

Order Instituting Investigation on the Commission's Own Motion into the Operations and Practices of Southern California Gas Company with Respect to the Aliso Canyon storage facility and the release of natural gas, and Order to Show Cause Why Southern California Gas Company Should Not Be Sanctioned for Allowing the Uncontrolled Release of Natural Gas from Its Aliso Canyon Storage Facility. (U904G).

I.19-06-016
(Filed June 27, 2019)

CHAPTER VII

PREPARED REPLY TESTIMONY OF DAN NEVILLE ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY (U 904 G)

March 20, 2020

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3 **CHAPTER VII**

4 **I. INTRODUCTION.**

5 The purpose of my prepared reply testimony on behalf of Southern California Gas
6 Company (SoCalGas) is to address the testimonies of Margaret Felts on behalf of the California
7 Public Utilities Commission Safety and Enforcement Division (SED)¹ and Mina Botros, Alan
8 Bach, Matthew Taul, Pui-Wa Li, and Tyler Holzschuh on behalf of the Public Advocates Office
9 (Cal Advocates). SED alleges SoCalGas had “imprudent and unreasonable recordkeeping
10 practices associated with”² wells SS-25, SS-25A, and SS-25B, and that the failure to record
11 continuous wellhead pressure constituted an imprudent and unreasonable well practice associated
12 with well SS-25 (Violations 327, 328, 329, and 330). Cal Advocates alleges further that
13 SoCalGas failed to demonstrate reasonable and prudent recordkeeping practices.³ However,
14 these assessments are based on only limited reviews of SoCalGas’ records. As demonstrated
15 below, SoCalGas’ recordkeeping practices provide an efficient means for the operation and
16 maintenance of the Aliso Canyon gas storage facility, and did not cause unsafe conditions. In
17 addition to my experience with SoCalGas’ recordkeeping practices, I have experience using the
18 Vertilog technology that was available in the late 1980s and early 1990s and found it to be
19 unreliable and inaccurate in its diagnostic capabilities, alternately greatly exaggerating and
understating the degree of actual metal loss in the casing.⁴

20 **II. SOCALGAS’ WELL RECORDS ARE ORGANIZED AND MAINTAINED TO**
21 **ALLOW FOR THE EFFICIENT OPERATION AND MAINTENANCE OF THE**
22 **ALISO CANYON FACILITY BY STORAGE PERSONNEL.**

23 SoCalGas maintains well records in hard copy format as well as in electronic databases
24 that are organized and accessed through various software applications. Appropriate personnel
25 have access to both electronic and hard copy records at the facility. As described below, well
26 records and operating data are organized and maintained functionally according to operations,
27 maintenance, or engineering activity.

¹ SED’s Opening Testimony was originally served on parties to I.19-06-016 on November 22, 2019 without an identified witness (SED Opening Testimony). Subsequently, pursuant to SoCalGas Data Request 2 to SED, SED responded that Ms. Margaret Felts is the sponsoring witness for SED’s Opening Testimony.

² SED Opening Testimony at 6.

³ Prepared Testimony on the Order Instituting Investigation (OII) into SoCalGas’ Practices and Operations of the Aliso Canyon Storage Facility and the Uncontrolled Release of Natural Gas (Cal Advocates Opening Testimony) at 15-23.

⁴ Ex. VII-1.

1 A. Hard Copy Records.

2 Each well has a hard copy “well file” where records associated with the original design,
3 modifications to the design, construction, subsurface maintenance, and inspection data are
4 maintained. The well file system was developed in the early days of storage operations and thus
5 contains decades of documents; however, as electronic data systems were developed, SoCalGas
6 began to transition to electronic data storage.

7 Each well file is subdivided to organize documents for well history, well logs, well
8 surveys, and wireline invoices, and each document therein is maintained in chronological order.⁵
9 The well history file includes documents associated with the original downhole construction (i.e.,
10 drilling) and modifications to the construction (i.e., re-drills or re-works). The latter (re-drills
11 and re-works) would have required permits from California Geological Energy Management
12 Division (CalGEM, formerly Division of Oil, Gas, and Geothermal Resources (DOGGR)); these,
13 as well as records generated during the construction activities, including summaries and daily
14 chronologies of work done (such as the DOGGR Form 100 Well Summary Report or DOGGR
15 Form 103 History of Oil or Gas Well) are maintained in this file. In the early 2000s, SoCalGas
16 also began to use a software application called WellView for purposes of maintaining these
17 documents.⁶

18 The well log file includes documents associated with the measurements recorded as a
19 function of depth that are typically obtained during drilling, re-drilling, and re-works of that well.
20 The file includes open hole logs, which have measurements on the rock formations and fluids
21 encountered in the open wellbore that are typically acquired during the drilling phase; and cased
22 hole logs, which include measurements in the tubing or casing that are typically acquired during
23 the re-drilling or re-work phase. Examples of cased hole logs include cement evaluation, casing
24 inspection, and noise logs and tracer surveys (the latter two are typically acquired without the use
25 of a drilling rig or workover rig).

26 The well survey file includes documents associated with temperature gradients that are
27 typically obtained during wireline work on the well (i.e., temperature surveys). Temperature
28 surveys are organized chronologically.

⁵ Logs are not necessarily maintained in chronological order due to their irregular size; however, since they are not many for each well, they are easy to locate within the file.

⁶ WellView is a well data management system containing well file records related to well planning, drilling, completion, testing and workovers.

1 The well wireline invoice file includes documents that detail wireline work, such as the
2 setting of downhole plugs, shifting of downhole sliding sleeves, installation and removal of
3 wireline retrievable subsurface safety valves, and other work conducted during wireline work on
4 the well. These documents are also maintained chronologically.

5 The well file records are used primarily by storage field engineers. The hard copy well
6 files for all active wells at Aliso Canyon are maintained in a centralized location at the Aliso
7 Canyon facility where they are easily accessible and referenced.

8 B. Electronic Databases in Use During the Incident.

9 As part of its records upgrade and digitization initiatives, SoCalGas' electronic databases
10 and use of software applications have grown and evolved. To the extent this proceeding is
11 focused on the SS-25 incident, this testimony describes the relevant electronic databases that
12 were in full use as of October 23, 2015.⁷⁸

13 SoCalGas utilized PI Historian (PI) for collecting and maintaining operational data for
14 the entire Aliso Canyon facility, including for the individual storage wells. It served as a single
15 source for personnel to access operating data at the facility, including on/off times of storage
16 wells, gathering line flowing pressures, weekly pressure readings on storage wells, daily
17 reservoir pressures, gas inventory, expected flow by well, and choke type and size. PI provided
18 users the opportunity to track or trend operating data over time. For example, weekly pressure of
19 wells could be compared and plotted over time with PI. This made it a superior repository for
20 operational information and data (versus including the data in the hard copy well file).

21 PI also stored and displayed well and plant operating data on a real-time basis. For
22 example, the total facility withdrawal rate or injection rate is displayed in real time and stored in
23 PI. PI also collected and stored daily gas inventory and reservoir pressures from two observation
24 wells as well as weekly well pressures from all storage wells. PI additionally served the
25 purposes of housing the information necessary to place wells on withdrawal or injection and of
26 providing operations with pertinent information regarding how wells are placed on withdrawal
27 and injection and what the expected delivery would be. Furthermore, when storage wells were

⁷ The Assigned Commissioner's Scoping Memo and Ruling states, "The scope of this proceeding is limited to the SS-25 incident and the Blade Report. SoCalGas's operation and maintenance of all or parts of Aliso Canyon, and SoCalGas's associated recordkeeping, are within the scope of this proceeding *to the extent such matters have a reasonable nexus to the SS-25 incident and/or the Blade Report.*" Scoping Memo and Ruling at 5 (emphasis added).

⁸ In addition to the relevant electronic databases described in this section, SoCalGas collected electronic well file records and well related information in certain digital repositories including, but not limited to, SharePoint and UGS servers.

1 placed on withdrawal or injection, a record of that operation would be created in PI along with a
2 time stamp.

3 Maximo was the software application used to schedule and retain records regarding
4 regular compliance and preventative maintenance and follow-up corrective maintenance on the
5 storage wellheads, well safety systems, and associated lateral piping. Maximo was accessible to
6 and used primarily by maintenance personnel. SoCalGas utilized WellView, a well data
7 management system, to maintain well file records related to planning, drilling, completion,
8 testing and workovers; and RigView, a rig and project scheduling system for drilling,
9 completions, workovers and testing. WellView and RigView were accessible and primarily used
10 by drilling and workover engineers.

11 C. SED's and Cal Advocates' Reviews of Records Were Limited.

12 The limited reviews conducted by SED and Cal Advocates do not allow those parties to
13 appreciate the organization, accessibility, and ease of review of the relevant records. It is my
14 understanding that neither SED's nor Cal Advocates' testimony is predicated on a complete
15 review of SoCalGas' electronic databases or hard copy well files for SS-25.⁹ SED was provided
16 with the same records that were provided to Blade Energy Partners (Blade), which included the
17 well files in digital format as single-page .pdf documents copied from the hard copy files as they
18 are maintained in the ordinary course of business. As discussed in Chapter IX (Healy), it appears
19 that these and other records were provided by SED to its witness in a manner¹⁰ that does not
20 reflect the organization and accessibility of the electronic or hard copy records maintained at
21 SoCalGas. Figures 1-3 below show how the hard copy well files are maintained.

⁹ Months after its testimony was filed, on February 6, 2020, SED requested, and SoCalGas presented, an overview of the electronic databases SoCalGas currently uses to retain records. SED's request did not include a review of any records related to SS-25, SS-25A, or SS-25B.

¹⁰ Ex. I-10 (Tr. 97:12-13, 304:24 – 307:9 (Felts)).



Figure 1 – Aliso Canyon Well File Cabinet



Figure 2 – Aliso Canyon Well File Drawer



Figure 3 – Aliso Canyon Well File Drawer

1 For example, SED’s witness complains that the well files were not kept in chronological
2 order.¹¹ It is possible that the format in which SED’s witness reviewed the well files did not
3 reflect that they are, in fact, maintained in chronological order, as described above. For example,
4 the SS-25 well survey file allows for the easy viewing and comparison of each survey run on the
5 well, going back to March 14, 1974 (see Figures 4 and 5).

¹¹ SED Opening Testimony at 72.

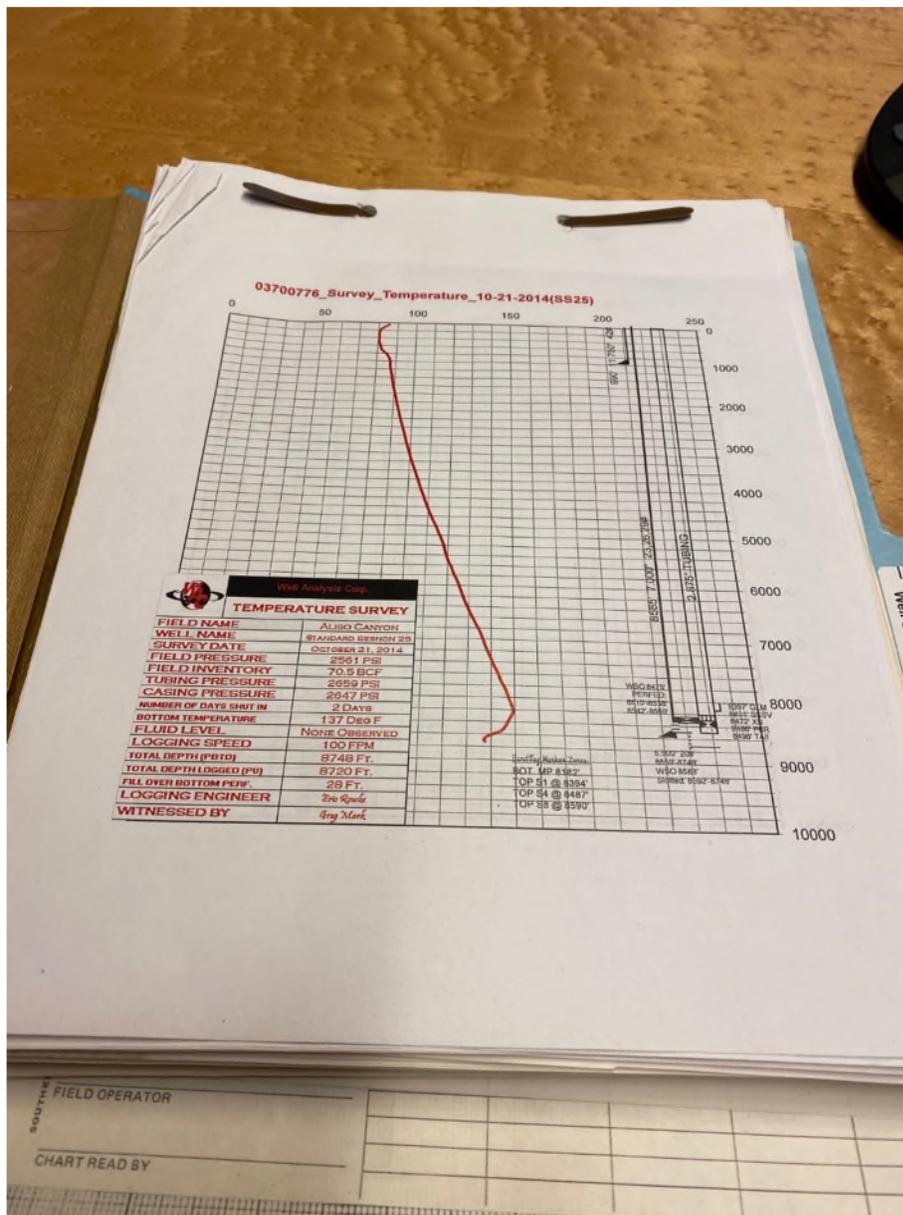


Figure 4 – SS-25 Well Survey File

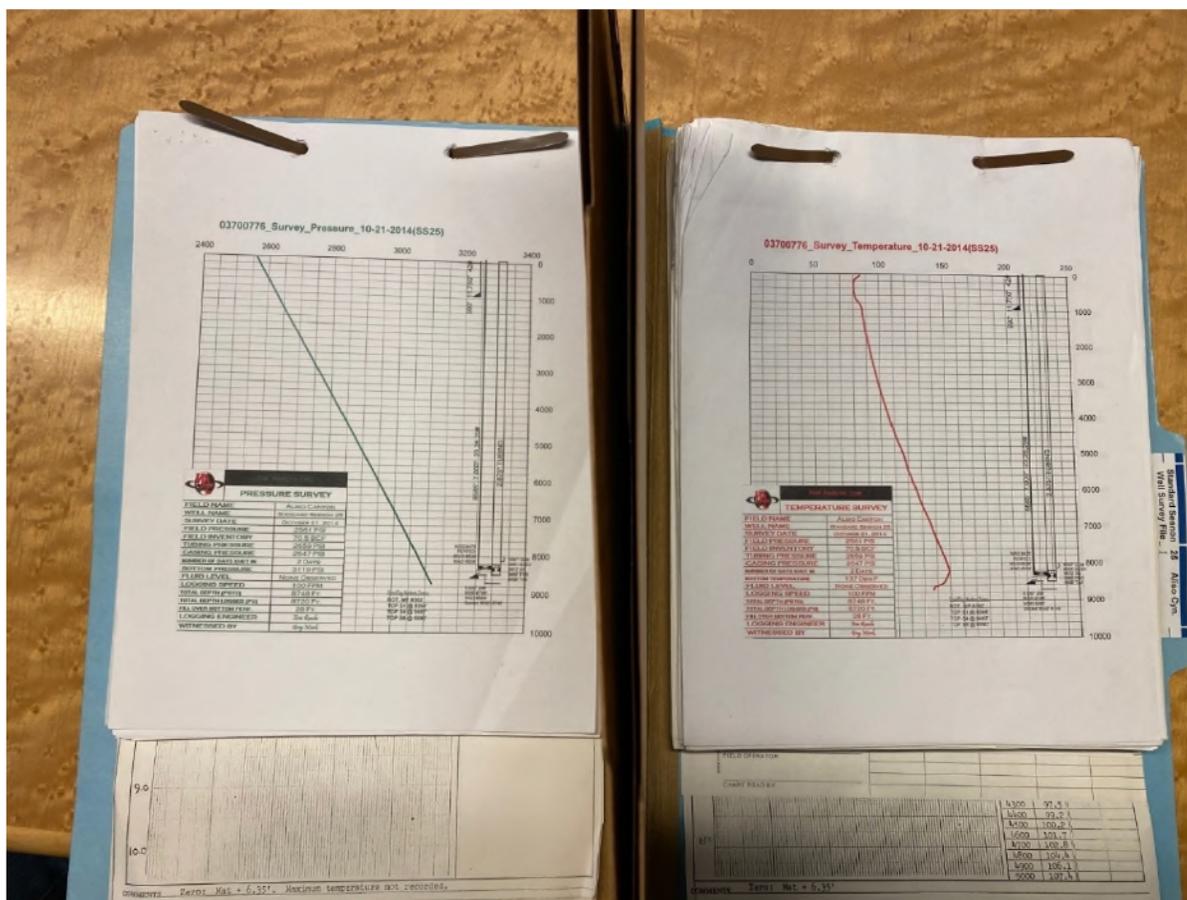


Figure 5 – SS-25 Well Survey File

1 Similarly, Cal Advocates' in-person review of records was also limited by their request.
2 For its in-person review of records, Cal Advocates only requested the following documents for
3 SS-25, SS-5, P-35, SS-9, and SS-17 wells: maintenance of wells, well leak surveys, and well
4 corrosion inspections. Cal Advocates also requested documents pertaining to cathodic protection
5 on wells at Aliso Canyon, and asked that SoCalGas' electronic equipment management and
6 maintenance scheduling software be readily available. Cal Advocates' request covers a subset of
7 records for the subject wells. Moreover, the records reviewed by Cal Advocates do not support
8 that their summary allegation that "[t]hese [recordkeeping] failures by SoCalGas management
9 resulted in one of the biggest natural gas leaks in U.S. history."¹² In fact, none of the issues
10 raised by Cal Advocates in its testimony created any unsafe condition, let alone contributed to
11 the leak in SS-25.

12 **III. SOCALGAS' RECORDKEEPING DID NOT IMPACT THE SS-25 WELL** 13 **CONTROL EFFORTS.**

14 SED contends that "the failure and inability to immediately kill Well SS-25 was the most
15 visible and alarming result of SoCalGas's inadequate record keeping."¹³ However, SED's
16 position is unsupported and belied by the well file for SS-25 and the statement of Boots & Coots,
17 the third party who executed all but the first of the well control efforts. In response to
18 questioning by SED, Boots & Coots stated that it had all the records that it required in order to
19 plan and execute its well control efforts.¹⁴

20 The records required to kill SS-25 were in the well file at the time of the kill attempts.
21 These records included those depicting the original downhole construction (DOGGR Well
22 Summary Report dated May 28, 1954 and DOGGR History of Oil or Gas Well Report dated
23 May 28, 1954) as well as modifications to the construction (DOGGR History of Oil or Gas Well
24 Reports dated September 5, 1973, July 29, 1976, and February 21, 1979).¹⁵ Downhole tubulars
25 and components as well as completion interval were depicted on a wellbore schematic verifiable
26 by viewing the most recent modification to the well in 1979. A detailed drawing of the tubing
27 string dated February 21, 1979 that illustrated each tubing component and corresponding depth
28 of that component was included in the well file. In addition, open hole and cased hole logs,

¹² Cal Advocates Opening Testimony at 3.

¹³ SED Opening Testimony at 67-68.

¹⁴ SED Opening Testimony Exhibit, SED00635-00786 (Danny Walzel and James Kopecky, Examination Under Oath ("EUO"), Tr 92:10-19 (Aug. 8, 2018)).

¹⁵ Ex. VII-2.

1 temperature surveys, and wireline invoices generated since the beginning of storage operations
2 were available in the well files. Operating data was available in PI and included east and west
3 field reservoir pressures recorded on a daily basis, as well as weekly pressures in wells near SS-
4 25.

5 For the same reasons, SoCalGas' recordkeeping practices do not create unsafe conditions,
6 as SED contends.¹⁶ SED states it would be impossible for a new person or contractor to fully
7 understand "existing pipe damage,"¹⁷ but this ignores that any new persons or contractors
8 assigned to manage wells at Aliso Canyon would be experienced engineers and/or contractors
9 who were familiar with subsurface engineering and the types of records employed to understand
10 existing pipe damage. Experienced engineers and contractors would understand how the well
11 files were organized and maintained or, at the least, ask SoCalGas to produce or point to the
12 necessary records. As detailed above, the records are organized and maintained to allow for the
13 efficient maintenance and operation of the Aliso Canyon facility.

14 **IV. SED'S AND CAL ADVOCATES' CONCLUSIONS ARE UNSUPPORTED AND**
15 **SPECULATIVE.**

16 A. Records SED and Cal Advocates Allege Are Missing Either Are Maintained
17 Outside the Well File or Were Appropriately Not Generated.

18 Although SED makes the blanket assertion that there were missing or lost records,¹⁸ SED
19 does not provide any examples of what record(s) it believes may have been lost. SS-25 was
20 originally constructed/drilled in 1954 and then modified (re-worked) in 1973, 1976, and 1979.
21 The records associated with this work are in the well history file. There were no other re-works
22 associated with SS-25 other than the three in the 1970s, and thus the last records for re-works are
23 from 1979. The open hole and cased hole logging conducted and noted in the history reports for
24 the original construction and modification are located in the well log files. Temperature surveys
25 run since the conversion re-work were located chronologically in the well survey file beginning
26 with the first survey run on March 14, 1974 to the most recent on October 21, 2014 (see *supra* at
27 Figure 4). Wireline invoices from wireline work conducted in SS-25 were located in
28 chronological order in the wireline invoice file, from the first wireline work on June 5, 1973
29 through the last on November 17, 2014.

¹⁶ SED Opening Testimony at 68.

¹⁷ SED Opening Testimony at 72.

¹⁸ SED Opening Testimony at 73.

1 SED states that key records, including operational data, interoffice “memos related to
2 leaks,”¹⁹ and technical reports “appear to be missing from June 6, 1973 to October 23, 2015,”²⁰
3 i.e., the date of the incident. This ignores that SoCalGas housed operational data in PI, where it
4 was easily accessed, and intentionally did not include it in the well history files.²¹ The statement
5 also ignores the fact that there were no memos related to leaks in the SS-25 well file because
6 *there were no confirmed leaks in SS-25 prior to October 23, 2015*. SED does not indicate what
7 types of technical reports might be missing from the well file. It does, however, look to SS-25A
8 and SS-25B to determine what records should be in the well file for SS-25.²² Such a comparison
9 is improper given that well files can have different contents based on the number and type of re-
10 works conducted on a particular well. Records do not exist for work that has not been done.
11 SED also states that wells SS-25A and SS-25B share similar design to SS-25 and, therefore, one
12 could expect the contents of the files to be similar.²³ However, SED admits that SoCalGas
13 drilled SS-25A and SS-25B, whereas SS-25 was converted to a gas storage well;²⁴ thus, the files
14 could not and should not be the same.

15 Similarly, SED complains that a well record for SS-25A was not located in the SS-25
16 file.²⁵ This ignores that it was SoCalGas’ consistent practice to maintain records specific to a
17 particular well in the file associated with that well—this makes sense from an organization
18 perspective. Thus, the record of a shallow tubing leak at 460 feet recorded in December 1991 in
19 SS-25A is not found in the SS-25 well file. Moreover, a tubing leak on SS-25A is not relevant to
20 SS-25. SED also complains the SS-25A well file includes permeability information that is not
21 included in the SS-25 well file—but this ignores that the permeability information (a) is not
22 performed for each specific well and (b) is only included in the SS-25A well file because it was
23 derived from an open hole log specific to SS-25A. Permeability information for the Aliso
24 Canyon field is found in reservoir and geology studies for Aliso Canyon, and this information is
25 maintained in hard copy format. In any event, if information from SS-25A or other nearby wells

¹⁹ SED Opening Testimony at 69.

²⁰ SED Opening Testimony at 69.

²¹ I am not aware of any requirements for operational data to be in well files, and SED points to none. Keeping operational data in PI allowed work groups other than storage engineers—like operations, maintenance, engineering, and management—to easily access the data. Additionally, placing it in the well files would merely have cluttered the well file and provided an unnecessary redundancy.

²² SED Opening Testimony at 69-70.

²³ SED Opening Testimony at 69-70.

²⁴ SED Opening Testimony at 69.

²⁵ SED Opening Testimony at 70.

1 was sought to be reviewed, the files are easily accessible—the hard copy well files for active
2 wells are all located in one place, in an organized fashion (see Figures 1-3).

3 SED also contends that SoCalGas did not create or keep ground water records or other
4 records of measurements relative to external corrosion of underground pipe in the SS-25, SS-
5 25A, and SS-25B well files. This allegation is misguided and incorrect. The California
6 Department of Conservation, Division of Geologic Energy Management (CalGEM, formerly
7 DOGGR) established the base of fresh water as between 100 feet and 800 feet.²⁶ Accordingly,
8 surface casings on SS-25, SS-25A, and SS-25B were set and cemented to 990', 806', and 900',
9 respectively, below the base of fresh water, including ground water. The regulations do not
10 require creation or maintenance of ground water records and, for the reasons noted above, it is
11 not necessary to do so. Accordingly, no additional information related to the establishment of
12 the base of fresh water was provided by CalGEM. With respect to records of measurement
13 relative to external corrosion of underground pipe, in 2010, SoCalGas conducted a re-work on
14 SS-25A and ran a USIT casing inspection log.

15 Cal Advocates states that certain annual pressure surveys from 1989 to 2008 were not
16 provided. First, it is important to note that pressure surveys are not required by any regulation or
17 internal standard. Moreover, the downhole tool used for surveys prior to around 2004 consisted
18 of a temperature sensor only, and thus no pressure survey was generated. Around 2005,
19 SoCalGas began to utilize a new contractor whose downhole tool consisted of both a temperature
20 sensor and a pressure sensor, and thus SoCalGas began receiving both a temperature gradient
21 plot and a pressure gradient plot. Again, the pressure survey is not required by regulations, nor is
22 it useful for mechanical integrity evaluation;²⁷ this additional plot was merely provided by the
23 contractor at no cost. Rather than discard the pressure survey, SoCalGas maintained the record
24 in the well survey file.

25 B. SED Misconstrues SoCalGas' Well Files.

26 SED states that data in the SS-25 well file reveals an ongoing detection of leaks at the
27 bottom of the well.²⁸ This is a misinterpretation of the well file. A review of temperature
28 surveys indicates a shoe leak was suspected as noted on the April 24, 1985 survey. However, the

²⁶ Ex. VII-3.

²⁷ The surveys that are important to mechanical integrity monitoring are temperature surveys, not pressure surveys. It should be noted that SoCalGas does run periodic pressure surveys for purposes other than mechanical integrity, typically during the process of inventory verification.

²⁸ SED Opening Testimony at 70.

1 following temperature survey, on July 10, 1985, concludes that no such shoe leak existed:
2 “Temp anomaly similar to, but breaks slightly higher than surveys of past several years. Noise
3 logs 7-84, 4-84, 2-83 and RA. 7-84 indicated no leak above S1. Will monitor.”²⁹ The three
4 noise logs and single radioactive (RA) tracer survey are located in the well log file and indicate
5 continued monitoring for shoe leaks—but this hardly amounts to an “ongoing detection of
6 leaks.”³⁰ SED states further that since there was no mention of repair in the well file, presumably
7 the leak existed at the time of the incident.³¹ This statement ignores the fact that annual
8 temperature surveys as well as noise logs run do not suggest there was a leak in SS-25.

9 SED complains that well patches were documented for SS-25A and SS-25B, but there
10 was no mention of such in the well file for SS-25, even though there was an ongoing leak
11 documented in temperature surveys from 1978 to the late 1990s.³² First, a well patch is only
12 required if there is a leak. The well patches on SS-25A and SS-25B were on stage collars; but
13 SS-25 did not have stage collars. Moreover, the temperature surveys do not indicate a leak in
14 SS-25 from 1978 to the late 1990s. Blade even confirmed as much in its report.³³

15 SED states there is data in the well file for SS-25 showing increasing casing erosion
16 (from sand in the gas extracted at a high velocity) over a period of years, but these measurements
17 were not continued into the 1990s and beyond, and the well file contains no analysis or report
18 regarding these findings.³⁴ SoCalGas did in fact continue measurements on erosion in SS-25 into
19 the 1990s and beyond, with the most recent test occurring in 2014. Beginning in the late 1990s,
20 SoCalGas discontinued including this information in individual well files and maintained erosion
21 data on a field-wide basis. The data was used to manage well flow rate to mitigate erosion on the
22 surface lateral piping. The erosion data was further analyzed on an ongoing basis following each
23 erosion test and was used by the storage engineers to establish choke settings for flow control.

24 C. SoCalGas’ Monitoring of Wellhead Pressures Was Appropriate.

25 SED makes the assertion that SoCalGas’ recordkeeping practices associated with well
26 SS-25 were imprudent and unreasonable because it failed to continuously record the wellhead

²⁹ Ex. VII-4.

³⁰ SED Opening Testimony at 70.

³¹ SED Opening Testimony at 71.

³² SED Opening Testimony at 71.

³³ Blade Report at 216 (“Annual temperature surveys and periodic noise logs were run in SS-25 from 1974 to 2014, and no anomalies were found”).

³⁴ SED Opening Testimony at 71.

1 pressure for SS-25 (Violation 330).³⁵ SED contends that because SoCalGas was not monitoring
2 wellhead pressure continuously, or even daily, it did not have the bottomhole pressure, which
3 was a key piece of data for the well kill attempts.³⁶ This is incorrect.

4 SoCalGas maintained mechanical integrity of active gas storage wells through various
5 methods, including monitoring well pressures. Per DOGGR, SoCalGas was required to take
6 *weekly surface* pressure readings for injection and withdrawal wells such as SS-25, and this was
7 SoCalGas' practice. SoCalGas also utilized two wells (located in the east field and west field) as
8 observation wells and recorded their pressures daily. SED asserts that SoCalGas failed to take
9 bottomhole pressures; however, SED fails to appreciate that SoCalGas calculated bottomhole
10 pressures from surface wellhead pressures. The surface wellhead pressures were available on
11 October 23, 2015, and SoCalGas engineers were able to calculate the bottomhole pressure.
12 SoCalGas' practices related to wellhead pressure monitoring were prudent and reasonable.
13 SoCalGas' records provided the information needed to kill the SS-25 well.

14 D. Cal Advocates' Analyses Rely on Unsupported Assumptions.

15 Cal Advocates indicates in its testimony that it identified seven instances of missed
16 compliance actions on surveys and inspections on SS-25.³⁷ SoCalGas utilized Maximo for both
17 scheduling and retaining maintenance records. The monthly well inspections and safety system
18 inspections are issued by Maximo with a target start and finish date of one month, thereby
19 providing a one-month window for the inspections. As maintenance personnel complete the
20 inspections, they input the completion date in Maximo. Monthly well inspections are conducted
21 in addition to daily well inspections, and provide specific attention to items such as weed
22 abatement and well signage. The monthly wellhead inspection and bi-annual safety system
23 inspections are not regulatory requirements.

24 As discussed below, Cal Advocates' findings do not necessarily support the conclusions
25 made. SoCalGas continued to maintain safety at the SS-25 site during the relevant time periods
26 below. SoCalGas performed daily site inspections and recorded weekly pressures, and no
27 anomalous pressures were identified for SS-25. To the extent Cal Advocates has identified
28 imperfect records, it should be noted that, even before the incident occurred, SoCalGas
29 implemented practices to generate and maintain high-quality records. Beginning in the 2000s,

³⁵ SED Opening Testimony at 74.

³⁶ SED Opening Testimony at 74.

³⁷ Cal Advocates Opening Testimony at 15-19.

1 for example, a “maturing report” was generated and circulated on a weekly basis to storage field
2 managers and certain other personnel. These reports flag corrective and preventative
3 maintenance items reflected as coming due in the near future or past due. Each of the storage
4 fields also received a “backlog report” identifying any Maximo orders reflected as past due on a
5 monthly basis. SoCalGas has also more recently implemented practices to enhance its operations
6 and recordkeeping. SoCalGas installed pressure transmitters on all storage wells at its fields.
7 The pressure transmitters provide around-the-clock pressure monitoring of the tubing and
8 annular spaces of a well, and have alarm set points to notify personnel if a well’s pressures go
9 outside a designated value range. If this occurs, the PI and Maximo databases interconnect and a
10 Maximo workorder is automatically generated for the inspection of the well.

11 1. Cal Advocates states the monthly well inspection scheduled for June 2010 was
12 completed four days late—on July 4, 2010.³⁸ The supporting evidence (completion of the work
13 order), however, does not necessarily indicate that the inspection was conducted four days late.
14 The monthly well inspection includes a group of wells (this particular work order included 27³⁹),
15 and the work order is not marked as completed until all the wells are inspected. It is not unusual
16 for a work order to be completed over the course of multiple days. Thus, it is not necessarily the
17 case that the inspection was not timely conducted.

18 2. Cal Advocates states a monthly inspection scheduled for July 2011 was
19 completed approximately two-and-a-half years late, on November 6, 2013.⁴⁰ A review of the
20 second half of 2011 monthly inspections indicates the inspection was likely completed in July
21 2011, but was entered into the Maximo database on November 6, 2013. The 2011 inspection
22 table below shows monthly inspections for the months following July 2011 (on August 26,
23 September 29, October 22, November 19, and December 17). In addition, the comments entered
24 on the July 2011 inspection record state “completed prior but not recorded.”⁴¹ And, a review of
25 the second half of 2013 monthly inspections indicates that the November 2013 inspection was
26 completed on November 22.

³⁸ *Id.* at 15-16.

³⁹ This particular work order included 27 wells: P-26, P-26A, P-26B, P-26C, P-26D, P-26E, P-25R, P-47, P-39, P-38, PS-42, P-40, SS-9, SS-29, SS-25, SS-25A, SS-25B, SS-1, SS-1-O, SS-6, SS-8, SS-5, SS-31, SS-44, SS-44A, SS-44B, and SS-3.

⁴⁰ Cal Advocates Opening Testimony at 16.

⁴¹ Ex. VII-5.

Location	Status	Target Start	Target Finish	Priority	Work Type	Supervisor	PM	Actual Completed Date
AC-WEST FIELD	CLOSE	6/1/11 9:46 AM	6/30/11 9:46 AM	3	PM	ACOPS	AC-OPSC2	6/30/2011
AC-WEST FIELD	COMP	7/1/11 7:15 AM	7/31/11 7:16 AM	3	PM	ACOPS	AC-OPSC2	11/6/2013
AC-WEST FIELD	CLOSE	8/1/11 8:38 AM	8/31/11 8:38 AM	3	PM	ACOPS	AC-OPSC2	8/26/2011
AC-WEST FIELD	CLOSE	9/1/11 8:53 AM	9/30/11 8:53 AM	3	PM	ACOPS	AC-OPSC2	9/29/2011
AC-WEST FIELD	CLOSE	10/1/11 11:02 AM	10/31/11 11:02 AM	3	PM	ACOPS	AC-OPSC2	10/22/2011
AC-WEST FIELD	CLOSE	11/1/11 9:37 AM	11/30/11 9:37 AM	3	PM	ACOPS	AC-OPSC2	11/19/2011
AC-WEST FIELD	CLOSE	12/1/11 8:46 AM	12/31/11 8:46 AM	3	PM	ACOPS	AC-OPSC2	12/17/2011

Table 1 – Aliso Canyon 2011 Monthly Inspections

Location	Status	Target Start	Target Finish	Priority	Work Type	Supervisor	PM	Actual Completion Date
AC-WEST FIELD	COMP	7/1/11 7:15 AM	7/31/11 7:16 AM	3	PM	ACOPS	AC-OPSC2	11/6/2013
AC-WEST FIELD	CLOSE	7/1/13 12:00 AM	7/31/13 12:00 AM	3	PM	ACOPS	AC-OPSC2	7/27/2013
AC-WEST FIELD	CLOSE	8/1/13 12:00 AM	8/31/13 12:00 AM	3	PM	ACOPS	AC-OPSC2	8/24/2013
AC-WEST FIELD	COMP	9/1/13 12:00 AM	9/30/13 12:00 AM	3	PM	ACOPS	AC-OPSC2	9/27/2013
AC-WEST FIELD	COMP	10/1/13 12:00 AM	10/31/13 12:00 AM	3	PM	ACOPS	AC-OPSC2	10/22/2013
AC-WEST FIELD	COMP	11/1/13 12:00 AM	11/30/13 11:00 PM	3	PM	ACOPS	AC-OPSC2	11/22/2013
AC-WEST FIELD	COMP	12/1/13 12:00 AM	12/31/13 12:00 AM	3	PM	ACOPS	AC-OPSC2	12/23/2013

Table 2 – Aliso Canyon 2013 Monthly Well Inspections

1 3-5. Cal Advocates states the well inspections for each of May, June, and July 2012
2 were missed. However, these inspections were completed but not accurately reflected because of
3 a data entry error. The table below, pulled from Maximo, shows that inspections were timely
4 completed on January 14, February 11, March 10, April 8, May 25, July 1, August 2, September
5 23, October 21, November 30, and December 15.

Location	Status	Target Start	Target Finish	Priority	Work Type	Supervisor	PM	Actual Completion Date
AC-WEST FIELD	CLOSE	1/1/12 9:54 AM	1/31/12 9:54 AM	3	PM	ACOPS	AC-OPSC2	1/14/2012
AC-WEST FIELD	CLOSE	2/1/12 11:07 AM	2/28/12 11:07 AM	3	PM	ACOPS	AC-OPSC2	2/11/2012
AC-WEST FIELD	CLOSE	3/1/12 7:32 AM	3/31/12 7:32 AM	3	PM	ACOPS	AC-OPSC2	3/10/2012
AC-WEST FIELD	CLOSE	4/1/12 7:24 AM	4/30/12 7:24 AM	3	PM	ACOPS	AC-OPSC2	4/8/12
AC-WEST FIELD	CLOSE	5/1/12 7:20 AM	5/31/12 7:20 AM	3	PM	ACOPS	AC-OPSC2	7/1/12
AC-WEST FIELD	CLOSE	6/1/12 8:36 AM	6/30/12 8:36 AM	3	PM	ACOPS	AC-OPSC2	5/25/2012
AC-WEST FIELD	CAN2	7/1/12 12:00 AM	7/31/12 12:00 AM	3	PM	ACOPS	AC-OPSC2	Cancelled on 11/4/2013
AC-WEST FIELD	CLOSE	8/1/12 12:00 AM	8/31/12 12:00 AM	3	PM	ACOPS	AC-OPSC2	8/26/2012
AC-WEST FIELD	CLOSE	9/1/12 12:00 AM	9/30/12 12:00 AM	3	PM	ACOPS	AC-OPSC2	9/23/2012
AC-WEST FIELD	CLOSE	10/1/12 12:00 AM	10/31/12 12:00 AM	3	PM	ACOPS	AC-OPSC2	10/21/2012
AC-WEST FIELD	CLOSE	11/1/12 12:00 AM	11/30/12 11:00 PM	3	PM	ACOPS	AC-OPSC2	11/30/2012
AC-WEST FIELD	CLOSE	12/1/12 12:00 AM	12/31/12 12:00 AM	3	PM	ACOPS	AC-OPSC2	12/15/2012

Table 3 – Aliso Canyon 2012 Monthly Well Inspections

1 6. Cal Advocates also contends the bi-annual well safety system inspection
2 scheduled for October 2000 was completed early on May 3, 2000, approximately five months
3 beforehand, and notes this contrasts with the May 2000 inspection that was completed on May 9,
4 2000—6 days after the date purportedly used for the October inspection. A review of the 2000
5 Storage Well Safety System Inspections indicate a likely data input error involving inputting the
6 wrong numerical value for the month. The workorder record⁴² shows the start date of 10/3/2000
7 and the end date of 5/3/2000—five months prior. It is likely the employee input an end date of
8 5/3/2000 rather than 10/3/2000. The table below shows the SS-25 bi-annual safety system
9 inspections for years 1997 through 2003.

⁴² Ex. VII-6.

Location	Status	Target Start	Target Finish	Priority	Work Type	Supervisor	PM	Actual Completion Date
ALISO CANYON	CLOSE	5/1/97 12:00 AM	5/30/97 5:00 AM	2	PM	ACINST	AC-1111	5/27/1997
ALISO CANYON	CLOSE	10/1/97 12:00 AM	10/30/97 5:00 AM	2	PM	ACINST	AC-1111	12/4/1997
AC-GROUP 6 WELLS	CLOSE	5/1/98 12:00 AM	5/29/98 5:00 AM	2	PM	ACINST	AC-1111	5/26/1998
AC-GROUP 6 WELLS	CLOSE	10/28/98 12:00 AM	10/28/98 5:00 AM	3	PM	ACINST	AC-1111	11/16/1998
AC-GROUP 6 WELLS	CLOSE	4/26/99 12:00 AM	4/26/99 5:00 AM	3	PM	ACINST	AC-1111	5/25/1999
AC-GROUP 6 WELLS	CLOSE	10/23/99 12:00 AM	10/23/99 5:00 AM	3	PM	ACINST	AC-1111	10/29/1999
AC-GROUP 6 WELLS	CLOSE	4/20/00 12:00 AM	4/20/00 5:00 AM	3	PM	ACINST	AC-1111	5/10/2000
AC-GROUP 6 WELLS	CLOSE	10/17/00 12:00 AM	10/17/00 5:00 AM	3	PM	ACINST	AC-1111	5/3/2000
AC-GROUP 6 WELLS	CLOSE	4/15/01 12:00 AM	4/15/01 5:00 AM	3	PM	ACINST	AC-1111	5/26/2001
AC-GROUP 6 WELLS	CLOSE	11/1/01 12:00 AM	11/1/01 5:00 AM	3	PM	ACINST	AC-1111	1/12/2002
AC-GROUP 6 WELLS	CLOSE	5/2/02 12:00 AM	5/2/02 5:00 AM	3	PM	ACINST	AC-1111	6/19/2002
AC-GROUP 6 WELLS	CLOSE	10/31/02 12:00 AM	10/31/02 5:00 AM	3	PM	ACINST	AC-1111	11/2/2002
AC-GROUP 6 WELLS	CLOSE	5/1/03 12:00 AM	5/1/03 5:00 AM	3	PM	ACINST	AC-1111	5/27/2003
AC-GROUP 6 WELLS	CLOSE	10/30/03 12:00 AM	10/30/03 5:00 AM	3	PM	ACINST	AC-1111	12/1/2003

Table 4 – Aliso Canyon 1997-2003 Well Safety System Inspections

7. Cal Advocates further states the bi-annual safety system inspection for November 2001 was completed late, in early January 2002.⁴³ Records for 2002 reflect that three bi-annual safety system inspections were conducted that year (see Table 4 above).

Cal Advocates also contends that the temperature survey records for 2008 and 2009 are duplicates, and the 2008 record is missing an independent witness, with the suggestion that SoCalGas created the 2008 survey after the 2009 survey.⁴⁴ However, the fact that one record is missing an item that is included in the other indicates that the records are not in fact duplicates. Moreover, there is a reasonable explanation as to why the legends of both documents state the same pressure and inventory information. SoCalGas utilizes a contractor to conduct the temperature surveys and to prepare the data in the form of a survey graph with a legend, and it is likely that the contractor inadvertently did not update all data fields, possibly because of utilizing a prior template. The documents themselves reflect that the scaling on the graphs are different, and the plots appear different as well. The wireline invoices further evidence there were two different surveys. The wireline invoices are issued by the wireline operator, Well Analysis Corporation in this case, for the temperature surveys. The wireline invoices for the work in

⁴³ This particular work order included 11 wells: SS-25, SS-25A, SS-25B, SS-1, SS-1-O, SS-44, SS-44A, SS-44B, SS-4, SS-4A, and SS-4-O.

⁴⁴ Cal Advocates Opening Testimony at 21-23.

1 question show the 2008 survey was conducted on July 23, 2008, and the 2009 survey was
2 conducted on October 5, 2009.⁴⁵ The independent witness box in the legend of the temperature
3 surveys is also completed by the contractor and merely refers to the SoCalGas employee who
4 witnessed the rig/up and rig/down of the wireline unit (and is not to fulfill any regulatory
5 requirement). In any event, the July 23, 2008 wireline invoice shows the signature of the
6 SoCalGas employee who witnessed the contractor.

7 **V. CONCLUSION.**

8 This concludes my prepared reply testimony.
9

⁴⁵ Ex. VII-7.

1 **WITNESS QUALIFICATIONS**

2 I, Daniel Neville, am the Reservoir Engineering Manager in Integrity Management and
3 Strategic Planning for Southern California Gas Company (SoCalGas). I have held this position
4 since June 2012. My roles as Reservoir Engineering Manager included the following.

5 Beginning in January 2018, I worked in Integrity Management and Strategic Planning.
6 My responsibilities include assisting SoCalGas in implementing both the California Division of
7 Oil, Gas and Geothermal Resources (DOGGR) regulations and the federal Pipeline and
8 Hazardous Material Safety Administration (PHMSA) regulations at all of SoCalGas' natural gas
9 storage facilities.

10 Beginning in April 2016 and continuing into January 2018, my role was in Storage
11 Engineering, where I was responsible for overseeing a team of six Storage Field Engineers and
12 one geologist that provided engineering support to operations and maintenance at all of the
13 SoCalGas natural gas storage facilities

14 Beginning in June 2014 and continuing into April 2016, my role was in Storage Asset
15 Management, where I managed the drilling, completion, and testing program for native gas wells
16 drilled as part of the Goleta native gas project at SoCalGas' La Goleta natural gas storage facility
17 in Goleta, California. Beginning in November 2015, I also began providing assistance
18 concerning various tasks related to the October 23, 2015 leak at SS-25.

19 Beginning in June 2012 and continuing into June 2014, my role was in Storage
20 Engineering, where I was responsible for overseeing the six Storage Field Engineers that
21 provided engineering support to operations and maintenance at all of the SoCalGas natural gas
22 storage facilities.

23 Prior to my position as Reservoir Engineering Manager at SoCalGas, beginning in 1991
24 and continuing into June 2012, I worked in various other positions at SoCalGas, including
25 Storage Field Engineer; Storage Operations Manager; Drilling and Workover Engineer; and Staff
26 Engineer.

27 Prior to my employment at SoCalGas, beginning in 1987 and continuing into 1991, I co-
28 owned Reservoir Data Services, Inc., a well servicing business that provided well testing services
29 to major and independent oil companies operating in, and offshore of, California, including wells
30 at Aliso Canyon. Beginning in 1983 and continuing into 1987, I worked as a field engineer at

1 Schlumberger Limited, a leading provider of technology for reservoir characterization, drilling,
2 and production to the oil and gas industry worldwide.

3 I am a member of the Society of Petroleum Engineers, a professional society involved
4 with knowledge transfer and technology. I have been a member of the board of the local chapter
5 of the Society since the late 1990s.

6 I also am a member of the Pipeline Research Council International – Underground
7 Storage Committee, a community of pipeline companies seeking to research and improve global
8 energy pipeline systems.

9 I am a technical advisor on two ongoing research programs, including (1) Pipeline &
10 Hazardous Materials Safety Administration (PHMSA) - “Guidelines On Assessing Risk of UGS
11 Well Entry” and (2) California Energy Commission - “Risk Assessment and Treatment of
12 Wells.”

13 I have a bachelor’s degree in petroleum engineering from Texas A&M University.

14 I have not previously testified before the Commission.