

## DOCKETED

<b>Docket Number:</b>	15-IEPR-11
<b>Project Title:</b>	Climate Change
<b>TN #:</b>	207148
<b>Document Title:</b>	Gene Nelson, Ph.D. Comments: The Massive Methane Leak at the Aliso Canyon Storage Facility Undermines California's GHG Reductions
<b>Description:</b>	N/A
<b>Filer:</b>	System
<b>Organization:</b>	Gene Nelson, Ph.D.
<b>Submitter Role:</b>	Public
<b>Submission Date:</b>	12/30/2015 12:58:20 AM
<b>Docketed Date:</b>	12/30/2015

*Comment Received From: Gene Nelson, Ph.D.*

*Submitted On: 12/30/2015*

*Docket Number: 15-IEPR-11*

## **The Massive Methane Leak at the Aliso Canyon Storage Facility Undermines California's GHG Reductions**

Chair Weisenmiller interrupted my 27 April 2015 public testimony at a CEC workshop in Sacramento regarding California's importation of dirty coal power, which increases GHG emissions. Now, California is facing a new environmental disaster with the huge methane leak at the Aliso Canyon Storage Facility (ACSF) which will require several more months to stop the major leak there.

The unfolding environmental disaster at the Aliso Canyon Storage Facility (ACSF) rebuts the carefully-cultivated myth that natural gas is "clean." According to the Environmental Defense Fund (EDF,) <https://www.edf.org/climate/californias-massive-methane-leak>, the equivalent of over 6.1 MMT of CO<sub>2</sub> has leaked into the atmosphere since the ACSF leak began on 23 October 2015. Attached find a pair of articles that highlight some of the problems. Apparently, the injection and withdrawal wells utilize concrete casings instead of high-strength steel well casings. The ACSF was built in a geologically-unstable area. Concrete casings perform poorly when subject to tensions and torsions caused by geologic instability. The rupture of more ACSF well casings is likely in the future. The Susana Fault trace essentially bisects the ACSF, per 2009 Southern California Gas regulatory filings cited in the body of the second attached article. A portion of the Susana Fault apparently ruptured during the 1971 San Fernando earthquake. The San Fernando Fault, about 3 miles from the proposed ACSF compressor station, ruptured in 1971.

Compare and contrast the documented environmental harms associated with the ACSF natural gas leak with the lack of emissions during operation of the Diablo Canyon Power Plant, California's largest power generator, with a typical annual electric power production of 18 TWh.

*Additional submitted attachment is included below.*

# Could Porter Ranch be the new San Bruno?: Thomas Elias



Following escalating urgency over the leaking gas well above Porter Ranch, 300 protesters gathered on Saturday, Dec. 12, 2015, and demanded an immediate shutdown and a transition to renewable energy in the next two decades. (Photo by Dean Musgrove/Los Angeles Daily News)

By [Thomas D. Elias](#), Los Angeles Daily News

Posted: 12/28/15, 1:33 PM PST | Updated: 2 hrs ago

<http://www.dailynews.com/opinion/20151228/could-porter-ranch-be-the-new-san-bruno-thomas-elias>

## [1 Comment](#)

A flood of lawsuits began within weeks after a huge, still-ongoing leak of natural gas arose in late October from a Southern California Gas Co. storage facility 1,200 feet above the [Porter Ranch area](#) in the northern reaches of the San Fernando Valley.

There's a class action on behalf of many residents and a suit by the city of Los Angeles, plus individual actions by homeowners.

These suits claim negligence, ultra-hazardous activity and “inverse condemnation” of property, among other items. There are no fatalities, but the legal language is akin nevertheless to charges made against Pacific Gas & Electric Co. after the 2010 gas pipeline explosion in the San Francisco suburb of San Bruno, which killed eight persons and devastated dozens of homes.

It's too soon to say SoCalGas was negligent because no one has actually seen the source of the leak, which still spreads noxious odors and greenhouse gases for miles around. (The Aliso Canyon storage site is about one mile from the edge of upscale Porter Ranch.)

**Suspected cause is crumbled or cracked concrete in a well hundreds of feet underground, says the state Public Utilities Commission (PUC).**

Whatever the cause, this is unquestionably a disaster, even though Gov. Jerry Brown — whose sister is a director of SoCalGas' parent company, Sempra Energy — has yet to call it one.

Plus, the utility still has not deployed the most modern inspection techniques for checking on its other wells. It seeks approval from the PUC to charge customers \$30 million a year for six years to use a state-of-the-art "Storage Integrity Management Program," but won't say why it doesn't deploy the new technique now, rather than awaiting approval for the charge as part of a pending general rate case.

There's also the late action of the state's Division of Oil, Gas and Geothermal Resources, which on Nov. 18 — four weeks after the leak began — issued an emergency order compelling action to plug it, explaining ironically that it "didn't want SoCal Gas and its contractors to lose time ..."

But is this the equivalent of San Bruno, which did not displace nearly as many persons, but for which PG&E still faces criminal charges and was assessed a \$1.6 billion fine?

Did SoCalGas react too slowly? The company says it observes all four of its storage fields daily and checks well pressure weekly. "The leaking well had passed its most recent inspection," said a spokeswoman.

The utility also is relocating residents who want a temporary move. By late December more than 4,000 families had applied, with at least 2,100 resettled in various housing types (sometimes it's a single hotel room for a large family). Not until Christmas week did SoCalGas agree to act on each relocation request within 72 hours. Two schools have also closed; it's still unclear who will pay for that.

Thousands of the area's 30,000-odd residents blame the leak for ailments like nosebleeds, headaches, respiratory problems and vomiting, even though federal, state and local health officials say the gas carries no serious health risks. The noxious odor it bears stems from chemicals added to alert people when they have leaks of otherwise odorless gas.

Most likely, no one will ever prove whether long-term health detriments exist. By the time cancers might develop 20 to 30 years from now, residents will have been exposed to enough other environmental factors that singling out the gas leak would be difficult even if a cancer cluster should occur among today's Porter Ranch residents.

While there's absolutely no doubt about the cause of death for the eight persons who died in San Bruno, there will likely never be such certitude around Porter Ranch.

And so far, there's been no official determination of negligence, either.

That can't happen until the leak is stopped, which SoCal Gas says might be months away.

All of which means, despite the lawsuits, it's too early to demonize SoCalGas, even as many residents complain about everything from a slow initial response by the utility to serious and immediate health problems and inadequate relocation housing. This will never be identical to San Bruno, but it could turn out just as badly for the utility involved and those who regulate it.

*Thomas D. Elias is a writer in Southern California. [tdelias@aol.com](mailto:tdelias@aol.com)*

### **About the Author**



Reach the author at [tdelias@aol.com](mailto:tdelias@aol.com) .

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Thank you, Thomas for your thought-provoking article regarding the Aliso Canyon Storage Facility (ACSF) that was published today in the *Los Angeles Daily News*.

<http://www.dailynews.com/opinion/20151228/could-porter-ranch-be-the-new-san-bruno-thomas-elias>

Here are some questions that I have been thinking about. I posted them and they are awaiting moderation.

I'd like your reflections.

Note the complex topography of the storage field seen in the EDF video showing the methane plume. I wonder if tectonic activity was the cause of the pipe break. Will other pipes break for the same reason in the future? Is Southern California Gas still adding natural gas to this reservoir? If yes, do the risks outweigh the benefits? Should the ACSF be shut down until more safeguards for the public are added to the facility?

Please see the overview from Southern California Gas of the 2009 Aliso Canyon Turbine Replacement Project:

<https://www.socalgas.com/stay-safe/pipeline-and-storage-safety/aliso-canyon-storage-facility-project>

For technical details, please see Southern California Gas's Regulatory filing regarding the Aliso Canyon Turbine Replacement Project dated September, 2009:

[https://www.socalgas.com/regulatory/documents/a-09-09-020/4-6\\_Geology-Soils.pdf](https://www.socalgas.com/regulatory/documents/a-09-09-020/4-6_Geology-Soils.pdf)

There are 63 instances of "Aliso" in the 38 page document.

There are 8 instances of "Aliso Canyon Storage Field."

See page 12 of 38 for the 1994 Northridge Earthquake damage.

See page 14 of 38 for proximity to Santa Susana Fault (which cuts through the Aliso Canyon Storage Field.)

See additional Santa Susana Fault details on page 17 and 20 of 38.

The San Fernando Fault zone details appear on page 19 of 38.

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Gene Nelson, Ph.D. Physical Sciences Faculty Cuesta College San Luis Obispo, CA

**MOTHERBOARD**

# **WHY ENGINEERS CAN'T STOP LOS ANGELES' ENORMOUS METHANE LEAK**



Written by

**MELISSA CRONIN**

**CONTRIBUTOR**





## **ALISO CANYON METHANE LEAK CREDIT: EARTHWORKS**

**First (and to date only) direct overhead photos of the leaking Aliso Canyon well pad that is polluting Porter Ranch community in Los Angeles County. Taken: 2015 12 17 Credit: Earthworks via Flickr**

December 26, 2015 // 04:27 PM EST

<http://motherboard.vice.com/read/why-we-cant-stop-the-enormous-methane-leak-flooding-la>

One of the biggest environmental disasters in US history is happening right now, and you've probably never heard of it.

An enormous amount of harmful methane gas is currently erupting from an energy facility in Aliso Canyon, California, at a startling rate of 110,000 pounds per hour. The gas, which carries with it the



stench of rotting eggs, has led to the evacuation 1,700 homes so far. Many residents have already filed lawsuits against the company that owns the facility, the Southern California Gas Company.

## Footage

[https://www.youtube.com/watch?v=exfJ8VPQDTY&feature=player\\_embedded](https://www.youtube.com/watch?v=exfJ8VPQDTY&feature=player_embedded)

First Aerial Footage of Aliso Canyon Natural Gas Leak - Environmental Defense Fund -  
Published on Dec 20, 2015

Aerial footage filmed Dec. 17, 2015, shows potent, climate-damaging methane gases escaping from a massive natural gas leak at a storage facility in California's Aliso Canyon, with the San Fernando valley pictured in the background. The giant methane plumes were made visible by a specialized infrared camera operated by an Earthworks ITC-certified thermographer. (Length: 1 minute, 23 seconds)

**Note added by Gene A. Nelson, Ph.D - Note the complex topography of the storage field shown in the video. I wonder if tectonic activity was the cause of the pipe break.**

**Here is an overview from Southern California Gas of the Aliso Canyon Turbine Replacement Project:**

<https://www.socalgas.com/stay-safe/pipeline-and-storage-safety/aliso-canyon-storage-facility-project>

**Note added by Gene A. Nelson, Ph.D. See Southern California Gas's Regulatory filing regarding the Aliso Canyon Turbine Replacement Project dated September, 2009:**

**[https://www.socalgas.com/regulatory/documents/a-09-09-020/4-6\\_Geology-Soils.pdf](https://www.socalgas.com/regulatory/documents/a-09-09-020/4-6_Geology-Soils.pdf)**

**Archived 12 27 15 by Gene A. Nelson 63 instances of "Aliso"**

**8 instances of "Aliso Canyon Storage Field." See page 12 of 38 for 1994 Northridge Earthquake damage. See page 14 of 38 for proximity to Santa Susana Fault (which cuts through the Aliso Canyon Storage Field.) Santa Susana Fault details on page 17 and 20 of 38. San Fernando Fault zone details on page 19 of 38.**

taken on December 17 shows a geyser of methane gas spewing from the Earth, visible by a specialized infrared camera operated by an Earthworks ITC-certified thermographer. The Environmental Defense Fund (EDF) released the footage last week, [calling it](#) “one of the biggest leaks we’ve ever seen reported” and “absolutely uncontained”:

In early December, the Southern California Gas Company said that plugging the leak, which sprang in mid-October, would take [at least three more months](#). **Right now, the single leak accounts for a quarter of the state's entire methane emissions, and the leak has been called the [worst environmental disaster](#) since the BP oil spill in 2010.**

“Our efforts to stop the flow of gas by pumping fluids directly down the well have not yet been successful, so we have shifted our focus to stopping the leak through a relief well,” Anne Silva, a spokesperson for the Southern California Gas Company, told Motherboard, adding that the company

is still exploring other options to stop the leak. “The relief well process is on schedule to be completed by late February or late March.”

Part of the problem in stopping the leak lies in the base of the well, which sits 8,000 feet underground. Pumping fluids down into the well, usually the normal recourse, just isn’t working, said Silva. Workers have been “unable to establish a stable enough column of fluid to keep the force of gas coming up from the reservoir.” The company is now constructing a relief well that will connect to the leaking well, and hopefully provide a way to reduce pressure so the leak can be plugged.

It’s worth noting that the *type* of gas involved in this leak is part of what makes it so sinister. **Methane**, the main component of natural gas, is 25 times more potent than carbon dioxide when it comes to climate change impact. About one-fourth of the anthropogenic global warming we’re experiencing today is due to methane emissions, according to the Environmental Defense Fund. Leaks like the current one in California, it turns out, are a major contributor. In Pasadena, for instance, just miles from the leak in Aliso, investigators found **one leak for every four miles**:

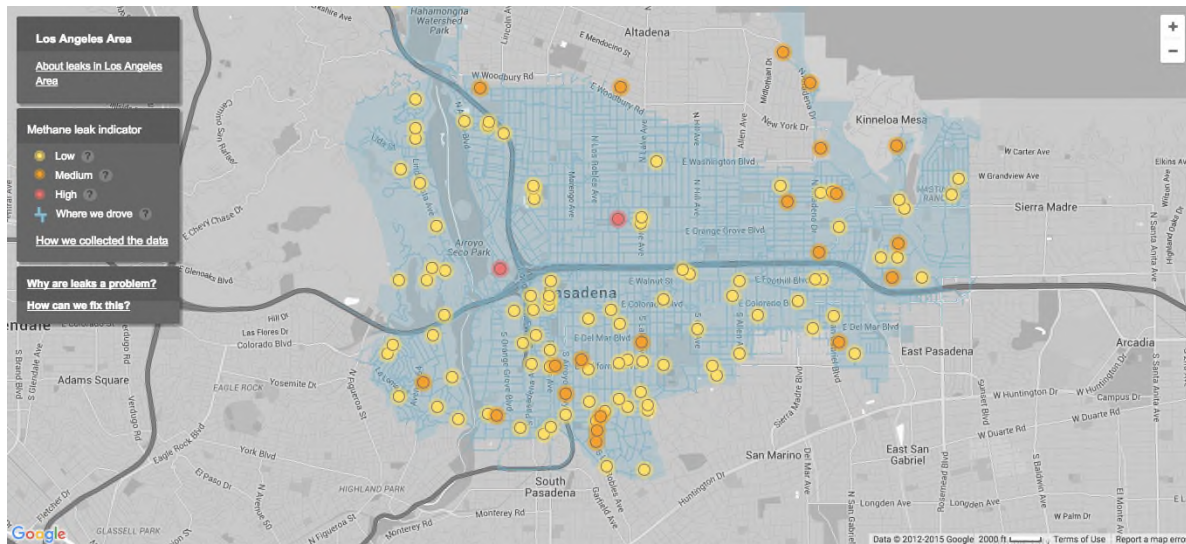


Image: [EDF](#)

So far, over 150 million pounds of methane have been released by the leak, which connects to an enormous underground containment system. Silva says that the cause of the leak is still unknown, **but research by EDF** has also revealed that more than 38 percent of the pipes in Southern California Gas Company’s territory are more than 50 years old, and 16 percent are made of made from corrosion- and leak-prone materials.

Right now, relief efforts have drilled only 3,800 feet down—less than half of the way to the base of the well. At that rate, the torrent of methane pouring into California won’t be stopped any time soon.

**TOPICS:** dirty energy, Methane, methane leak, Earth, southern california gas company, deepwater horizon