

Frequently Asked Questions About the Aliso Canyon Gas Leak and its Impact on the Porter Ranch Community

January 15, 2016

What is the Office of Environmental Health Hazard Assessment's role in the Aliso Canyon gas leak?

The Office of Environmental Health Hazard Assessment (OEHHA) is reviewing air quality measurements, evaluating public health concerns from the gas leak, and assisting other state and local agencies in determining whether additional actions are needed to protect public health.

The Governor's Office of Emergency Services asked OEHHA to assist other state and local entities in evaluating potential health impacts of emissions from the gas leak in the Porter Ranch community. On January 6, 2016, Governor Brown proclaimed a state of emergency and directed OEHHA to convene an independent panel of scientific and medical experts to review public health concerns from the gas leak and evaluate whether additional measures are needed. OEHHA has assembled this panel.

How does OEHHA review air quality measurements?

OEHHA is reviewing measurements taken by the Southern California Gas Company, the South Coast Air Quality Management District and other entities, and compares them to Reference Exposure Levels (RELs) for chemical contaminants in the air. It also compares them to "background levels" of the same contaminants found in nearby communities that are not affected by the gas leak.

What are Reference Exposure Levels?

Reference Exposure Levels (RELs) are concentrations of chemicals in the air that the general public can be exposed to without experiencing health problems. (RELs do not cover cancer, which is evaluated using other methods.) Exposure to a concentration that is higher than its REL does not automatically cause health problems, because the RELs are based on several substantial uncertainty factors.

What are the different types of Reference Exposure Levels?

OEHHA develops acute and chronic Reference Exposure Levels. Acute RELs are developed to address peak short-term exposures. Chronic RELs are developed for long-term exposures (at least 8 years) that can last as long as a lifetime. OEHHA also develops 8 hour RELs for comparison to repeated 8 hour exposures over many years.

These are used when assessing impacts of emissions from a facility on a nearby workplace where people would be exposed 8 hours per day for many years.

Which Reference Exposure Levels are applicable to the Aliso Canyon gas leak?

The Aliso Canyon gas leak was discovered on October 23, 2015. We have compared peak measurements of several chemicals to our acute RELs. We are also comparing longer-term average benzene exposure to our chronic REL. The 8-hour repeated exposure levels are not as applicable to a residential scenario (see question above). The chronic RELs are typically used to evaluate exposures that last at least 8 years. The general public is not expected to experience health problems when long-term air concentrations on average fall below the chronic REL, or short-term peak levels fall below the acute REL.

Which chemicals have been emitted from the Aliso Canyon gas leak?

Natural gas is comprised mainly of methane. Methane is an odorless and colorless gas and does not have noticeable health effects at the levels seen from this leak.

The emissions also include foul-smelling chemicals called mercaptans that are added to natural gas to make it easier to detect leaks from household appliances, industrial equipment and pipelines. Mercaptans and their odors have caused symptoms that include nausea and headaches. These short-term symptoms cause real discomfort, but the mercaptans do not cause long-term toxic health effects at the levels experienced in the Porter Ranch neighborhood.

Natural gas also contains low levels of various volatile organic compounds (VOCs) and sulfur-containing compounds. VOCs are organic chemicals that easily spread in air. They include benzene, ethyl benzene, toluene, and xylenes. Sulfur-containing compounds include the mercaptans that give gas its distinctive "rotten egg" smell, as well as hydrogen sulfide and sulfur dioxide. Exposure to high levels of hydrogen sulfide, sulfur dioxide, benzene and some other VOCs can be harmful to health.

Which chemicals have been studied in Porter Ranch?

Air samples were collected for a number of volatile organic compounds (VOCs) and sulfur-containing compounds at several locations in Porter Ranch. OEHHA evaluated the sampling data by comparing them to RELs and other measures of toxicity.

Benzene is an important focus of monitoring efforts. Although the VOC concentrations detected at Porter Ranch did not exceed any available acute RELs, benzene levels were closest to the acute REL.

What is benzene?

Benzene is produced naturally by volcanoes and forest fires. It is also a natural part of crude oil, gasoline, and natural gas. It is on California's Proposition 65 list because it can cause cancer and reproductive effects. Exposure to benzene can occur by breathing air from gas stations, motor vehicle exhaust, industrial emissions, or vapors from products such as glue, paints, furniture, and detergents. Benzene is present in the ambient air that we all breathe.

Are the benzene levels in Porter Ranch above the RELs?

None of the monitoring at Porter Ranch has detected benzene levels above the acute REL of 8 parts per billion (ppb). On a few occasions in November, short-term "grab" samples found peak benzene levels that exceeded the chronic REL of 1 ppb, but the chronic REL is used to assess long-term exposures of many years, not short-term exposures. Since December 6, 2015, all levels of benzene measured have been below the chronic REL.

Are the hydrogen sulfide and sulfur dioxide levels in Porter Ranch above the RELs?

Almost all of the measurements of hydrogen sulfide have been below the detection limit, both in Porter Ranch and at the well site. One isolated short-term reading in November at the Porter Ranch Estates location exceeded the acute REL. The acute REL for this chemical is based on odor perception and the resulting adverse response to a noxious odor. Any headache or nausea caused by a one-day exposure to hydrogen sulfide would have been short-lived. Similarly, sulfur dioxide was only detected once, on the same day and at the same location as the hydrogen sulfide detection, but at a level below the acute REL.

How do the emissions in Porter Ranch compare to background levels in the surrounding area?

The South Coast Air Quality Management District's closest monitoring station is in Burbank. Benzene levels at the Burbank monitoring station average 0.46 ppb and range from 0.17 to 1.23 ppb, which are similar to most of the measured benzene levels in Porter Ranch during the natural gas leak.

How will OEHHA address risks from longer-term exposures?

As the gas leak is continuing, OEHHA is evaluating the additional monitoring data on peak short-term exposures and is also looking at impacts from longer-term exposures. The average of the benzene levels measured in Porter Ranch is below OEHHA's Reference Exposure Level for chronic exposures (up to a lifetime) of 1 ppb. This

indicates that health effects (effects on the blood system) from long-term exposure are not expected.

Benzene is a cancer-causing chemical. Nearly all the measured concentrations of benzene in the Porter Ranch community during the natural gas leak are similar to background levels generally found in the Los Angeles area, including in Burbank where there is an air monitoring station that is part of the state's air toxics monitoring network. Any increase in cancer risk to people in the area due to the natural gas leak is very small.

What is the Office of Environmental Health Hazard Assessment?

The Office of Environmental Health Hazard Assessment (OEHHA) is the lead state entity for the assessment of health risks posed by environmental contaminants. It is one of six state departments within the California Environmental Protection Agency. OEHHA's mission is to protect and enhance public health and the environment by scientific evaluation of risks posed by hazardous substances.

Does OEHHA conduct its own monitoring and laboratory testing?

No. OEHHA does not have a laboratory. It reviews monitoring data provided by other entities.