



**ORIGINAL**

2016 MAR -1 PM 12:16  
CALIFORNIA REGIONAL WATER  
QUALITY CONTROL BOARD  
LOS ANGELES REGION

Amy Kitson  
Storage Engineering Manager

12801 Tampa Avenue  
Northridge, CA 91326

(818) 701-3291  
akitson@semprautilities.com



February 29, 2016

**VIA COURIER**

Los Angeles Regional Water Quality Control Board  
320 W. Fourth Street  
Suite 200  
Los Angeles, CA 90013  
Attn: Joshua Cwikla

**Subject:** Investigative Order No R4-2015-0300 – Supplemental Response 1

Mr. Cwikla:

On February 18, 2016, Southern California Gas Company (“SoCalGas”) submitted a letter and attached a “Technical Report” in response to the Los Angeles Regional Water Quality Control Board’s (“Regional Board”) December 18, 2015 order (the “13267 Letter”) to submit information related to the disposal of well drilling fluids, well completion fluids and well production fluids from SoCalGas’s oil and gas operations in Los Angeles and Ventura County, California. In that response, we indicated that SoCalGas’s investigation efforts were ongoing and that we would supplement our February 18, 2016 response and provide certain additional remediation closure reports. We are providing such supplemental information with this report.

Specifically, we are providing additional information<sup>1</sup> in response to the following information requests contained in the 13267 Letter:

- **Regional Board Request:** 1) *The locations of all current and historic sumps in your area of operations used in the discharge of fluids to land. Provide all information regarding liner material used with each sump, if any. Provide the status of all sumps, including active, inactive, closed with cleanup, closed without cleanup, or unknown. For sumps closed with cleanup, describe the cleanup activities and cleanup level.*
- **Regional Board Request:** 2) *The procedures you use to close or abandon sumps, or otherwise cease their operation.*
- **Regional Board Request:** 6) *The location of any domestic, municipal, and commercial water wells within a half-mile radius of any current or historic sump.*

<sup>1</sup> The information and reports provided herein supplement SoCalGas’s February 18, 2016 Technical Report.

With respect to Regional Board Request 1, we are submitting narratives regarding a number of historical sumps at the Aliso Canyon Gas Storage Facility (the "Facility") along with information in the form of Attachment B to the 13267 Letter. We are also submitting a October 2007 report from Eco Environmental Associates ("Eco"), which investigated "abandoned oil field sumps" designated 14 through 23 within the western portion of the Facility.

With respect to Regional Board Request 2, we are providing a "Draft Remediation Closure Report" for Sumps 15, 21, and 22 and a summary report of remediation efforts at Sump 2, each prepared by Eco.

With respect to Regional Board Request 6, as discussed in our February 18, 2016 Technical Report, SoCalGas engaged a third party consultant (Geosyntec) to determine whether or not any domestic, municipal, and commercial water wells existed within ½ mile of the Facility. Geosyntec reviewed available historical aerial photographs, topographic maps, and Department of Water Resources and Regional Board databases for indications of past or existing groundwater wells near the Facility. No groundwater wells were identified within ½ mile of the Facility, with the exception one well plotted on a 1979 topographic map approximately ¼-mile north of the northern Facility boundary. The well, if still present, would be located north of the topographic divide, and would not share the same watershed as the Facility.

Please note that SoCalGas's investigation efforts are ongoing. The response set forth herein and the attached documents provided are based upon the information available to SoCalGas at the time of this submittal. SoCalGas may supplement this response with additional information regarding historical sumps at the Facility. SoCalGas is also continuing to investigate whether or not there are other historical sumps at its other Los Angeles County storage facilities and will provide additional responsive information if uncovered.

Furthermore, continued investigation may cause our February 18, 2016 response or this response to be incomplete or subject to amendment or modification. SoCalGas, therefore, reserves its right to amend or further supplement the February 18, 2016 response or this response and submit additional documents in the event of new or additional information and/or changed circumstances.

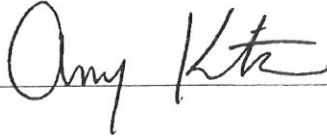
Sincerely,

Amy Kitson

Enclosures

**Certification Statement**

I, Amy Kitson, certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of the those individuals immediately responsible for obtaining the information, I believe that the information is true and accurate. SoCalGas is continuing its investigation to ensure the information is complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

  
\_\_\_\_\_

Owner and/or Operator	Field Name	County	Sump Name/Description	Status (Active/Inactive)	Sump Liner Material	Sump Investigated	Analytical Results	Sump Cleaned Up	Cleanup Criteria	Volume of Soil Excavated during cleanup (tons)
SoCalGas	Aliso Canyon	Los Angeles	Sump 1	Inactive	unknown	yes	Only one analyte was detected in one sample at an elevated concentration (arsenic at 14.4 mg/kg; PRG=2.4 mg/kg).	No remedial activities identified	The project cleanup levels for petroleum hydrocarbons were as follows: • TPH in the C4-C12 range - 100 milligrams per kilogram (mg/kg) • TPH in the C13-C22 range - 1,000 mg/kg • TPH in the C23-C40 range - 10,000 mg/kg These targeted cleanup levels were based on those established by the Regional Water Quality Control Board (RWQCB) for general remediation of TPH-impacted soils.	9725
SoCalGas	Aliso Canyon	Los Angeles	Sump 2	Inactive	unknown	yes	Elevated TPH detected in three samples from two trenches (maximum TPH-D at 25,900 mg/kg; CRWQCB threshold = 10,000 mg/kg).	Three drums found in the sump were extricated and disposed. One drum contained about 5 gallons of sludge. Following removal of the drums soil samples were collected and analyzed for TPH, metals, SVOCs (semi-volatile organic compounds), VOCs, PCBs (polychlorinated biphenyls) and pH. No analytes in the soil were found in excess of the CRWQCB (1996) or USEPA (1998) screening criteria. The sump was remediated in 2010. The final excavation area covered an area of approximately 13,060 square feet to a depth of between 26 and 31 feet.		
SoCalGas	Aliso Canyon	Los Angeles	Sump 3	Inactive	unknown	yes	One PAH (benzo (a) pyrene was identified at 0.74 mg/kg (PRG = 0.26mg/kg)	No remedial activities identified		
SoCalGas	Aliso Canyon	Los Angeles	Sump 4	Inactive	unknown	yes	PAHs (benzo (a) pyrene and dibenz(a,h) anthracene) were found to exceed their respective PRGs.	No remedial activities identified		
SoCalGas	Aliso Canyon	Los Angeles	Sump 5	Inactive	unknown	Could not be definitively located and were therefore not investigated	No samples analyzed	No remedial activities identified		
SoCalGas	Aliso Canyon	Los Angeles	Sump 6	Inactive	unknown	yes	All analytes measured in the samples collected in Sump 6 were below the CRWQCB (1996) and USEPA thresholds and was therefore not remediated.	No remedial activities identified		
SoCalGas	Aliso Canyon	Los Angeles	Sump 7	Inactive	unknown	Could not be definitively located and were therefore not investigated. One trench was however excavated and sampled in the suspected sump area.	All analytes measured in the samples collected in suspected Sump 7 were below the CRWQCB (1996) and USEPA thresholds and was therefore not remediated.	No remedial activities identified		
SoCalGas	Aliso Canyon	Los Angeles	Sump 8	Inactive	unknown	yes	All analytes measured in the samples collected in Sump 8 were below the CRWQCB (1996) and USEPA thresholds and was therefore not remediated.	No remedial activities identified		
SoCalGas	Aliso Canyon	Los Angeles	Sump 9	Inactive	unknown	yes	All analytes measured in the samples collected in Sump 9 were below the CRWQCB (1996) and USEPA thresholds and was therefore not remediated.	No remedial activities identified		
SoCalGas	Aliso Canyon	Los Angeles	Sump 10	Inactive	unknown	yes	Samples were analyzed for TPH and found to be below CRWQCB (1996) thresholds.	No remedial activities identified		
SoCalGas	Aliso Canyon	Los Angeles	Sump 11	Inactive	unknown	Yes, Sump could not be definitively located. Suspect area was investigated but no analytes exceeded CRWQCB thresholds or USEPA PRGs.	No analytes exceeded CRWQCB (1996) thresholds or USEPA PRGs.	No remedial activities identified		
SoCalGas	Aliso Canyon	Los Angeles	Sump 12	Inactive	unknown	Could not be definitively located and were therefore not investigated	N/A	No remedial activities identified		
SoCalGas	Aliso Canyon	Los Angeles	Sump 13	Inactive	unknown	yes	All analytes measured in the samples collected in Sump 9 were below the CRWQCB (1996) and USEPA thresholds and was therefore not remediated.	No remedial activities identified		
SoCalGas	Aliso Canyon	Los Angeles	Sump 14	Inactive	unknown	yes	The TPH and VOC concentrations within soil samples collected from this sump are below the RWQCB screening levels. The reported metal concentrations in these soil samples were below their respective CHHSLs (for industrial settings).	No remediation recommended		
SoCalGas	Aliso Canyon	Los Angeles	Sump 15	Inactive	unknown	Yes	The upper three feet of soil within Sump 15 was found to contain petroleum hydrocarbons, metals, and VOCs. The TPH (C13-C22 range) and benzene concentrations within these upper soils exceeded regulatory cleanup levels.	Upper three feet of soil exceeded regulatory levels for petroleum hydrocarbons, metals and VOCs. The final excavation covered approximately 3,040 square feet of area. The excavation's depth varied between 2.6 and 3.2 feet. A relatively small portion of this sump's northern area was not excavated due to the presence of filled water and oil tanks.	The project cleanup levels for petroleum hydrocarbons were as follows: • TPH in the C4-C12 range - 100 milligrams per kilogram (mg/kg) • TPH in the C13-C22 range - 1,000 mg/kg • TPH in the C23-C40 range - 10,000 mg/kg These targeted cleanup levels were based on those established by the Regional Water Quality Control Board (RWQCB) for general remediation of TPH-impacted soils.	266.71
SoCalGas	Aliso Canyon	Los Angeles	Sump 16	Inactive	unknown	Yes	N/A	No remediation was deemed necessary.		
SoCalGas	Aliso Canyon	Los Angeles	Sump 17	Inactive	unknown	Not investigated due to inaccessibility	N/A	none		
SoCalGas	Aliso Canyon	Los Angeles	Sump 18	Inactive	unknown	Not investigated due to inaccessibility	N/A	none		
SoCalGas	Aliso Canyon	Los Angeles	Sump 19	Inactive	unknown	Not investigated due to inaccessibility	N/A	none		
SoCalGas	Aliso Canyon	Los Angeles	Sump 20	Inactive	unknown	yes	The TPH and VOC concentrations within soil samples collected from this sump are below the RWQCB screening levels. The reported metal concentrations in these soil samples were below their respective CHHSLs (for industrial settings).	No remediation was recommended		
SoCalGas	Aliso Canyon	Los Angeles	Sump 21	Inactive	unknown	yes		The excavation's depth varied between 18 and 24 inches. The final excavation covered approximately 2,500 square feet of area.	The project cleanup levels for petroleum hydrocarbons were as follows: • TPH in the C4-C12 range - 100 milligrams per kilogram (mg/kg) • TPH in the C13-C22 range - 1,000 mg/kg • TPH in the C23-C40 range - 10,000 mg/kg These targeted cleanup levels were based on those established by the Regional Water Quality Control Board (RWQCB) for general remediation of TPH-impacted soils.	156.1
SoCalGas	Aliso Canyon	Los Angeles	Sump 22	Inactive	unknown	yes	TPH and VOC concentrations reported in soil samples collected from Sump 22.	TPH and VOC impacted soil was removed. The depth of this excavation extended up to 20.5 feet, and covered an area of approximately 13,956 square feet.	The project cleanup levels for petroleum hydrocarbons were as follows: • TPH in the C4-C12 range - 100 milligrams per kilogram (mg/kg) • TPH in the C13-C22 range - 1,000 mg/kg • TPH in the C23-C40 range - 10,000 mg/kg These targeted cleanup levels were based on those established by the Regional Water Quality Control Board (RWQCB) for general remediation of TPH-impacted soils.	13,987.06
SoCalGas	Aliso Canyon	Los Angeles	Sump 23	Inactive	unknown	yes	The TPH and VOC concentrations within soil samples collected from this sump are below the RWQCB screening levels. The reported metal concentrations in these soil samples were below their respective CHHSLs (for industrial settings).	No remediation was recommended		
SoCalGas	Aliso Canyon	Los Angeles	Frew 7	Inactive	unknown	yes	TPH and VOC concentrations reported in soil samples collected from Sump 22.	No remediation was recommended		
SoCalGas	Aliso Canyon	Los Angeles	Sesnon Fee 2 and 2A SF2 and SF2A	Inactive	unknown	yes	TPH and VOC concentrations reported in soil samples collected from Sump 22.	May have been remediated May have been remediated		
SoCalGas	Aliso Canyon	Los Angeles		Inactive	unknown			Appears to have been remediated in 2003		

Example for Each Sump

(Current) Owner and/or Operator	Field Name	County	Sump Name/Description	Description	Sump Location Latitude Longitude	(LxWxD) Sump Volume in ft.3	When Was the Sump (First) Excavated	How Many Years Was the Sump Active	Total Annual Amount of Fluid Discharged in bbls	Composition of Fluid(s) <sup>1</sup>	Was Sump filled with Soil or Other Material? (Yes/No)	When Was the Sump Filled?	What Material Was Used to Fill the Sump?	Was There Solidified Waste? (Yes/No)	If Yes, What Was the Composition of those Solids?
Southern California Gas Company (SoCalGas)	Aliso Canyon	Los Angeles	Sump 1	The sump is evident in photos from 1949 and 1954. Based on site reconnaissance and trenching data, the sump cavity was excavated in bedrock, and once filled, covered with locally derived material. Located approximately 210 feet southeast of an oil well known as "Standard Sesnon 24".		Based on aerial photographs 80 x 150. Limey shale encountered at 11 feet below ground surface (bgs)	Pothole trench excavated in 1997	Unknown	Unknown		unknown	Unknown	Covered with locally derived material	none encountered	
SoCalGas	Aliso Canyon	Los Angeles	Sump 2	Sump 2 is positioned on a relatively flat pad near the oil well know as "Standard Sesnon 3".		Based on aerial photographs 80 x 100. However, the final remediation excavation area covered an area of approximately 13,060 square feet to a depth of between 26 and 31 feet.	Drum extracated in 1997. Exploratory trenching excavated in 1996.	Unknown	Unknown		Yes	Unknown	3 buried 55 -gallon drums were found and removed. Upper 4.5 feet contained fill soil and scattered debris. Surficial material was underlain by stained soils and drilling muds.	Yes	Drilling muds encountered
SoCalGas	Aliso Canyon	Los Angeles	Sump 3	Sump identified with some degree of uncertainty as absolute evidence of a sump was not identified during field investigations.		Siltstone bedrock encountered at 6 feet bgs	Drums extracated in 1997.	Unknown	Unknown		Yes	Unknown	One buried 55-gallon drum was found and removed. Fill soil was encountered from ground surface to about 6 feet bgs.	none encountered	
SoCalGas	Aliso Canyon	Los Angeles	Sump 4	Based on available data the apparent location of the sump is north of an oil well known as "Fernando Fee 11". Groundwater was encountered at 19 feet bgs during a 1997 investigation. During a subsequent investigation no groundwater was encountered and therefore it was estimated that the water was perched transient water.			Exploratory trench excavated in 1997	Unknown	Unknown		Yes	Unknown	Soils from trenching and exploratory borings indicated the presence of stained and unstained soils within the top 21 feet, with drilling muds identified at 15-18 bgs.	Yes	Drilling muds encountered
SoCalGas	Aliso Canyon	Los Angeles	Sump 5	Not definitively identified		The suspected sump was not identified through aerial photos, site reconnaissance mapping or geophysical surveying.	Exploratory trench excavated in 1997	Unknown	Unknown		unknown	Unknown	N/A	none encountered	
SoCalGas	Aliso Canyon	Los Angeles	Sump 6	The sump is positioned on top of a southwest-trending ridgeline that extends about 500 feet southwest of an oil well known as "Porter 32". There is limited access to the sump area.		Based on aeriels 60 x 110. Siltstone bedrock encountered at 8 feet bgs	Exploratory trench excavated in 1997	Unknown	Unknown		unknown	Unknown	Fill soils, were encountered from surface to a depth of approximately 8 feet bgs, where siltstone bedrock was encountered.	none encountered	
SoCalGas	Aliso Canyon	Los Angeles	Sump 7	Not definitively identified. Aerial photography and field reconnaissance efforts could not confirm the presence of a sump.		unknown	Two exploratory pothole trenches excavated in 1997	Unknown	Unknown		unknown	Unknown	Unstained fill soil encountered in trenches in about top 1-2 feet, where siltstone bedrock was encountered.	none encountered	
SoCalGas	Aliso Canyon	Los Angeles	Sump 8	Sump presence was confirmed by research and field work. The sump actually consists of two adjacent, but physically distinct sumps, are referred to as the eastern and western sumps.		35 x35 (west) and 25 x 25 (east). Siltstone bedrock encountered at 11 feet bgs in west sump, 3 ft. bgs in east sump.	One exploratory trench excavated in each sump in 1997	Unknown	Unknown		unknown	Unknown	Concrete debris encountered from surface to 1 foot bgs, unstained fill soil was encountered from 1 to 11 feet bgs (west). Unstained fill soil (0-3 feet)	none encountered	
SoCalGas	Aliso Canyon	Los Angeles	Sump 9	Location of the sump was confirmed by aerial photos, however actual field evidence of sump materials was not found.		25 x 60. Siltstone bedrock encountered at 12 feet bgs	Exploratory trench excavated in 1997	Unknown	Unknown		unknown	Unknown	Light brown coble silt (fill) encountered to 12 bgs	none encountered	
SoCalGas	Aliso Canyon	Los Angeles	Sump 10	The location not confirmed, albeit confirmed on aerial photographs.		60 x 85	Two exploratory pothole trenches excavated in 1996	Unknown	Unknown		unknown	Unknown	Sandy silt to total depth of potholes (12-15 bgs)	none encountered	
SoCalGas	Aliso Canyon	Los Angeles	Sump 11	The sump is apparent in 1949 and 1954 aeriels, with no immediately adjacent oil wells.		55 x 220. Sandstone encountered at 12 bgs	Exploratory trenching performed in 1996	Unknown	Unknown		unknown	Unknown	Silty sand and silty sand talus debris.	none encountered	
SoCalGas	Aliso Canyon	Los Angeles	Sump 12	Not definitively identified. Estimated to be in the general vicinity of an oil well known as "Porter 42"		unknown	unknown	Unknown	Unknown			Unknown	unknown	none encountered	
SoCalGas	Aliso Canyon	Los Angeles	Sump 13	Sump 13 is positioned on a relatively flat pad near the oil well know as "Porter Sesnon 20".		35 x 75	Exploratory trenching performed in 1996	Unknown	Unknown			Unknown			
SoCalGas	Aliso Canyon	Los Angeles	Sump 14	Sump located within a relatively level area on upper portion of hill, south of oil well and pad		11,717 square feet	Exploratory trenching performed in 2006	Unknown	Unknown			Unknown	brown sandy silt, few black oil stained nodules	none encountered	
SoCalGas	Aliso Canyon	Los Angeles	Sump 15	Sump 15 is located approximately 180 feet north of a well referred to as 'Orcutt - Del Aliso - Sesnon 1' # 1		11,127 square feet	SoCalGas performed soil removal activates in 2008	Unknown	Unknown			Unknown	silty clay, some black stained oil nodules, bentonite		
SoCalGas	Aliso Canyon	Los Angeles	Sump 16	Sump 16 is located near the well referred to as 'Orcutt - Del Aliso - Sesnon 1' # 1		6,652 square feet	Exploratory trenching performed in 2006	Unknown	Unknown			Unknown	Brown to olive brown silty clay with abundant gravel- to cobble-size angular rock fragments		
SoCalGas	Aliso Canyon	Los Angeles	Sump 17	Sump was inaccessible			unknown	Unknown	Unknown			Unknown			
SoCalGas	Aliso Canyon	Los Angeles	Sump 18	Sump was inaccessible		16,480 square feet	unknown	Unknown	Unknown			Unknown			
SoCalGas	Aliso Canyon	Los Angeles	Sump 19	Sump was inaccessible		8,937 square feet	unknown	Unknown	Unknown			Unknown			
SoCalGas	Aliso Canyon	Los Angeles	Sump 20	Sump 20 is located within a relatively level area just below a cut slope A light growth of grass and brush covers this sump area. There are no visual indications of the former sump location other than the flat-lying pad and a northern cut slope. Stained soil or possible oil seepage was not encountered within or adjacent to this sump location.		13,226 square feet	Exploratory trenching performed in 2006	Unknown	Unknown			Unknown			
SoCalGas	Aliso Canyon	Los Angeles	Sump 21	Sump 21 is two adjoining sumps located west of an access road that traverses north and past the well referred to as 'Sesnon Fee' 6 (Figure 3). This sump is located approximately 200 feet southwest of this well.		19,364 square feet	SoCalGas performed soil removal activities in 2008	Unknown	Unknown			Unknown			
SoCalGas	Aliso Canyon	Los Angeles	Sump 22	Sump 22 is located approximately 150 feet west of the well referred to as 'Sesnon Fee' 8.		9,353square feet	SoCalGas performed soil removal activities in 2008	Unknown	Unknown			Unknown			
SoCalGas	Aliso Canyon	Los Angeles	Sump 23	Sump 23 is located within a relatively level area at the south end of an overgrown This sump area is covered with a moderate growth of coastal shrub. Fences border a portion of the former sump area. Stained soil or possible oil seepage was not encountered within or adjacent to this sump location.		6,888 square feet	Exploratory trenching performed in 2006	Unknown	Unknown			Unknown			
SoCalGas	Aliso Canyon	Los Angeles	Sump Frew 7	western sump area				Unknown	Unknown			Unknown			
SoCalGas	Aliso Canyon	Los Angeles	Sump N	western sump area				Unknown	Unknown			Unknown			
SoCalGas	Aliso Canyon	Los Angeles	Sesnon Fee 2 and 2A(SF2 and SF2A)					Unknown	Unknown			Unknown			