

Invisible disaster: Infrared images from the Environmental Defense Fund show a huge plume spewing from the ground.



METHANE AND MANURE

Five years ago this week, the largest U.S. methane leak was discovered

By Kurt Snibbe and Elizabeth Chou

Southern California News Group

Disaster snapshot

The leaky well was one of 115 wells connected to a subsurface storage reservoir in the Aliso Canyon gas field. The field has been used for natural gas storage since 1973 and is the fourth largest facility of its kind in the U.S.

There were an estimated 109,000 metric tons of methane leaked, which is considered a large environmental disaster due to harmful emissions.

Health effects?

Southern California Gas points to the state Office of Environmental Health Hazard Assessment's conclusion that methane odor, rather than chemicals used to stop up the gas leak, may be the culprit of the symptoms reported to the Department of Public Health. While that study says the coughing, wheezing, worsened asthma, nosebleeds, headaches, dizziness and skin rashes are more consistent with "low-level exposure to malodorous substances" — people reported the smell of rotten eggs — many residents and activists challenge the idea that the only harm was from the smell. A health study on the short- and long-term health effects of the leak is about to get underway and community members are calling on the health department to subpoena information from the utility. Meanwhile, attorneys on a case against SoCalGas and parent company Sempra Energy, involving nearly 36,000 plaintiffs, also dispute the idea that the health risks were minimal and accuse the utilities of misrepresenting and continuing to withhold from the public information about what was released.

Mitigation

Methane is a potent greenhouse gas with nearly 84 times the heat-trapping power of carbon dioxide over a 20 year period according to the EPA. The emissions from the Aliso Canyon methane leak contribute to global warming and its detrimental consequences for the environment according to the California Air Resources Board. CARB announced in February 2019, SoCalGas agreed to pay a total of \$119.5 million in penalties for the leak with \$26.5 million the cause of reducing 109,000 metric tons of methane released.

Methane digester

Since California's 1.4 million dairy cows are a large source of methane in the state, SoCalGas's agreement calls for construction of manure methane digesters as a primary means to reduce dairy emissions and offer the added benefit of capturing and recycling methane as renewable natural gas for energy.

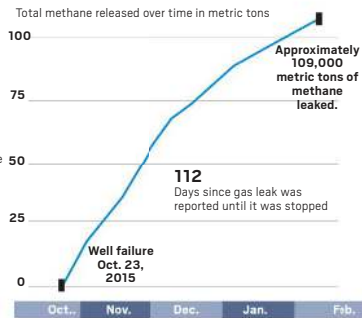
"This agreement will mitigate the methane leak itself and will have a positive impact across California while providing long-term funding for air quality improvements in the parts of the L.A. Basin most directly affected by what happened at Aliso Canyon," California Air Resources Board Chair Mary D. Nichols said.

SoCalGas paid \$26.5 million to an account to be directed as loans to California Bioenergy to build 12 dairy digester projects, three conditioning facilities and pipelines to connect the digesters to the conditioning facilities and common carrier pipelines system.

SoCalGas is responsible for ensuring the projects are in operation that are projected to mitigate at least 109,000 metric tons of methane over a 10-year period. The California Air Resources Board is monitoring the projects which is under construction until 2021 in the San Joaquin Valley. Full mitigation may be achieved by 2031.

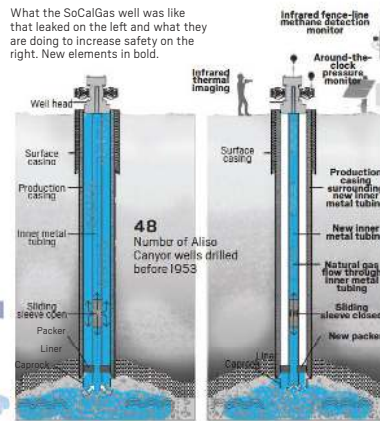
Methane constitutes approximately 9% of the greenhouse gas emitted in California. Dairy manure is responsible for about 25% of the state's total methane emissions.

SCALE OF THE LEAKING

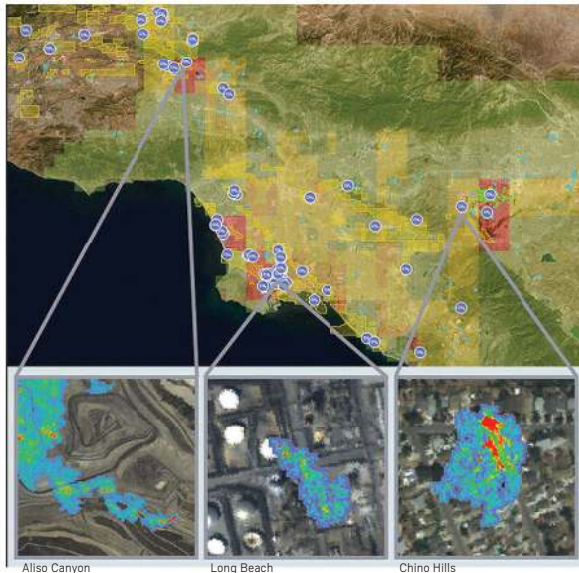


THEN AND NOW

What the SoCalGas well was like that leaked on the left and what they are doing to increase safety on the right. New elements in bold.



METHANE MAPS



Red areas are the more intense emissions of methane.

Image from NASA/JPL-Caltech

Views of Southern California by NASA's Methane Source Finder. NASA's Methane Source Finder, which provides methane data for California. The data are derived from airborne remote-sensing, surface-monitoring networks and satellites and are presented on an interactive map.

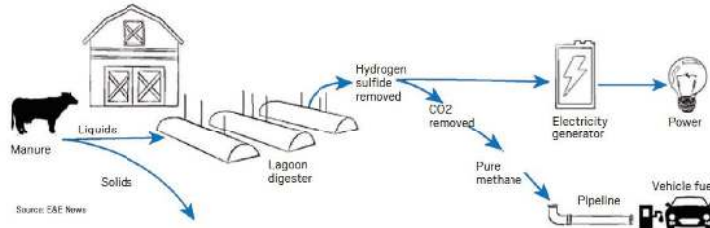
The NASA/JPL team identified more than 550 individual point sources emitting plumes of highly concentrated methane. Ten percent of these sources, considered super-emitters, contributed the majority of the emissions detected. The team estimates that statewide, super-emitters are responsible for about a third of California's total methane output.

Scientists estimate that most methane emissions in California are driven by industrial facilities, such as oil and gas fields, large dairies and landfills.

Methane emissions in California are dominated by landfills 41%, followed by dairies 26% and the oil and gas sector 26%.

MOOS AND METHANE

A look at the dairy cow to natural gas process.



Most used fuel in California

Natural gas is used to generate electricity as well as to heat people's homes. In 2013, 64.4% of the homes in California used natural gas, compared with 48.3% nationwide. Here are California's consumption figures for 2018.

Sources: EPA, California Environmental Protection Agency's Office of Environmental Health Hazard Assessment, Energy Information Administration, Environmental Defense Fund, Division of Oil, Gas and Geothermal Resources, California Air Resources Board, Southern California Gas Co.

