<u>REQUIREMENTS FOR UNDERGROUND GAS STORAGE PROJECTS</u>

EMERGENCY RULEMAKING ACTION

DEPARTMENT OF CONSERVATION
RESPONSES TO COMMENTS

Comment summaries are in *italics* followed by responses from the Department of Conservation, Division of Oil, Gas, and Geothermal Resources (Division).

All references to subdivisions are references to subdivision of California Code of Regulations, title 14, section 1724.9, as amended by the proposed emergency rulemaking action.

Abbreviations of commenters' names:

CCSC	Citizens Coalition For A Safe Community
CVGS	Central Valley Gas Storage, LLC
EDF	Environmental Defense Fund
Lodi GS	Lodi Gas Storage, LLC
NRDC	Natural Resource Defense Council
PG&E	Pacific Gas and Electric Company
SoCalGas	Southern California Gas Company
Wild Goose	Wild Goose Storage, LLC
WSPA	Western State Petroleum Association

<u>Subdivision (a)</u>

CVGS, Gil Ranch Storage, Lodi GS, SoCalGas, PG&E
Comment 1. Commenters request confirmation that subdivision (a) does not apply to previously approved projects.

CVGS, Gil Ranch Storage, SoCalGas
Comment 2. Clarification is needed that it is not necessary to submit duplicates of

data that was previously provided to DOGGR.

Response to Comments 1-2:

It is critical that the Division have complete geologic and operational data supporting the gas storage project. The proposed amendments to subdivision (a) are intended to make clear that issues with incomplete project data must be addressed by the operator, regardless of the date that the Division first approved the gas storage project. It is not the Division's intent to require duplicate submission of data that were previously submitted to the Division. In response to these comments, the regulation has been further revised to make this clear.

CVGS, Gil Ranch Storage, SoCalGas

Comment 3. It is not clear what the required timeframe is for submission of any needed additional data. One commenter suggested the regulation require submission of data "as soon as is practicable."

Response to Comment 3:

In response to these comments, the regulation has been further revised to state that required project data shall be submitted to the Division as soon as is practicable.

EDF, PG&E

Comment 4. The term "as applicable" should be clarified in order to avoid conflicts or uncertainty as whether provisions in certain other section do or do not apply, and provides guidance as to the quality of the data to be provided to the agency.

Response to Comment 4:

The regulation has been further revised to clarify that "as applicable" means that the requirement does not apply if it is clearly not applicable to a gas storage project or the Division otherwise advises that the requirement is not applicable to a gas storage project.

EDF, NRDC, CCSC, Jason Hector

Comment 5. Various commenters provided suggested revisions to make project data requirements for gas storage projects more specific and to require additional project data.

Response to Comment 5:

The Division will take all of the input received regarding project data requirements under advisement as these emergency requirements are further developed for permanent adoption. No further revisions will be made to the project data requirements in course of this emergency rulemaking action.

Wild Goose, SoCalGas

Comment 6. Fluid chemistry should only be required for new projects. Providing fluid chemistry for an existing project would require drilling new wells for the purpose.

That would be an unreasonable burden, as the data would be of little value for a facility that has been in operation for a significant period of time.

Response to Comment 6:

Subdivision (a)(1) has been further revised to remove the reference to fluid chemistry.

PG&E

Comment 7. It should be clarified that this requirement is limited to waste water related to well activities to avoid confusion with the processing side of storage assets, which also have waste water systems. This is necessary to avoid possible jurisdictional overlap with the Department of Transportation and the Public Utilities Commission.

Response to Comment 7:

Section 1724.9 has been further revised to include subdivision (h), providing clarification to address public comments expressing concern about potential conflicts with federal requirements.

Earthworks

Comment in support of subdivision (a)

Subdivision (b)

CVGS, PG&E

Comment 8. Clarification is needed that a new Project Approval Letter is not needed if the existing PAL already specifies design pressure limits.

Response to Comment 8:

If the Project Approval Letter for the gas storage project already includes the required pressure limit specifications, then the requirements of subdivision (b) will have been met. If the Project Approval Letter does not meet this requirement, then an addendum will be required.

PG&E

Comment 9. The reference to "piping or associated facilities" should be deleted or clarification should be provided to address possible jurisdictional overlap with the Department of Transportation and the Public Utilities Commission.

Response to Comment 9:

Section 1724.9 has been further revised to include subdivision (h), providing clarification to address public comments expressing concern about potential conflicts with federal requirements.

Subdivision (b)(2)

PG&E, SoCalGas
Comment 10. It is not clear what "historic minimum operated pressure" means.

CVGS
Comment 11. "Historic minimum operated pressure" should include pressures that occurred both prior to and during the reservoir's operation as a gas storage reservoir.

CVGS
Comment 12. This requirement should be amended to read, "The reservoir pressure shall not be designed less than the historic minimum operated pressure unless the operator closely monitors the reservoir geo-mechanical competency and submits evidence to the Division for approval."

Wild Goose, Lodi GS
Comment 13. Minimum operating pressure should only be required for salt cavern reservoirs and storage projects with very shallow wells. Subsidence is not an issue for reservoirs with a more substantial cap rock.

Response to Comments 10-13:
Subdivision (a) has been further revised to provide additional clarification of factors to be considered in determining minimum reservoir pressure. The additional specification are consistent with guidance in API Recommended Practice 1171, and consideration of these factors on a case-by-case basis will determine which historic minimum operating pressure data is most relevant.

Subdivision (c)

CVGS
Comment 14. The term "annular gas" requires clarification because there are often multiple annular spaces in a given well, including uncemented and cemented annular spaces.

Response to Comment 14:
Subdivision (c) has been further revised to clarify that monitoring of the tubing-casing annulus is required, if the well has one.

PG&E
Comment 15. "Used for production" should be replaced with "used for withdrawal" for greater consistency with classification of gas storage wells as either injection and/or withdraw wells.

Response to Comment 15:
Subdivision (c) has been further revised to accept this clarification.

PG&E
Comment 16. Recording annular pressure and annular gas flow should not be required. PG&E has been investigating and testing measurement equipment that can safely measure small volumes of gas (cubic feet) and meet the maximum pressure that could be observed in an annular. Without appropriate technology, PG&E has identified this as a potential risk to personnel safety.

Response to Comment 16:
Annular pressures are routinely recorded and reported by operators with the use of a gauge.

NRDC, EDF, Jason Hector
Comment 17. Anomalous annular gas occurrences should be reported to the Division immediately, or at least within 24 hours.

Response to Comment 17:
Subdivision (c) has been further revised to accept this clarification.

NRDC, EDF
Comment 18. All injection and production through a gas storage well should occur through tubing on a packer set at a depth opposite a cemented interval at a location approved by the Division.

Response to Comment 18:
Such a requirement is being considered for adoption by permanent rulemaking and the Division will be engaging with stakeholders on this issue.

Subdivision (d)

CVGS, PG&E
Comment 19. When a surface or subsurface safety valve is found to be inoperable, operators should be allowed to submit a work plan addressing the inoperable valve, and the work plan should be allowed to take more than 90 days to complete.

Response to Comment 19:
Subdivision (d) already provides that, "A longer timeframe for addressing an inoperable surface or subsurface safety valve may be approved by the Division."

Wild Goose
Comment 20. It should be clarified that after 48-hour notice the operator may proceed with the testing.

Response to Comment 20:

Subdivision (d) merely provides a minimum notice time so that Division staff may witness the testing. If Division staff are not able to make it to witness, the regulation does not require the operator to delay the test.

Lodi GS
Comment 21. It should be made clear that "surface safety valve" means the automatic fail-close valve in the wellhead assemblies and does not refer to the master valve and wellhead pipeline isolation valve subject to subdivision (f) of the proposed regulation.

Response to Comment 21:

In context, it is clear that surface safety valves do not include the master valve and wellhead pipeline isolation valve, as the latter is expressly treated separately in subdivision (f).

PG&E
Comment 22. Function tests of subsurface safety valves should be conducted in accordance with American Petroleum Institute (API) Recommended Practice 1171 rather than "manufacturer's recommendations" for greater consistency with industry "best practices."

Response to Comment 22:

Testing in accordance with the manufacturer's recommendations will be more effective because those recommendations will be specific to the particular valve.

PG&E
Comment 23: The requirement to test surface safety valve systems may overlap with federal regulatory requirements.

Response to Comment 23:

Section 1724.9 has been further revised to include subdivision (h), providing clarification to address public comments expressing concern about potential conflicts with federal requirements.

Homeowners Associations, Earthworks, NRDC, EDF, CCSC, Jason Hector
Comment 24. Gas storage wells should not allowed to be used unless equipped with a failsafe mechanism such as bottom valves that can shut off the flow of the gas up through the production tube and the well casing. Bottom valves in this letter refer to mechanical valves located at the bottom of the well below the full depth of the well casing. Bottom valves should be tested monthly to ensure functionality of the valves in a simulated pressure-loss event in the casing.

Response to Comment 24:

Many gas storage wells are already equipped with some form failsafe mechanism. The Risk Management Plan to be required under subdivision (g) must identify threats and hazards to well integrity, assess risks associated with those threats, and identify preventative and monitoring processes to mitigate the risks. The Division is not prescribing specific failsafe mechanisms in this emergency rulemaking action, but gas storage wells that are not equipped with a failsafe mechanism will have to addressed in the operator's Risk Management Plan. The Division will consider more specific requirements as these emergency requirements are further developed for permanent adoption.

Earthworks, NRDC

Comments in support of subdivision (d)

<u>Subdivision (e)</u>

CVGS

Comment 25. Daily inspection is unnecessarily burdensome for lower risk wells. Wells that do not have a history of leaking or that are not in a High Consequence Area, as defined in 49 CFR section 192.903, should only be inspected on an annual basis with highly sensitive equipment, while the facility is at highest pressure. This should be coupled with more frequent normal walk-throughs with more traditional detection technology.

Wild Goose

Comment 26. Inspection should only be required on a weekly basis.

Lodi GS

Comment 27. Inspection should only be required five days a week.

Response to Comment 25-27:

Recent events in Aliso Canyon have demonstrated that even a small gas leak from a gas storage well might be an indicator of a much bigger problem. In order to ensure that no opportunity is lost to act quickly in response to warning signs, it is necessary to maximize inspection and leak detection efforts.

CVGS, Wild Goose, Lodi GS

Comment 28. Infrared imaging should not be specified.

Response to Comment 28:

The regulation is clear that the operator may *select* a detection technology "such as" infrared imaging. Infrared imaging is specifically mentioned to make clear that is the standard against which alternatively selected technologies will be judged.

Gil Ranch Storage, Wild Goose
Comment 29. In order to provide adequate time to develop meaningful protocols, operators should be allowed 45 days, or even six months, from the effective date of the regulations to submit a protocol to DOGGR.

Response to Comment 29:
The Division anticipates that development of an effective inspection and leak detection protocol will be an iterative process. For that reason, and because the Division wants that iterative process to move quickly, the Division is requiring that operators' initial submission be presented expeditiously.

Wild Goose, Lodi GS, PG&E
Comment 30: Inspection of a 50' radius would be sufficient to determine if there is a leak at the wellhead and attached pipelines. Access to a 100' radius is not always feasible due to embankments or other impediments. For instance, CEQA mitigation requirements commonly require landscaping around wellheads that would impede inspection of a 100' radius around the wellheads.

Response to Comment 30:
Subdivision (e) has been further revised to clarify that the area to be inspected may be limited to account for obstruction.

PG&E
Comment 31. References to "attached pipelines" and "the surrounding area within a 100' radius of each of the wells used in an underground gas storage project" should be deleted or other clarification should be provided to address possible jurisdictional overlap with the Department of Transportation and the Public Utilities Commission.

Response to Comment 31:
Section 1724.9 has been further revised to include subdivision (h), providing clarification to address public comments expressing concern about potential conflicts with federal requirements.

NRDC, EDF
Comment 32. Criteria for inspection protocols should be more specific and should include requirements for reporting and repair.

Response to Comment 32:
Subdivision (e) has been further revised to clarify that the inspection and leak detection protocol must provide for immediately reporting detected leaks to the Division.

SoCalGas
Comment 33. Clarification is needed as to whether this requirement applies to wells that are not actively used for a gas storage project.

Response to Comment 33:
The required protocol is specific to inspection in the area surrounding the wellheads of “the wells used in an underground gas storage project.”

SoCalGas, Earthworks, NRDC
Comments in support of subdivision (e)

Subdivision (f)

PG&E
Comment 34. The requirement to test the operation of the wellhead pipeline isolation valve may overlap with federal regulatory requirements.

Response to Comment 34:
Section 1724.9 has been further revised to include subdivision (h), providing clarification to address public comments expressing concern about potential conflicts with federal requirements.

Subdivision (g)

PG&E
Comment 35. Recommends referencing API Recommended Practice 1171 in connection with the Risk Management Plan; the regulation should read “shall submit a Risk Management Plan consistent with American Petroleum Institute Recommended Practice 1171 . . . “

Response to Comment 35:
The Risk Management Plan requirements in subdivision (g) are based upon the referenced API standard but have been modified to ensure that specific issues are addressed.

EDF
Comment 36. The regulation should clarify that the Division retains regulatory authority over issues addressed in the Risk Management Plan and that protocols in the Risk Management Plan cannot contradict what is already expressly required by regulation.

Response to Comment 36:
Subdivision (g) has been further revised to clarify that risk assessment and prevention protocols must be consistent with, and additional to, other existing requirements.

PG&E
Comment 37. Requests clarification regarding whether "periodic review and reassessment" refers to review of risks or processes.

Response to Comment 37:
Subdivision (g) has been further revised to clarify that what is required periodic review and reassessment of the risk assessment and prevention protocols.

CCSC, Jason Hector
Comment 38. An emergency response should be an expressly required component of the Risk Management Plan.

Response to Comment 38:
Incident response will necessarily be a part of many of the risk assessment and prevention protocol, but specific criteria is not being prescribed as part of this emergency rulemaking action. Such criteria will be considered as these emergency requirements are further developed for permanent adoption.

NRDC
Comment in support of subdivision (g)

Subdivision (g)(1)

CVSG
Comment 39. Section 1724.10(j) requirements are sufficient.

Response to Comment 39:
Recent events in Aliso Canyon demonstrate that additional mechanical integrity verification for gas storage wells is necessary.

CVSG, Earthworks, NRDC
Comment 40. Additional protocols for mechanical integrity verification and demonstration should be specifically prescribed in the regulation.

Response to Comment 40:
Subject to approval by the Division, subdivision (g)(1) allows operators to determine the most efficient protocols for effectively demonstrating well integrity, in consideration of specified factors. More specific criteria will be considered as these emergency requirements are further developed for permanent adoption.

Subdivision (g)(2)

CVSG
Comment 41. The commenter believes that its current corrosion control protocols should be sufficient.

CVSG
Comment 42. There should be a de minimis fluid volume production threshold below which this requirement would not apply.

PG&E
Comment 43. Data to monitor and evaluate corrosion may be unavailable or inaccessible, such as fluid samples for all formations or for uncemented casing annuli.

NRDC
Comment 44. A casing inspection log should be expressly required to determine the presence or absence of corrosion in the production casing should be run as part of any well rework but not less than once per year.

Response to Comments 41-44:
Subdivision (g)(2) has been further revised to clarify that it does not prescribe a particular corrosion monitoring and evaluation methodology, but requires that the Risk Management Plan include risk assessment and prevention protocols that take into account all of the considerations listed in subdivision (g)(2)(A) through (G).

NRDC
Comment in support of subdivision (g)(2)

Subdivision (g)(2)(G)

CVSG, PG&E
Comment 45. Pipelines and other related surface facilities such as compressor stations are already addressed as Transmission Facilities under 49 CFR part 192. This provision should be deleted or qualified with "... that are not already incorporated in 49 CFR part 192 requirements."

Response to Comment 45:
Section 1724.9 has been further revised to include subdivision (h), providing clarification to address public comments expressing concern about potential conflicts with federal requirements.

Subdivision (g)(3)

PG&E
Comment 46. Recommends clarification or deletion of requirements as applied to "attendant production facilities" or clarification to address possible jurisdictional overlap with the Department of Transportation and the Public Utilities Commission.

Response to Comment 46:
Section 1724.9 has been further revised to include subdivision (h), providing clarification to address public comments expressing concern about potential conflicts with federal requirements.

Subdivision (g)(4)

CVGS
Comment 47. The requirement to verify and demonstrate the integrity of the reservoir is not specific enough and is duplicative of what is in subdivision (a) and (b).

Response to Comment 47:
Although no particular methodology is prescribed by subdivision (g)(4), the operator of a gas storage should be able demonstrate that the reservoir continues to have integrity while it is used as a gas storage facility.

Jurisdictional Concerns

PG&E
Comment 48. The commenter raised concerns about the potential for the emergency regulations to impose duplicative regulatory requirements as applied to certain pipelines and associated facilities that are "downstream" from gas storage wells. Commenter recommended deleting specific references to pipelines and other downstream facilities from the text of the emergency regulations, or alternatively, adding a new subdivision to address potentially overlapping requirements.

Response to Comment 48:
Section 1724.9 has been further revised to include subdivision (h), which clarifies that an operator may satisfy a specific application of the emergency regulations by consulting with the Division and demonstrating compliance with a specific, overlapping federal requirement. Subdivision (h) also clarifies that the emergency regulations shall not be applied to prevent, contradict, duplicate or require changes to an operator's compliance with specific requirements applicable to pipelines and associated facilities pursuant to 49 Code of Federal Regulations parts 190-199.

WSPA

Comment 49. References to the federal Safe Drinking Water Act should be deleted from the Notice and the regulations should clarify that they are not applicable to Class II injection wells.

Response to Comment 49:

The two references to the federal Safe Drinking Water Act (SDWA) have been removed from the Notice of Proposed Emergency Rulemaking Action in response to the commenter's explanation that the Energy Policy Act of 2005 removed "underground injection of natural gas for purposes of storage" from the purview of the SDWA. Aside from removing the references from the Notice, no further action is warranted. The regulations apply to underground gas storage projects and no additional regulatory text is necessary to clarify their inapplicability to other types of injection wells that are not associated with gas storage projects.