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March 6, 2016

TO: Each Supervisor

FROM: Cynthia A. Harding
Interim Director

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SUBJECT: **STATUS REPORT ON THE ALISO CANYON GAS LEAK AND ITS
IMPACT ON PORTER RANCH COMMUNITY**

This is to provide an update on the actions taken by the Department of Public Health (DPH) to assess environmental and health issues in relation to the Aliso Canyon Gas Leak.

Background

The massive release of natural gas from the Aliso Canyon storage facility began on October 23, 2015, and persisted for 16 weeks. On February 11, 2016 Southern California Gas (SCG) reported the flow of gas from Well SS-25 had been stopped, and on February 18, 2016 the California Department of Oil, Gas, and Geothermal Resources (DOGGR) confirmed that the well was permanently sealed. Since January 12, 2016 DPH has been monitoring air conditions under its Expanded Air Monitoring Plan and compiling data in a report on the DPH website at <http://www.publichealth.lacounty.gov/media/gasleak>. In addition, DPH and the Los Angeles County Fire Department provide weekly updates to your Board on our joint activities to monitor conditions at the well and in the surrounding community.

In the two weeks following the Well SS-25 being sealed, sharp reductions were noted in the measured levels of natural gas (as methane) in ambient air. A reduction in the number of odor reports from residents was also observed. Despite these reductions, the measured levels of methane have occasionally been elevated above what would be expected in the area, suggesting there could be other local sources of natural gas being released. This could explain the occurrence of intermittent odors and recurring symptoms experienced by some residents upon returning to their homes. Further study is required to understand this phenomenon.

There are four key areas where DPH is currently focusing its activities: (1) monitoring of air contaminants from the Aliso Canyon facility; (2) persistence of odors and health symptoms; (3) occurrence of oily residue; and (4) indoor air quality concerns. This update will provide information on each of these four areas including current actions, challenges, and next steps.

1) Monitoring Of Air Contaminants Released By The Aliso Canyon Facility

From the onset of the incident, the principle concern has been exposure to natural gas and its associated chemicals. These chemicals were found to be periodically elevated until the leak at SS-25 was controlled. Methane levels in the community were elevated, but below those presenting a risk to health and safety. Measured benzene levels fluctuated with a maximum reading of 5.6 parts per billion in the community, but average values were consistently below the State-established levels that would pose an elevated risk to health, less than 1 ppm and 8 ppm for long-term and short-term exposures, respectively. Sulfur odorants, which are added to natural gas, were below the instrument detection limits, but have caused significant health effects in the community due to their low odor threshold, and their ability to cause physiological responses including nausea, abdominal discomfort, headaches, dizziness, mucus membrane irritation, and shortness of breath.

Shortly after February 11, 2016 when the flow of gases was stopped at Well SS-25, daily monitoring results indicated a sharp reduction in methane levels, and subsequently a corresponding reduction in the levels of benzene. A review of the cumulative monitoring results suggests that levels of these chemicals are now consistent with expected background levels for the Los Angeles air basin.

Actions Taken and Next Steps

- DPH considers the conditions in Aliso Canyon and Porter Ranch to be dynamic. They are potentially affected by future operations in the gas field, including the planned testing and repairs to other wells and infrastructure, and ultimately the re-pressurization of the gas field should normal operations resume in the future. DPH is conferring with State regulators on the establishment of a long-term air monitoring program capable of detecting changes in environmental conditions, and correlating them with potential impacts in the community.
- DPH is also conferring with outside experts on the possible existence of other substances emanating from the gas field, or created by chemical interactions once these substances are released into the atmosphere. This issue warrants further investigation, and DPH will consider further enhancements to the current Expanded Air Monitoring Program.
- The release of natural gas and component chemicals from the Aliso Canyon gas field likely extends beyond the recent emissions from Well SS-25. It is reasonable and prudent to identify and assess other potential sources of emissions within the footprint of the facility and the underlying geologic formation. DPH will work with State regulators and agency partners to consider establishing ongoing monitoring of any identified sources.

2) Persistent Odors and Health Symptoms

In the days following confirmation that Well SS-25 was sealed, marked reductions were noted in the measured levels of methane, and other contaminants of concern returned to background levels for the

region. Given the improvements in environmental conditions, the expectation was that symptom reports would diminish significantly, and many residents re-occupied their homes without experiencing odors or symptoms. Some residents, however, are currently reporting symptoms similar to those experienced throughout the 16-week period that gases were being released from Well SS-25. These symptoms include headache; stomach upset; dizziness; and eye, nose, and skin irritation, sometimes in the absence of odors.

During the 16-week period October 28, 2015 to February 18, 2016, DPH received approximately 700 health complaints associated with the gas leak. In the two-week period of February 18 to March 3, 2016 DPH has received 150 health complaints from residents upon returning to their homes after the SS-25 leak was sealed. This presents a unique public health challenge, as the cause of the reported post-sealing symptoms is unclear.

Odor complaints have also continued to be reported to the South Coast Air Quality Management District (SCAQMD), but the complaints have not been verified upon follow-up investigation. Much of this can be explained by the lag time between the odor report and the arrival of the inspector. This also presents a significant challenge, which frustrates members of the community whose reports are not being validated.

Actions Taken and Next Steps

- DPH is communicating directly with each person who reports odor and health complaints via email or phone as they are received, and complaints are being logged for follow-up and tracking. All residents with current health complaints are instructed to contact their medical providers, and also are encouraged to have their medical providers contact DPH with further questions or concerns.
- On March 10, DPH is launching a door-to-door health assessment referred to as a CASPER, “Community Assessment for Public Health Emergency Response” to more broadly investigate the nature of health complaints within the Porter Ranch community. CASPER is an epidemiologic health assessment tool designed by the Centers for Disease Control and Prevention (CDC) to rapidly collect household-based health information. DPH is conducting the assessment in cooperation with the California Department of Public Health (CDPH). The results of the CASPER will be submitted in a written report to the Board in late March 2016. At that time, DPH will determine the need and scope of continued investigation into community health complaints.
- DPH has instituted a community-based Odor Surveillance Program, in which Porter Ranch resident volunteers are enlisted and tasked to walk through designated neighborhood zones and report the presence or absence of odors to DPH throughout the course of each day. This effort was launched on February 17, 2016, and through March 3, 2016 DPH has received 28 reports of “no odor detection” and zero reports of “positive odor detection” from community volunteers. DPH is continuing to enlist more volunteers from the community to broaden the geographic coverage of the community by this program.

3) Reported Occurrence Of Oily Residue

As early as December 17, 2015, some residents reported the appearance of an oily residue being deposited on their cars, patio furniture, and other surfaces in their yards. Through the end of December, DPH received a total of 15 complaints from residents related to the oily residue. The residue was

sampled and tested, and determined to consist of the relatively long-chain hydrocarbons found in crude oil. It appears that the substance was forced out of Well SS-25 in the form of liquid droplets, along with the flow of natural gas emanating from the well.

When the oily droplets are deposited on surfaces, they dry and harden, and eventually become encrusted on the surface. As a result, the substance is very difficult to remove without the aid of solvents or other cleaning agents. Based on the chemical composition and physical state of the residue, it presents minimal risk. DPH has advised residents to immediately report the presence of oily residue to SCG, who indicated they would investigate and provide appropriate cleaning. DPH advises residents against attempting to clean the residue themselves, and to avoid touching the residue, as prolonged contact with the oily residue may result in skin irritation.

Shortly after discovery that the substance was being ejected from Well SS-25, SCG installed a combination of screens and Plexiglas as a barrier to capture oily substances released from the well. In addition, a number of glass plates were also positioned downwind of the well to monitor for the further release and deposition of the oily substance on surfaces. During the period January and February 2016, DPH was not aware of any further detections of the oily residue; however, DPH has recently received new reports from residents regarding the appearance of the residue. Based on this, these recent reports are not likely the result of new releases from the well, but rather new reports by previously relocated residents upon returning to their homes. Some of the new reports also appear to be the result of earlier reports to SCG that did not receive follow-up action.

Actions Taken and Next Steps

- DPH has communicated with SCG, confirming the expectation that when residents report the occurrence of the oily substance to SCG, a follow-up investigation will be conducted, and if confirmed, cleanup will be completed. SCG indicated its commitment to respond to all such reports.
- Residents are being advised by DPH to report to SCG the presence of the oily substance on surfaces, to avoid touching the substances as it may cause skin irritation, and to not attempt to clean the residue themselves. Residents are advised to make the report to SCG by calling (213) 244-5151 to arrange for services. If residents encounter any obstacles, they are advised to notify DPH, who will intervene on their behalf to ensure timely cleanup. Further, a directive from DPH will be issued to SCG directing that such reports are to be followed-up timely, including investigation and cleanup.

4) Indoor Air Quality Concerns

Despite the return of outdoor air contaminants to normal background levels for the region, there is growing uncertainty and concern in the community about the state of the air quality inside homes. DPH has advised returning residents to air out their homes for at least 2 hours before re-occupancy. Many of the temporarily relocated residents have re-occupied their homes without incident. However, a number of returning residents have reported symptoms, and this has raised concern in the community about the possible presence of gases or other substances that may have accumulated inside their homes.

While the expectation is that proper ventilation would result in effective air exchange and turnover, thus removing any gaseous chemicals from the home, some community members are calling for further assessments of indoor environments prior to re-occupancy. To address this problem, DPH conferred

Each Supervisor

March 3, 2016

Page 5

with local, state, and federal agency partners on February 18, 2016 to discuss the prospective elements of an indoor air testing protocol. These agencies included the California Air Resources Board (CARB), the Office of Environmental Health Hazard Assessment (OEHHA), CDPH, the Los Angeles County Fire Department, and SCAQMD. DPH also retained a private consultant to develop the draft protocol, based on input from the agencies.

On February 22, 2016 the draft protocol was distributed to the above agencies for further review and comment. Based on input from the agencies, revisions were made to the draft protocol and the protocol was then submitted for review to the United States Environmental Protection Agency (US EPA) Indoor Air Quality (IAQ) Program. Further discussions with the agencies during the week of February 29, 2016 identified a number of additional issues about the nature and scope of the draft protocol.

Actions Taken and Next Steps

- In light of the input provided by agency partners with expertise in air quality, and the complexities involved in monitoring indoor air in the current setting, it is clear the current draft protocol requires further review and revision. DPH is seeking technical assistance to determine the feasibility of conducting an indoor air assessment that will provide meaningful information, and to subsequently design and implement such a study.
- US EPA's IAQ Program is the national authority on assessing the quality of indoor environments. DPH has requested technical assistance from the IAQ Program, and will formally request direct federal assistance. DPH will also confer with the County legislative advocates in Washington DC to gain support for this request.

I will keep your Board informed of significant developments as our work in the Porter Ranch community progresses. If you have questions or need additional information please let me know.

CAH:ab:cr

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