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Rodger R. Schwecke
Vice President
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Southern California Gas Company
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February 15, 2017

Edward Randolph
Director, Energy Division
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102

RE: Storage Safety Enhancement Plan

Dear Mr. Randolph:

As you are aware, SoCalGas has made extensive safety enhancements at the Aliso Canyon storage field. These safety enhancements include reconfiguring wells to flow gas only through new inner steel tubing (thus enabling the outer casing to function as a secondary safety barrier), temporarily plugging and isolating wells as they await inspection and tubing flow only reconfiguration, and completing a comprehensive suite of well integrity assessments to the inner tubing and outer casing of each in-service well, as applicable. These enhancements were undertaken at Aliso Canyon in compliance with Order 1109 issued by the California Department of Conservation's Division of Oil Gas and Geothermal Resources (DOGGR) and codified in legislation adopted as part of Senate Bill 380. As a prudent operator and in accordance with our Storage Risk Management Plan, SoCalGas has been applying our experience and knowledge gained from Aliso Canyon to enhance the safety of our other underground storage fields. SoCalGas has already installed real-time pressure monitoring at each operating well at each of our other underground storage fields and plans to implement additional safety enhancements and integrity assessments at each of our other underground storage fields.

Conversion to Tubing Flow Only to Enhance the Safety of All Underground Storage Fields

Over the last several months, we have been performing initial testing and analysis regarding the feasibility of converting each well at our La Goleta, Honor Rancho and Playa Del Rey storage fields to tubing flow only. Commencing on March 1, we will begin converting wells at these storage fields to tubing flow only. By April 1, any well that has not been converted to tubing flow only will have been temporarily plugged and isolated from the storage reservoir. Beginning April 1, only wells that have been converted to tubing flow only will be used for withdrawal and

injection operations at all of our storage fields. As described below, commencing this conversion process on March 1, during the shoulder season, provides us the opportunity to mitigate the capacity reductions prior to the start of our historic summer peak period that generally begins on or around August 1.

Converting to tubing flow only at our other fields will encompass the following steps:

- use a wireline unit to close the sliding sleeve between the inner tubing and casing in order to permit gas to only flow through the inner tubing
- confirm that the closed sliding sleeve allows the outer casing to be isolated from the reservoir and reservoir pressure
- if the well's outer casing cannot be isolated from the reservoir, a wireline unit will set a mechanical plug and the well will be filled with fluids to reinforce isolation
- complete this activity by April 1
- wells that have been plugged and isolated will remain out of service until a workover rig can be used to perform the suite of integrity testing on the casing and new tubing can be installed

Potential Deliverability Impacts During Implementation of the Storage Enhancement Plan

The conversion of these wells to tubing flow only (or the temporary plugging and isolation of non-converted wells) will reduce the injection capacity and withdrawal capacity of each gas storage field.

Based upon our initial testing and analysis, we have developed an estimate of the number of wells at each field that we can successfully convert to tubing flow only by April 1 and identified which wells will likely have to be plugged and isolated. Based upon these projections, attached is a table of each field's current capacity and each field's expected capacity after the conversion to tubing flow only (and the temporary plugging and isolation of non-converted wells).

At this time, it is estimated that at high inventory levels, the deliverability impacts at Playa del Rey and La Goleta may be nominal, whereas at Honor Rancho, deliverability could potentially be reduced by more than fifty percent. At low inventory levels, the forecast reductions in deliverability would be greater for all fields and could potentially exceed seventy-five percent at Honor Rancho. Even at current inventories, we anticipate significant impacts to withdrawal capacity at Honor Rancho and La Goleta. Those reductions will expand throughout the month of March as wells are converted to tubing flow only or plugged and isolated. We anticipate corresponding impacts to the injection capacity of the fields during March, as a result of the reduced number of wells that will be available for tubing only injection. These capacity reductions will be posted, as required, on SoCalGas' Electronic Bulletin Board (Envoy).

Comprehensive Well Integrity Assessments

SoCalGas is also performing well integrity assessments at all our storage fields using the same suite of well integrity tests developed for the safety review of the Aliso Canyon Storage Facility by DOGGR in consultation with independent technical experts from the Lawrence Berkeley,

Lawrence Livermore, and Sandia National Laboratories. This comprehensive suite of tests includes:

- temperature logs and noise logs (Phase 1), followed by,
- ultrasonic imaging, magnetic flux leakage inspections, cement bond logs, multi-arm caliper inspections, and hydrostatic pressure testing (Phase 2).

SoCalGas has already completed Phase 1 testing (temperature logs and noise logs) of every storage well at each of our underground storage fields.

We began Phase 2 testing at Playa del Rey last year, and anticipate we will complete the installation of new inner steel tubing and the integrity assessments of all in-service wells at Playa del Rey by the first quarter of 2018.

Due to the potential significance of the anticipated capacity impacts the tubing flow only conversion will have at Honor Rancho, we plan to implement Phase 2 of the comprehensive suite of integrity assessments and installation of new inner tubing at Honor Rancho beginning in March. Our goal is to complete the Phase 2 testing and return eight to ten wells back to service by August 1, which has historically been the start of our peak summer load period. Our goal would be to complete all well integrity assessments and return the plugged and isolated wells back to service at Honor Rancho by early next year. We will continue with the well integrity assessments on the wells that we were able to convert to tubing flow only throughout 2018, while minimizing the impacts on deliverability.

We will complete the same comprehensive well integrity assessment program at La Goleta, and the timing for that field will be developed as we progress with testing at Playa del Rey and Honor Rancho.

We request that Energy Division review this storage safety enhancement plan, and the anticipated deliverability impacts, and evaluate whether you have any questions or concerns about this safety plan, or if there are any specific actions the Commission would like us to take with respect to this plan.

Sincerely,



Rodger R. Schwecke
Vice President, Gas Transmission and Storage

cc: T. Sullivan, CPUC
M. Ebke, CPUC
K. Harris, DOGGR
A. Walker, DOGGR

Attachment 1

Current and Proposed Status						
	Current Status			Proposed Status (April 1)		
	Goleta	Honor Rancho	PDR	Goleta	Honor Rancho	PDR
Tubing Flow Only	6	7	9	10	19	17
Tubing/Casing Flow	12	26	4	0	0	0
Isolated/Plugged	1	3	10	9	17	6
Total	19	36	23	19	36	23

Projected Deliverability Impacts									
Scenario	High Inventory			Low Inventory			Inventory as of 2/14/17		
	Goleta	Honor Rancho	PDR	Goleta	Honor Rancho	PDR	Goleta	Honor Rancho	PDR
Storage Field									
Inventory Level (Bcf)	21.5	27	1.85	4	5	0.4	13	13	1.9
Current Max W/D (MMcfd)	420	1000	400	377	600	70	420	1000	400
New Max W/D (MMcfd)	420	475	350	248	120	58	420	210	350
Forecasted Reduction	0%	53%	13%	34%	80%	17%	0%	79%	13%