SoCalGas-31

Exhibits to Prepared Supplemental Rebuttal Testimony of Glenn La Fevers (October 26, 2020)

I.19-06-016

ALJs: Hecht/Poirier

Date Served: March 12, 2021

Ex. I-1

From: Turner, Benjamin@DOC
To: Lauren.Wolman@mail.house.gov
Subject: Fwd: Aliso update
Date: Friday, November 13, 2015 11:09:09 PM

Update from DOGGR field staff:

Sent from my iPhone (pleeze esckooze tiepoes and occasional inadvertent brusqueness)

Ben Turner
Assistant Director, Governmental and Environmental Relations
Department of Conservation
801 K Street, MS 24-02
Sacramento, CA
Office: 916-445-8733
[redacted]

Begin forwarded message:

Subject: Aliso update

Here is an update from a field engineer:

Today was an extremely eventful day at the SS 25 site. Bruce Hesson and I arrived at the command post at 0630 this morning. We were quickly briefed by Todd Van De Putte with SoCalGas on the day's operations. The well conditions were unchanged from the previous day. The composite bridge plug set at 8412' was holding and no meaningful pressure had been added or subtracted from the 2 7/8" tubing. The operator then ran wireline and punched holes in the 2 7/8" tubing in preparation for the kill job. After the tubing shots were fired, the tubing began to return to the original pressure of ±1600 psi as expected.

I was then called to the SS 25 site to witness the pumping operations. I did not have a time piece with me as all electronics were removed from the site. Therefore, times are estimated here. The winds were blowing to the SW at 15-20mph. At around 1100 hours pumping began with a 5 bbl polymer pill followed by 9.4 ppg CaCl2 mud. The rate of pumping was 8 bbls/min and the operator was bullheading through the 2 7/8" tubing. The CT rig was not used and the BOPE stack and riser had been removed.

After 45 bbls of 9.4 ppg mud was pumped, the tubing pressure began to increase and there was a ±100 psi drop in the 7" annulus. The choke was then opened full and a small amount of fluid and gas was coming to the return tanks. It appeared the well had turned the corner on the 2 7/8" tubing. At about 100 bbls away or so, the well began to blowout to surface despite having the choke at 100% open. A large column of gas, aerated mud, and rock formed a geyser around the well head. Mud brine also began to flow from around the well head fissures. The pumping rate was kept at 8 bbls/min and the tubing was keeping pressure. The

pump was able to chase the fluid. At the recommendation of Boots and Coots, Bret Lane w/ SCG, Mike Dozier also w/ SCG and myself retreated from the choke controls and remained at the SS 25 command bunker. A significant amount of gas and mud continued to blow around the well head and also floated downwind to the SW. The well continued to blow around the wellhead for the next 300 bbls of pumping which should have been about 40 minutes of time elapsed. At this point the site began to run out of kill fluid as the theoretical wellbore volume of 318 bbls had been pumped. More fluid was pumped into the well and the well continued to blow into the return tank and around the well head. The dust column reached an estimated 60' in height.

At around 420 bbls away, Scott McGurk, Scott Walker, and Bruce Hesson came up to the SS 25 site after monitoring conditions by computer at an adjacent lower location. I met the three half way down the road and we quickly tested the east side of the hill where gas had been leaking out of the hillside. The gas monitor did not detect any gas. The leak points that I had previously noted were nearly dead.

We then walked back to the SS 25 site. After speaking with Bret Lane and Danny Clayton with Boots and Coots, it was agreed that the operator should continue to pump the well despite the surface gas leakage as this may be the best opportunity to kill the well. At around 550 bbls away the surfaced mud began to flow off of the well pad and down the road. A vacuum truck was called and the mud flowed into a concrete catch basin. This basin was plugged and the mud sucked out with the vacuum truck before it could break containment. The leaking kill mud did not breach the hot zone. The operator continued to pump at about 1 bbl/min. The well continued to blow but the rate was reduced. After 800 bbls of mud away, a 10 bbl polymer pill was spotted into the tubing. It was allowed to gravity feed down the tubing. Pumping was stopped at ±1445 hours. There was no more mud to pump on site after 2.5 wellbore volumes were pumped. The well continued to blow, but fluid stopped coming from the wellbore. After about 10 minutes the dust began to abate and we were able to approach the wellbore. We observed the well from the choke manifold controls upwind of the blow. The well was blowing a small amount of gas from the well cellar. Most of the gas however, was blowing from a large fissure about 20' north of the wellhead. This gas was a significant blow and it was decided that it should be left alone for the night. There was no more mud to pump and the fluid stopped emanating from the wellbore. The tubing was on a vacuum. The 7" casing had 185 psi on it and the 11 ¾" had ±65 psi on it. We decided to leave the site after this inspection and walked down to the command area. We arrived at command at ±1500.

Phone calls to HQ ensued and Division management was updated on the day's activities.

Tomorrow will likely consist of a wireline run to collect data. There are several possibilities as to a course of action. The tubing pressure will determine whether or not a cement job is feasible. The well head did appear intact and it may be possible to pump cement. However, if the tubing returns to significant pressure, a cement job may not be possible at this time. This means that insufficient fluid reached the storage zone and a cement plug will likely only agitate the well.

If the tubing pressure is reasonably low, a noise log will likely be run to determine if and where gas is migrating. A fluid shot in the 7" annulus may also be possible, or a capacitor wireline tool may be of use as well. If the tubing is dead, then the storage zone is dead. This means that the gas blow actually came from a shallower zone behind the 7" casing and likely below the shoe of the 11 ¾" casing. It is possible that when the kill fluid was pumped into the well an ice plug that had built up around the 11 ¾" x 16" wellbore annulus broke down allowing the gas to vent. This hypothetical ice plug may have resulted in choking back the gas release and forcing the gas to migrate to the surrounding hillsides. Once this ice was broken, the most convenient path of flow was through the open choke and around the 11 ¾" casing. This could explain why the hillside gas leaks stopped.

I shall return to the SS 25 site at 0630 hours tomorrow. If you have any questions please don't hesitate to text or email.

Sent from my iPhone (pleeze esckooze tiepoes and occasional inadvertent brusqueness)

Ben Turner
Assistant Director, Governmental and Environmental Relations
Department of Conservation
801 K Street, MS 24-02
Sacramento, CA
Office: 916-445-8733
[redacted]

Ex. I-2

Safety and Enforcement Division's (SED) Response to Southern California Gas Company Data Request 12:

Date Provided by SED to SoCalGas: October 2, 2020

1. Identify all facts supporting YOUR allegation that SoCalGas "purposefully" extracted and vented oil into the atmosphere on November 13, 2015.

   SED objects to Question 1 to the extent that it mischaracterizes Ms. Felts' testimony. Taking one term out of context does not properly characterize a portion of testimony and the conclusion must be read in its entirety. Namely, the entire quote on page 4 of Ms. Felts' sur-reply testimony, Chapter 8, lines 23-25, is: "In conclusion, records suggest that a purposeful release of oil and gas occurred and that SoCalGas subsequently attempted to cover up the facts surrounding this release in violation of 451." Notwithstanding this conclusion, Ms. Felts answers as follows:

   Response: All facts supporting the allegation were presented with testimony. See response to Question 8 below.

2. Produce all DOCUMENTS supporting YOUR allegation that SoCalGas "purposefully" extracted and vented oil into the atmosphere on November 13, 2015.

   SED objects to this question as mischaracterizing Ms. Felts' testimony. The precise quote from Ms. Felts' testimony page 1, lines 16 to 17 is, "However, I have recently discovered evidence that shows SoCalGas purposely extracted oil and vented it into the atmosphere during the SS-25 incident." Notwithstanding this objection, Ms. Felts answers as follows.

   Response: The Nov 13, 2015 text message sent from "777200585003" reported "oil was extracted and was vented into the atmosphere." Grammatically, this is a purposeful statement and cannot be construed otherwise. This text message is quoted in its entirety in Chapter eight of testimony, page 2, lines 4 through 10.

3. Please reference Chapter Eight, page 2, lines 16-19, and footnote 7, which states:

Apparently, during the day, and before 5:26 PM, which is the time stamp for the text message that went out, there was a release of gas, oil and brine that shot feet into the atmosphere and covered the surroundings with oil.[7]

[7] Based on oral comment that I recall hearing in a non-related meeting around the time of the incident. I have not been able to confirm this fact with SoCalGas documentation.

a) Identify the individual or individuals who made the "oral comment" referenced in the excerpted passage above.
b) Identify the time and date of the "non-related meeting" referenced in the excerpted passage above.
c) Identify the subject of the "non-related meeting" referenced in the excerpted passage above.
d) Identify all individuals who attended the "non-related meeting" referenced in the excerpted passage above.

Response:

3.a. After considerable research into past records, I have not been able to definitively recall when I heard the comment or who made it. Since I was not on contract yet, I know the meeting was not associated with this case. I only know that when I came into the project, I had in mind to look for evidence of the event as I worked through the evidence.

3.b. See the response to 3.a.

3.c. See the response to 3.a.

3.d. See the response to 3.a.

4. Identify all facts supporting your allegation that "another [kill] attempt was tried by SoCalGas or Boots and Coots" that is not described the Blade Report.

SED objects to this question as vague in that it does not reference the portion of testimony to which the quote refers. SED understands the question to be asking about Ms. Felts' sur-reply testimony, page 3 line 21 to page 4 line 2 and is instructing Ms. Felts to answer with that understanding. Based upon that understanding, SED further objects to the question as a mischaracterization of Ms. Felts' testimony. Ms. Felts' testimony did not state that another kill attempt *was* tried by SoCalGas or Boots and Coots, as the partial and out of context quote in the question would suggest. Quoted in its entirety, that passage states,

"In addition, based on dates of kill events identified by Blade, [Footnote omitted], the kill attempt on November 13, 2015 was the second kill attempt, so, based on this memo, ***it is possible that another attempt was tried by SoCalGas or Boots and Coots***. [Footnote 16 states, "My review of records provided in response to SED DRs suggests that there ***may*** have been additional well kill attempts."] (Emphasis added.)

5. Produce all DOCUMENTS supporting your allegation that "another [kill] attempt was tried by SoCalGas or Boots and Coots" that is not described the Blade Report.

SED incorporates all of its objections in response to question 4 by reference here.

6. Please reference Chapter Eight, page 4, lines 3-19, which states:
Finally, in a response to SED's data request DR 33, SoCalGas provided a Draft Timeline of Events. The entry for November 13, 2015 states:
November 13 - Tubing perforation activities performed and attempted stop the flow of gas by putting fluids down the well. During this operation, there was a release of a mist into the air. Based on the information at this time, it is not believed that these materials pose a threat to public health. Out of an abundance of caution, residents were notified to stay inside. Once determined that the mist was contained to our facility, residents were again notified that there was no reason to remain inside.

Office of Emergency Services and National Response Center were notified of the release. They were updated at 3:14 pm that flow was reduced.
SoCalGas provided no evidence to support the statements regarding reporting the incident or notifying the residents. This response was provided in the text of a supplemental response to the data request and is therefore not stamped with a SoCalGas bates number. No supporting documents were provided with the response.

a) Identify all data requests in which SED requested that SoCalGas provide "evidence" or "supporting documents" to the support the draft entry for November 13, 2015, as excerpted above.
b) Identify each question in which SED requested that SoCalGas provide "evidence" or "supporting documents" to the support the draft entry for November 13, 2015, as excerpted above.
c) Identify the specific document to which "[t]his response" refers.
d) Identify the question for which "[t]his response" was provided.

> SED objects to this question as unduly burdensome because it is asking SED to produce documents that SoCalGas already has in its possession, and SoCalGas has the ability to access, read and understand the data that it requests. Notwithstanding this objection, Ms. Felts answers as follows.
>
> Response to 6 a-d. I am not aware of any specific SED data request for the evidence or supporting documents. Since I came to this project in the fall of 2019, I am also not aware of any conversations, discussions, or other communications that may have occurred regarding evidence in this case prior to fall of 2019. My statement in Chapter Eight, page 4, lines 3-19 generally covers the entire collection of all data that was provided by SoCalGas to SED in this case and which I had reviewed at the time testimony was written.

7. Please reference Chapter Eight, page 4, lines 19-22, which states:
The Draft Timeline of Events provided to SED conflicts with the internal text message sent to SoCalGas personnel on November 13, 2015 and states facts that were not included in the Standard Sesnon 25 Chronology of Events that appears within SoCalGas documents.

a) Identify with specificity all facts that conflict between the Draft Timeline of Events and the "internal text message sent to SoCalGas personnel on November 13, 2015."
b) In which "SoCalGas documents" are the "facts that were not included in the Standard Sesnon 25 Chronology of Events?"

Response to Questions 7 a and b: As mentioned in SED testimony, page 4, footnote 17, the draft timeline of events was provided in SoCalGas response to DR33. The full reference is DR33.01 SCG memo-Q12f amend 7-Dec-18.

Compare this statement in the Nov 13, 2015 Text message:

"During the repair process to mitigate the leak at the well head in Aliso Canyon oil was extracted and was vented into the atmosphere. There is an oily mist that may potentially be moving into the Porter Ranch area. Customer Service Field Distribution and Meter Reading employees who are or may be headed to work in the area have been given instructions to avoid the Porter

Ranch area until further notice. The Customer Contact Center has been notified, If an A-1 is issued in the area CSF employees are to take extreme caution when working the order."

To the Draft Timeline statement SoCalGas provided in the actual response to DR 33:

"November 13 - Tubing perforation activities performed and attempted stop the flow of gas by putting fluids down the well. During this operation, there was a release of a mist into the air. Based on the information at this time, it is not believed that these materials pose a threat to public health. Out of an abundance of caution, residents were notified to stay inside. Once determined that the mist was contained to our facility, residents were again notified that there was no reason to remain inside. Office of Emergency Services and National Response Center were notified of the release. They were updated at 3:14 pm that flow was reduced."

8. Please reference Chapter Eight, page 4, lines 23-25, which states:
In conclusion, records suggest that a purposeful release of oil and gas occurred and that SoCalGas subsequently attempted to cover up the facts surrounding this release in violation of 451.

a) Identify all "records" that "suggest" an attempt "to cover up the facts surrounding this release."
b) Identify all facts that "suggest" an attempt "to cover up the facts surrounding this release."
c) Identify all facts that support the alleged "violation of Section 451" referenced in the quote.

Response:

SED objects to Question 8 to the extent that subparts a, b, and c mischaracterize Ms. Felts' conclusion. The conclusion must be read in its entirety to be properly understood. Notwithstanding that objection, the following answers are provided.

a. A search of Boots & Coots, SoCalGas, and Haliburton daily reports, event records and emails and text messages on and after November 2015, as well as the CalGem data base regarding the Aliso 2015 SS-25 event, and reports to various regulatory agencies, turned up no records of the event as described in the Nov 13, 2015 text message sent from "777200585003" that reported "oil was extracted and was vented into the atmosphere." The consistent absence of this statement or anything similar to it in all other SoCalGas records suggests purposeful intent to avoid recording the incident.

   Chapter Eight Violation 331 further discusses such records. For example, see Chapter Eight, page 2 line 20 to page 3 line 6, which states, "A review of emails and documents provided by SoCalGas in response to SED data requests did not turn up a description of this event. Specifically, there is no mention in either the SoCalGas daily report or the Boot(s) & Coots daily report for November 13, 2015. [Footnote 8, referencing Page 32 from AC_CPUC_SED_DR_16_0000649-1026.Incident.Day and Report #20 from Boots&Coots.Daily Reports.] A search of the California Geologic Energy Management Division (CalGEM) [Footnote omitted] web site records for underground storage and the SS-25 well failure event turned up no mention or report on the incident even though it appears that a representative may have been present that day. [Footnote 10 referencing

AC_CPUC_SED_DR_17_0002068.shallow.gas.recovery – this memo discusses other issues related to the SS-25 situation, but puts a representative at the well site on 11/13/2015.] There is another email message from C. Brandy to Bret Lane asking about the text message quoted above, but there are no email responses from Bret Lane regarding the subject. [Footnote 11, referencing AC_CPUC_SED_DR_17_0002072].

b. See response to 8.a and Chapter Eight, Violation 331.

c. The facts supporting the safety violation of Public Utilities Code Section 451 include the purposeful extraction of oil and venting it into the atmosphere without pre-notice to the public and without further notice to the public that some exposure to oil might have occurred, as described in more detail in Chapter 8, violation 331.

Ex. I-3

Governor's Office Emergency Services

Hazardous Materials Spill Report

DATE: 11/13/2015 TIME: 1334	RECEIVED BY:	CONTROL#: Cal OES - 15-6708 NRC -

1.a. PERSON NOTIFYING Cal OES:

1. NAME:	2. AGENCY:	3. PHONE#:	4. Ext:	5. PAG/CELL:
	S CA Gas			

1.b. PERSON REPORTING SPILL (If different from above):

1. NAME:	2. AGENCY:	3. PHONE#:	4. Ext:	5. PAG/CELL:

2. SUBSTANCE TYPE:

2. a. SUBSTANCE:	b.QTY:>=<*Amount*	*Measure*	c. TYPE:	d. OTHER:	e. PIPELINE	f. VESSEL >= 300 Tons
1. Oil - Crude Type	= Unk	Gal(s)	PETROLEUM		No	No
2.	–				No	No
3.	–				No	No

g. DESCRIPTION: During well kill a mist is releasing due to pressure, material is flowing directly into the atmosphere and pooling at the base of the well on soil, mist is traveling Southwest in the air from the well head, no estimate of containment at this time, RP is handling the containment and clean up.

h. STOPPAGE/CONTAINMENT:	i. WATER INVOLVED:	j. WATERWAY:	k. DRINKING WATER IMPACTED
No	No		

l. KNOWN IMPACT None

3. a. INCIDENT LOCATION: 12801 Tampa Ave, Aliso Canyon Storage Facility, Well #SS25

b. CITY:	c. COUNTY:	d. ZIP:	
Northridge	Los Angeles County	91326	SOUTH COAST AQMD

4. INCIDENT DESCRIPTION:

a. DATE:	b. TIME *(Military)*:	c. SITE:	d. REPORTED CAUSE
11/13/2015	1317	Other	Unknown

Description for Other : Similar to Tank Farm

e. INJURIES	f. FATALITY	g. EVACUATION	h. CLEANUP BY:
No	No	No	Reporting Party

6. NOTIFICATION INFORMATION:

a. ON SCENE:	b. OTHER ON SCENE:	c. OTHER NOTIFIED:
Other	DOG	

d. ADMIN. AGENCY: Los Angeles City Fire Department

e. SEC. AGENCY: LACoFD Health Haz-Mat

f. ADDITIONAL COUNTY:

g. ADMIN. AGENCY:

h. NOTIFICATION LIST:

DOG Unit: 2

i. RWQCB Unit: 4

AA/CUPA, DFG-OSPR, DTSC, RWQCB, US EPA, USFWS, AIR RESOURCES BD, CDPH-D.O., DOG, BSEE, Co/WP, Co/Hlth, Co/E-Hlth

DOG

Photo Attachment:	

********* Control No: 15-6708 *********

Created by: Warning Center on: 11/13/2015 01:34:07 PM Last Modified by: Warning Center on: 11/13/2015 01:51:43 PM

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Governor's Office of Emergency Services
Hazardous Material Spill Update

CONTROL#: 15-6708 NRC# 1133370

NOTIFY DATE/TIME: 11/13/2015 / 1334	RECEIVED BY: OCCURENCE DATE/TIME: 11/13/2015/1317	CITY/OP. AREA: Northridge/Los Angeles County SOUTH COAST AQMD

1.a. PERSON NOTIFYING Cal OES:

AGENCY: S CA Gas	

1.b. PERSON REPORTING SPILL (If different from above):

AGENCY:	

SUBSTANCE TYPE:

a. SUBSTANCE:	b. QTY: *Amount*	*Measure*	c. TYPE:	d. OTHER:	e. PIPELINE	f. VESSEL >= 300 Tons
1.Oil - Crude Type	Unk	Gal(s)	PETROLEUM		No	No
2.					No	No
3.					No	No

Orignal Description:During well kill a mist is releasing due to pressure, material is flowing directly into the atmosphere and pooling at the base of the well on soil, mist is traveling Southwest in the air from the well head, no estimate of containment at this time, RP is handling the containment and clean up.
Update(s): 11/13/2015 01:56:55 PM - NRC report received: Wind speed is 20 MPH, No additional information.

PERSON NOTIFYING Cal OES OF SPILL UPDATE:

NAME:	AGENCY:	PHONE#:	Ext:	PAG/CELL:
	NRC			

UPDATE QUANTITY *Amount*	*Measure*
1.	Gal(s)
2.	
3.	
4.	

UPDATE KNOWN IMPACT:	
UPDATE CAUSE:	

SITUATION UPDATE:
NRC report received: Wind speed is 20 MPH, No additional information.

FAX NOTIFICATION LIST:
AA/CUPA, DFG-OSPR, DTSC, RWQCB, US EPA, USFWS, AIR RESOURCES BD, CDPH-D.O., DOG, BSEE, Co/WP, Co/Hlth, Co/E-Hlth **DOG**

ADMINISTERING AGENCY: Los Angeles City Fire Department
SECONDARY AGENCY: LACoFD Health Haz-Mat
ADDITIONAL COUNTIES:
ADDITIONAL ADMIN. AGENCY:
DOG Unit:
OTHER NOTIFIED:
RWQCB Unit: 4
CONFIRMATION REQUEST:

FAX NOTIFICATION LIST:
ADMINISTERING

AGENCY:
ADDITIONAL ADMIN. AGENCY:
SECONDARY AGENCY:
ADDITIONAL COUNTIES:
Cal GEM:
RWQCB Unit:

Created by: Warning Center on: 11/13/2015 01:56:55 PM Last Modified by: Warning Center on: 11/13/2015 01:59:11 PM

* * * * * * * * * * * * * * End of Form * * * * * * * * * * * * * *

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Governor's Office of Emergency Services
Hazardous Material Spill Update

CONTROL#: 15-6708 NRC#

NOTIFY DATE/TIME: 11/13/2015 / 1334	RECEIVED BY: OCCURENCE DATE/TIME: 11/13/2015/1317	CITY/OP. AREA: Northridge/Los Angeles County SOUTH COAST AQMD

1.a. PERSON NOTIFYING Cal OES:

AGENCY: S CA Gas	

1.b. PERSON REPORTING SPILL (If different from above):

AGENCY:	

SUBSTANCE TYPE:

a. SUBSTANCE:	b. QTY: *Amount*	*Measure*	c. TYPE:	d. OTHER:	e. PIPELINE	f. VESSEL >= 300 Tons
1.Oil - Crude Type	Unk	Gal(s)	PETROLEUM		No	No
2.					No	No
3.					No	No

Orignal Description:During well kill a mist is releasing due to pressure, material is flowing directly into the atmosphere and pooling at the base of the well on soil, mist is traveling Southwest in the air from the well head, no estimate of containment at this time, RP is handling the containment and clean up.
Update(s): 11/13/2015 01:56:55 PM - NRC report received: Wind speed is 20 MPH, No additional information.
; 11/13/2015 03:14:36 PM - Called to update status: The mist flow has reduced and no off site impact has occurred. No waterways have been impacted.

PERSON NOTIFYING Cal OES OF SPILL UPDATE:

NAME:	AGENCY:	PHONE#:	Ext:	PAG/CELL:
	S CA Gas			

UPDATE QUANTITY *Amount*	*Measure*
1.	Gal(s)
2.	
3.	
4.	

UPDATE KNOWN IMPACT:	
UPDATE CAUSE:	

SITUATION UPDATE:
Called to update status: The mist flow has reduced and no off site impact has occurred. No waterways have been impacted.

FAX NOTIFICATION LIST:
AA/CUPA, DFG-OSPR, DTSC, RWQCB, US EPA, USFWS, AIR RESOURCES BD, CDPH-D.O., DOG, BSEE, Co/WP, Co/Hlth, Co/E-Hlth **DOG**

ADMINISTERING AGENCY: Los Angeles City Fire Department
SECONDARY AGENCY: LACoFD Health Haz-Mat
ADDITIONAL COUNTIES:
ADDITIONAL ADMIN. AGENCY:
DOG Unit:
OTHER NOTIFIED:
RWQCB Unit: 4
CONFIRMATION REQUEST:

FAX NOTIFICATION LIST:
ADMINISTERING AGENCY:
ADDITIONAL ADMIN. AGENCY:
SECONDARY AGENCY:
ADDITIONAL COUNTIES:
Cal GEM:
RWQCB Unit:

Created by: Warning Center on: 11/13/2015 03:14:36 PM Last Modified by: Warning Center on: 11/13/2015 03:17:31 PM

* * * * * * * * * * * * * * End of Form * * * * * * * * * * * * * *

Ex. I-4

Message

From: Koskie, W. Jeff [WKoskie@semprautilities.com]
Sent: 11/25/2015 3:11:09 PM
To: Epuna, Matthewson (matthewson.epuna@cpuc.ca.gov) [matthewson.epuna@cpuc.ca.gov]
Subject: RE: CPUC Data Request - Public Notification
Attachments: CPUC Data Request_CommsTimeline.pdf

Importance: High

Matt,

Please replace first attachment with this PDF attachment that includes a prepared date.

Thanks,

Jeff

From: Koskie, W. Jeff
Sent: Wednesday, November 25, 2015 2:58 PM
To: Epuna, Matthewson (matthewson.epuna@cpuc.ca.gov)
Subject: FW: CPUC Data Request - Public Notification
Importance: High

Matt,

Regarding your request to provide information demonstrating our public interaction tied to the Aliso Canyon, attached is a summary.

Please let me know if you have any questions, or if I can be of any further assistance.

Jeff

W. Jeff Koskie, ARM
Pipeline Safety and Compliance Manager
ML SC9334
[redacted]
Office Phone (661) 775-8770 Fax: (213) 244-8155
<mailto:wkoskie@semprautilities.com>


SoCalGas
A Sempra Energy utility
SDGE
A Sempra Energy utility

CPUC Data Request – Public Notifications - Prepared 11/25/2015

DATE	AUDIENCE	COMMUNICATION	DESCRIPTION
10/26/2015	Customer	Meeting	Neighborhood Town hall Meeting
10/27/2015	Customer	Letter	Customer Letter mailed to 8,000 customers, plus 1,200 of the 8,000 hand delivered
10/27/2015	Customer	Email	Regional Public Affairs Regular Updates Begin
10/28/2015	Customer	Aliso web update	Posted on 10/28
10/30/2015	Customer	Aliso web update	Posted on 10/30
10/30/2015	Customer	Customer Letter (English with translation referral)	Mailed 10/30 to 8,000 customers
10/30/2015	Customer	Customer FAQ English	Posted on website 10/30
10/30/2015	Customer	Aliso Canyon Customer Letter #2	Mailed and posted to the website on 10/30
10/30/2015	Various	Meeting	Stakeholder Briefing
10/31/2015	Customer	Aliso Canyon Customer Letter #2 (Armenian, Korean, Spanish)	Posted on the website on 10/31
10/31/2015	Customer	Customer Letters in Spanish, Korean, Armenian	Posted on website 10/31
10/31/2015	Customer	Customer Letter to inform customers about coiled tubing rig preparation	Delivered to 1,400 homes closest to the facility
11/2/2015	Customer	Customer FAQ in Korean, Armenian, Spanish	Posted on website

11/2/2015	Customer	Customer Letter	Mailed to 8,100 customers
11/2/2015	Customer	Air Sampling updates	Began regular updates on website
11/02/2015	Customer	Web Update	Posted on 11/2
11/03/2015	Customer	Web Update	Posted on 11/3
11/4/2015	Various	Meeting	Neighborhood Town hall Meeting
11/04/2015	Customer	Web Update	Posted on 11/4
11/05/2015	Customer	Health Issues FAQ	Posted on 11/5
11/06/2015	Customer	Web Update	Posted on 11/6
11/07/2015	Customer	Web Update	Posted on 11/7
11/08/2015	Customer	Web Update	Posted on 11/8
11/09/2015	Customer	Web Update	Posted on 11/9
11/10/2015	Customer	Web Update	Posted on 11/10
11/11/2015	Customer	Web Update	Posted on 11/11
11/12/2015	Customer	Customer Email – You may smell odors or hear noises	Deployed 11/12/15
11/12/2015	Customer	Outbound Dial Message – You may smell odors or hear noises	11/12/2015
11/12/2015	Customer	Customer Update Brochure --Email	Deployed and posted on 11/12/2015
11/12/2015	Customer	Web Update	Posted on 11/12
11/13/2015	Customer	Web Update	Posted on 11/13
11/13/2015	Customer	Outbound Dial Message – Stay Indoor Notification	Deployed 11/13/2015
11/13/2015	Customer	Outbound Message All Clear Notice	Deployed 11/13/2015
11/14/2015	Customer	Web Update	Posted on 11/14
11/15/2015	Customer	Web Update	Posted on 11/15

11/15/2015	Customer	Outbound Dial Message – Will Resume Pumping	Deployed 11/15/2015
11/16/2015	Customer	Web Update	Posted on 11/16
11/17/2015	Customer	Customer Update Brochure	Posted 11/17/2015
11/17/2015	Customer	Web Update	Posted on 11/17
11/18/2015	Customer	Web Update	Posted on 11/18
11/18/2015	Various	Meeting	Briefing on Updates
11/19/2015	Customer	Letter	Letter addressed to Dr. Steven Bohlen_DOGGR
11/19/2015	Customer	Web Update	Posted on 11/19
11/20/2015	LA Dept. of Public Health	Letter	Letter addressed to Angelo Bellomo County of Los Angeles Department of Public Health
11/20/2015	Customer	Web Update	Posted on 11/20
11/21/2015	Customer	Claims Flyer	Created for deployment
11/21/2015	Customer	Homeless Flyer	Created for deployment
11/21/2015	Customer	Web Update	Posted on 11/21
11/22/2015	Customer	Web Update	Posted on 11/22
11/23/2015	External Stakeholders	Aliso Canyon Storage Facility Update	Email deployed 11/23/2015
11/23/2015	Customer	Letter	One-month letter mailed to 8,000 customers
11/23/2015	Customer	Aliso Canyon Update Email	Deployed 11/23/2015
11/24/2015	Customer	Packet of communications	LACBOS 11/24/2015
11/24/2015	Customer	Web Update	Posted on 11/24

Ex. I-5

Aliso Canyon Updates

Updated November 14, 2015

Background

On October 23, SoCalGas crews discovered a leak at one of the natural gas storage wells at its Aliso Canyon storage field. In response, we activated the appropriate procedures to begin to address the leak.

We regret that the smell of the odorant in natural gas is unpleasant and that some people are sensitive to the odor, and we sincerely apologize for the annoyance and concern this odor is causing the neighboring communities. However, the leak does not pose an imminent threat to public safety. The well is located in an isolated, mountain area more than a mile away from and more than 1,200 feet higher than the closest home or public area. Scientists agree natural gas is not toxic and that its odorant is harmless at the minute levels at which it is added to natural gas. In outdoor locations such as this, natural gas quickly dissipates into the air, greatly reducing the possibility for ignition and further diluting the gas as it reaches the public. The human nose is amazingly sensitive and can detect the smell of the odorant at levels much lower than any level of concern.

We have assembled a world-class team of experts, and we are working as quickly as safety will allow to stop the leak. In addition, we are in regular communication with L.A. City and County Fire and Hazmat Departments, the L.A. County Department of Health, the California Division of Oil, Gas & Geothermal Resources, and the South Coast Air Quality Management District.

Update on Activities – November 13

- SoCalGas' team of well-management experts began the multi-day process of pumping fluids down the well to stop the flow of gas. (http://www.socalgas.com/documents/news-room/aliso-canyon-recent-activity.pdf) The goal is to fill the well pipe with enough brine solution to outweigh the pressure of the gas coming up out of the ground. The brine solution will act like a plug. (See page three of our brochure (http://www.socalgas.com/documents/news-room/aliso-canyon-recent-activity.pdf) for more information on this process.) Once the flow of natural gas is stopped, we will begin the effort to place a permanent seal at the bottom of the well pipe.
- We have some of the world's best experts advising us, and one of the reasons they are so successful is they are very cautious in their approach. The way we are addressing this incident is the best practice for situations such as this.
- As a result of this procedure which may take a few days, there is a potential for residents in the community to hear unusual noises and smell additional odors. In addition, some of the fluid being pumped down the well may come back up and spray into the air.
- On Friday, some of the brine solution did come back up, and it created a mist in the air over the facility. Out of an abundance of caution, we assumed the mist could contain oily residues (The storage field is depleted oil field.) and could travel beyond the facility. As a result, we immediately alerted the residents in nearby communities to stay indoors. As soon as we recognized the mist would not travel beyond the facility, we advised residents there was no reason to stay indoors.
- We conferred with the Health Department, the LA County Department of Health and HazMat and the SCAQMD. Our initial observations later in the day led us to believe the contents of the mist were likely mostly a mixture of mud and the brine solution; however, we have sent samples for analysis to be certain of its contents. When we receive the final report from the laboratory, we will make this information available.

- During these operations, we were monitoring and sampling the air both at the work site and down in the community. This information will be available as normal on our web site.
- As this work continues, SoCalGas will continue to monitor the well pressures 24/7 to ensure conditions remain safe.
- To update state and local officials and elected representatives on the progress and conditions at the site, SoCalGas participated in the regular, daily briefing with representatives of the local health, fire and hazmat agencies. We also informed community representatives about the issues related to the mist.
- A team of our environmental specialists and retained experts continued conducting daily air sampling and monitoring at several representative sites both within the leak site and the community. Although experts agree that natural gas is not toxic and that the levels of the odorant in the natural gas are too low to be a long-term health concern, we are continuing to conduct this sampling to provide the community with more information. The samples we are taking are in addition to those being taken by the SCAQMD. Air sampling results (http://www.socalgas.com/news-room/aliso-canyon-air-sample-results.shtml) from our tests are available at: http://www.socalgas.com/news-room/aliso-canyon-air-sample-results.shtml (http://www.socalgas.com/news-room/aliso-canyon-air-sample-results.shtml).
- We also continued meeting with neighbors at our public information booth, which we staff as weather permits. In the event of inclement weather, please remember, neighbors can check updates on this website, email us at AlisoCanyon@SoCalGas.com (mailto:AlisoCanyon@SoCalGas.com) or call us at (818) 435-7707. The booth is located near the gates of our facility at 12801 Tampa Avenue in Porter Ranch, and its hours (weather permitting) are from 10 a.m. to 5 p.m.

We apologize for how this incident may be affecting you, and we appreciate the community's ongoing patience as we work as quickly as safety will allow to resolve this situation. If you believe you have suffered harm or injury as a result of this incident, please complete this online form (http://socalgas.com/about-us/our-services/consulting/claims.shtml) or call 213-244-5151.

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Fill Out an Online Form

Call Us: 213-244-5151
For temporary housing accommodations call: (818) 497-6808

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Learn More

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SoCalGas Will Conduct Indoor Air Screenings Media Statement

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LADPH - Medical Provider Fact Sheet

LADPH - Results of Air Monitoring

Aliso Canyon Sampling Map

Aliso Canyon Archive

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Ex. I-6

Aliso Canyon Updates

Updated November 15, 2015

Background

On October 23, SoCalGas crews discovered a leak at one of the natural gas storage wells at its Aliso Canyon storage field. In response, we activated the appropriate procedures to begin to address the leak.

We regret that the smell of the odorant in natural gas is unpleasant and that some people are sensitive to the odor, and we sincerely apologize for the annoyance and concern this odor is causing the neighboring communities. However, the leak does not pose an imminent threat to public safety. The well is located in an isolated, mountain area more than a mile away from and more than 1,200 feet higher than the closest home or public area. Scientists agree natural gas is not toxic and that its odorant is harmless at the minute levels at which it is added to natural gas. In outdoor locations such as this, natural gas quickly dissipates into the air, greatly reducing the possibility for ignition and further diluting the gas as it reaches the public. The human nose is amazingly sensitive and can detect the smell of the odorant at levels much lower than any level of concern.

We have assembled a world-class team of experts, and we are working as quickly as safety will allow to stop the leak. In addition, we are in regular communication with L.A. City and County Fire and Hazmat Departments, the L.A. County Department of Health, the California Division of Oil, Gas & Geothermal Resources, and the South Coast Air Quality Management District.

Update on Activities – November 14

- SoCalGas' team of well-management experts resumed the multi-day process of pumping fluids down the well to stop the flow of gas. (http://www.socalgas.com/documents/news-room/aliso-canyon-recent-activity.pdf) The goal is to fill the well pipe with enough brine solution to outweigh the pressure of the gas coming up out of the ground. The brine solution will act like a plug. (See page three of our brochure (http://www.socalgas.com/documents/news-room/aliso-canyon-recent-activity.pdf) for more information on this process.) Once the flow of natural gas is stopped, we will begin the effort to place a permanent seal at the bottom of the well pipe.
- We have some of the world's best experts advising us, and one of the reasons they are so successful is they are very cautious in their approach. The way we are addressing this incident is the best practice for situations such as this.
- As a result of this procedure which may take a few days, there is a potential for residents in the community to hear unusual noises and smell additional odors. In addition, some of the fluid being pumped down the well may come back up and spray into the air.
- On Friday, some of the brine solution did come back up, and it created a mist in the air over the facility. Out of an abundance of caution, we assumed the mist could contain oily residues (The storage field is a depleted oil field.) and could travel beyond the facility. As a result, we immediately alerted the residents in nearby communities to stay indoors. As soon as we recognized the mist would not travel beyond the facility, we advised residents there was no reason to stay indoors.
- We sent samples of the liquid that generated the mist to an outside laboratory for analysis. The laboratory analysis determined that the liquid is non hazardous.
- During these operations, we were monitoring and sampling the air both at the work site and down in the community. This information will be available as normal on our web site.

- As this work continues, SoCalGas will continue to monitor the well pressures 24/7 to ensure conditions remain safe.
- To update state and local officials and elected representatives on the progress and conditions at the site, SoCalGas participated in the regular, daily briefing with representatives of the local health, fire and hazmat agencies. We also informed community representatives about the issues related to the mist.
- A team of our environmental specialists and retained experts continued conducting daily air sampling and monitoring at several representative sites both within the leak site and the community. Although experts agree that natural gas is not toxic and that the levels of the odorant in the natural gas are too low to be a long-term health concern, we are continuing to conduct this sampling to provide the community with more information. The samples we are taking are in addition to those being taken by the SCAQMD. Air sampling results (/newsroom/aliso-canyon-updates/air-sample-results) from our tests are available at: http://www.socalgas.com/news-room/aliso-canyon-air-sample-results (/newsroom/aliso-canyon-updates/air-sample-results)
- We also continued meeting with neighbors at our public information booth, which we staff as weather permits. In the event of inclement weather, please remember, neighbors can check updates on this website, email us at AlisoCanyon@SoCalGas.com (mailto:AlisoCanyon@SoCalGas.com) or call us at (818) 435-7707. The booth is located near the gates of our facility at 12801 Tampa Avenue in Porter Ranch, and its hours (weather permitting) are from 10 a.m. to 5 p.m. Today we will have an additional public information booth at Holly Bernson Park at Sesnon Blvd. and Porter Ranch Drive, and its hours are from 10:00 a.m. to 1:00 p.m.

We apologize for how this incident may be affecting you, and we appreciate the community's ongoing patience as we work as quickly as safety as possible to resolve this situation. If you believe you have suffered harm or injury as a result of this incident, please complete this online form (/about-us/claims) or call 213-244-5151.

Submit a Claim

Fill Out an Online Form

Call Us: 213-244-5151
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Ex. I-7

Message

From: Koskie, W. Jeff [WKoskie@semprautilities.com]
Sent: 11/17/2015 3:43:52 PM
To: Solis, Maria [Maria.Solis@cpuc.ca.gov]; Epuna, Matthewson [matthewson.epuna@cpuc.ca.gov]
CC: Gonzalez, Hector O [HGonzalez2@semprautilities.com]; Smith, Paul [PSmith1@semprautilities.com]; Bauer, Troy A. [TBauer@semprautilities.com]
Subject: RE: Underground Storage facilities - CPUC Data Request Response - Aliso Canyon Storage Facility
Attachments: Attachment A- Mud Mixture - 11-13-15.pdf; Attachment B - Vacuum Truck Contents 11-13-15.pdf

Maria,

Attached are requested documents.

Please let me know if you have any questions, or if I can be of any further assistance.

Jeff

From: Solis, Maria [mailto:Maria.Solis@cpuc.ca.gov]
Sent: Monday, November 16, 2015 1:33 PM
To: Koskie, W. Jeff; Epuna, Matthewson
Cc: Gonzalez, Hector O; Smith, Paul; Bauer, Troy A.
Subject: RE: Underground Storage facilities - CPUC Data Request Response - Aliso Canyon Storage Facility

Jeff, based on the statement highlighted below from your timeline, can you forward the test results and the conclusions of the test results, thank you, Maria

- November 14 – Evaluating the well conditions, preparing the site and determining the best strategy for our continued efforts to stop the flow of gas. Representatives from the L.A. County Health & Hazmat have inspected the site today and yesterday and observed our containment procedures. Collected samples of the mud and liquid from yesterday's release and having it analyzed and expect results tonight. At 1:05 pm OES and NRC were notified of release containment and minor additional release of crude oil at 4:30 am.

Have a Blessed Day and be SAFE, Sincerely, Maria

Maria C. Solis, P.E.
Senior Utilities Engineer (Specialist)
California Public Utilities Commission
Safety and Enforcement Division
Gas Engineering and Compliance Section
180 Promenade Circle, Suite 115

Sacramento, CA 95834
Office (916)928-2534, [redacted]
Fax (916) 928-6880

From: Koskie, W. Jeff [mailto:WKoskie@semprautilities.com]
Sent: Sunday, November 15, 2015 2:46 PM
To: Solis, Maria; Epuna, Matthewson
Cc: Gonzalez, Hector O; Smith, Paul; Bauer, Troy A.
Subject: RE: Underground Storage facilities - CPUC Data Request Response - Aliso Canyon Storage Facility

Maria/Matt,

Below are responses to final group of initial data request items.

Please let me know if you have any questions, or if I can be of any further assistance.

Jeff

1. Time line that describes all the events to date, including initial response, recovery and mitigation.

Timeline is attached.

2. Were any customers affected by this incident as far as delivery of gas? If so, how were they effected and how was the impact mitigated?

Delivery of gas to customers has not been impacted.

3. Estimate of product released to date, both to the atmosphere and underground.

No estimate at this time. While we are prioritizing the prompt resolution of the leak, we are in the process of determining appropriate estimation methodologies. We continue to gather and preserve

operational, well, air and subsurface data that may be used to evaluate the magnitude and character of the release.

4. Were any shallow groundwater aquifers or aquitards affected by the incident? If so were the local drinking water supply utilities notified? If so when and who was notified?

No indication at this point that any shallow groundwater aquifers or aquitards have been affected by the incident. We will be able to further assess well after control to determine if there is any potential impact.

5. What is the initial proposed future mitigation to this type of incident.

Our first priority is to stop the flow of gas using standard practices that ensure continued safety, offer the greatest likelihood of a prompt resolution and are appropriately tailored to the individual circumstances of this leak. Once we have the current incident under control, SoCalGas will evaluate whether anything can be done to mitigate the possibility of such incidents in the future. This evaluation will likely be part of our root cause analysis of the current incident.

6. Estimated time to correct the issue.

Well kill efforts to stop the flow of gas continue today. No specific timeline for completion has been determined.

7. Already answered and submitted

8. Any injuries or potential harm to employees or the public.

None specifically connected to incident. However, one employee had a finger injured when door slammed shut in office at Aliso, away from and unrelated to well site.

9. Already answered and submitted

10. Already answered and submitted

11. Notification to date if any to local residents concerning the incident.

Please refer to attached timeline which includes resident notification information.

12. Already answered and submitted

13. Estimate of the cost to mitigate the incident.

To be determined

14. Any initial failure investigation findings to date.

We know the well has a casing leak. Until the leak is stopped and the well is inspected, we cannot determine the extent or the cause of the failure. Root cause investigation will commence at that time.

15. Documentation of any safety meetings or safety tailgate meetings that have occurred to date.

Our contracted well control experts have a safety coordinator on site. All persons entering the site are required to attend a tailgate safety meeting every day. Every morning, before any activities, SoCalGas safety professionals provide safety updates to crews. We will provide a supplemental update on specifics tomorrow.

W. Jeff Koskie, ARM

Pipeline Safety and Compliance Manager

ML SC9334

[redacted]

Office Phone (661) 775-8770 Fax: (213) 244-8155

<mailto:wkoskie@semprautilities.com>

From: Solis, Maria
Sent: Friday, November 13, 2015 4:41 PM
To: 'Bauer, Troy A.'; Smith, Paul; 'GLaFevers@semprautilities.com'
Cc: Epuna, Matthewson; Jeff Koskie
Subject: RE: Underground Storage facilities

Hello Paul, Troy, and Glenn, I've been asked by the LA CPUC office to assist with the CPUC's investigation of the incident reported below. The following is a list of my initial data requests. Thank you in advance for your prompt reply. I'm requesting a 48 hour return on this initial data request. I'm assuming based on your emergency management plan that all of these items have already been prepared. If any of the items are in draft form at this juncture in your investigation please forward them under the confidentiality order asap. If you can't respond to all the data requests within 48 hours of this email please let me know when the data request will be available.

1. Time line that describes all the events to date, including initial response, recovery and mitigation.
2. Were any customers affected by this incident as far as delivery of gas? If so, how were they effected and how was the impact mitigated?
3. Estimate of product released to date, both to the atmosphere and underground.

4. Were any shallow groundwater aquifers or aquitards affected by the incident? If so were the local drinking water supply utilities notified? If so when and who was notified?
5. What is the initial proposed future mitigation to this type of incident.
6. Estimated time to correct the issue.
7. Emergency response team that was put in place as a result of the incident.
8. Any injuries or potential harm to employees or the public.
9. Sections of your storage facility emergency plan/procedures/standards that were initiated to respond to the incident.
10. A recent published copy of the Aliso Canyon emergency response plan and any other additional emergency response plans/procedures/standards that specifically call out gas storage wells.
11. Notification to date if any to local residents concerning the incident.
12. Notification to date if any to local first responders.
13. Estimate of the cost to mitigate the incident.
14. Any initial failure investigation findings to date.
15. Documentation of any safety meetings or safety tailgate meetings that have occurred to date.

Have a Blessed Day and be SAFE, Sincerely, Maria

Maria C. Solis, P.E.
Senior Utilities Engineer (Specialist)
California Public Utilities Commission
Safety and Enforcement Division
Gas Engineering and Compliance Section
180 Promenade Circle, Suite 115
Sacramento, CA 95834
Office (916)928-2534, [redacted]
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WORK ORDER NUMBER: 15-11-1098

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Analytical Report For

Client: Southern California Gas Company
Client Project Name: TS2015-C013 / Aliso Canyon
Attention: Shahid Razzak
M.L. 723B
P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Amanda Porter

Approved for release on 11/16/2015 by:
Amanda Porter
Project Manager

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Contents

Client Project Name: TS2015-C013 / Aliso Canyon
Work Order Number: 15-11-1098

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Work Order Narrative

Work Order: 15-11-1098 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 11/14/15. They were assigned to Work Order 15-11-1098.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Project: TS2015-C013 / Aliso Canyon

Date Received: 11/14/15
Work Order: 15-11-1098
Preparation: EPA 3550B
Method: EPA 8015B (M)
Units: mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Well Fluid	**15-11-1098-2-A**	**11/13/15 18:40**	**Sludge**	**GC 47**	**11/14/15**	**11/14/15 13:10**	**151114B02**

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1.00	
C7	ND	5.0	1.00	
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C41-C44	ND	5.0	1.00	
C6-C44 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	107	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Project: TS2015-C013 / Aliso Canyon

Date Received: 11/14/15
Work Order: 15-11-1098
Preparation: EPA 3550B
Method: EPA 8015B (M)
Units: mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Junction SS2&9	**15-11-1098-3-A**	**11/13/15 18:50**	**Sludge**	**GC 47**	**11/14/15**	**11/14/15 13:28**	**151114B02**

Parameter	Result	RL	DF	Qualifiers
C6	ND	10	2.00	
C7	ND	10	2.00	
C8	12	10	2.00	
C9-C10	75	10	2.00	
C11-C12	130	10	2.00	
C13-C14	120	10	2.00	
C15-C16	68	10	2.00	
C17-C18	77	10	2.00	
C19-C20	66	10	2.00	
C21-C22	28	10	2.00	
C23-C24	18	10	2.00	
C25-C28	22	10	2.00	
C29-C32	37	10	2.00	
C33-C36	35	10	2.00	
C37-C40	32	10	2.00	
C41-C44	22	10	2.00	
C6-C44 Total	750	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	109	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Date Received: 11/14/15
Work Order: 15-11-1098
Preparation: EPA 3550B
Method: EPA 8015B (M)
Units: mg/kg

Project: TS2015-C013 / Aliso Canyon

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-490-1869**	**N/A**	**Solid**	**GC 47**	**11/14/15**	**11/14/15 12:53**	**151114B02**

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1.00	
C7	ND	5.0	1.00	
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C41-C44	ND	5.0	1.00	
C6-C44 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	103	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Project: TS2015-C013 / Aliso Canyon

Date Received:	11/14/15
Work Order:	15-11-1098
Preparation:	EPA 3510C
Method:	EPA 8015B (M)
Units:	ug/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Equipment Blank	**15-11-1098-1-C**	**11/13/15 18:25**	**Aqueous**	**GC 47**	**11/14/15**	**11/14/15 13:45**	**151114B01**

Parameter	Result	RL	DF	Qualifiers
C6	ND	50	1.00	
C7	ND	50	1.00	
C8	ND	50	1.00	
C9-C10	ND	50	1.00	
C11-C12	ND	50	1.00	
C13-C14	ND	50	1.00	
C15-C16	ND	50	1.00	
C17-C18	ND	50	1.00	
C19-C20	ND	50	1.00	
C21-C22	ND	50	1.00	
C23-C24	ND	50	1.00	
C25-C28	ND	50	1.00	
C29-C32	ND	50	1.00	
C33-C36	ND	50	1.00	
C37-C40	ND	50	1.00	
C41-C44	ND	50	1.00	
C6-C44 Total	ND	100	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	90	68-140	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1098
Los Angeles, CA 90051-1249		Preparation:	EPA 3510C
		Method:	EPA 8015B (M)
		Units:	ug/L
Project: TS2015-C013 / Aliso Canyon			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-498-310**	**N/A**	**Aqueous**	**GC 47**	**11/14/15**	**11/14/15 12:35**	**151114B01**

Parameter	Result	RL	DF	Qualifiers
C6	ND	50	1.00	
C7	ND	50	1.00	
C8	ND	50	1.00	
C9-C10	ND	50	1.00	
C11-C12	ND	50	1.00	
C13-C14	ND	50	1.00	
C15-C16	ND	50	1.00	
C17-C18	ND	50	1.00	
C19-C20	ND	50	1.00	
C21-C22	ND	50	1.00	
C23-C24	ND	50	1.00	
C25-C28	ND	50	1.00	
C29-C32	ND	50	1.00	
C33-C36	ND	50	1.00	
C37-C40	ND	50	1.00	
C41-C44	ND	50	1.00	
C6-C44 Total	ND	100	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	95	68-140	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Project: TS2015-C013 / Aliso Canyon

Date Received:	11/14/15
Work Order:	15-11-1098
Preparation:	EPA 3050B
Method:	EPA 6010B
Units:	mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Well Fluid	**15-11-1098-2-A**	**11/13/15 18:40**	**Sludge**	**ICP 7300**	**11/14/15**	**11/14/15 14:03**	**151114L01**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.732	0.976	
Arsenic	ND	0.732	0.976	
Barium	67.1	0.488	0.976	
Beryllium	ND	0.244	0.976	
Cadmium	ND	0.488	0.976	
Chromium	ND	0.244	0.976	
Cobalt	ND	0.244	0.976	
Copper	0.568	0.488	0.976	
Lead	ND	0.488	0.976	
Molybdenum	ND	0.244	0.976	
Nickel	ND	0.244	0.976	
Selenium	ND	0.732	0.976	
Silver	0.671	0.244	0.976	
Thallium	0.945	0.732	0.976	
Vanadium	ND	0.244	0.976	
Zinc	13.9	0.976	0.976	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Well Fluid	**15-11-1098-2-A**	**11/13/15 18:40**	**Sludge**	**ICP 7300**	**11/14/15**	**11/14/15 14:19**	**151114L01**

Parameter	Result	RL	DF	Qualifiers
Calcium	103000	48.8	9.76	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1098
Los Angeles, CA 90051-1249	Preparation:	EPA 3050B
	Method:	EPA 6010B
	Units:	mg/kg
Project: TS2015-C013 / Aliso Canyon		Page 2 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Junction SS2&9	**15-11-1098-3-A**	**11/13/15 18:50**	**Sludge**	**ICP 7300**	**11/14/15**	**11/14/15 14:10**	**151114L01**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.718	0.957	
Arsenic	1.94	0.718	0.957	
Barium	144	0.478	0.957	
Beryllium	ND	0.239	0.957	
Cadmium	3.04	0.478	0.957	
Chromium	8.47	0.239	0.957	
Cobalt	2.39	0.239	0.957	
Copper	12.0	0.478	0.957	
Lead	0.772	0.478	0.957	
Molybdenum	5.67	0.239	0.957	
Nickel	24.8	0.239	0.957	
Selenium	ND	0.718	0.957	
Silver	0.340	0.239	0.957	
Thallium	ND	0.718	0.957	
Vanadium	37.6	0.239	0.957	
Zinc	45.9	0.957	0.957	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Junction SS2&9	**15-11-1098-3-A**	**11/13/15 18:50**	**Sludge**	**ICP 7300**	**11/14/15**	**11/14/15 14:22**	**151114L01**

Parameter	Result	RL	DF	Qualifiers
Calcium	43600	47.8	9.57	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Date Received: 11/14/15
Work Order: 15-11-1098
Preparation: EPA 3050B
Method: EPA 6010B
Units: mg/kg

Project: TS2015-C013 / Aliso Canyon

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-002-22051**	**N/A**	**Solid**	**ICP 7300**	**11/14/15**	**11/14/15 13:58**	**151114L01**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.750	1.00	
Arsenic	ND	0.750	1.00	
Barium	ND	0.500	1.00	
Beryllium	ND	0.250	1.00	
Cadmium	ND	0.500	1.00	
Chromium	ND	0.250	1.00	
Cobalt	ND	0.250	1.00	
Copper	ND	0.500	1.00	
Lead	ND	0.500	1.00	
Molybdenum	ND	0.250	1.00	
Nickel	ND	0.250	1.00	
Selenium	ND	0.750	1.00	
Silver	ND	0.250	1.00	
Thallium	ND	0.750	1.00	
Vanadium	ND	0.250	1.00	
Zinc	ND	1.00	1.00	
Calcium	ND	5.00	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Project: TS2015-C013 / Aliso Canyon

Date Received: 11/14/15
Work Order: 15-11-1098
Preparation: EPA 3010A Total
Method: EPA 6010B
Units: mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Equipment Blank	**15-11-1098-1-A**	**11/13/15 18:25**	**Aqueous**	**ICP 7300**	**11/14/15**	**11/14/15 15:30**	**151114LA1**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.0150	1.00	
Arsenic	ND	0.0100	1.00	
Barium	ND	0.0100	1.00	
Beryllium	ND	0.0100	1.00	
Cadmium	ND	0.0100	1.00	
Chromium	ND	0.0100	1.00	
Cobalt	ND	0.0100	1.00	
Copper	ND	0.0100	1.00	
Lead	ND	0.0100	1.00	
Molybdenum	ND	0.0100	1.00	
Nickel	ND	0.0100	1.00	
Selenium	ND	0.0150	1.00	
Silver	ND	0.00500	1.00	
Thallium	ND	0.0150	1.00	
Vanadium	ND	0.0100	1.00	
Calcium	0.559	0.100	1.00	
Zinc	ND	0.0100	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Project: TS2015-C013 / Aliso Canyon

Date Received: 11/14/15
Work Order: 15-11-1098
Preparation: EPA 3010A Total
Method: EPA 6010B
Units: mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-003-15490**	**N/A**	**Aqueous**	**ICP 7300**	**11/14/15**	**11/14/15 15:26**	**151114LA1**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.0150	1.00	
Arsenic	ND	0.0100	1.00	
Barium	ND	0.0100	1.00	
Beryllium	ND	0.0100	1.00	
Cadmium	ND	0.0100	1.00	
Chromium	ND	0.0100	1.00	
Cobalt	ND	0.0100	1.00	
Copper	ND	0.0100	1.00	
Lead	ND	0.0100	1.00	
Molybdenum	ND	0.0100	1.00	
Nickel	ND	0.0100	1.00	
Selenium	ND	0.0150	1.00	
Silver	ND	0.00500	1.00	
Thallium	ND	0.0150	1.00	
Vanadium	ND	0.0100	1.00	
Calcium	ND	0.100	1.00	
Zinc	ND	0.0100	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1098
Los Angeles, CA 90051-1249	Preparation:	EPA 7470A Total
	Method:	EPA 7470A
	Units:	mg/L
Project: TS2015-C013 / Aliso Canyon		Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Equipment Blank	**15-11-1098-1-A**	**11/13/15 18:25**	**Aqueous**	**Mercury 04**	**11/14/15**	**11/14/15 13:57**	**151113LA3**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.000500	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-04-008-7657**	**N/A**	**Aqueous**	**Mercury 04**	**11/13/15**	**11/13/15 18:29**	**151113LA3**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.000500	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Project: TS2015-C013 / Aliso Canyon

Date Received: 11/14/15
Work Order: 15-11-1098
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Well Fluid	**15-11-1098-2-A**	**11/13/15 18:40**	**Sludge**	**Mercury 05**	**11/14/15**	**11/14/15 15:12**	**151113L02**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0833	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Junction SS2&9	**15-11-1098-3-A**	**11/13/15 18:50**	**Sludge**	**Mercury 05**	**11/14/15**	**11/14/15 15:14**	**151113L02**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0794	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-16-272-1760**	**N/A**	**Solid**	**Mercury 05**	**11/13/15**	**11/13/15 19:55**	**151113L02**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0833	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Date Received: 11/14/15
Work Order: 15-11-1098
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/kg

Project: TS2015-C013 / Aliso Canyon

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Well Fluid	**15-11-1098-2-B**	**11/13/15 18:40**	**Sludge**	**GC/MS W**	**11/14/15**	**11/14/15 15:06**	**151114L007**

Comment(s): - The reporting limit is elevated resulting from matrix interference.

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	12000	50.0	
Benzene	ND	490	50.0	
Bromobenzene	ND	490	50.0	
Bromochloromethane	ND	490	50.0	
Bromodichloromethane	ND	490	50.0	
Bromoform	ND	490	50.0	
Bromomethane	ND	2400	50.0	
2-Butanone	ND	4900	50.0	
n-Butylbenzene	ND	490	50.0	
sec-Butylbenzene	ND	490	50.0	
tert-Butylbenzene	ND	490	50.0	
Carbon Disulfide	ND	4900	50.0	
Carbon Tetrachloride	ND	490	50.0	
Chlorobenzene	ND	490	50.0	
Chloroethane	ND	490	50.0	
Chloroform	ND	490	50.0	
Chloromethane	ND	2400	50.0	
2-Chlorotoluene	ND	490	50.0	
4-Chlorotoluene	ND	490	50.0	
Dibromochloromethane	ND	490	50.0	
1,2-Dibromo-3-Chloropropane	ND	970	50.0	
1,2-Dibromoethane	ND	490	50.0	
Dibromomethane	ND	490	50.0	
1,2-Dichlorobenzene	ND	490	50.0	
1,3-Dichlorobenzene	ND	490	50.0	
1,4-Dichlorobenzene	ND	490	50.0	
Dichlorodifluoromethane	ND	490	50.0	
1,1-Dichloroethane	ND	490	50.0	
1,2-Dichloroethane	ND	490	50.0	
1,1-Dichloroethene	ND	490	50.0	
c-1,2-Dichloroethene	ND	490	50.0	
t-1,2-Dichloroethene	ND	490	50.0	
1,2-Dichloropropane	ND	490	50.0	
1,3-Dichloropropane	ND	490	50.0	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1098
Los Angeles, CA 90051-1249	Preparation:	EPA 5030C
	Method:	EPA 8260B
	Units:	ug/kg
Project: TS2015-C013 / Aliso Canyon		Page 2 of 7

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	490	50.0	
1,1-Dichloropropene	ND	490	50.0	
c-1,3-Dichloropropene	ND	490	50.0	
t-1,3-Dichloropropene	ND	490	50.0	
Ethylbenzene	ND	490	50.0	
2-Hexanone	ND	4900	50.0	
Isopropylbenzene	ND	490	50.0	
p-Isopropyltoluene	ND	490	50.0	
Methylene Chloride	ND	4900	50.0	
4-Methyl-2-Pentanone	ND	4900	50.0	
Naphthalene	ND	4900	50.0	
n-Propylbenzene	ND	490	50.0	
Styrene	ND	490	50.0	
1,1,1,2-Tetrachloroethane	ND	490	50.0	
1,1,2,2-Tetrachloroethane	ND	490	50.0	
Tetrachloroethene	ND	490	50.0	
Toluene	ND	490	50.0	
1,2,3-Trichlorobenzene	ND	970	50.0	
1,2,4-Trichlorobenzene	ND	490	50.0	
1,1,1-Trichloroethane	ND	490	50.0	
1,1,2-Trichloroethane	ND	490	50.0	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	4900	50.0	
Trichloroethene	ND	490	50.0	
1,2,3-Trichloropropane	ND	490	50.0	
1,2,4-Trimethylbenzene	ND	490	50.0	
Trichlorofluoromethane	ND	4900	50.0	
1,3,5-Trimethylbenzene	ND	490	50.0	
Vinyl Acetate	ND	4900	50.0	
Vinyl Chloride	ND	490	50.0	
p/m-Xylene	ND	490	50.0	
o-Xylene	ND	490	50.0	
Methyl-t-Butyl Ether (MTBE)	ND	490	50.0	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	100	60-132	
Dibromofluoromethane	97	63-141	
1,2-Dichloroethane-d4	104	62-146	
Toluene-d8	99	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Date Received: 11/14/15
Work Order: 15-11-1098
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/kg

Project: TS2015-C013 / Aliso Canyon

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Junction SS2589	**15-11-1098-3-B**	**11/13/15 18:50**	**Sludge**	**GC/MS W**	**11/14/15**	**11/14/15 14:38**	**151114L007**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	12000	50.0	
Benzene	ND	490	50.0	
Bromobenzene	ND	490	50.0	
Bromochloromethane	ND	490	50.0	
Bromodichloromethane	ND	490	50.0	
Bromoform	ND	490	50.0	
Bromomethane	ND	2400	50.0	
2-Butanone	ND	4900	50.0	
n-Butylbenzene	5800	490	50.0	
sec-Butylbenzene	1400	490	50.0	
tert-Butylbenzene	ND	490	50.0	
Carbon Disulfide	ND	4900	50.0	
Carbon Tetrachloride	ND	490	50.0	
Chlorobenzene	ND	490	50.0	
Chloroethane	ND	490	50.0	
Chloroform	ND	490	50.0	
Chloromethane	ND	2400	50.0	
2-Chlorotoluene	ND	490	50.0	
4-Chlorotoluene	ND	490	50.0	
Dibromochloromethane	ND	490	50.0	
1,2-Dibromo-3-Chloropropane	ND	970	50.0	
1,2-Dibromoethane	ND	490	50.0	
Dibromomethane	ND	490	50.0	
1,2-Dichlorobenzene	ND	490	50.0	
1,3-Dichlorobenzene	ND	490	50.0	
1,4-Dichlorobenzene	ND	490	50.0	
Dichlorodifluoromethane	ND	490	50.0	
1,1-Dichloroethane	ND	490	50.0	
1,2-Dichloroethane	ND	490	50.0	
1,1-Dichloroethene	ND	490	50.0	
c-1,2-Dichloroethene	ND	490	50.0	
t-1,2-Dichloroethene	ND	490	50.0	
1,2-Dichloropropane	ND	490	50.0	
1,3-Dichloropropane	ND	490	50.0	
2,2-Dichloropropane	ND	490	50.0	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1098
Los Angeles, CA 90051-1249	Preparation:	EPA 5030C
	Method:	EPA 8260B
	Units:	ug/kg
Project: TS2015-C013 / Aliso Canyon		Page 4 of 7

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	490	50.0	
c-1,3-Dichloropropene	ND	490	50.0	
t-1,3-Dichloropropene	ND	490	50.0	
Ethylbenzene	2800	490	50.0	
2-Hexanone	ND	4900	50.0	
Isopropylbenzene	1300	490	50.0	
p-Isopropyltoluene	2500	490	50.0	
Methylene Chloride	ND	4900	50.0	
4-Methyl-2-Pentanone	ND	4900	50.0	
n-Propylbenzene	3200	490	50.0	
Styrene	ND	490	50.0	
1,1,1,2-Tetrachloroethane	ND	490	50.0	
1,1,2,2-Tetrachloroethane	ND	490	50.0	
Tetrachloroethene	ND	490	50.0	
Toluene	4200	490	50.0	
1,2,3-Trichlorobenzene	ND	970	50.0	
1,2,4-Trichlorobenzene	ND	490	50.0	
1,1,1-Trichloroethane	ND	490	50.0	
1,1,2-Trichloroethane	ND	490	50.0	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	4900	50.0	
Trichloroethene	ND	490	50.0	
1,2,3-Trichloropropane	ND	490	50.0	
Trichlorofluoromethane	ND	4900	50.0	
1,3,5-Trimethylbenzene	12000	490	50.0	
Vinyl Acetate	ND	4900	50.0	
Vinyl Chloride	ND	490	50.0	
p/m-Xylene	22000	490	50.0	
o-Xylene	6900	490	50.0	
Methyl-t-Butyl Ether (MTBE)	ND	490	50.0	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	108	60-132	
Dibromofluoromethane	94	63-141	
1,2-Dichloroethane-d4	100	62-146	
Toluene-d8	106	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1098
Los Angeles, CA 90051-1249		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/kg
Project: TS2015-C013 / Aliso Canyon			Page 5 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Junction SS2&9	**15-11-1098-3-B**	**11/13/15 18:50**	**Sludge**	**GC/MS W**	**11/14/15**	**11/14/15 16:28**	**151114L007**

Parameter	Result	RL	DF	Qualifiers
Naphthalene	28000	24000	250	
1,2,4-Trimethylbenzene	26000	2400	250	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	98	60-132	
Dibromofluoromethane	97	63-141	
1,2-Dichloroethane-d4	101	62-146	
Toluene-d8	101	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Date Received: 11/14/15
Work Order: 15-11-1098
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/kg

Project: TS2015-C013 / Aliso Canyon

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-796-10429**	**N/A**	**Solid**	**GC/MS W**	**11/14/15**	**11/14/15 13:42**	**151114L007**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	12000	50.0	
Benzene	ND	500	50.0	
Bromobenzene	ND	500	50.0	
Bromochloromethane	ND	500	50.0	
Bromodichloromethane	ND	500	50.0	
Bromoform	ND	500	50.0	
Bromomethane	ND	2500	50.0	
2-Butanone	ND	5000	50.0	
n-Butylbenzene	ND	500	50.0	
sec-Butylbenzene	ND	500	50.0	
tert-Butylbenzene	ND	500	50.0	
Carbon Disulfide	ND	5000	50.0	
Carbon Tetrachloride	ND	500	50.0	
Chlorobenzene	ND	500	50.0	
Chloroethane	ND	500	50.0	
Chloroform	ND	500	50.0	
Chloromethane	ND	2500	50.0	
2-Chlorotoluene	ND	500	50.0	
4-Chlorotoluene	ND	500	50.0	
Dibromochloromethane	ND	500	50.0	
1,2-Dibromo-3-Chloropropane	ND	1000	50.0	
1,2-Dibromoethane	ND	500	50.0	
Dibromomethane	ND	500	50.0	
1,2-Dichlorobenzene	ND	500	50.0	
1,3-Dichlorobenzene	ND	500	50.0	
1,4-Dichlorobenzene	ND	500	50.0	
Dichlorodifluoromethane	ND	500	50.0	
1,1-Dichloroethane	ND	500	50.0	
1,2-Dichloroethane	ND	500	50.0	
1,1-Dichloroethene	ND	500	50.0	
c-1,2-Dichloroethene	ND	500	50.0	
t-1,2-Dichloroethene	ND	500	50.0	
1,2-Dichloropropane	ND	500	50.0	
1,3-Dichloropropane	ND	500	50.0	
2,2-Dichloropropane	ND	500	50.0	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1098
Los Angeles, CA 90051-1249	Preparation:	EPA 5030C
	Method:	EPA 8260B
	Units:	ug/kg
Project: TS2015-C013 / Aliso Canyon		Page 7 of 7

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	500	50.0	
c-1,3-Dichloropropene	ND	500	50.0	
t-1,3-Dichloropropene	ND	500	50.0	
Ethylbenzene	ND	500	50.0	
2-Hexanone	ND	5000	50.0	
Isopropylbenzene	ND	500	50.0	
p-Isopropyltoluene	ND	500	50.0	
Methylene Chloride	ND	5000	50.0	
4-Methyl-2-Pentanone	ND	5000	50.0	
Naphthalene	ND	5000	50.0	
n-Propylbenzene	ND	500	50.0	
Styrene	ND	500	50.0	
1,1,1,2-Tetrachloroethane	ND	500	50.0	
1,1,2,2-Tetrachloroethane	ND	500	50.0	
Tetrachloroethene	ND	500	50.0	
Toluene	ND	500	50.0	
1,2,3-Trichlorobenzene	ND	1000	50.0	
1,2,4-Trichlorobenzene	ND	500	50.0	
1,1,1-Trichloroethane	ND	500	50.0	
1,1,2-Trichloroethane	ND	500	50.0	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5000	50.0	
Trichloroethene	ND	500	50.0	
1,2,3-Trichloropropane	ND	500	50.0	
1,2,4-Trimethylbenzene	ND	500	50.0	
Trichlorofluoromethane	ND	5000	50.0	
1,3,5-Trimethylbenzene	ND	500	50.0	
Vinyl Acetate	ND	5000	50.0	
Vinyl Chloride	ND	500	50.0	
p/m-Xylene	ND	500	50.0	
o-Xylene	ND	500	50.0	
Methyl-t-Butyl Ether (MTBE)	ND	500	50.0	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	98	60-132	
Dibromofluoromethane	97	63-141	
1,2-Dichloroethane-d4	103	62-146	
Toluene-d8	99	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249
Project: TS2015-C013 / Aliso Canyon

Date Received: 11/14/15
Work Order: 15-11-1098

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
Equipment Blank	**15-11-1098-1**	**11/13/15 18:25**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Chloride	ND	2.0	1.00		mg/L	N/A	11/14/15	SM 4500-Cl C

Well Fluid	**15-11-1098-2**	**11/13/15 18:40**	**Sludge**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Ignitability	>212	70	1.00		°F	N/A	11/14/15	EPA 1010A(M)
Sulfide, Total	ND	0.50	1.00		mg/kg	11/14/15	11/14/15	EPA 376.2M
Cyanide, Total	ND	0.50	1.00		mg/kg	11/14/15	11/14/15	EPA 9010C/9014
pH	6.49	0.01	1.00		pH units	11/14/15	11/14/15	EPA 9045D
Chloride	15000	2000	200		mg/kg	11/14/15	11/14/15	SM 4500-Cl C

Junction SS2&9	**15-11-1098-3**	**11/13/15 18:50**	**Sludge**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Ignitability	>212	70	1.00		°F	N/A	11/14/15	EPA 1010A(M)
Sulfide, Total	ND	0.50	1.00		mg/kg	11/14/15	11/14/15	EPA 376.2M
Cyanide, Total	ND	0.50	1.00		mg/kg	11/14/15	11/14/15	EPA 9010C/9014
pH	7.30	0.01	1.00		pH units	11/14/15	11/14/15	EPA 9045D
Chloride	28000	500	50.0		mg/kg	11/14/15	11/14/15	SM 4500-Cl C

Method Blank	**N/A**	**Solid**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total	ND	0.10	0.200		mg/kg	11/14/15	11/14/15	EPA 376.2M
Cyanide, Total	ND	0.050	0.100		mg/kg	11/14/15	11/14/15	EPA 9010C/9014
Chloride	ND	2.0	1.00		mg/L	N/A	11/14/15	SM 4500-Cl C
Chloride	ND	2.0	0.200		mg/kg	11/14/15	11/14/15	SM 4500-Cl C

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Spike/Spike Duplicate

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1098
Los Angeles, CA 90051-1249	Preparation:	N/A
	Method:	EPA 9010C/9014
Project: TS2015-C013 / Aliso Canyon		Page 1 of 7

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Junction SS25&9	**Sample**	**Sludge**	**UV 8**	**11/14/15**	**11/14/15 12:09**	**F1114CNS1**
Junction SS25&9	**Matrix Spike**	**Sludge**	**UV 8**	**11/14/15**	**11/14/15 12:09**	**F1114CNS1**
Junction SS25&9	**Matrix Spike Duplicate**	**Sludge**	**UV 8**	**11/14/15**	**11/14/15 12:09**	**F1114CNS1**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Cyanide, Total	ND	0.2000	0.1770	88	0.1720	86	70-130	3	0-25	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1098
Los Angeles, CA 90051-1249	Preparation:	EPA 3550B
	Method:	EPA 8015B (M)
Project: TS2015-C013 / Aliso Canyon		Page 2 of 7

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Well Fluid	**Sample**	**Sludge**	**GC 47**	**11/14/15**	**11/14/15 13:10**	**151114S02**
Well Fluid	**Matrix Spike**	**Sludge**	**GC 47**	**11/14/15**	**11/14/15 15:17**	**151114S02**
Well Fluid	**Matrix Spike Duplicate**	**Sludge**	**GC 47**	**11/14/15**	**11/14/15 15:35**	**151114S02**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Diesel	ND	400.0	400.2	100	425.0	106	64-130	6	0-15	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Project: TS2015-C013 / Aliso Canyon

Date Received: 11/14/15
Work Order: 15-11-1098
Preparation: EPA 3050B
Method: EPA 6010B

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Well Fluid	**Sample**	**Sludge**	**ICP 7300**	**11/14/15**	**11/14/15 14:03**	**151114S01**
Well Fluid	**Matrix Spike**	**Sludge**	**ICP 7300**	**11/14/15**	**11/14/15 14:05**	**151114S01**
Well Fluid	**Matrix Spike Duplicate**	**Sludge**	**ICP 7300**	**11/14/15**	**11/14/15 14:08**	**151114S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Antimony	ND	25.00	19.06	76	18.96	76	50-115	1	0-20	
Arsenic	ND	25.00	24.24	97	24.02	96	75-125	1	0-20	
Barium	67.10	25.00	100.4	133	87.90	83	75-125	13	0-20	3
Beryllium	ND	25.00	22.22	89	21.61	86	75-125	3	0-20	
Cadmium	ND	25.00	22.04	88	21.67	87	75-125	2	0-20	
Chromium	ND	25.00	22.20	89	21.81	87	75-125	2	0-20	
Cobalt	ND	25.00	22.60	90	22.19	89	75-125	2	0-20	
Copper	0.5885	25.00	26.62	104	26.00	102	75-125	2	0-20	
Lead	ND	25.00	19.43	78	19.39	78	75-125	0	0-20	
Molybdenum	ND	25.00	23.97	96	23.78	95	75-125	1	0-20	
Nickel	ND	25.00	21.87	87	21.49	86	75-125	2	0-20	
Selenium	ND	25.00	23.77	95	23.62	94	75-125	1	0-20	
Silver	0.6706	12.50	14.15	108	13.30	101	75-125	6	0-20	
Thallium	0.9450	25.00	22.81	87	17.12	65	75-125	28	0-20	3,4
Vanadium	ND	25.00	24.55	98	23.86	95	75-125	3	0-20	
Zinc	13.90	25.00	35.25	85	35.19	85	75-125	0	0-20	
Calcium	103200	25.00	99250	4X	92280	4X	75-125	4X	0-20	Q

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Project: TS2015-C013 / Aliso Canyon

Date Received: 11/14/15
Work Order: 15-11-1098
Preparation: EPA 3010A Total
Method: EPA 6010B
Page 4 of 7

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-11-1099-1	**Sample**	**Aqueous**	**ICP 7300**	**11/14/15**	**11/14/15 15:34**	**151114SA1**
15-11-1099-1	**Matrix Spike**	**Aqueous**	**ICP 7300**	**11/14/15**	**11/14/15 15:37**	**151114SA1**
15-11-1099-1	**Matrix Spike Duplicate**	**Aqueous**	**ICP 7300**	**11/14/15**	**11/14/15 15:43**	**151114SA1**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Antimony	ND	0.5000	0.2473	49	0.2457	49	72-132	1	0-10	3
Arsenic	0.01129	0.5000	0.6014	118	0.6118	120	80-140	2	0-11	
Barium	2.256	0.5000	2.893	4X	3.054	4X	87-123	4X	0-6	Q
Beryllium	ND	0.5000	0.5453	109	0.5677	114	89-119	4	0-8	
Cadmium	0.05572	0.5000	0.5323	95	0.5480	98	82-124	3	0-7	
Chromium	ND	0.5000	0.5422	108	0.5708	114	86-122	5	0-8	
Cobalt	0.01920	0.5000	0.5191	100	0.5351	103	83-125	3	0-7	
Copper	0.1176	0.5000	0.6742	111	0.7070	118	78-126	5	0-7	
Lead	ND	0.5000	0.4253	85	0.4394	88	84-120	3	0-7	
Molybdenum	0.05082	0.5000	0.5453	99	0.5629	102	78-126	3	0-7	
Nickel	0.1773	0.5000	0.6734	99	0.6974	104	84-120	3	0-7	
Selenium	ND	0.5000	0.5193	104	0.5492	110	79-127	6	0-9	
Silver	0.01846	0.2500	0.3288	124	0.3411	129	86-128	4	0-7	3
Thallium	0.03243	0.5000	0.2546	44	0.2786	49	79-121	9	0-8	3,4
Vanadium	0.2425	0.5000	0.8265	117	0.8762	127	88-118	6	0-7	3
Calcium	3262	0.5000	3112	4X	3162	4X	77-113	4X	0-11	Q
Zinc	0.9568	0.5000	1.561	121	1.595	128	89-131	2	0-8	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1098
Los Angeles, CA 90051-1249		Preparation:	EPA 7470A Total
		Method:	EPA 7470A
Project: TS2015-C013 / Aliso Canyon			Page 5 of 7

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-11-0525-14	**Sample**	**Aqueous**	**Mercury 04**	**11/13/15**	**11/13/15 18:33**	**151113SA3**
15-11-0525-14	**Matrix Spike**	**Aqueous**	**Mercury 04**	**11/13/15**	**11/13/15 18:35**	**151113SA3**
15-11-0525-14	**Matrix Spike Duplicate**	**Aqueous**	**Mercury 04**	**11/13/15**	**11/13/15 18:38**	**151113SA3**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.01000	0.01030	103	0.01059	106	55-133	3	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1098
Los Angeles, CA 90051-1249		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: TS2015-C013 / Aliso Canyon			Page 6 of 7

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-11-0586-3	**Sample**	**Solid**	**Mercury 05**	**11/13/15**	**11/13/15 20:03**	**151113S02**
15-11-0586-3	**Matrix Spike**	**Solid**	**Mercury 05**	**11/13/15**	**11/13/15 20:06**	**151113S02**
15-11-0586-3	**Matrix Spike Duplicate**	**Solid**	**Mercury 05**	**11/13/15**	**11/13/15 20:08**	**151113S02**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.8350	0.6764	81	0.7051	84	71-137	4	0-14	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Date Received: 11/14/15
Work Order: 15-11-1098
Preparation: EPA 5030C
Method: EPA 8260B

Project: TS2015-C013 / Aliso Canyon

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-11-0763-4	**Sample**	**Solid**	**GC/MS W**	**11/11/15**	**11/14/15 14:09**	**151114S002**
15-11-0763-4	**Matrix Spike**	**Solid**	**GC/MS W**	**11/11/15**	**11/14/15 15:33**	**151114S002**
15-11-0763-4	**Matrix Spike Duplicate**	**Solid**	**GC/MS W**	**11/11/15**	**11/14/15 16:00**	**151114S002**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	ND	25000	26090	104	26260	105	61-127	1	0-20	
Carbon Tetrachloride	ND	25000	24130	97	24850	99	51-135	3	0-29	
Chlorobenzene	ND	25000	24870	99	24890	100	57-123	0	0-20	
1,2-Dibromoethane	ND	25000	25110	100	25200	101	64-124	0	0-20	
1,2-Dichlorobenzene	ND	25000	25430	102	25370	101	35-131	0	0-25	
1,2-Dichloroethane	ND	25000	25410	102	25580	102	80-120	1	0-20	
1,1-Dichloroethene	ND	25000	26710	107	26690	107	47-143	0	0-25	
Ethylbenzene	15560	25000	39850	97	40250	99	57-129	1	0-22	
Toluene	ND	25000	25700	103	25760	103	63-123	0	0-20	
Trichloroethene	ND	25000	25940	104	25920	104	44-158	0	0-20	
Vinyl Chloride	ND	25000	22810	91	22840	91	49-139	0	0-47	
p/m-Xylene	ND	50000	50810	102	50680	101	70-130	0	0-30	
o-Xylene	ND	25000	24440	98	24460	98	70-130	0	0-30	
Methyl-t-Butyl Ether (MTBE)	ND	25000	25190	101	24950	100	57-123	1	0-21	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Sample Duplicate

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1098
Los Angeles, CA 90051-1249		Preparation:	N/A
		Method:	EPA 1010A(M)
Project: TS2015-C013 / Aliso Canyon			Page 1 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
Junction SS25&9	**Sample**	**Sludge**	**FP 3**	**N/A**	**11/14/15 16:00**	**F1114FPD2**
Junction SS25&9	**Sample Duplicate**	**Sludge**	**FP 3**	**N/A**	**11/14/15 16:00**	**F1114FPD2**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Ignitability	>212	>212	0	0-25	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Sample Duplicate

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1098
Los Angeles, CA 90051-1249	Preparation:	N/A
	Method:	EPA 376.2M
Project: TS2015-C013 / Aliso Canyon		Page 2 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
Well Fluid	**Sample**	**Sludge**	**N/A**	**11/14/15 00:00**	**11/14/15 12:39**	**F1114SD2**
Well Fluid	**Sample Duplicate**	**Sludge**	**N/A**	**11/14/15 00:00**	**11/14/15 12:39**	**F1114SD2**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Sulfide, Total	ND	ND	N/A	0-25	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Sample Duplicate

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1098
Los Angeles, CA 90051-1249		Preparation:	N/A
		Method:	EPA 9045D
Project: TS2015-C013 / Aliso Canyon			Page 3 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
15-11-1085-2	**Sample**	**Solid**	**PH 4**	**11/14/15 00:00**	**11/14/15 12:33**	**F1114PHD2**
15-11-1085-2	**Sample Duplicate**	**Solid**	**PH 4**	**11/14/15 00:00**	**11/14/15 12:33**	**F1114PHD2**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
pH	6.350	6.380	0	0-25	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Sample Duplicate

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1098
Los Angeles, CA 90051-1249		Preparation:	N/A
		Method:	SM 4500-Cl C
Project: TS2015-C013 / Aliso Canyon			Page 4 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
15-11-1099-1	**Sample**	**Aqueous**	**BUR02**	**N/A**	**11/14/15 12:06**	**F1114CLCD2**
15-11-1099-1	**Sample Duplicate**	**Aqueous**	**BUR02**	**N/A**	**11/14/15 12:06**	**F1114CLCD2**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifers
Chloride	6103	6103	0	0-25	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Sample Duplicate

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1098
Los Angeles, CA 90051-1249		Preparation:	N/A
		Method:	SM 4500-Cl C
Project: TS2015-C013 / Aliso Canyon			Page 5 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
Well Fluid	**Sample**	**Sludge**	**BUR02**	**11/14/15 00:00**	**11/14/15 12:48**	**F1114CLCD1**
Well Fluid	**Sample Duplicate**	**Sludge**	**BUR02**	**11/14/15 00:00**	**11/14/15 12:48**	**F1114CLCD1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Chloride	15100	15100	0	0-25	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Project: TS2015-C013 / Aliso Canyon

Date Received: 11/14/15
Work Order: 15-11-1098
Preparation: N/A
Method: EPA 376.2M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-05-001-5592	**LCS**	**Solid**	**N/A**	**11/14/15**	**11/14/15 12:39**	**F1114SL2**
099-05-001-5592	**LCSD**	**Solid**	**N/A**	**11/14/15**	**11/14/15 12:39**	**F1114SL2**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Sulfide, Total	1.000	0.8000	80	0.8500	85	80-120	6	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Southern California Gas Company	Date Received: 11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order: 15-11-1098
Los Angeles, CA 90051-1249	Preparation: N/A
	Method: EPA 9010C/9014
Project: TS2015-C013 / Aliso Canyon	Page 2 of 9

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-810-1003	**LCS**	**Solid**	**UV 8**	**11/14/15**	**11/14/15 12:09**	**F1114CNL1**
099-12-810-1003	**LCSD**	**Solid**	**UV 8**	**11/14/15**	**11/14/15 12:09**	**F1114CNL1**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Cyanide, Total	0.2000	0.1680	84	0.1720	86	80-120	2	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1098
Los Angeles, CA 90051-1249	Preparation:	EPA 3550B
	Method:	EPA 8015B (M)
Project: TS2015-C013 / Aliso Canyon		Page 3 of 9

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-15-490-1869	**LCS**	**Solid**	**GC 47**	**11/14/15**	**11/14/15 14:58**	**151114B02**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TPH as Diesel	400.0	432.7	108	75-123	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1098
Los Angeles, CA 90051-1249		Preparation:	EPA 3510C
		Method:	EPA 8015B (M)
Project: TS2015-C013 / Aliso Canyon			Page 4 of 9

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-498-310	**LCS**	**Aqueous**	**GC 47**	**11/14/15**	**11/14/15 14:21**	**151114B01**
099-15-498-310	**LCSD**	**Aqueous**	**GC 47**	**11/14/15**	**11/14/15 14:40**	**151114B01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Diesel	2000	1822	91	1962	98	75-117	7	0-13	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1098
Los Angeles, CA 90051-1249		Preparation:	EPA 3050B
		Method:	EPA 6010B
Project: TS2015-C013 / Aliso Canyon			Page 5 of 9

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
097-01-002-22051	**LCS**	**Solid**	**ICP 7300**	**11/14/15**	**11/14/15 14:01**	**151114L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Antimony	25.00	25.05	100	80-120	73-127	
Arsenic	25.00	24.83	99	80-120	73-127	
Barium	25.00	26.24	105	80-120	73-127	
Beryllium	25.00	23.97	96	80-120	73-127	
Cadmium	25.00	25.28	101	80-120	73-127	
Chromium	25.00	26.36	105	80-120	73-127	
Cobalt	25.00	27.01	108	80-120	73-127	
Copper	25.00	25.68	103	80-120	73-127	
Lead	25.00	25.50	102	80-120	73-127	
Molybdenum	25.00	25.66	103	80-120	73-127	
Nickel	25.00	27.27	109	80-120	73-127	
Selenium	25.00	23.89	96	80-120	73-127	
Silver	12.50	12.52	100	80-120	73-127	
Thallium	25.00	26.62	106	80-120	73-127	
Vanadium	25.00	25.81	103	80-120	73-127	
Zinc	25.00	24.47	98	80-120	73-127	
Calcium	25.00	27.02	108	80-120	73-127	

Total number of LCS compounds: 17
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1098
Los Angeles, CA 90051-1249	Preparation:	EPA 3010A Total
	Method:	EPA 6010B
Project: TS2015-C013 / Aliso Canyon		Page 6 of 9

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
097-01-003-15490	LCS	Aqueous	ICP 7300	11/14/15	11/14/15 15:28	151114LA1

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Antimony	0.5000	0.4934	99	80-120	73-127	
Arsenic	0.5000	0.4915	98	80-120	73-127	
Barium	0.5000	0.5183	104	80-120	73-127	
Beryllium	0.5000	0.4960	99	80-120	73-127	
Cadmium	0.5000	0.5043	101	80-120	73-127	
Chromium	0.5000	0.5112	102	80-120	73-127	
Cobalt	0.5000	0.5300	106	80-120	73-127	
Copper	0.5000	0.4964	99	80-120	73-127	
Lead	0.5000	0.5036	101	80-120	73-127	
Molybdenum	0.5000	0.4862	97	80-120	73-127	
Nickel	0.5000	0.5177	104	80-120	73-127	
Selenium	0.5000	0.4811	96	80-120	73-127	
Silver	0.2500	0.2518	101	80-120	73-127	
Thallium	0.5000	0.5356	107	80-120	73-127	
Vanadium	0.5000	0.5029	101	80-120	73-127	
Calcium	0.5000	0.4929	99	80-120	73-127	
Zinc	0.5000	0.4923	98	80-120	73-127	

Total number of LCS compounds: 17
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1098
Los Angeles, CA 90051-1249	Preparation:	EPA 7470A Total
	Method:	EPA 7470A
Project: TS2015-C013 / Aliso Canyon		Page 7 of 9

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-04-008-7657	**LCS**	**Aqueous**	**Mercury 04**	**11/13/15**	**11/13/15 18:31**	**151113LA3**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Mercury	0.01000	0.01065	107	80-120	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1098
Los Angeles, CA 90051-1249	Preparation:	EPA 7471A Total
	Method:	EPA 7471A
Project: TS2015-C013 / Aliso Canyon		Page 8 of 9

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-272-1760	**LCS**	**Solid**	**Mercury 05**	**11/13/15**	**11/14/15 15:23**	**151113L02**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Mercury	0.8350	0.8227	99	85-121	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1098
Los Angeles, CA 90051-1249		Preparation:	EPA 5030C
		Method:	EPA 8260B
Project: TS2015-C013 / Aliso Canyon			Page 9 of 9

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-12-796-10429	LCS	Solid	GC/MS W	11/14/15	11/14/15 10:25	151114L007

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Benzene	50.00	52.42	105	78-120	71-127	
Carbon Tetrachloride	50.00	54.16	108	49-139	34-164	
Chlorobenzene	50.00	51.64	103	79-120	72-127	
1,2-Dibromoethane	50.00	49.47	99	80-120	73-127	
1,2-Dichlorobenzene	50.00	51.28	103	75-120	68-128	
1,2-Dichloroethane	50.00	50.81	102	80-120	73-127	
1,1-Dichloroethene	50.00	56.50	113	74-122	66-130	
Ethylbenzene	50.00	53.52	107	76-120	69-127	
Toluene	50.00	53.05	106	77-120	70-127	
Trichloroethene	50.00	53.68	107	80-120	73-127	
Vinyl Chloride	50.00	49.21	98	68-122	59-131	
p/m-Xylene	100.0	106.1	106	75-125	67-133	
o-Xylene	50.00	50.52	101	75-125	67-133	
Methyl-t-Butyl Ether (MTBE)	50.00	48.09	96	77-120	70-127	

Total number of LCS compounds: 14
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 15-11-1098 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 1010A(M)	N/A	691	FP 3	1
EPA 376.2M	N/A	880	N/A	1
EPA 6010B	EPA 3010A Total	935	ICP 7300	1
EPA 6010B	EPA 3050B	935	ICP 7300	1
EPA 7470A	EPA 7470A Total	915	Mercury 04	1
EPA 7471A	EPA 7471A Total	915	Mercury 05	1
EPA 8015B (M)	EPA 3510C	421	GC 47	1
EPA 8015B (M)	EPA 3550B	421	GC 47	1
EPA 8260B	EPA 5030C	927	GC/MS W	2
EPA 9010C/9014	N/A	880	UV 8	1
EPA 9045D	N/A	688	PH 4	1
SM 4500-Cl C	N/A	688	BUR02	1

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Glossary of Terms and Qualifiers

Work Order: 15-11-1098 | Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

CHAIN OF CUSTODY FORM 15-11-1098

SOUTHERN CALIFORNIA GAS COMPANY - ENGINEERING ANALYSIS CENTER

SHIPPING ADDRESS - 8730 E. SLAUSON AVE. ML SC723B, PICO RIVERA, CA 90660-5100 - PHONE: (562)- 806-4344
STREET ADDRESS - 8101 ROSEMEAD BLVD. BLDG H, PICO RIVERA, CA 90660 - EMAIL: EACChemicalSection@Socalgas.com

Project # TS2015-C013 | Requestor Jun Yan | Sampling Location Aliso Canyon

	Sample I.D.	Sampling Date	Sampling Time	Collected By	Sample Container	Sample Type	Preservative	Analysis Requested
1	Equipment Blank	11/13/15	6:25 PM	S. Dalton	1x500 mL 1x250 mL 1x250 mL	Liquid	NA NA HNO_3	TPH-CC Chloride T22 Metal + K
2	Well Fluid	↓	6:40PM	↓	2x8 ounce	↓	NA	pH, Flashpoint, TPH-CC, 8260 VOC, T22 Metals (TTLC), Sulfide, Cyanide Chloride, Potassium
3	Junction SS2549	↓	6:50 PM	↓	2x8 ounce	Sludge	NA	↓
	/	/	/	/	/	/	/	/

Observations/Comments:

Relinquished By (Print)	(Signature)	Company/ GasCo. Dept.	Date	Time	Received By (Print)	(Signature)	Company/ GasCo. Dept.
Sam Dalton	SAM DALTON	EAC	11/13/15	8:10 P	David Kammerer		EAC
David Kammerer		EAC	11/14/15	0840	Yan Liao		EGI

H:\Chem\Forms\Chain of Custody.xls

Southern California Gas Company
A Sempra Energy utility®

SOUTHERN CALIFORNIA GAS COMPANY Release 44193

Material Release Order

FOR NON-M&S MATERIAL

Supplier: In strict conformance with our Blanket Purchase Order with your firm, the following material is ordered.

Restrictions: Do not produce or supply any material ordered if our Blanket Purchase Order No. 5660018639 has expired or was canceled, or material ordered is not an item covered on the Blanket Purchase Order. Invoice as instructed on the Blanket Purchase Order.

CALSCIENCE ENVIRONMENTAL LABORATORIES, INC.
7440 LINCOLN WAY
GARDEN GROVE, CA 92641–1432

JS2015-C013

Same Day - ASAP

SHAHID RAZZAK - SC 723B

P.O. BOX 513249

LOS ANGELES, CA 90051–1249

Date Wanted 11/14/15

Quantity:	Description
3	Equipment Blank
2	Well Fluid
2	Junction 5525 & 9
8	Patriot 909

PLEASE SHOW ABOVE RELEASE NUMBER ON YOUR INVOICE. THANK YOU.

Special Instructions: *Rush TAT* Include Potassium in metals, see Coc.

REQUESTED BY	ACCT. OR W.O. NUMBER	SUB. ACCT. OR PROJ.	ORG. CODE	DATE
SHAHID RAZZAK				11/14/15
SUPERVISORY APPROVAL	MATERIAL RECEIVED BY			DATE
Jae Yi				11/14/15

ROUTING
WHITE - TO SUPPLIER
YELLOW - ON RECEIPT OF MATERIAL, TO DISBURSEMENTS, M.L. 205V
PINK - ORIGINATOR'S COPY

FORM #3929NR Rev 4/14

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WORK ORDER NUMBER: 15-11- 1078

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Gas Co.

DATE: 11 / 14 / 2015

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC2 (CF:-0.4°C); Temperature (w/o CF): 3.9 °C (w/ CF): 3.5 °C; ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: SR

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: SR

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☐ Not Present ☐ N/A Checked by: 1050

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☑	☐	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB

☐ 125PB**znna** ☐ 250AGB ☐ 250CGB ☐ 250CGB**s** ☑ 250PB ☑ 250PB**n** ☐ 500AGB ☑ 500AGJ ☐ 500AGJ**s**

☐ 500PB ☐ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** ☐ 1PB ☐ 1PB**na** ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (_____) ☐ EnCores® (_____) ☐ TerraCores® (_____) ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (sludge): ☑ 8 oz Jar ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **znna** = $Zn(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: 778

Reviewed by: 1050

2015-04-10 Revision

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WORK ORDER NUMBER: 15-11-1099

AIR | SOIL | WATER | MARINE CHEMISTRY

The difference is service

Analytical Report For

Client: Southern California Gas Company
Client Project Name: TS2015-C013 / Aliso Canyon
Attention: Shahid Razzak
M.L. 723B
P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Amanda Porter

Approved for release on 11/16/2015 by:
Amanda Porter
Project Manager

ResultLink ▸

Email your PM ▸

nelac

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Contents

Client Project Name: TS2015-C013 / Aliso Canyon
Work Order Number: 15-11-1099

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Work Order Narrative

Work Order: 15-11-1099 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 11/14/15. They were assigned to Work Order 15-11-1099.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Project: TS2015-C013 / Aliso Canyon

Date Received: 11/14/15
Work Order: 15-11-1099
Preparation: EPA 3510C
Method: EPA 8015B (M)
Units: ug/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Patriot 909	**15-11-1099-1-H**	**11/13/15 19:40**	**Aqueous**	**GC 47**	**11/14/15**	**11/14/15 14:04**	**151114B01**

Parameter	Result	RL	DF	Qualifiers
C6	ND	50	1.00	
C7	ND	50	1.00	
C8	53	50	1.00	
C9-C10	450	50	1.00	
C11-C12	580	50	1.00	
C13-C14	710	50	1.00	
C15-C16	360	50	1.00	
C17-C18	410	50	1.00	
C19-C20	360	50	1.00	
C21-C22	260	50	1.00	
C23-C24	200	50	1.00	
C25-C28	140	50	1.00	
C29-C32	170	50	1.00	
C33-C36	91	50	1.00	
C37-C40	ND	50	1.00	
C41-C44	ND	50	1.00	
C6-C44 Total	3800	50	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	90	68-140	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1099
Los Angeles, CA 90051-1249		Preparation:	EPA 3510C
		Method:	EPA 8015B (M)
		Units:	ug/L
Project: TS2015-C013 / Aliso Canyon			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-498-310**	**N/A**	**Aqueous**	**GC 47**	**11/14/15**	**11/14/15 12:35**	**151114B01**

Parameter	Result	RL	DF	Qualifiers
C6	ND	50	1.00	
C7	ND	50	1.00	
C8	ND	50	1.00	
C9-C10	ND	50	1.00	
C11-C12	ND	50	1.00	
C13-C14	ND	50	1.00	
C15-C16	ND	50	1.00	
C17-C18	ND	50	1.00	
C19-C20	ND	50	1.00	
C21-C22	ND	50	1.00	
C23-C24	ND	50	1.00	
C25-C28	ND	50	1.00	
C29-C32	ND	50	1.00	
C33-C36	ND	50	1.00	
C37-C40	ND	50	1.00	
C41-C44	ND	50	1.00	
C6-C44 Total	ND	100	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	95	68-140	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1099
Los Angeles, CA 90051-1249	Preparation:	EPA 3010A Total
	Method:	EPA 6010B
	Units:	mg/L
Project: TS2015-C013 / Aliso Canyon		Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Patriot 909	**15-11-1099-1-E**	**11/13/15 19:40**	**Aqueous**	**ICP 7300**	**11/14/15**	**11/14/15 15:34**	**151114LA1**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.0150	1.00	
Arsenic	0.0113	0.0100	1.00	
Barium	2.26	0.0100	1.00	
Beryllium	ND	0.0100	1.00	
Cadmium	0.0557	0.0100	1.00	
Chromium	ND	0.0100	1.00	
Cobalt	0.0192	0.0100	1.00	
Copper	0.118	0.0100	1.00	
Lead	ND	0.0100	1.00	
Molybdenum	0.0508	0.0100	1.00	
Nickel	0.177	0.0100	1.00	
Selenium	ND	0.0150	1.00	
Silver	0.0185	0.00500	1.00	
Thallium	0.0324	0.0150	1.00	
Vanadium	0.242	0.0100	1.00	
Zinc	0.957	0.0100	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Patriot 909	**15-11-1099-1-E**	**11/13/15 19:40**	**Aqueous**	**ICP 7300**	**11/14/15**	**11/14/15 15:33**	**151114LA1**

Parameter	Result	RL	DF	Qualifiers
Calcium	3260	1.00	10.0	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Project: TS2015-C013 / Aliso Canyon

Date Received: 11/14/15
Work Order: 15-11-1099
Preparation: EPA 3010A Total
Method: EPA 6010B
Units: mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-003-15490**	**N/A**	**Aqueous**	**ICP 7300**	**11/14/15**	**11/14/15 15:26**	**151114LA1**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.0150	1.00	
Arsenic	ND	0.0100	1.00	
Barium	ND	0.0100	1.00	
Beryllium	ND	0.0100	1.00	
Cadmium	ND	0.0100	1.00	
Chromium	ND	0.0100	1.00	
Cobalt	ND	0.0100	1.00	
Copper	ND	0.0100	1.00	
Lead	ND	0.0100	1.00	
Molybdenum	ND	0.0100	1.00	
Nickel	ND	0.0100	1.00	
Selenium	ND	0.0150	1.00	
Silver	ND	0.00500	1.00	
Thallium	ND	0.0150	1.00	
Vanadium	ND	0.0100	1.00	
Calcium	ND	0.100	1.00	
Zinc	ND	0.0100	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Project: TS2015-C013 / Aliso Canyon

Date Received:	11/14/15
Work Order:	15-11-1099
Preparation:	EPA 7470A Total
Method:	EPA 7470A
Units:	mg/L
	Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Patriot 909	**15-11-1099-1-E**	**11/13/15 19:40**	**Aqueous**	**Mercury 04**	**11/14/15**	**11/14/15 13:59**	**151113LA3**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.000500	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-04-008-7657**	**N/A**	**Aqueous**	**Mercury 04**	**11/13/15**	**11/13/15 18:29**	**151113LA3**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.000500	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Date Received: 11/14/15
Work Order: 15-11-1099
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: TS2015-C013 / Aliso Canyon

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Patriot 909	**15-11-1099-1-A**	**11/13/15 19:40**	**Aqueous**	**GC/MS XX**	**11/14/15**	**11/14/15 17:11**	**151114L001**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	20	1.00	
Benzene	ND	0.50	1.00	
Bromobenzene	ND	1.0	1.00	
Bromochloromethane	ND	1.0	1.00	
Bromodichloromethane	ND	1.0	1.00	
Bromoform	ND	1.0	1.00	
Bromomethane	ND	10	1.00	
2-Butanone	ND	10	1.00	
n-Butylbenzene	6.1	1.0	1.00	
sec-Butylbenzene	1.5	1.0	1.00	
tert-Butylbenzene	ND	1.0	1.00	
Carbon Disulfide	ND	10	1.00	
Carbon Tetrachloride	ND	0.50	1.00	
Chlorobenzene	ND	1.0	1.00	
Chloroethane	ND	6.0	1.00	
Chloroform	ND	1.0	1.00	
Chloromethane	ND	10	1.00	
2-Chlorotoluene	ND	1.0	1.00	
4-Chlorotoluene	ND	1.0	1.00	
Dibromochloromethane	ND	1.0	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.0	1.00	
1,2-Dibromoethane	ND	1.0	1.00	
Dibromomethane	ND	1.0	1.00	
1,2-Dichlorobenzene	ND	1.0	1.00	
1,3-Dichlorobenzene	ND	1.0	1.00	
1,4-Dichlorobenzene	ND	1.0	1.00	
Dichlorodifluoromethane	ND	1.0	1.00	
1,1-Dichloroethane	ND	1.0	1.00	
1,2-Dichloroethane	ND	0.50	1.00	
1,1-Dichloroethene	ND	1.0	1.00	
c-1,2-Dichloroethene	ND	1.0	1.00	
t-1,2-Dichloroethene	ND	1.0	1.00	
1,2-Dichloropropane	ND	1.0	1.00	
1,3-Dichloropropane	ND	1.0	1.00	
2,2-Dichloropropane	ND	1.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1099
Los Angeles, CA 90051-1249	Preparation:	EPA 5030C
	Method:	EPA 8260B
	Units:	ug/L
Project: TS2015-C013 / Aliso Canyon		Page 2 of 4

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	1.0	1.00	
c-1,3-Dichloropropene	ND	0.50	1.00	
t-1,3-Dichloropropene	ND	0.50	1.00	
Ethylbenzene	3.0	1.0	1.00	
2-Hexanone	ND	10	1.00	
Isopropylbenzene	1.8	1.0	1.00	
p-Isopropyltoluene	3.3	1.0	1.00	
Methylene Chloride	ND	10	1.00	
4-Methyl-2-Pentanone	ND	10	1.00	
Naphthalene	110	10	1.00	
n-Propylbenzene	4.4	1.0	1.00	
Styrene	ND	1.0	1.00	
1,1,1,2-Tetrachloroethane	ND	1.0	1.00	
1,1,2,2-Tetrachloroethane	ND	1.0	1.00	
Tetrachloroethene	ND	1.0	1.00	
Toluene	3.0	1.0	1.00	
1,2,3-Trichlorobenzene	ND	1.0	1.00	
1,2,4-Trichlorobenzene	ND	1.0	1.00	
1,1,1-Trichloroethane	ND	1.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1.00	
1,1,2-Trichloroethane	ND	1.0	1.00	
Trichloroethene	ND	1.0	1.00	
Trichlorofluoromethane	ND	10	1.00	
1,2,3-Trichloropropane	ND	5.0	1.00	
1,2,4-Trimethylbenzene	50	1.0	1.00	
1,3,5-Trimethylbenzene	22	1.0	1.00	
Vinyl Acetate	ND	10	1.00	
Vinyl Chloride	ND	0.50	1.00	
p/m-Xylene	29	1.0	1.00	
o-Xylene	9.5	1.0	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	102	80-120	
Dibromofluoromethane	118	78-126	
1,2-Dichloroethane-d4	126	75-135	
Toluene-d8	103	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Date Received: 11/14/15
Work Order: 15-11-1099
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: TS2015-C013 / Aliso Canyon

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-001-18768**	**N/A**	**Aqueous**	**GC/MS XX**	**11/14/15**	**11/14/15 13:12**	**151114L001**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	20	1.00	
Benzene	ND	0.50	1.00	
Bromobenzene	ND	1.0	1.00	
Bromochloromethane	ND	1.0	1.00	
Bromodichloromethane	ND	1.0	1.00	
Bromoform	ND	1.0	1.00	
Bromomethane	ND	10	1.00	
2-Butanone	ND	10	1.00	
n-Butylbenzene	ND	1.0	1.00	
sec-Butylbenzene	ND	1.0	1.00	
tert-Butylbenzene	ND	1.0	1.00	
Carbon Disulfide	ND	10	1.00	
Carbon Tetrachloride	ND	0.50	1.00	
Chlorobenzene	ND	1.0	1.00	
Chloroethane	ND	6.0	1.00	
Chloroform	ND	1.0	1.00	
Chloromethane	ND	10	1.00	
2-Chlorotoluene	ND	1.0	1.00	
4-Chlorotoluene	ND	1.0	1.00	
Dibromochloromethane	ND	1.0	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.0	1.00	
1,2-Dibromoethane	ND	1.0	1.00	
Dibromomethane	ND	1.0	1.00	
1,2-Dichlorobenzene	ND	1.0	1.00	
1,3-Dichlorobenzene	ND	1.0	1.00	
1,4-Dichlorobenzene	ND	1.0	1.00	
Dichlorodifluoromethane	ND	1.0	1.00	
1,1-Dichloroethane	ND	1.0	1.00	
1,2-Dichloroethane	ND	0.50	1.00	
1,1-Dichloroethene	ND	1.0	1.00	
c-1,2-Dichloroethene	ND	1.0	1.00	
t-1,2-Dichloroethene	ND	1.0	1.00	
1,2-Dichloropropane	ND	1.0	1.00	
1,3-Dichloropropane	ND	1.0	1.00	
2,2-Dichloropropane	ND	1.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1099
Los Angeles, CA 90051-1249	Preparation:	EPA 5030C
	Method:	EPA 8260B
	Units:	ug/L
Project: TS2015-C013 / Aliso Canyon		Page 4 of 4

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	1.0	1.00	
c-1,3-Dichloropropene	ND	0.50	1.00	
t-1,3-Dichloropropene	ND	0.50	1.00	
Ethylbenzene	ND	1.0	1.00	
2-Hexanone	ND	10	1.00	
Isopropylbenzene	ND	1.0	1.00	
p-Isopropyltoluene	ND	1.0	1.00	
Methylene Chloride	ND	10	1.00	
4-Methyl-2-Pentanone	ND	10	1.00	
Naphthalene	ND	10	1.00	
n-Propylbenzene	ND	1.0	1.00	
Styrene	ND	1.0	1.00	
1,1,1,2-Tetrachloroethane	ND	1.0	1.00	
1,1,2,2-Tetrachloroethane	ND	1.0	1.00	
Tetrachloroethene	ND	1.0	1.00	
Toluene	ND	1.0	1.00	
1,2,3-Trichlorobenzene	ND	1.0	1.00	
1,2,4-Trichlorobenzene	ND	1.0	1.00	
1,1,1-Trichloroethane	ND	1.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1.00	
1,1,2-Trichloroethane	ND	1.0	1.00	
Trichloroethene	ND	1.0	1.00	
Trichlorofluoromethane	ND	10	1.00	
1,2,3-Trichloropropane	ND	5.0	1.00	
1,2,4-Trimethylbenzene	ND	1.0	1.00	
1,3,5-Trimethylbenzene	ND	1.0	1.00	
Vinyl Acetate	ND	10	1.00	
Vinyl Chloride	ND	0.50	1.00	
p/m-Xylene	ND	1.0	1.00	
o-Xylene	ND	1.0	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	97	80-120	
Dibromofluoromethane	111	78-126	
1,2-Dichloroethane-d4	118	75-135	
Toluene-d8	101	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249
Project: TS2015-C013 / Aliso Canyon

Date Received: 11/14/15
Work Order: 15-11-1099

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
Patriot 909	**15-11-1099-1**	**11/13/15 19:40**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Ignitability	>212	70	1.00		°F	N/A	11/14/15	EPA 1010A
pH	7.59	0.01	1.00	BV,BU	pH units	N/A	11/14/15	SM 4500 H+ B
Sulfide, Total	ND	0.050	1.00		mg/L	11/14/15	11/14/15	SM 4500 S2 - D
Chloride	6100	100	50.0		mg/L	N/A	11/14/15	SM 4500-Cl C
Cyanide, Total	ND	0.020	1.00		mg/L	11/14/15	11/14/15	SM 4500-CN E

Method Blank						N/A		Aqueous
Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total	ND	0.050	1.00		mg/L	11/14/15	11/14/15	SM 4500 S2 - D
Chloride	ND	2.0	1.00		mg/L	N/A	11/14/15	SM 4500-Cl C
Cyanide, Total	ND	0.020	1.00		mg/L	11/14/15	11/14/15	SM 4500-CN E

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Spike/Spike Duplicate

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Project: TS2015-C013 / Aliso Canyon

Date Received: 11/14/15
Work Order: 15-11-1099
Preparation: EPA 3010A Total
Method: EPA 6010B
Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Patriot 909	**Sample**	**Aqueous**	**ICP 7300**	**11/14/15**	**11/14/15 15:34**	**151114SA1**
Patriot 909	**Matrix Spike**	**Aqueous**	**ICP 7300**	**11/14/15**	**11/14/15 15:37**	**151114SA1**
Patriot 909	**Matrix Spike Duplicate**	**Aqueous**	**ICP 7300**	**11/14/15**	**11/14/15 15:43**	**151114SA1**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Antimony	ND	0.5000	0.2473	49	0.2457	49	72-132	1	0-10	3
Arsenic	0.01129	0.5000	0.6014	118	0.6118	120	80-140	2	0-11	
Barium	2.256	0.5000	2.893	4X	3.054	4X	87-123	4X	0-6	Q
Beryllium	ND	0.5000	0.5453	109	0.5677	114	89-119	4	0-8	
Cadmium	0.05572	0.5000	0.5323	95	0.5480	98	82-124	3	0-7	
Chromium	ND	0.5000	0.5422	108	0.5708	114	86-122	5	0-8	
Cobalt	0.01920	0.5000	0.5191	100	0.5351	103	83-125	3	0-7	
Copper	0.1176	0.5000	0.6742	111	0.7070	118	78-126	5	0-7	
Lead	ND	0.5000	0.4263	85	0.4394	88	84-120	3	0-7	
Molybdenum	0.05082	0.5000	0.5453	99	0.5629	102	78-126	3	0-7	
Nickel	0.1773	0.5000	0.6734	99	0.6974	104	84-120	3	0-7	
Selenium	ND	0.5000	0.5193	104	0.5492	110	79-127	6	0-9	
Silver	0.01846	0.2500	0.3288	124	0.3411	129	86-128	4	0-7	3
Thallium	0.03243	0.5000	0.2546	44	0.2788	49	79-121	9	0-8	3,4
Vanadium	0.2425	0.5000	0.8265	117	0.8762	127	88-118	6	0-7	3
Calcium	3262	0.5000	3112	4X	3162	4X	77-113	4X	0-11	Q
Zinc	0.9568	0.5000	1.561	121	1.595	128	89-131	2	0-8	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1099
Los Angeles, CA 90051-1249	Preparation:	EPA 7470A Total
	Method:	EPA 7470A
Project: TS2015-C013 / Aliso Canyon		Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-11-0525-14	**Sample**	**Aqueous**	**Mercury 04**	**11/13/15**	**11/13/15 18:33**	**151113SA3**
15-11-0525-14	**Matrix Spike**	**Aqueous**	**Mercury 04**	**11/13/15**	**11/13/15 18:35**	**151113SA3**
15-11-0525-14	**Matrix Spike Duplicate**	**Aqueous**	**Mercury 04**	**11/13/15**	**11/13/15 18:38**	**151113SA3**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.01000	0.01030	103	0.01059	106	55-133	3	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Sample Duplicate

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1099
Los Angeles, CA 90051-1249		Preparation:	N/A
		Method:	EPA 1010A
Project: TS2015-C013 / Aliso Canyon			Page 1 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
15-11-1028-4	**Sample**	**Aqueous**	**FP 3**	**N/A**	**11/14/15 14:00**	**F1114FPD1**
15-11-1028-4	**Sample Duplicate**	**Aqueous**	**FP 3**	**N/A**	**11/14/15 14:00**	**F1114FPD1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Ignitability	>212	>212	0	0-25	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Sample Duplicate

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1099
Los Angeles, CA 90051-1249		Preparation:	N/A
		Method:	SM 4500 H+ B
Project: TS2015-C013 / Aliso Canyon			Page 2 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
Patriot 909	**Sample**	**Aqueous**	**PH 1**	**N/A**	**11/14/15 10:44**	**F1114PHD1**
Patriot 909	**Sample Duplicate**	**Aqueous**	**PH 1**	**N/A**	**11/14/15 10:44**	**F1114PHD1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
pH	7.590	7.640	1	0-25	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Sample Duplicate

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1099
Los Angeles, CA 90051-1249		Preparation:	N/A
		Method:	SM 4500 S2 - D
Project: TS2015-C013 / Aliso Canyon			Page 3 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
Patriot 909	**Sample**	**Aqueous**	**N/A**	**11/14/15 00:00**	**11/14/15 10:56**	**F1114SD1**
Patriot 909	**Sample Duplicate**	**Aqueous**	**N/A**	**11/14/15 00:00**	**11/14/15 10:56**	**F1114SD1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Sulfide, Total	ND	ND	N/A	0-25	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Sample Duplicate

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1099
Los Angeles, CA 90051-1249		Preparation:	N/A
		Method:	SM 4500-Cl C
Project: TS2015-C013 / Aliso Canyon			Page 4 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
Patriot 909	**Sample**	**Aqueous**	**BUR02**	**N/A**	**11/14/15 12:06**	**F1114CLCD2**
Patriot 909	**Sample Duplicate**	**Aqueous**	**BUR02**	**N/A**	**11/14/15 12:06**	**F1114CLCD2**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Chloride	6103	6103	0	0-25	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Southern California Gas Company	Date Received: 11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order: 15-11-1099
Los Angeles, CA 90051-1249	Preparation: N/A
	Method: SM 4500 S2 - D
Project: TS2015-C013 / Aliso Canyon	Page 1 of 6

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-853-671	**LCS**	**Aqueous**	**N/A**	**11/14/15**	**11/14/15 10:56**	**F1114SL1**
099-15-853-671	**LCSD**	**Aqueous**	**N/A**	**11/14/15**	**11/14/15 10:56**	**F1114SL1**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Sulfide, Total	1.000	0.8000	80	0.8000	80	80-120	0	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Southern California Gas Company	Date Received: 11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order: 15-11-1099
Los Angeles, CA 90051-1249	Preparation: N/A
	Method: SM 4500-CN E
Project: TS2015-C013 / Aliso Canyon	Page 2 of 6

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-05-061-3904	**LCS**	**Aqueous**	**UV 8**	**11/14/15**	**11/14/15 12:18**	**F1114CNL2**
099-05-061-3904	**LCSD**	**Aqueous**	**UV 8**	**11/14/15**	**11/14/15 12:18**	**F1114CNL2**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Cyanide, Total	0.2000	0.1700	85	0.1760	88	80-120	3	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Southern California Gas Company	Date Received: 11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order: 15-11-1099
Los Angeles, CA 90051-1249	Preparation: EPA 3510C
	Method: EPA 8015B (M)
Project: TS2015-C013 / Aliso Canyon	Page 3 of 6

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-498-310	**LCS**	**Aqueous**	**GC 47**	**11/14/15**	**11/14/15 14:21**	**151114B01**
099-15-498-310	**LCSD**	**Aqueous**	**GC 47**	**11/14/15**	**11/14/15 14:40**	**151114B01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Diesel	2000	1822	91	1962	98	75-117	7	0-13	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Southern California Gas Company		Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex		Work Order:	15-11-1099
Los Angeles, CA 90051-1249		Preparation:	EPA 3010A Total
		Method:	EPA 6010B
Project: TS2015-C013 / Aliso Canyon			Page 4 of 6

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
097-01-003-15490	LCS	Aqueous	ICP 7300	11/14/15	11/14/15 15:28	151114LA1

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Antimony	0.5000	0.4934	99	80-120	73-127	
Arsenic	0.5000	0.4915	98	80-120	73-127	
Barium	0.5000	0.5183	104	80-120	73-127	
Beryllium	0.5000	0.4960	99	80-120	73-127	
Cadmium	0.5000	0.5043	101	80-120	73-127	
Chromium	0.5000	0.5112	102	80-120	73-127	
Cobalt	0.5000	0.5300	106	80-120	73-127	
Copper	0.5000	0.4964	99	80-120	73-127	
Lead	0.5000	0.5036	101	80-120	73-127	
Molybdenum	0.5000	0.4862	97	80-120	73-127	
Nickel	0.5000	0.5177	104	80-120	73-127	
Selenium	0.5000	0.4811	96	80-120	73-127	
Silver	0.2500	0.2518	101	80-120	73-127	
Thallium	0.5000	0.5356	107	80-120	73-127	
Vanadium	0.5000	0.5029	101	80-120	73-127	
Calcium	0.5000	0.4929	99	80-120	73-127	
Zinc	0.5000	0.4923	98	80-120	73-127	

Total number of LCS compounds: 17
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Southern California Gas Company	Date Received:	11/14/15
M.L. 723B, P.O. Box 513249, Terminal Annex	Work Order:	15-11-1099
Los Angeles, CA 90051-1249	Preparation:	EPA 7470A Total
	Method:	EPA 7470A
Project: TS2015-C013 / Aliso Canyon		Page 5 of 6

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-04-008-7657	**LCS**	**Aqueous**	**Mercury 04**	**11/13/15**	**11/13/15 18:31**	**151113LA3**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Mercury	0.01000	0.01065	107	80-120	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Southern California Gas Company
M.L. 723B, P.O. Box 513249, Terminal Annex
Los Angeles, CA 90051-1249

Date Received: 11/14/15
Work Order: 15-11-1099
Preparation: EPA 5030C
Method: EPA 8260B

Project: TS2015-C013 / Aliso Canyon

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-001-18768	LCS	Aqueous	GC/MS XX	11/14/15	11/14/15 10:55	151114L001
099-14-001-18768	LCSD	Aqueous	GC/MS XX	11/14/15	11/14/15 11:29	151114L001

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	50.00	48.94	98	48.85	98	80-120	73-127	0	0-20	
Carbon Tetrachloride	50.00	55.76	112	55.28	111	67-139	55-151	1	0-20	
Chlorobenzene	50.00	47.74	95	48.38	97	78-120	71-127	1	0-20	
1,2-Dibromoethane	50.00	48.42	97	49.04	98	80-120	73-127	1	0-20	
1,2-Dichlorobenzene	50.00	45.63	91	46.06	92	63-129	52-140	1	0-20	
1,2-Dichloroethane	50.00	56.07	112	55.89	112	70-130	60-140	0	0-20	
1,1-Dichloroethene	50.00	54.13	108	54.22	108	66-126	56-136	0	0-20	
Ethylbenzene	50.00	48.53	97	48.58	97	80-123	73-130	0	0-20	
Toluene	50.00	49.39	99	49.42	99	80-120	73-127	0	0-20	
Trichloroethene	50.00	48.26	97	47.88	95	80-122	73-129	1	0-20	
Vinyl Chloride	50.00	35.70	71	37.60	75	70-130	60-140	5	0-20	
p/m-Xylene	100.0	96.63	97	97.65	98	75-123	67-131	1	0-20	
o-Xylene	50.00	47.12	94	47.50	95	74-122	66-130	1	0-20	
Methyl-t-Butyl Ether (MTBE)	50.00	44.89	90	45.85	92	69-129	59-139	2	0-20	

Total number of LCS compounds: 14
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 15-11-1099 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 1010A	N/A	691	FP 3	1
EPA 6010B	EPA 3010A Total	935	ICP 7300	1
EPA 7470A	EPA 7470A Total	915	Mercury 04	1
EPA 8015B (M)	EPA 3510C	421	GC 47	1
EPA 8260B	EPA 5030C	986	GC/MS XX	2
SM 4500 H+ B	N/A	688	PH 1	1
SM 4500 S2 - D	N/A	880	N/A	1
SM 4500-Cl C	N/A	688	BUR02	1
SM 4500-CN E	N/A	880	UV 8	1

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Glossary of Terms and Qualifiers

Work Order: 15-11-1099 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

CHAIN OF CUSTODY FORM 15-11-1099

SOUTHERN CALIFORNIA GAS COMPANY - ENGINEERING ANALYSIS CENTER

SHIPPING ADDRESS - 8730 E. SLAUSON AVE. ML SC723B, PICO RIVERA, CA 90660-5100 - PHONE: (562)- 806-4344
STREET ADDRESS - 8101 ROSEMEAD BLVD. BLDG H, PICO RIVERA, CA 90660 - EMAIL: EACChemicalSection@Socalgas.com

Project # ASC015-C013 | Requestor Jane Yiu | Sampling Location Aliso Canyon

Sample I.D.	Sampling Date	Sampling Time	Collected By	Sample Container	Sample Type	Preservative	Analysis Requested
Patriot 909	11/13/15	07:40 PM	S. Dalton	1x 250 ml	Liquid	NA	pH, Flashpoint, Chloride
				1x1 Liter		NaOH	Cyanide
↓	↓	↓	↓	1x 500ml	↓	NA	TPH-CC
				1x 250ml		HNO3	TT 22 Metals + Potassium
				1x 125ml		ZnAc/NaOH	Sulfide
				3x 40ml		HCl	8260-VOC
/	/	/	/	/	/	/	/

Observations/Comments:

Relinquished By (Print)	(Signature)	Company/ GasCo. Dept.	Date	Time	Received By (Print)	(Signature)	Company/ GasCo. Dept.
Sam Dalton	SAM DALTON	EAC	11/13/15	8:10 AM	David Kammerer	[signature]	EAC
David Kammerer	[signature]	EAC	11/14	0840	[signature]	Yau Lieo	ECI

H:\Chem\Forms\Chain of Custody.xls

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WORK ORDER NUMBER: 15-11- 1099

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Gas Co.

DATE: 11 / 14 / 2015

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC2 (CF:-0.4°C); Temperature (w/o CF): 3.9 °C (w/ CF): 3.5 °C; ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: SD2

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: SD2

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 1050

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☑ Matrix ☑ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☑ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☑	☐
Proper preservation chemical(s) noted on COC and/or sample container	☑	☐	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☑	☐	☐
☑ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: 3 (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☑ VOAh ☐ VOAna_2 ☐ 100PJ ☐ 100PJna_2 ☐ 125AGB ☐ 125AGBh ☐ 125AGBp ☐ 125PB

☑ 125PBznna ☐ 250AGB ☐ 250CGB ☐ 250CGBs ☑ 250PB ☑ 250PBn ☐ 500AGB ☑ 500AGJ ☐ 500AGJs

☐ 500PB ☐ 1AGB ☐ 1AGBna_2 ☐ 1AGBs ☐ 1PB ☑ 1PBna ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (_____) ☐ EnCores® (_____) ☐ TerraCores® (_____) ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na_2** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **znna** = $Zn(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: 1050

Reviewed by: ZZB

2015-04-10 Revision

Ex. I-8

Standard Sesnon 25

Daily Well Work Report

The Gas Company

Field Name	Operator
Aliso Canyon	Southern California Gas Company

Daily Summary

Job Name	Report Start Date	Report End Date
Oct 2015 - Wellhead Leak	11/13/2015	11/14/2015

Daily Field Est Total (Cost)	Cum Field Est To Date (Cost)	Total AFE Amount (Cost)	Normalized AFE-Field Estimate (Cost)
[redacted]	[redacted]	[redacted]	[redacted]

Operations this Report Period (DOGGR)

Discussed perforating and pumping kill. Installed target 90 on wellhead flowline. Stabbed lubricator. Pressure tested - 300 psi low, 4000 psi high. Test Good. Equalized swab valve w/ 1200 psi. Opened swab valve. Tubing Pressure - 1201 psi. Pumped 6 bbls CaCl2. RIH w/ tubing punch. Tagged EZSV at 8402'. Perforated tubing 8387'-8391'. POOH. L/D lubricator. Pumped 10 bbls 9.4 polymer pill. Began displacing w/ 9.4 ppg CaCl2. After displacing tubing volumed, open choke on 7" casing. Pump rate at 6 bpm. After 80 bbls displaced, observed increased gas flow and liquid at surface cracks. Continued pumping 8 bpm. After 185 bbls pumped, pony motor went down. Pumps offline. Brought pumps back online at 7 bpm. After 693 bbls pumpd, brine, oil and gas flowing from surface cracks. Displaced 10 bbls of 9.4 ppg polymer into tubing. Shut down. Lined up to pump down 2-7/8" x 7" annulus. Pumped junk shot. After 5 bbls pumped, observed brine from cracks. Continue pumping junk shots. Shut down. Secured location.

Comments NOT for DOGGR Report

Job Phase	Planned Likely Phase Cost (	Actual Phase Field E	Cost Var ML (Cost)

Daily Costs

Cost Des	Vendor	Ticket	Field Est (Cost)	Note
Labor - Contract	G.M. Volkmar	23-2015	[redacted]	M ke Volkmar Supervision
Labor - Contract	Halliburton Energy Services	902886908		Boots & Coots Estimate
Pumping Services	Halliburton Energy Services	0902937291		Pump Truck, crew, supervisor, standby, pump truck
Labor - Contract	Carbon Wireline	0516		Onyx piping, separator and crew labor. Equipment and standby
Wireline - Production Equip.	Western Wireline	13028		Quad monitors, service charge, substance charge. Millingworth, PGear, C Bottoms
Labor - Contract	Doby Hagar Trucking	est		Supervisor on site
Crane Services	Doby Hagar Trucking	127318		Stinger.
Welding Services	Hurst Welding	691431		Welding Services
Labor - Contract	Ensign Resources	3102664-SO18		Ensign crew and supervisor
Trucking - Vacuum	Doby Hagar Trucking	23371		80 bbl vac truck, labor (victor)
Trucking - Vacuum	Doby Hagar Trucking	23376		130 bbl vac truck, labor (Robert/Andy)
Wireline - Production Equip.	Western Wireline	12647		Supervisor Curis Partain, James Bottoms, mileage, Mast trailer stand by, 2-9/16" Flange
Trucking - Vacuum	Doby Hagar Trucking	23327		130 bbl vac truck, labor (steve b)
Labor - Contract	Geo Drilling Fluids Inc.	117057		Labor - Ryan Lindsey
Rentals - Misc	Pacific Petroleum	185457		Couple equipment and truck to bakersfield to load
Trucking - Vacuum	Pacific Petroleum	184783		Haul cc water from GEO to Socal Gas. Load 1 load brine from SS25 to 69 pad. Used 2x80 bbl vac trucks
Coiled tubing	Halliburton Energy Services	0902876399		CT 1-1/2" Class I Div II Unit, 6 man crew/lodge, CT Zone II charge, CT Add Hose Package,
Rentals - Misc	PEB (Padilla Electric Builders)	15-4960		SS4/SS7 generators and trailers
Trucking - Vacuum	Doby Hagar Trucking	127255		Load 1330 bbl CC water and haul to SS-9 site and unload into JJ-8. Mix fresh water into JJ-8

Report Generated on: 12/21/2015

Standard Sesnon 25

Daily Well Work Report

The Gas Company

Daily Summary

Daily Costs

Cost Des	Vendor	Ticket	Field Est (Cost)	Note
Crane Services	T & T Trucking	225908	[redacted]	40 ton crane. Operator (Tim)
Rentals - Misc	Pacific Petroleum	R-19468		House Trailer, gray water tanks, portable restroom
Crane Services	T & T Trucking	226059		110 ton crane. Operator (Mike)
Labor - Contract	Steve Cardiff	2015-26		Steve Cardiff
BOPE	Weatherford International	11447535 SR		Choke Manifold, Generator, 2xblower, air compressor, hoses, Super Choke, Spools, adapters, API Rings
Labor - Contract	BCI	17140		Labor, Laborers, man lift, mules, air comp, septic tanks, crew with tools, barricades
Rentals - Misc	Pacific Petroleum	185205		Got parts to stabalize HT's.
Labor - Contract	BCI	17138		Equipment, operator, truck, fuel truck
Tanks/Bins	Pacific Petroleum	R-19464		Portable tanks at 69 site, Light Tower
Rentals - Misc	Pacific Petroleum	R-19474		9 x House Trailers, Gray water tanks, 13 x Portable water trailers
Rentals - Misc	Pacific Petroleum	R-19475		10 x generators, containments, fuel trailers, light towers, office trailers
Rentals - Misc	Pacific Petroleum	R-19477		3 x House Trailers, Gray tanks, 3 x PWT, 3 x Generators, Containments
Wireline - Production Equip.	Western Wireline	13027		Marine Wireline unit, Slickline unit, lubricator, flanges, pump
Wireline - Production Equip.	Western Wireline	12931		Offshore unit 306, temp log, baker setting tool, lubricator, crew
Trucking - Non-Fluid		4886515		ACME Trucking - Driver Retention 11/2/15-11/15/15 (Preston)
Trucking - Non-Fluid		4884104		AMCE Trucking - Driver Retention 11/2/15-11/15/2015. Luther
Trucking - Non-Fluid		4884103		ACME Trucking - Driver Retention 11/2/15-11/15/15. Shaun

Report Generated on: 12/21/2015

Ex. I-9

CALLTYPE	RESPONSIBLE_COMPANY	RESPONSIBLE_ORG_TYPE	RESPONSIBLE_CITY	RESPONSIBLE_STATE	RESPONSIBLE_ZIP	SOURCE
INC	SOUTHERN CALIFORNIA GAS	PRIVATE ENTERPRISE	NORTH RIDGE	CA	91326	TELEPHONE

SEQNOS	DESCRIPTION_OF_INCIDENT
1133370	CALLER STATED THAT DURING WELL KILL ACTIVITIES AN OILY MIST WAS BEING RELEASED INTO THE AIR AS WELL AS OILY LIQUID BEING RELEASED TO THE GROUND IN THE AREA OF THE WELL.

TYPE_OF_INCIDENT	INCIDENT_CAUSE	INCIDENT_DATE_TIME	INCIDENT_DTG	INCIDENT_LOCATION
FIXED	OTHER	11/13/2015 13:17	DISCOVERED	

LOCATION_ADDRESS	LOCATION_STREET1	LOCATION_STREET2	LOCATION_NEAREST_CITY
12801 TAMPA AVENUE			NORTH RIDGE

LOCATION_STATE	LOCATION_COUNTY	LOCATION_ZIP	DISTANCE_FROM_CITY	DISTANCE_UNITS	DIRECTION_FROM_CITY	LAT_DEG	LAT_MIN
CA	LOS ANGELES	91326					

LAT_SEC	LAT_QUAD	LONG_DEG	LONG_MIN	LONG_SEC	LONG_QUAD	LOCATION_SECTION	LOCATION_TOWNSHIP	LOCATION_RANGE	POTENTIAL_FLAG
									N

SEQNOS	FIRE_INVOLVED	FIRE_EXTINGUISHED	ANY_EVACUATIONS	NUMBER_EVACUATED	WHO_EVACUATED	RADIUS_OF_EVACUATION	ANY_INJURIES	NUMBER_INJURED
1133370	N	U	N				N	

NUMBER_HOSPITALIZED	ANY_FATALITIES	NUMBER_FATALITIES	ANY_DAMAGES	DAMAGE_AMOUNT	AIR_CORRIDOR_CLOSED	AIR_CORRIDOR_DESC	AIR_CLOSURE_TIME	WATERWAY_CLOSED
	N		N		N			N

WATERWAY_DESC	WATERWAY_CLOSURE_TIME	ROAD_CLOSED	ROAD_DESC	ROAD_CLOSURE_TIME
		N		

CLOSURE_DIRECTION	MAJOR_ARTERY	TRACK_CLOSED	TRACK_DESC
	N	N	

TRACK_CLOSURE_TIME	MEDIA_INTEREST	MEDIUM_DESC	ADDITIONAL_MEDIUM_INFO
	UNKNOWN	LAND	LAND/ATMOSPHERE

BODY_OF_WATER	TRIBUTARY_OF	NEAREST_RIVER_MILE_MAKER	RELEASE_SECURED
			N

ESTIMATED_DURATION_OF_RELEASE	RELEASE_RATE

DESC_REMEDIAL_ACTION	STATE_AGENCY_ON_SCENE
RELEASE IS ONGOING AT THIS TIME. RESPONDING WITH CLEAN UP EFFORTS AND CONTAINMENT AT THIS TIME. CALIFORNIA DIVISION OF OIL AND GAS IS ON SITE.	CA DIV OIL AND GAS

STATE_AGENCY_REPORT_NUM	OTHER_AGENCY_NOTIFIED	WEATHER_CONDITIONS	AIR_TEMPERATURE	WIND_SPEED	WIND_DIRECTION	WATER_SUPPLY_CONTAMINATED	SHEEN_SIZE
15-6708		SUNNY		20	SW	U	

SHEEN_COLOR	DIRECTION_OF_SHEEN_TRAVEL	SHEEN_ODOR_DESCRIPTION	WAVE_CONDITION	CURRENT_SPEED	CURRENT_DIRECTION	WATER_TEMPERATURE

TRACK_CLOSE_DIR	EMPL_FATALITY	PASS_FATALITY	COMMUNITY_IMPACT	WIND_SPEED_UNIT	EMPLOYEE_INJURIES	PASSENGER_INJURIES	OCCUPANT_FATALITY	CURRENT_SPEED_UNIT
				MPH				

ROAD_CLOSURE_UNITS	TRACK_CLOSURE_UNITS	SHEEN_SIZE_UNITS	ADDITIONAL_INFO

STATE_AGENCY_NOTIFIED	FEDERAL_AGENCY_NOTIFIED	NEAREST_RIVER_MILE_MARKER	SHEEN_SIZE_LENGTH	SHEEN_SIZE_LENGTH_UNITS
OES				

SHEEN_SIZE_WIDTH	SHEEN_SIZE_WIDTH_UNITS	OFFSHORE	DURATION_UNIT	RELEASE_RATE_UNIT	RELEASE_RATE_RATE	PASSENGERS_TRANSFERRED
		N				NO

SEQNOS	TYPE_OF_FIXED_OBJECT	POWER_GENERATING_FACILITY	GENERATING_CAPACITY	TYPE_OF_FUEL	NPDES
1133370	WELLHEAD	U			

NPDES_COMPLIANCE	PIPELINE_TYPE	DOT_REGULATED	PIPELINE_ABOVE_GROUND	EXPOSED_UNDERWATER	PIPELINE_COVERED
U		U	ABOVE	N	U

SEQNOS	CHRIS CODE	CAS NUMBER	UN NUMBER	AMOUNT OF MATERIA	UNIT OF MEASURE	NAME OF MATERIAL	IF REACHED WATE	AMOUNT IN WATER	UNIT OF MEASURE REACH WATER
1133370	OIL	000000-00-0		0	UNKNOWN AMOUNT	OIL: CRUDE	NO		