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February 29, 2016

TO: Each Supervisor

FROM: Cynthia A. Harding, M.P.H.

Daryl L. Osby

SUBJECT: **ALISO CANYON STORAGE FACILITY GAS LEAK WEEKLY UPDATE**

On January 19, 2016, the Department of Public Health (DPH) and the Fire Department (LACoFD) submitted a memorandum on the natural gas leak at the Aliso Canyon Storage Facility and informed your Board that weekly updates would be provided on an ongoing basis. This is to provide the seventh written update from DPH and LACoFD, which is contained in Attachments 1 and 2. The Chief Executive Officer’s recent report to your Board on Office of Emergency Management (OEM) activities supporting coordination and recovery efforts is provided in Attachment 3.

Attachment 1 provides a summary of findings and tables providing the data collected under the Expanded Air Monitoring Plan as of February 24, 2016. This current round of weekly monitoring reflects data gathered after the gas leak was sealed by SoCalGas on February 11, 2016. Within this current round of monitoring, methane levels have remained below the lower explosive limit, and benzene levels remain below both the short-term and chronic exposure limits. Throughout the community, air concentrations of sulfur odorants remain below the concentration able to be detected by instruments. Since the flow of gas was controlled on February 11, residents have been reporting that they no longer smell natural gas in the community.

DPH will continue to monitor the Porter Ranch area and analyze the data gathered under the Expanded Air Monitoring Plan for any unusual findings. If at any time DPH observes any data suggesting elevated exposures or health impacts, DPH will take the action necessary to protect public health. Further, DPH is developing a Community Indoor Air Monitoring Plan to determine whether natural gas has accumulated within previously vacated homes. DPH is currently working with multiple agencies to finalize the sampling protocol.

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Attachment 2 provides an update from LACoFD on recent activities supporting recovery efforts. These activities include providing input on DPH's Community Indoor Air Monitoring Plan draft, reviewing air monitoring sample results from community monitoring, and analyzing related state and federal legislation under consideration. Additionally, LACoFD will continue to work with Southern California Air Quality Monitoring District on their ongoing well sampling program.

DPH, OEM, and LACoFD continue to work closely together to ensure a coordinated and unified County response to the natural gas leak. The next weekly written update will be provided on March 7, 2016.

If you have any questions or need additional information, please let us know.

CAH
DLO

Attachments

c: Chief Executive Officer
County Counsel
Executive Officer, Board of Supervisors

**Los Angeles County Department of Public Health
Aliso Canyon Expanded Air Monitoring Effort
Weekly Update of February 29, 2016**

Background

The Los Angeles County Department of Public Health (DPH) continues to monitor outdoor air quality through the Expanded Air Monitoring Plan communities adjacent to the Aliso Canyon Storage Facility. This Plan is an ongoing effort of DPH, supported by multiple agencies engaged in air monitoring and data collection, including Los Angeles County Fire Department (LACFD), Southern California Gas (SCG), South Coast Air Quality Management District (AQMD), Los Angeles Unified School District (LAUSD), and California Air Resources Board (CARB). The flow of natural gas from the massive leak at the Aliso Canyon Storage Facility was stopped on February 11, 2016, and state agencies certified the well was plugged on February 18, 2016. Outdoor air monitoring will continue to be conducted until it is determined that air quality has been restored to normal for the region.

Attached Table 1 shows the most recent week's data, and Figure 1 illustrates peak concentrations of methane in outdoor air before and after well control. Tables 2-5 summarize 10 days of air monitoring results for samples collected after the flow of gas was stopped on February 11, as compared to samples collected before well control. This summary includes two types of samples being collected from three areas: Within the community, within the facility, and along the facility property line adjacent to the community.

10-Minute Grab Samples: Currently, these samples are taken daily from 11 locations within the Porter Ranch community and historically, from 9 locations within the facility. Grab samples provide a snapshot of the chemical concentrations and more easily identifies peak levels.

12-Hour Integrated Samples: These samples are taken twice daily from six locations along the community/facility fence-line. They are collected from three locations within the facility (as of 1/12) and from three locations within the community (as of 1/29). This type of sample provides a complete picture of possible residential exposures to average chemical concentrations over the entire day.

Summary of Air Monitoring Results: Results show methane concentrations have decreased significantly following well control on Thursday 2/11.

Methane: Health protective levels for methane are based on the flammability limit. The most recent week (2/18-2/24) of methane results for grab samples collected in the community ranged from 2.2 parts per million (ppm) to 3.0 ppm. Following well control on 2/11, the 12-hour samples along the community/facility fence-line ranged from 2.1 ppm to 4.4 ppm; and 12-hour samples from within the community ranged from 2.0 ppm to 3.4 ppm. Following well control on 2/11, peak methane levels have decreased significantly, as shown in Figure 1. Since the beginning of the incident, community methane levels have been below the lower explosive limit of 50,000 ppm, and are not expected to cause any health effects. Recent methane levels measured since the flow of gas stopped on 2/11 have remained below 5 ppm, an action level that would trigger potential investigation into other sources of methane.

Benzene: The most recent week (2/18-2/24) of benzene results for grab samples collected in the community ranged from 0.13 ppb to 0.79 ppb, which are below the Office of Environmental Health Hazard Assessment (OEHHA) acute short-term (1-hour) exposure limit of 8 ppb.

All grab sample measurements in the community to date have been below the OEHHA acute exposure limit of 8 ppb, and less than 1% of benzene levels measured within the facility perimeter have exceeded this limit. Following well control on 2/11, benzene detected in the 12-hour samples along the community/facility fence-

line ranged from 0.04 to 0.2 ppb; and 12-hour samples from within the community ranged from 0.05 to 0.3 ppb. These levels are consistent with the lower end of the range of background benzene for the Los Angeles Air Basin.

Sulfur Odorants: Throughout the community, air concentrations of sulfur odorants remain below the concentration able to be detected by instruments. Since the flow of gas was controlled on February 11, residents have been reporting that they no longer smell natural gas in the community.

Indoor Air Monitoring

DPH is developing a Community Indoor Air Monitoring Plan to determine whether natural gas has accumulated within previously vacated homes. DPH is currently working with AQMD, CARB, OEHHA, California Department of Public Health (CDPH), and the United States Environmental Protection Agency (USEPA) on the sampling protocol. DPH continues to investigate the need for additional environmental assessments.

Ongoing Assessments of Health

Some residents are continuing to report symptoms that they experienced during the leak upon returning home. These residents are being encouraged to seek the advice of their medical providers if they experience symptoms upon returning home. It is unclear whether these symptoms are related to environmental conditions within the Porter Ranch area. Therefore, DPH is conducting odor surveillance surveys and will soon be conducting door-to-door surveys with residents to further assess these health concerns.

Attachments

Figure 1	Daily Community Peak Methane Concentrations, February 1 - 21
Table 1	Daily Community Peak Concentrations for the Week (February 18 - 20)
Table 2	Summary of Community Peak Concentrations: Pre- and Post- Well Control
Table 3	Summary of 12-Hour Monitoring Within the Facility: Pre- and Post- Well Control
Table 4	Summary of 12-Hour Monitoring Along Community/Facility Fence-line: Pre- and Post-Well Control
Table 5	Summary of 12-Hour Monitoring Within the Community: Pre- and Post- Well Control

Figure 1. Daily Community Peak Methane Concentrations, February 1 – 21

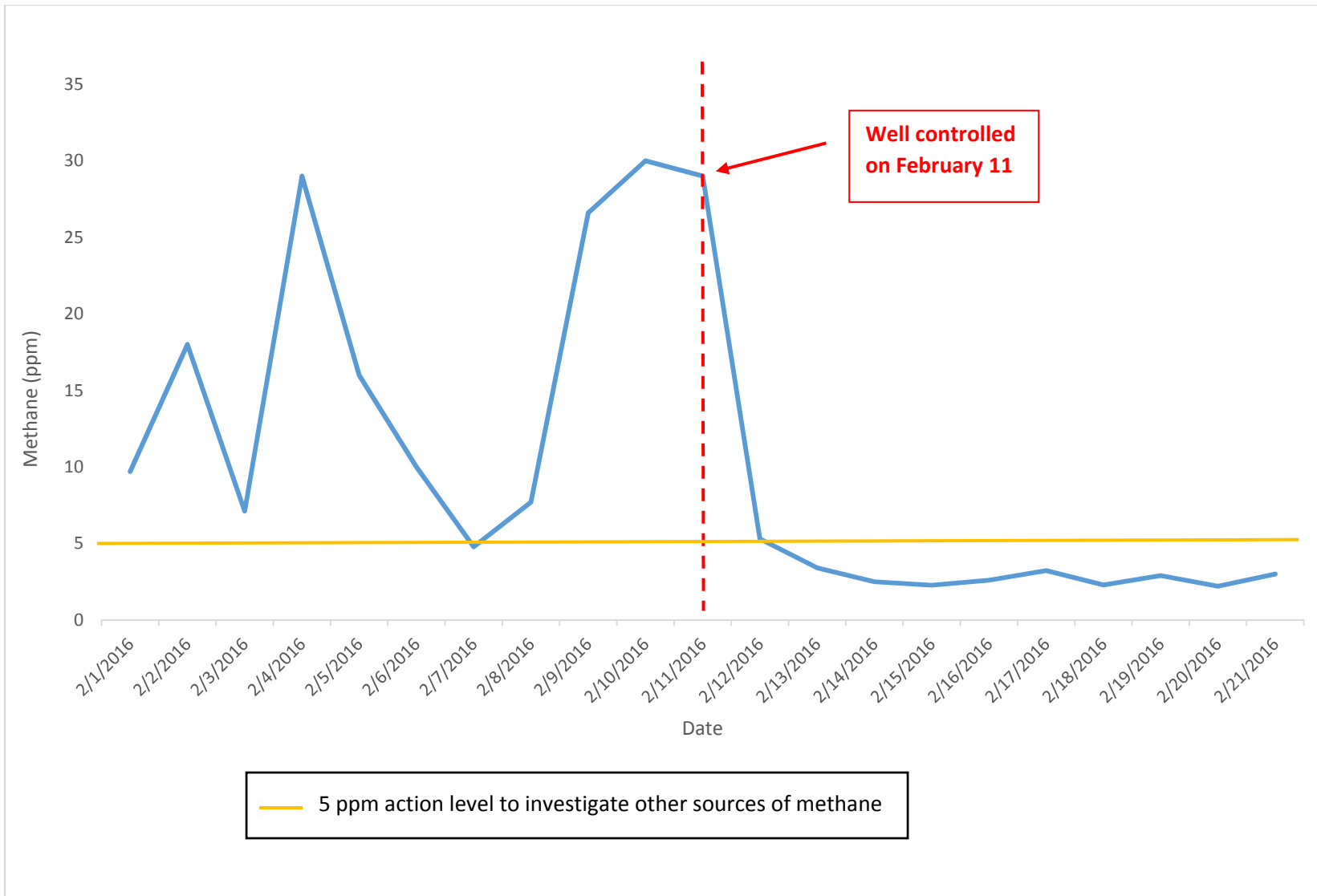


Table 1. Daily Community Peak Concentrations for the Week (February 18 - 24)

Chemical*	Thurs. 2/18	Fri. 2/19	Sat. 2/20	Sun. 2/21	Mon. 2/22	Tues. 2/23	Wed. 2/24	Units
Methane	2.3	2.9	2.2	3.0	2.4	2.3	2.3	ppm
Benzene	0.47	0.30	0.47	0.79	0.24	0.13	0.16	ppb
t-Butyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ppb
Tetrahydrothiophene	ND	ND	ND	ND	ND	ND	ND	ppb

ppm = parts per million; ppb = parts per billion; ND = non-detect

Table 2. Summary of Community Peak Concentrations: Pre- and Post-Well Control

Chemical*	Pre-/Post- Well Control**	Number Detected / Total Samples	% Detects	Community Range (Min – Max)	Units
Methane	Pre-	2018 / 2018	100%	0.2 - 231	ppm
	Post-	198 / 198	100%	1.8 - 5.3	ppm
Benzene	Pre-	965 / 2015	48%	0.05 - 5.6	ppb
	Post	133 / 198	67%	0.05 - 1.9	ppb
t-Butyl Mercaptan	Pre-	0 / 1939	0%	ND	ppb
	Post-	0 / 198	0%	ND	ppb
Tetrahydrothiophene	Pre-	0 / 1939	0%	ND	ppb
	Post-	0 / 198	0%	ND	ppb

ppm = parts per million; ppb = parts per billion; ND = non-detect

*Other volatile chemicals, hydrocarbons and sulfur compounds are being tested and will be reported in this table if detected above background levels.

** Well control stopped the flow of gas on February 11; “pre-well control” represents results for air samples collected between October 30 through February 11, and “post-well control” represents results for air samples from February 12 through February 21.

Table 3. Summary of 12-Hour Monitoring Within Facility: Pre- and Post-Well Control

Chemical*	Pre-/Post- Well Control**	Number Detected / Total Samples	% Detects	Aliso Canyon Facility Range	Los Angeles County Background Range	Units
Methane	Pre-	144 / 189	100%	2.5 - 720	1.8 - 2.1 [†]	ppm
	Post-	54 / 54	100%	2.3 - 11		ppm
Benzene	Pre-	189 / 189	100%	0.06 - 8.4	0.1 - 1.8 ^{††}	ppb
	Post	53 / 54	98%	0.05 - 0.65		ppb
t-Butyl Mercaptan	Pre-	0 / 189	0%	ND	NA	ppb
	Post-	0 / 54	0%	ND		ppb
Tetrahydrothiophene	Pre-	0 / 189	0%	ND	NA	ppb
	Post-	0 / 54	0%	ND		ppb

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[†]Hsu YK et al. 2010. Methane emissions inventory verification in southern California. Atmospheric Environment, 44:1-7.

^{††}MATES IV Study (South Coast Air Quality Management District) – range of 24-hour sample results for benzene across Los Angeles Air Basin.

Table 4. Summary of 12-Hour Monitoring Along Community/Facility Fence-line: Pre- and Post-Well Control

Chemical*	Pre-/Post-Well Control**	Number Detected / Total Samples	% Detects	Aliso Canyon Facility Range	Los Angeles County Background Range	Units
Methane	Pre-	376 / 376	100%	1.8 - 24	1.8 - 2.1 [†]	ppm
	Post-	107 / 107	100%	2.1 - 4.4		ppm
Benzene	Pre-	376 / 376	100%	0.1 - 0.4	0.1 - 1.8 ^{††}	ppb
	Post	106 / 107	99%	0.04 - 0.2		ppb
t-Butyl Mercaptan	Pre-	0 / 376	0%	ND	NA	ppb
	Post-	0 / 48	0%	ND	NA	ppb
Tetrahydrothiophene	Pre-	0 / 376	0%	ND	NA	ppb
	Post-	0 / 48	0%	ND	NA	ppb

ppm = parts per million; ppb = parts per billion; ND = non-detect

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Table 5. Summary of 12-Hour Monitoring Within the Community: Pre- and Post-Well Control

Chemical*	Pre-/Post-Well Control**	Number Detected / Total Samples	% Detects	Aliso Canyon Facility Range	Los Angeles County Background Range	Units
Methane	Pre-	81 / 81	100%	1.6 - 8.4	1.8 - 2.1 [†]	ppm
	Post-	52 / 52	100%	2.0 - 3.4		ppm
Benzene	Pre-	81 / 81	100%	0.05 - 0.5	0.1 - 1.8 ^{††}	ppb
	Post	52 / 52	100%	0.05 - 0.3		ppb
t-Butyl Mercaptan	Pre-	0 / 81	0%	ND	NA	ppb
	Post-	0 / 52	0%	ND		ppb
Tetrahydrothiophene	Pre-	0 / 81	0%	ND	NA	ppb
	Post-	0 / 52	0%	ND		ppb

ppm = parts per million; ppb = parts per billion; ND = non-detect

*Other volatile chemicals, hydrocarbons and sulfur compounds are being tested and will be reported in this table if detected above background levels.

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COUNTY OF LOS ANGELES

Attachment 2

FIRE DEPARTMENT

1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063-3294

DARYL L. OSBY
FIRE CHIEF
FORESTER & FIRE WARDEN

February 29, 2016

TO: EACH SUPERVISOR

FROM: DARYL L. OSBY, FIRE CHIEF

ALISO CANYON UNIFIED COMMAND GAS LEAK-UPDATE

The purpose of this communiqué is to provide your Honorable Board with an update on the Aliso Canyon Gas Leak. At this juncture, the Fire Department continues to do the following:

- Review and provide input on Department of Public Health's Porter Ranch Indoor Air Plan.
- This is a plan to assess private homes, prior to re-entry of residents, for methane gas.
- Review air monitoring sample results from community monitoring.
- It is anticipated that eight separate legislative bills will be introduced. The Department will continue to monitor and analyze all new legislation involving the Aliso Canyon Gas Leak.
- Outreach to SCAQMD on their continued well sampling program.

If you have any questions, please contact me at (323) 881-6180 or your staff may contact Chief Deputy David R. Richardson Jr., Emergency Operations at (323) 881-6178.

DLO:aat

c: Sachi Hamai
Mary Wickham
Jim Jones
Sheila Williams
Cynthia Harding
Jeffery Gunzenhauser
Jeff Reeb
Each Board Deputy

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SACHI A. HAMAI
Chief Executive Officer

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February 29, 2016

To: Supervisor Hilda L. Solis, Chair
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Supervisor Sheila Kuehl
Supervisor Don Knabe
Supervisor Michael D. Antonovich

From: Sachi A. Hamai 
Chief Executive Officer

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ALISO CANYON GAS LEAK RECOVERY UPDATE

On December 10, 2015, on a motion by Supervisor Solis, the Board declared a local state of emergency due to a leak at the natural gas storage wells at the Aliso Canyon gas storage fields. With the well now sealed, the re-occupation of the affected communities is underway and the incident has transitioned into the recovery phase.

During this phase, our office continues to support the recovery process by coordinating the participation of City, County, State and Federal agencies in the Local Assistance Center (LAC) being operated by the City of Los Angeles. The LAC is located at the Mason Recreation Center, 10500 Mason Avenue, Chatsworth, CA 91311.

The LAC opened on February 19, 2016 and is currently projected to remain open until March 4, 2016. County departments participating in the LAC include Assessor's Office, Mental Health, Public Health, Consumer Affairs and the Office of Emergency Management.

In addition to the LAC, a Business Recovery Center is operating at 9207 Oakdale Avenue, Suite 200, Chatsworth, CA 91311. At the Center, Small Business Administration loans are available to small business owners who have experienced financial losses and hardships.

Additional recovery updates will be provided as warranted by events.

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Each Supervisor
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If you have any questions or require any additional information, please contact Jeff L. Reeb, Office of Emergency Management, at (323) 980-2261 or via email at jreeb@ceooem.lacounty.gov.

SAH:JJ:AC
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c: Executive Office, Board of Supervisors
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