *NOT ACCEPTED. The workplan for nonconforming wells is not a stand-alone plan, but is part of the Risk Management Plan (RMP). Thus, the operator will have six months from the effective date of the proposed regulations to submit an RMP that includes a seven-year plan for non-conforming wells, and the start date for that seven-year plan will be the approval date of the RMP, making a specific start date not needed in the proposed regulations. The language added to clarify the percentage of wells which must be completed each year is clear; where there are potential alternative interpretations the*

Division will work with the operator through their RMP review process to ensure the non-conforming well plan meets the regulatory requirements.

0001-4

§1726.3(d)(2): In evaluation of the appropriateness of subsurface safety valves, the probability factor should quantify appropriateness at $x10^{-9}$.

Response: *NOT ACCEPTED. A single standard for prevention probability appropriateness as proposed by commenter would be inconsistent with the site-specific, risk-based approach that forms the basic structure of the proposed regulations. Instead, operators must identify what they believe to be the appropriate probability factor based on their QRA, the results of which must then be used to determine the necessary prevention and mitigation measures that will be incorporated into the RMP.*

0002-2

§1726.3(d)(2): Offering a choice of valve installation (or not) is not in the public interest.

Response: *NOT ACCEPTED. The proposed regulations are built around a risk-based, site-specific approach that requires operators to perform extensive analysis of hazards, their probability of occurring, and the potential impact should a harm occur. The operators will therefore use the results of the Quantitative Risk Assessment to determine if and when safety valves are needed.*

0002-3, 0007-18

§1726.3(d)(2)(L), (d)(9): Taking out the worlds "active faults" is a concern. One commenter recommends the inclusion of "fault planes" as an alternative. Commenters also recommend inclusion of uplift.

Response: *NOT ACCEPTED. The use of "active faults" appeared to create some confusion with commenters who requested definitions of active vs. non-active fault. The purpose of the proposed subdivision, which is focused on the potential use of safety valves, is to consider all hazards that could lead to loss of containment and thereby determine if safety valves would prevent or mitigate associated impacts. Active faults have therefore been removed to avoid confusion; faults should be considered a part of seismicity considerations rather than a standalone issue of concern. Thus, any risk to the well associated with seismic activity must be considered in evaluating the need for valves, regardless of whether a specific fault is considered active or not. Similarly, uplift is considered a part of seismicity, which is generally defined as land movement.*

0007-19

§1726.3(d)(4) and (d)(8): Commenter recommends the addition of "encrustation...including operational cycling of injection and withdrawal."

Response: *NOT ACCEPTED. Commenter's recommended addition appear to be extensions of the existing text regarding evaluation, monitoring, and mitigation of corrosion. Corrosion effects would already include encrustation without the need to delineate them separately, and corrosion must be monitored and mitigated no matter its cause. Commenter's language additions do not appear to add value or clarity to the regulatory requirements.*

0007-20

§1726.3(d)(4)(E): Commenter recommends consideration of corrosion potential of fluids in formations below the storage zone, and those withdrawn or injected into zones within the area of review.

Response: *NOT ACCEPTED. Consideration of corrosion potential for fluids below the zone is unnecessary because fluids in that zone will not come in contact with wellbores or other equipment that would be at risk from corrosion buildup. Corrosion potential of all fluids in and above the storage zone must be included; specifying zones of injection and withdrawal is duplicative in this context.*

0007-21

§1726.3(d)(5): Commenter recommends the addition of language requiring ongoing monitoring of pressures, temperatures, and compositional changes including analysis of encrustation.

Response: *NOT ACCEPTED. Encrustation is part of corrosion which is monitored under the immediately preceding proposed section and does not need to be duplicated here. Ongoing monitoring of temperatures and compositional changes is covered by the monitoring requirements in proposed section 1726.7.*

0007-23

§1726.3(e): Commenter would require that all variance be considered and approved at least two weeks prior to their inclusion in the plan.

Response: *NOT ACCEPTED. The two-week lead time requirement vitiates the responsive nature of the Risk Management Plan. As conditions change, operators must be able to update their plans immediately to ensure that risk mitigation and prevention is* *responsive to ongoing project needs rather than delayed by artificial timeframes. Once a variance has been approved it can be immediately implemented; the Division sees no value to an implementation delay as recommended.*

1726.3.1 EMERGENCY RESPONSE PLAN

0005-2
§1726.3.1: Commenters implore the Division to require annual review and update of emergency response plans, as opposed to triennially as currently proposed. Gas storage operations are large and complex. The personnel, equipment, technology, and surrounding populations related to those operations shift too rapidly for emergency response plans to be reviewed only every third year. Annual reviews would not only be more prudent on their face, they are also recommended by many standards documents, and possibly even required by California law itself. These plans should be treated as living documents and frequently revisited. In addition, given the Los Angeles County Fire Department's expertise in emergency response, if it believes annual updates to emergency response plans are appropriate, the Division would have to have a very good reason for allowing a weaker three-year update cycle instead. Finally, the "Underground Gas Storage Regulatory Considerations – A Guide for State and Federal Regulatory Agencies" was published in May 2017 by the Interstate Oil and Gas Compact Commission and the Ground Water Protection Council, with key DOGGR staff on the report's Development Leadership Team. The report has a chapter on Emergency Response Planning with the following to say on plan updates: Effective ERPs are dynamic documents and should be thoroughly reviewed and updated at least annually. Other opportunities for improvement, review, and update include exercises and drills, internal and external audit results, changing regulations, organizational modifications, policy and procedural changes, and performance objective refinements. Updates should be timely, follow a sound management of change process, and be immediately communicated internally and to appropriate outside agencies.

Response: *NOT ACCEPTED. The proposed regulations are intended to set a statewide minimum standard. The Division believes a statewide requirement for triennial review of UGS project ERPs appropriately balances the benefits and burdens of maintaining an updated plan in light of the variety of project settings that would be covered by the proposed regulations. In addition to the triennial review, the proposed regulations also provide that the ERP must be updated when key personnel changes, and the ERP will also be reviewed as part of the RMP whenever that plan is updated in* *response to changed conditions or new information. Local authorities may choose to require additional precautionary planning activities for UGS projects in their area.*

0005-3

§1726.3.1: In order for an emergency response plan to be truly effective on the topic of training programs, it must employ no-notice drills and contain mechanisms for demonstration of competency and proficiency in a measurable fashion. No-notice drills are the only way to simulate the condition of an actual emergency and are essential to habituating employees to respond reliably and in compliance with established procedures during emergency situations. Demonstrations of competency and proficiency are the only way for operators (and regulators) to know if site personnel are truly situated and prepared to deal with emergencies – it is one thing to be merely present at drills and classes, but quite another to actually be assessed for understanding of emergency response plans and ability to implement them. Both of these additional requirements – demonstration of competency and use of no-notice drills – are commonsense ideas to enhance public and worker health and safety, and in turn environmental protection. While the proposed rulemaking currently appears to be silent on the issue of competency demonstration, a previous version of the proposed rules contained a requirement that plans include the "opportunity for surprise drills," and that the word "surprise" was struck in the current draft.6 EDF and PST hope that this was not intended to discourage the use of essential no-notice drills in the training process.

Response: *NOT ACCEPTED. Multiple comments were received from operators regarding concerns that no-notice drills triggered by non-operator staff would likely result in serious hazard due to lack of knowledge of site-specific hazards and operational procedures. The operator, who retains liability for what happens on their site, must be able to control the activities which take place on the site; no-notice drills triggered by emergency responders was removed as a requirement to avoid excess risk triggered by third-parties. Where an operator and local emergency response entities believe that no-notice drills and demonstration of competency are an important part of the emergency response plan, they are free to conduct them.*

0006-2

§1726.3.1: Commenters seek clarification of the term "drill" and interpret the context in which "drill" is used to be very similar to the Department of Homeland Security's use of the term "exercise" in the National Incident Management System (NIMS) as well as in the Federal Emergency Management Agency (FEMA) Incident Command System. Commenter has Emergency Action Plans (EAP) which incorporate the same elements contained within Section 1726.3.1 and include a variety of “exercises” designed to both train personnel and to validate the plans. Commenter EAPs also incorporate a schedule for regular “exercises” and recordkeeping of all staff training and equipment interaction. Commenter reiterates “exercises” includes a suite of activities that are inclusive of “drills”. Commenter looks forward to future discussions with the Division and associated stakeholders to further clarify how “drills” and “exercises” can be used to represent similar activities.

Response: *NOT ACCEPTED. As used in this proposed section, “drill” means the process of practicing how something would take place. Thus, a requirement for emergency drills is a requirement for actual practice of what would take place in an emergency situation. The use of the plural “drills” in the proposed regulations for ERPs means that as a minimum requirement there must be at least two emergency drills each review cycle. Operators may choose to incorporate additional drills or exercises to improve the efficacy of their emergency response training programs.*

0006-3

§1726.3.1: Commenter seeks clarification on the reference to “leaks” within Section 1726.3.1 (Emergency Response Plan) as the context within this section is interpreted to convey situations where an emergency response is appropriate and necessary. In Section 1726.9 (Well Leak Reporting), “reportable leaks” is explicitly defined by three categories of thresholds and in this context, may or may not be referring to the same situation in which “leaks” is used in Section 1726.3.1. Commenter believes the Division’s intent is to describe “leaks” in Section 1726.3.1 in a manner that is consistent with Section 1726.9. Therefore, Commenter recommends revising “Leaks and well failures” to state “reportable leaks and well failures,” and subsequently it would be reasonable that leaks categorized by these three thresholds would maintain different levels of response requirements in the context of an emergency response plan.

Response: *NOT ACCEPTED. There is no relationship between the reportable leaks defined by proposed section 1726.9 and the leaks that must be addressed by the ERP. Proposed section 1726.9 covers leaks which require “all hands-on deck” response from the Division and other regulatory agencies due to the potential severity of the leak. The Emergency Response Plan, in contrast, is focused on any and all leaks that would require any kind of response – such as plugging a leak or closing a valve. Although a small leak may not seem like an emergency, it is an anomaly which requires response, and must be planned for, regardless of whether or not the leak is reportable. Thus, in the context of the emergency response plan, limited leaks to reportable leaks would not be consistent with the regulatory purpose.*

0008-6

§1726.3.1: Commenter reiterates its recommendation that providing local first responders with a reasonable opportunity to review an operator's Emergency Response Plan is sufficient, rather than a prescriptive, mandatory time frame of 30 days.

Response: *NOT ACCEPTED. A specific timeframe is provided to ensure that the reasonable opportunity does not become unreasonably delayed. Once the plan has been provided to the legal entity, at the end of 30 days the operator may proceed with their plan regardless of whether any input has been received.*

0007-24

§1726.3.1(b) and (c): Commenter recommends that this section define and contrast "address" and "include", combine section (b) and (c) into one section and reorder, and add the requirement to include collisions involving pipework, tanks, sumps, and other field facilities.

Response: *NOT ACCEPTED. "Address" and "include" are clear from the context of the proposed section; the plan must "address" certain hazards, and "include" specific activities. Thus, combining the lists under (b) and (c) into one requirement eliminates the differentiation rather than creating clarity. The additional field facilities recommended for inclusion among the scenarios that must be addressed in an ERP under proposed subdivision (b)(1) are outside the scope of the proposed regulations.*

0007-25

§1726.3.1(c)(5): Commenter recommends the addition of requirements for prepositioning of communication systems and equipment to respond to spills and blowouts, so as to protect the environment.

Response: *NOT ACCEPTED. The proposed section already requires the prepositioning of all materials and personnel, which would include equipment such as communication systems. Blowouts are extreme leaks, their specific inclusion here would limit that which is included to a specific list rather than the expansive "leak" which is intended to include any and all loss of fluids or gas from the system. Public health and safety are the responsive priority in an emergency; environmental protections are* *covered by the Risk Management Plan and prevention/mitigation measures and should not be made equal with human life in the emergency response plan.*

0007-26

§1726.3.1(c)(9): The emergency response plan should require regular annual and quarterly evaluations and updates.

Response: *NOT ACCEPTED. The ERP must include a schedule for evaluations and updates. The Division intends this plan to be responsive to ongoing conditions based on risk analysis just like the rest of the RMP. Thus, the operator must determine what is the appropriate update schedule based on their specific site conditions and must propose that schedule as part of initial plan submission. Because conditions are vastly different at UGS fields throughout the state, a blanket requirement for update would leave some projects doing too many updates and some too few.*

0002-4, 0007-27

§1726.3.1(c)(14): A large uncontrollable gas leak could cause a massive explosion and fire in a residential area. Waiting 48 hours is totally unacceptable. Make the requirement 2 hours or less. An evacuation may be required. Second commenter suggests 24 hours.

Response: *NOT ACCEPTED. The language in the proposed section comes from PRC section 3181 and is included here as a required element of the ERP. It is a recognition of the fact that it takes time to evaluate a leak and determine the potential harm and appropriate response. The Division must be notified immediately so that it can assist in this evaluation and ensure appropriate corrective and mitigating actions are taken; other local and state agencies must also be notified. Where the Division, the operator, local emergency response entities, or another state agency determines that the public is at risk, public notification will be made as soon as it can be done responsibly. Statute and the plan proposed regulations require a notification after 48 hours if the leak cannot be controlled, this does not prevent the response team from releasing information to the public more quickly if needed to protect public health and safety and does not suggest that the operator can go 48 hours without notifying emergency response and Division personnel who will assist in directing communication efforts.*

0007-28

§1726.3.1(d): The emergency response plan should be updated annually.

Response*: NOT ACCEPTED. The ERP is a required protocol of the RMP and must be reviewed whenever the RMP is reviewed. The proposed regulations require the RMP to* *be reviewed and updated "no less than once every three years and in response to changed conditions or new information." Thus, the ERP must be reviewed when there are key personnel changes, and when a changed condition or new information would affect emergency scenarios and/or planned response. Annual review is not appropriate for fields in non-urban areas where conditions do not change frequently enough to justify the commenter-suggested review frequency. Where an operator and local emergency response officials in an urban area believe that more frequent review of the ERP is required to effectively mitigate risk, the RMP and ERP can implement an alternative review period.*

1726.4 UNDERGROUND GAS STORAGE PROJECT DATA REQUIREMENTS

0007-29

§1726.4(a): Commenter recommends the requirement for computerized 3-D temporal models and other appropriate computer models for data submitted to meet the requirements of this section.

Response*: NOT ACCEPTED. The Division will generally accept any data submitted that can demonstrate the performance standards and requirements as outlined by the proposed regulatory text. Although computerized models may be helpful, they are not a threshold requirement as the Division does not believe that all operators have the capacity to produce these models cost-effectively and there does not appear to be a specifically regulatory need for them when other data will serve the same function.*

0007-30

§1726.4(a)(3): Commenter recommends that the injection/withdrawal method be included as part of the data set to be provided.

Response*: NOT ACCEPTED. Injection and withdrawal take place in the wells through the primary mechanical barrier as required by proposed section 1726.5(b)(1)(A). No other injection/withdrawal method is permitted by the proposed regulations.*

0007-31

§1726.4(a)(4)(A): Commenter recommends adding the word "gradient" after "fracture pressure."

Response*: NOT ACCEPTED. The fracture pressure gradient is a factor used to determine formation fracturing pressure as a function of well depth. Instead, this proposed* *section appropriately prohibits injections that would exceed fracture pressure of the reservoir, which is a specific maximum psi calculated based on the gradient, but is not the gradient itself.*

0007-32

§1726.4(a)(5)(C)(iii): Commenter recommends six instead of two geologic cross sections per square mile, with three on strike and three on dip (rather than one each). The cross sections should go through at least half of the wells in the project and the areas within 500 feet.

***Response**: NOT ACCEPTED. The cross-sections requirements as currently proposed are minimums and sufficient to meet the Division's regulatory needs. The additional sections, the requirement that they be provided for each square mile, and the additional strike and dip requirements far exceed the data needed to evaluate project geology for suitability for storage purposes and hazard identification.*

0007-33

§1726.4(a)(5)(C)(iv): Commenter recommends the requirement for the representative geophysical log be applied for every 40 acres of the project.

***Response**: NOT ACCEPTED. A representative geophysical log is typically included in a geological study to indicate all or most of the formations that may be encountered in the project area. All of the geophysical logs are evaluated in the geological study and a representative geophysical log every 40 acres is not necessary.*

0007-34

§1726.4(a)(5)(C)(v): Commenter would add "domes, folds" to the list of known features in this section.

***Response**: NOT ACCEPTED. The proposed section includes a simple list of examples. It is not intended to be comprehensive.*

0007-35

§1726.4(a)(5)(E): Commenter recommends that this mapping requirement also include all wells within 500 feet of the boundary of the area of review.

***Response**: NOT ACCEPTED. The area of review will, by definition, already include any and all areas that could be affected by or affect project operations; specification of an* *extended area for inclusion beyond the area of review is unnecessary in this regulatory context.*

0002-5

§1726.4(a)(5)(F): Why were some of the requirements for casing diagrams removed, i.e., "gas migration?"

***Response**: NOT ACCEPTED. Some of the language from the proposed section was deleted for being duplicative, while other language has been moved. Thus, no requirements have actually been deleted. This subdivision was re-written in recognition of the fact that it confused the performance standard for well construction and integrity ("not a conduit for gas migration…") with the requirement for a graphical representation of actual well configuration (casing diagram). The requirement that the data submitted demonstrate that stored gas will be confined to the approved zone and not cause damage, appears in proposed subdivision (a), and applies to all the data which must be submitted including the graphical casing diagrams or flat file data sets. The language related to plugged and abandoned wells was moved to new proposed subdivision 1726.4.2(a)(2).*

0007-36

§1726.4(a)(6)(A): Commenter suggests that anticipated injection temperatures also be required as part of the injection and withdrawal plan.

***Response**: NOT ACCEPTED. Knowing the temperature of the injected gas is normally used for determining the potential for liquids in the gas stream from the pipeline source. Storage operators may check temperature as a business process and the Division does not see a need to regulate temperature.*

0007-37

§1726.4(b) and (c): Commenter would specify that modeling and records must be submitted to the Division along with data for consideration and approval.

***Response**: NOT ACCEPTED. Modeling and records are considered data. The proposed section references multiple types of data that must be submitted for Division consideration. Approval of data is not specifically required, but data submissions must be found to be adequate before the requirement will be considered met.*

0007-38

§1726.4(g): Data required under this section should be required within 30 days of the effective date.

***Response**: NOT ACCEPTED. The time for submission of data requirements was extended due to a recognition that many of the requirements are more detailed in scope, and that operators are simultaneously trying to come into compliance with new PHMSA requirements during the same time period. It is unrealistic to expect existing projects to produce the necessary data within 30 days.*

1726.4.1 CASING DIAGRAMS

0007-39

§1726.4.1(a): Commenter would require submission of supporting digital files for casing diagrams.

***Response**: NOT ACCEPTED. This requirement already appears in proposed subdivision (a)(4).*

0007-40

§1726.4.1(a)(1)(B): Commenter would add the dates a well was reworked, redrilled, and abandoned to the casing diagram requirement.

***Response**: NOT ACCEPTED. The operator may add specific dates to the casing diagram as 1726.4.1(a)(1) states that "Casing diagrams shall at a minimum include all of the following data:".*

0007-41

§1726.4.1(a)(1)(H): Commenter recommends that Division verification of details be required including notices/approvals for all equipment installation and removals/replacements.

***Response**: NOT ACCEPTED. e. Notices and approvals are already contained within Division files and available on the Division's website. If the well work requires a permit, a review of the work program is performed, a permit is issued, appropriate work is witnessed, records are submitted to DOGGR, and the records are reviewed.*

0007-42

§1726.4.1(a)(1)(S): Commenter recommends a requirement for identification of all abandoned and orphaned wells within the area of review through records and historic aerial and ground photo searches.

***Response**: NOT ACCEPTED. Requiring operators to develop a plan to meet the requirements of commenter's proposed additions is too prescriptive and unnecessary to achieve the Division's regulatory goal of producing a map that shows the location and status of all wells within and adjacent to the AOR. Allowing the operator to decide how to produce the map ensures that operators are meeting a minimum regulatory standard without imposing a prescriptive plan.*

0007-43

§1726.4.1(a)(2): Commenter would make depth plural and require appropriate coordinates for all measurements and equipment required under subdivision (a)(1).

***Response**: NOT ACCEPTED. The proposed section is specifically focused on measured depth and true vertical depth for measurements. Coordinates and equipment are not linked to depth and do not belong in the proposed section.*

0006-4, 0007-44

§1726.4.1(a)(3): SoCalGas believes to have identified a typographical error in Section 1726.4.1(a)(3), the sentence states "For directionally drilled wells, a directional survey shall be provided with inclination, azimuth measurements, bottomhole location, and surface location" and believes the Division intended for the sentence to state "For directionally drilled wells, a directional survey shall be provided with inclination, azimuth measurements, bottomhole location, and surface location."

***Response**: ACCEPTED. This typo has been corrected.*

0007-45

§1726.4.1(a)(4): Commenter includes the specification for "digital measurements" along with casing diagrams in an electronic format.

***Response**: NOT ACCEPTED. The casing diagram includes all the digital measurements as listed under (a)(1). Thus, a requirement for digital measurements would be duplicative and is unnecessary in the proposed regulations.*

0007-46

§1726.4.1(a)(5): Commenter would require the casing diagram to include cemented well barrier elements.

***Response**: NOT ACCEPTED. It is unclear if commenter intends to require that mechanical well barrier elements be cemented (already required under existing regulations), or to require that cemented elements also be included on the casing diagram.*

0007-47

§1726.4.1(b): Define "flat file data set"

***Response**: NOT ACCEPTED. Within the proposed regulations the term "flat file data set" is used in manner consistent with its ordinary meaning as an unstructured database file, such as an Excel spreadsheet. An additional definition is not necessary.*

1726.4.3 RECORDS MANAGEMENT

0007-49

§1726.4.3(a), (b), and (e): Commenter recommends that records should be sited within the Division's jurisdiction and access control and may be accessed by the public before transfer of all files and records to the Division.

***Response**: NOT ACCEPTED. Internal records maintained by operators are not appropriate for public review as they are not in the public domain. Records which have been submitted to the Division, unless otherwise designated as confidential, are maintained by the Division and available via Public Records Act request. Transfer of appropriate records at project closure will be covered by the Decommissioning Plan.*

0007-50

§1726.4.3(b): The term "conformity" should be defined.

***Response**: NOT ACCEPTED. The term conformity is used consistent with its ordinary meaning: to be in compliance with standards, rules, or laws.*

1726.5 WELL CONSTRUCTION REQUIREMENTS

0001-5, 0003-1
§1726.5: Commenter expresses concern that this section does not speak to safety shutoff valves. Each storage well should be required to have a subsurface safety valve, no matter the situation.

Response: *NOT ACCEPTED. The proposed section requires operators to design their wells to meet their site-specific needs based on the risks assessed under the Risk Management Plan. The Quantitative Risk Analysis will identify those risks which must be prevented and/or mitigated; well design must then be responsive to the assessment results. With that in mind, there are multiple types of safety valves which might be included in a specific well design, including valves on the Christmas Tree, master gate valves, and subsurface safety valves. This proposed section works with proposed section 1726.3, regarding RMPs, to ensure that well design is appropriate to the conditions, circumstances, and operations of an underground gas storage project; operators are free to choose any configuration(s) which meets their risk prevention and mitigation needs.*

0008-5
§1726.5: Commenter recommends that DOGGR clarify that each operator who owns wells within an underground gas storage project is responsible for meeting the requirements of Section 1726.5, as opposed to one operator being responsible for wells it does not own but are located in its storage field. Edits are recommended to be added to section 1726.

Response: *NOT ACCEPTED. In order to ensure the integrity of the underground gas storage reservoir, every well in the storage field must be designed, constructed, and maintained to meet the minimum standards for integrity and containment. The Division cannot allow a storage field to operate with an ongoing hazard even if that hazard is not the specific legal liability of the storage field operator. Thus, where any well which penetrates the storage reservoir poses a risk, all operators within the field must take responsibility for ensuring compliance. Although the Division may not hold an operator liable for non-compliant wells within the field, the Division must still order cessation of operations where integrity cannot be assured, making compliance a joint concern for all well owners and operators within a field to assure that operators can be ongoing.*

0004-1

§1726.5(a): This section should be revised to provide that owners and operators of underground gas storage reservoirs are not responsible for third-party wells that are not associated with or part of an underground gas storage project, even though they may penetrate project storage reservoirs. Rather, the relevant third-party owner or operator that operators wells that penetrate the gas storage reservoir, but are not owned or operated by the gas storage operator, should be required to comply with any applicable well construction standards. Commenter recommends language limiting operator responsibility to wells "for which they are on the operator on record."

***Response**: NOT ACCEPTED. Where a third-party well penetrates the storage reservoir, the integrity of that well must be assured. The operator should work with the owner of the third-party well to ensure the required construction standards are met, even if the cost must be covered by the gas storage operator. Although it may be difficult to secure the cooperation of third-parties and additional cost may be incurred, in order to ensure that the integrity of the storage reservoir is maintained, the minimum construction standard for every well must be assured, regardless of ownership. Based on Division records, the scenario commenter describes—that of a UGS reservoir penetrated by a third-party well—currently does not exist in California, and appears to be entirely hypothetical.*

0007-50

§1726.5(a): Commenter recommends a definition for "immediate."

***Response**: NOT ACCEPTED. The term immediate is used consistent with its ordinary meaning: occurring or done at once; instant.*

0007-51

§1726.5(a): Commenter recommends the provision of a time table for making certain that integrity concerns with a gas storage well are identified and addressed before they can become a threat.

***Response**: NOT ACCEPTED. It is an ongoing responsibility of each operator to ensure that integrity concerns are identified and addressed on a continuous basis. No time table is appropriate for a threshold duty.*

0007-52

§1726.5(b)(1)(A) and 1726.6(a)(3): Commenter recommends edits to specify that the primary mechanical barrier must be tubing, that casing flows shall be prohibited, and that pressure monitoring take place between the tubing and casing.

***Response**: NOT ACCEPTED. The proposed section is specifically designed to permit any well construction configuration that provides two mechanical barriers – it does not require tubing and packer as commenter recommends. The flexibility to use other barriers besides tubing and packer is an important feature of the risk-based, site specific process that forms the basis of the proposed regulations. Double casing would also meet the requirement for two primary mechanical barriers, and would still allow for casing flow and pressure monitoring of the annulus only. If the regulation were to be limited to tubing and packer, operators would not have the ability to improve well construction as technology and design standards improve; the performance standard as written allows for method and design improvements without sacrificing integrity and without requiring updates to regulatory text before new methods can be utilized.*

0007-53

§1726.5(b)(1)(A)(v): Commenter would include "subsurface safety valves" as a requirement for the default well configuration.

***Response**: NOT ACCEPTED. Proposed section 1726.3.1(d)(2) lists the issues and items that must be considered in determining whether or not subsurface safety valves are an appropriate prevention and mitigation protocol under the Risk Management Plan. A blanket requirement for these valves would vitiate the risk-based, site specific structure that forms the basis for the proposed regulations.*

0007-54

§1726.5(b)(4): Temperatures should be included as one of the design considerations for production casing.

***Response**: NOT ACCEPTED. Temperature is already considered in determining the grade and competency of the casing selected and thus not necessary in the proposed regulations.*

0006-5

§1726.5(b)(7): Commenter reiterates caution that the requirements of Section 1726.5(b)(7) as it applies to existing wells may require perforating the production casing, thereby having the potential to compromise the secondary barrier. Commenter interprets that this is not the intent of Section 1726.5(b), and believes that it would be appropriate to address such instances with the subsequent provisions in Section 1726.5(c). Commenter requests the Division clarify in such instances what the operator would be required to provide to demonstrate that such an alternative method of well design and construction meets the performance standards in subdivision (a).

***Response**: NOT ACCEPTED. An operator will always have to demonstrate that an alternative method of well design and construction meets the performance standards of the subdivision unless using the default method provided by the regulations. Where existing cementing is insufficient to meet the proposed requirements of the proposed subdivision, the operator may bring their well into compliance or provide scientific data supporting use of an alternative cementing method.*

1726.6 MECHANICAL INTEGRITY TESTING

0004-2
§1726.6(a)(3): Commenters continue to have significant concerns that periodic testing at elevated pressures as required by this provision is unprecedented in facilities of this type and could have detrimental consequences on casing joint integrity, downhole equipment seals, and the casing/cement bond. Commenters reiterate the suggestions that after the initial hydrostatic test has been performed, the timing of subsequent pressure testing could be tied to corrosion logs and the results of the updated RMP. For example, if the casing wall thickness inspection required under (a)(2) demonstrations little or no corrosion has occurred since the last inspection, that information would be used to update the RMP and appropriate adjust the future pressure testing schedule.

***Response**: ACCEPTED WITHOUT CHANGE TO THE PROPOSED TEXT. The text already provides the operator the option to seek an alternative testing schedule based on actual testing results. This schedule must be proposed using evidence to demonstrate why the schedule is sufficient to meet regulatory goals and must be approved by the Division prior to implementation. Once it has been approved, the alternative schedule becomes a permanent part of the RMP, however it may be updated after review of each test result.*

0007-55
§1726.6(d): Integrity testing results should be submitted to the Division within three (3) days instead of 30.

***Response**: NOT ACCEPTED. Integrity testing data requires processing, formatting, and evaluation by an operator prior to submission to the Division. This process will be delayed by 2 and 3-day weekends. Operators are already required to notify the Division of emergency conditions, should an emergency be found to exist during an integrity test. The Division has determined that a 30-day period is justified.*

1726.6.1 PRESSURE TESTING PARAMETERS

0007-56

§1726.6.1(a)(2): Commenter recommends the addition of a requirement to receive Division approval for the contents of a liquid to be used for pressure testing.

***Response**: NOT ACCEPTED. Approval of these liquids is generally not required. Where the operator is using a new mix, consultation with the Division is needed to ensure that the Division does not have any concerns, and if there are concerns the Division may order the operator to use a different fluid mix. This consultation does not need to rise to the level of formal approval to ensure that operators and the Division have a shared understanding about the appropriateness of fluids used and the Division does not want to create additional bureaucratic processes for items that can easily be resolved through informal conversation.*

0007-57

§1726.6.1(a)(2): Commenter recommends that "free" and "excess" be defined in the context of the stable fluid column that must be used for pressure testing.

***Response**: NOT ACCEPTED. The operator is responsible to establish when the fluid column has stabilized sufficiently to conduct the pressure test. Each situation is unique.*

0004-3

§1726.6.1(a)(5): Any requirement to pressure-test gas storage wells to 115 percent of the maximum allowable injection pressure using liquid would result in much higher pressures at the bottom of the well. Commenters' wells can be as deep as 3,000 to 9,000 feet, and the hydrostatic pressure at the bottom of the well resulting from this type of test would be far greater than 115 percent – potentially more than 200 percent in some cases. A test of this nature could be unsafe and potentially damage a well. Commenters suggest that the language in this section be modified to require that pressure tests be conducted at an initial pressure calculated at the depth of the packer, at least as high at 115 percent of the maximum allowable injection pressure encountered at that depth. In the alternative, Commenters request that the minimum yield strength be added as a limiting factor as it was for the testing at Aliso Canyon.

***Response**: NOT ACCEPTED. The Division recognizes that operators will be required to perform block testing to meet these requirements. Operators should test each block to 115% of the maximum allowable injection pressure.*

1726.7 MONITORING REQUIREMENTS

0007-58
§1726.7(a) and 1726.7(d): Commenter would require the SCADA system to be web-based with online connections to the Division or district office.

***Response**: NOT ACCEPTED. A direct digital connection between operator SCADA systems and Division offices would create a significant entanglement between government and operators that is inappropriate in this context. Issues such as confidentiality, cybersecurity, and legal liability would complicate any permanent digital connection between projects and government offices without clear regulatory benefit when data can be made available upon request. The Division does not have the staff resources to provide ongoing monitoring of projects when should remain the responsibility of operators.*

0007-59
§1726.7(b): The operator should monitor associated compositions, pressures, and temperatures of an underground gas storage project's storage reservoir and zones and beyond appropriate confining barriers.

***Response**: NOT ACCEPTED. The proposed section already requires ongoing monitoring of the material balance of a reservoir relative to original design and expected reservoir behavior. This encompasses all of the activities that commenter has delineated here, and includes holistic monitoring of the reservoir beyond the specific data points listed, making the broader requirement more appropriate for the proposed regulations.*

0007-60
§1726.7(b): Commenter recommends that "migration" and "venting" be added to the list of items which must be avoided through evaluation and correction if detected during monitoring.

***Response**: NOT ACCEPTED. The proposed section currently requires "an incident or loss" to be avoided. These existing terms include both migration and venting, which could be considered either incidents or loss.*

0007-61
§1726.7(b)(2)(B): Commenter would replace "an aquifer" with "the groundwater."

***Response**: NOT ACCEPTED. These terms are not interchangeable. Groundwater denotes any and all water which may be found under the ground, while an aquifer identifies a specific reservoir with delineated boundaries. In the proposed section, monitoring of groundwater generally is not the goal – the purpose to focus on the specific aquifer that may be affected by the underground gas storage project.*

0008-7
§1726.7(b)(2)(B): Commenter recommends that more clarity is needed around the placement of observation wells and recommends re-including the methods that were stricken out in order to clarify that observation wells should be located in strategic positions based on the data collected from those methods, which will allow for consideration of where observation wells will provide the greatest benefit.

***Response**: NOT ACCEPTED. The goal of these modifications was to remove limiting factors on the use of observation wells. Although the stricken items were just examples, they gave the impression that observation wells should be used in limited and specified contexts. In actuality, the Division encourages operators to use observation wells to their greatest efficacy, with ongoing technology improvements and real-time monitoring as needed to achieve operator goals. The language as written allows for this expansive use.*

0007-62
§1726.7(b)(2)(C): Commenter would rewrite this section to require monitoring of offset injection, unexplained temperature changes, and pressure changes of more than 0.5 percent within the area of interest and beyond the confining barriers.

***Response**: NOT ACCEPTED. A specific threshold for pressure changes is not needed when the goal of the regulation is to ensure that all pressure changes are reported. The terms "area of interest" and "beyond the confining barriers" do not correspond to any terms used within the industry, which is focused on the area of review.*

0008-8

§1726.7(c): Commenter recommends aligning the reporting requirements with the CARB reporting requirements in Sections 95673(a)(8) & (9) by requiring an operator to report unintended surface or cellar gas releases and reportable leaks to the Division within 24 hours, rather than "immediately."

***Response**: NOT ACCEPTED. Leaks must be reported to the Division immediately so that it can monitor, inform, and coordinate response actions.*

0007-65

§1726.7(c): Commenter recommends the addition of the requirement to report unapproved surface, cellar, or surface casing gas of a size greater than 10ppm THC.

***Response**: NOT ACCEPTED. The current requirement for reporting of surface and cellar gas is for all releases of any size; a specific threshold would allow some releases to go unreported which is not the goal of this requirement. All releases that are unintentional would be considered unapproved, and intentional releases that were unapproved would be a violation of the regulations, so the addition of unapproved seems to create more confusion than clarity. Surface casing gas is surface gas, a specific additional requirement for casing gas is redundant.*

0007-66

§1726.7(c): Commenter recommends that the Division always require a chemical fingerprint of a surface or cellar gas release within 24 hours of detection.

***Response**: NOT ACCEPTED. The proposed section was modified from the original proposal to make fingerprinting a "may" require rather than shall, out of recognition that there are many small releases that do not require chemical fingerprinting to identify and remediate. Where a release cannot be easily identified, chemical fingerprinting may be required on a timeframe identified by the Division at the time of release depending on the circumstances and conditions surrounding the leak.*

0007-67

§1726.7(d): Commenter recommends that all sensors be required to monitor for temperature changes as well as pressure changes.

***Response**: NOT ACCEPTED. Temperature surveys will be conducted on an annual basis.*

0007-68

§1726.7(d)(2): Tubing alarm set points should be set to include maximum withdrawal flows as well as injection flows.

Response*: NOT ACCEPTED. Withdrawal flows are not set with a maximum because a withdrawal flow is a mitigating pressure release rather than a potential operational risk factor. Thus, set points are appropriately focused on the risk associated with pressurized injection.*

0007-69

§1726.7(d)(3)(C): Commenter recommends that the diagnostic testing required when a sustained casing pressure above 100 psi has been identified clearly establish sources and rates of build-up. The subsequent alarm set point should be set to no more than double unless the set point would pose a risk to casing integrity.

Response*: NOT ACCEPTED. The appropriate response to a sustained casing pressure alarm will be determined at the time of discovery based on*

0004-4

§1726.7(e): Commenters question the need for repeated subsequent logs on each gas storage well unless results from the testing and monitoring already required suggest a leak of storage gas. In advance of storage gas accumulating behind casing, there should have been evidence of this possibility from the annual temperature/noise logs, periodic corrosion logs, annulus pressure changes, or inventory discrepancies. In other words, gas should accumulate behind the production casing without other warnings. In addition, Commenters question the need to conduct subsequent logs on each well, especially in cases where gas storage wells may be drilled in relative proximity to each other; in such cases selecting one well within a group of wells to run gas detection logs would provide sufficient data to determine if geological formations behind casing are being charged with gas. Commenters recommend edits to require subsequent logs on "representative gas storage wells" only.

Response*: NOT ACCEPTED. The current structure is consistent with the risk-based approach that forms the basis of the proposed regulations. The operator must perform a baseline gas detection log and then identify those circumstances which would justify the performance of additional gas detection logs while ensuring that any anomalous results are reported to the Division and mitigated when necessary. Where a representative log* *would be sufficient, the operator should propose this to the Division for approval as part of its risk management plan.*

0007-70

§1726(e): The commenter recommends that baseline and subsequent gas detection logs be conducted on wells and zones.

***Response**: NOT ACCEPTED. The current structure is consistent with the risk-based approach that forms the basis of the proposed regulations. The operator must perform a baseline gas detection log and then identify those circumstances which would justify the performance of additional gas detection logs while ensuring that any anomalous results are reported to the Division and mitigated when necessary. Where a representative log would be sufficient, the operator should propose this to the Division for approval as part of its risk management plan.*

1726.8 INSPECTION, TESTING & MAINTENANCE of WELLHEADS & VALVES

0007-71

The commenter recommends that all testing be recorded by the operator and transmitted in real-time to the Division or district office.

***Response:** NOT ACCEPTED. A direct connection between operator and Division offices would create a significant entanglement between government and operators that is inappropriate in this context. Issues such as confidentiality, cybersecurity, and legal liability would complicate any permanent connection between projects and government offices without clear regulatory benefit when data can be made available upon request. The Division does not have the staff resources to provide ongoing monitoring of projects when this should remain the responsibility of operators.*

0007-72

The commenter, seemingly at random, inserts the recommendation that within 3 days, the operator shall shut-in the well and isolate from operations and other field equipment.

***Response:** Due to the lack of clarity in the placement of the comment, the Division is unable to provide a response.*

1726.9 WELL LEAK REPORTING

0006-7

§1726.9: Commenter requests clarification to the term "leak" as used throughout Section 1726 but is not referred to as "reportable leak." Commenter asks for the Division to clarify if the term "reportable leak" is meant to be represented throughout Section 1726 or if there are instances where "leak" and "reportable leak" are meant to represent distinct situations such as in Section 1726.3.1 (Emergency Response Plan).

***Response**: ACCEPTED WITHOUT CHANGE TO PROPOSED TEXT. Commenter is correct that "leak" and "reportable leak" are two separate and distinct terms which should not be confused or used interchangeably. A reportable leak for proposed section 1726.9 requires specific action as dictated by statute; "leak" as the term is used throughout the proposed section includes all leaks, both reportable and non-reportable.*

0007-73

§1726.9(a): Commenter recommends changing the threshold as follows: where the proposed regulations define a reportable leak as one that is above 50,000 ppm, commenter recommends a reduction to 10,000 ppm by volume total hydrocarbons at 100mm from the source; where a reportable leak is defined as one that is above 10,000 ppm for more than five days, commenters recommend it be changed to 1000 ppm for more than five hours.

***Response**: NOT ACCEPTED. The threshold ppm that is being referenced in the regulations will be measured at the wellhead, not in the air directly surrounding the public. The concentrations referenced are calculated to ensure safe levels at sufficient distance from the leak and were developed in coordination with CARB as required by SB 887. Comments received during this process were submitted to CARB for additional consideration of this language; CARB staff felt that no changes were warranted.*

0007-74

§1726.9(a)(3): The commenter suggests deleting the word "significant."

***Response:** NOT ACCEPTED. Not all hazards are significant hazards.*

1726.10 REQUIREMENTS FOR DECOMMISSIONING

0007-75

§1726.10: The commenter suggests that the proposed decommissioning language be amended to include not just gas storage projects, but also zones within a project. Additionally, the commenter suggests that the decommissioning plan should ensure that stored gas will continue to be confined to the approved zones of injection and withdrawal of gas, liquids, and fluids.

Response: *NOT ACCEPTED. Decommissioning would include withdrawal of stored gas and any remaining residual fluids would be confined to the reservoir as a course of normal Division business in abandonment oversight. This language is not needed in the proposed regulations.*

0007-76

§1726.10(a)(1): Related to the intended use of wells and facilities after decommissioning, the commenter suggests that approvals for abandonment be addressed.

Response*: NOT ACCEPTED. Approval for abandonment is a course of normal Division business in overall abandonment oversight. This language is not needed in the proposed regulations.*

0007-77

§1726.10(a)(2): In addition to a plan for managing the remaining gas in the underground gas storage reservoir, the commenter suggests the Division should require a plan for full saturation of the decommissioned storage zones with liquids.

Response*: NOT ACCEPTED. The Division does not see an engineering reason for this comment. Gas storage reservoirs in California are depleted petroleum reservoirs and like many abandoned oil and gas fields in the State the reservoirs are left at abandonment pressure rather than refilling the reservoir with fluids of any kind. Addressing the problem of subsidence, where necessary, is governed by other Division regulations.*

0007-78

§1726.10(a)(3): The commenter suggests that the plan should be required within 6 months of the plans approval.

Response*: NOT ACCEPTED. The Division does not see an engineering reason for this comment. Decommissioning is generally a multi-year process, certainly longer than six* *months. Because the Division may receive a plan for repurposing wells as part of the decommissioning plan, this portion of the entire plan doesn't require a submission timeline.*

0007-79
The commenter suggests that the decommissioning plan should also address a plan for plugging and abandonment of all wells and facilities associated with the underground gas storage project.

***Response**: NOT ACCEPTED. Abandonment of wells is a course of normal Division business. If a well is no longer used for gas storage it may be repurposed and be subject to requirements promulgated within the Division's other regulations.*

0008-9
§1726.10: Commenter appreciates the need to consult with the CPUC when submitting a Decommissioning Plan and that both agencies will need to be involved. However, commenter notes that the Division has not specified a process or timeline for its review and approval of the plan, which is essential to ensuring reliability and should be clearly defined and added as a required component. Commenter proposes that the Division should review and provide approval or note any deficiencies in the plan within 180 days of submittal.

***Response**: NOT ACCEPTED. Size, location, and associated hazards will complicate the details of a Decommissioning Plan, making it impossible for the Division to commit to a specific timeframe for review and approval. Because decommissioning of a field must also be approved and managed in cooperation with the CPUC, the decommissioning process will not just be a plan submission and approval, but a collaborative process between operator, CPUC, Division, and CalEPA staff to ensure that the plan provides for and actually achieves the protections required by statute.*

0008-10
§1726.10: Commenter notes that the requirements of these revised regulations would only be applicable until the Division approves a Decommissioning Plan, thereby acknowledging that a project is no longer an underground storage project as defined under the jurisdiction of this regulation.

***Response**: NOT ACCEPTED. Projects will remain subject to all UGS regulations, both existing and proposed, until such time as the approved Decommissioning Plan, and all the work required thereunder, is certified as complete by the Division and the projects* *has been certified as closed by the CPUC. This is necessary because the hazards to life, health, property, natural resources, and the environment do not disappear just because a Decommissioning Plan is in place. The Division will continue to monitor the project even after the decommissioning has been completed and approved and may, at any time, require re-entering and re-abandonment where appropriate. Where ongoing operations and/or actions approved under the Decommissioning Plan are inconsistent with regulatory requirements, the Decommissioning Plan will provide for approved variance as needed.*

MULTI-SECTION COMMENTS

0007-3

§1726.1(a)(1), (a)(2), (a)(4), (a)(5), 1726.2(a), 1726.3(a), (d)(2), (d)(4)(E), (d)(11), (d)(12), (d)(13), (e), (f), 1726.3.1(capitalization throughout), (a), 1726.4(a), (f), 1726.4.1(a)(5), 1726.4.2(a), 1726.4.3(a), (b), (d), 1726.5(b), (b)(6), (c), 1726.6(a)(1), 1726.6.1(b), 1726.7(a), 1726.7(b), (b)(2)(D), (d)(3), 1726.7(e), 1726.7(f): Commenter recommends a series of edits throughout the text that appear to be stylistic or preference-based but no specific justification for the changes was provided.

***Response**: NOT ACCEPTED. Recommended edits grouped together under this comment do not appear to add any substantive detail or meaning change to the regulations. Many of the recommendations appear to duplicate or unnecessarily cross-reference language in other proposed or existing sections. Without additional information, the Division does not see any value to accepting these edits as recommended.*

0007-7

§1726.1(a)(6), 1726.2(a), 1726.4(a), (g), 1726.4.1(a)(5), 1726.4.2(a)(3), 1726.6(a), (b), (c), 1726.7(b)(2): Commenter proposes that the phrase "and the aoR" and/or "and associated wells" be added to ensure that the full scope of AOR and surrounding activity is considered every time the "underground gas storage project" is referenced.

***Response**: NOT ACCEPTED. The AOR and the UGS project are distinct terms used for different purposes. The AOR is focused on subsurface activities and how those activities will affect or be affected by project operations. The project itself includes those wells and activities that affect the AOR, but is not synonymous with the AOR.*

0007-8

§1726.2(a), 1726.3(d)(1), (d)(3), 1726.5(b)(6), (b)(13), 1726.6(a), 1726.8(a): Commenter recommends that conditions at a project be reviewed and independently verified in writing by the Division for each data point submitted as well as visual verification of on-the-ground conditions as reported by the operator.

***Response**: NOT ACCEPTED. The Division does not have the resources to verify each and every condition on the ground at a UGS project. Instead, Division staff work with operators to ensure that compliance activities are consistent with regulatory and PAL requirements, to evaluate data submitted for scientific validity and reliability, and to spot check on the ground conditions for consistency with submitted data.*

0007-2

§1726.3(c)(4), (d)(2), (d)(5), (d)(7), (d)(8), 1726.5(b), (b)(6), 1726.6(b), (c), (d): Commenter indicates that requirements should be provided for all wells within the Area of Review.

***Response**: NOT ACCEPTED. Where application of standards is appropriate for all wells in the area of review, that information has been included in the proposed regulations. For example, proposed section 1726.3 requires that all wells meet the minimum construction standards, and includes requirements for demonstration of mechanical integrity for each well that intersects the storage reservoir. Data requirements generally apply to all wells, and operators must ensure the integrity of third-party wells that intersect the reservoir as well as project wells.*

0007-48

§1726.4.2(a)(2) and 1726.5(a), (b)(ii), (b)(6), (b)(7)(B), (b)(8), (b)(11): Commenter recommends a requirement for cement extending to the surface and above the approved gas storage zone, and for cementing of all annular spaces to the surface.

***Response**: NOT ACCEPTED. Cementing requirements as provided are consistent with plugging and abandonment requirements across the Division and are specifically designed to ensure that zonal isolation is maintained after a well is plugged. Commenter's suggested changes would remove these specifics and provide a general requirement that is inconsistent with the purpose of the proposed section.*