16-7-2

Testimony on CARB's Proposed Rulemaking for "PROPOSED REGULATION FOR GREENHOUSE GAS EMISSION STANDARDS FOR CRUDE OIL AND NATURAL GAS FACILITIES"

Jason Hector

July 21, 2016
Sacramento, California

It is an honor and pleasure to speak before the CA Air Resources Board and I want to thank the ARB for proposing comprehensive regulation of fugitive emissions especially in light of Aliso Canyon. My name is Jason Hector and I have been a longtime resident of Porter Ranch, husband, father of an amazingly bright 3 ½ year old daughter and have taken care of my elderly grandmother for the last decade all in Porter Ranch. My daughter, when I would watch the webcast of the Porter Ranch Community Advisory Committee she would point at my computer and say "Is that the Gas Leak Meeting?".

I urge you to move forward with your proposal, while considering two important changes:

Removing the "step-down" provision which would allow operators to shift to less rigorous monitoring requirements, this would create a perverse incentive to avoid finding and reporting leaks, and less of a reason to avoid fixing them quickly.

The proposal pushes the implementation timeline by a year (from Jan 2017 to Jan 2018). Our families and communities cannot wait until 2018.

My family and my community understand the direct impacts of pollution from these facilities and the impacts of the co-pollutants that leak alongside oil and gas development.

Increasingly, scientific research indicates that oil and gas development is associated with adverse health impacts. During the massive gas blowout, I personally experienced severe headaches, nosebleeds, blood in my phlem, lethargy, sick feeling, and extreme allergy like symptoms. My daughter had difficulty breathing and other sickness symptoms for a long time even after we relocated. My first severe symptoms started after being outside and exposed to the methane blowout for several hours. I suffered from a severe headache and my wife felt very dizzy. After speaking with public health officials, we left our home and checked into a hotel. My 98 year old grandmother was relocated as well. Unfortunately, when we would return to work or pick up clothes or mail, we would get sick again. I remember just before our vacation, I started having the worst allergy-type symptoms like extreme thirst, non-stop runny nose, uncontrollable sneezing and headache.

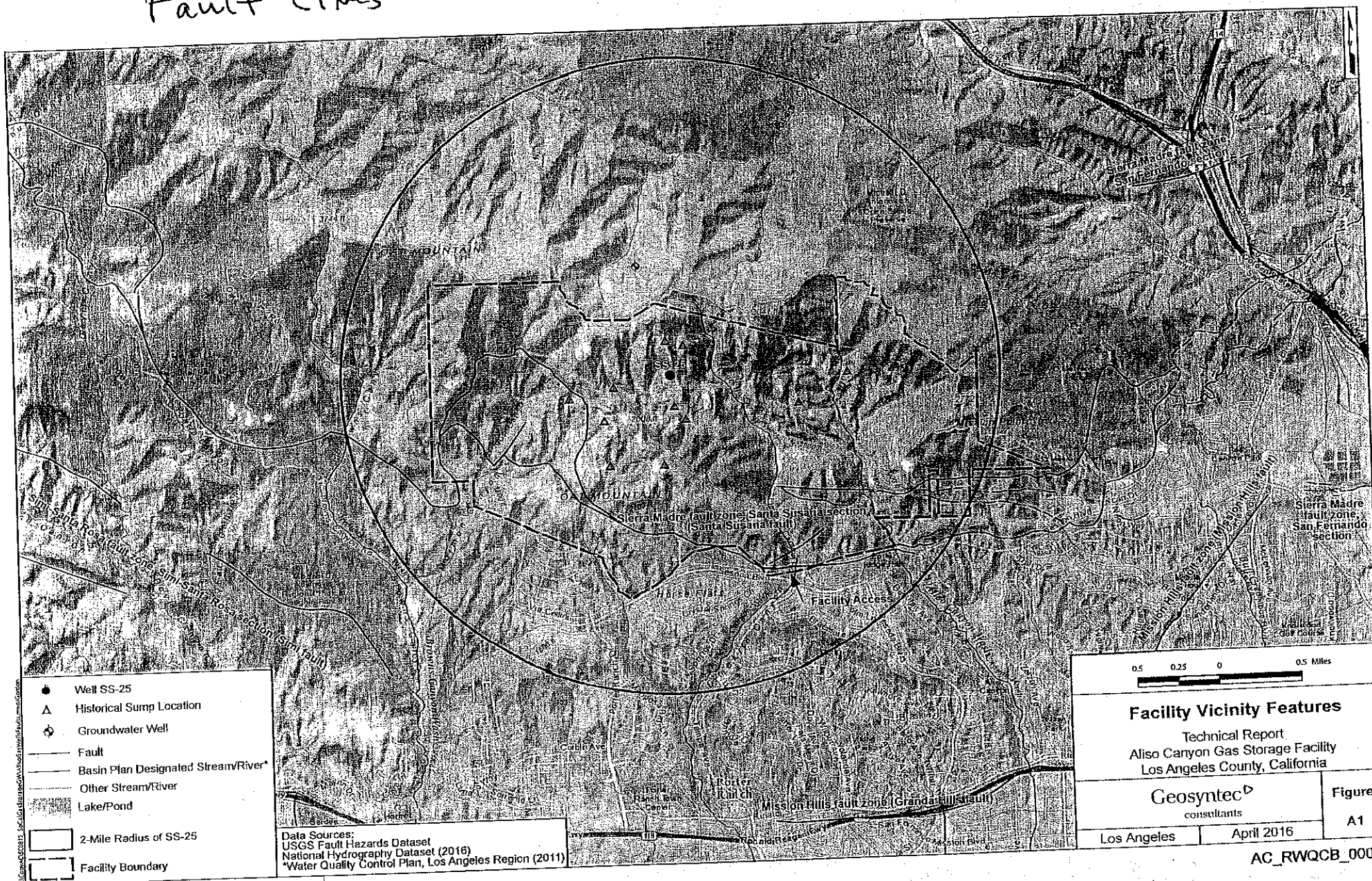
I am very concerned about the health effects of the children who live, go to school and play near oil and gas facilities like Aliso Canyon. I support the ARB standards because they help reduce methane emissions from oil and gas facilities and formation of health damaging air pollutants, including volatile organice compounds, and other hazardous air pollutants. An example are the children attending attending the two schools in Porter Ranch. We still don't know all the chemicals that we may have been exposed to since that information has been deemed confidential or proprietary. Once moving back, oily residue was found in our park and since we have not returned out of fear of unknown. I am very concerned about how this might impact our groundwater aquifer.

(over)

I am also very concerned about the concept of storing gas underground. There is not a steel SCUBA tank underground to ensure containment of the very high pressure reservoir. Also, how can we confirm if there are leaks coming up from the reservoir. We are talking about geologic formations here and Aliso Canyon sits on a fault line. How can we be sure that the gas is not moving up from the reservoir through the ground and through the water before it reaches the surface?

I want to thank the ARB for continuing California's leadership on climate change and taking this important step to address methane pollution and the opportunity to testify. Let's make to not let this happen to California families again.

Fault Lines



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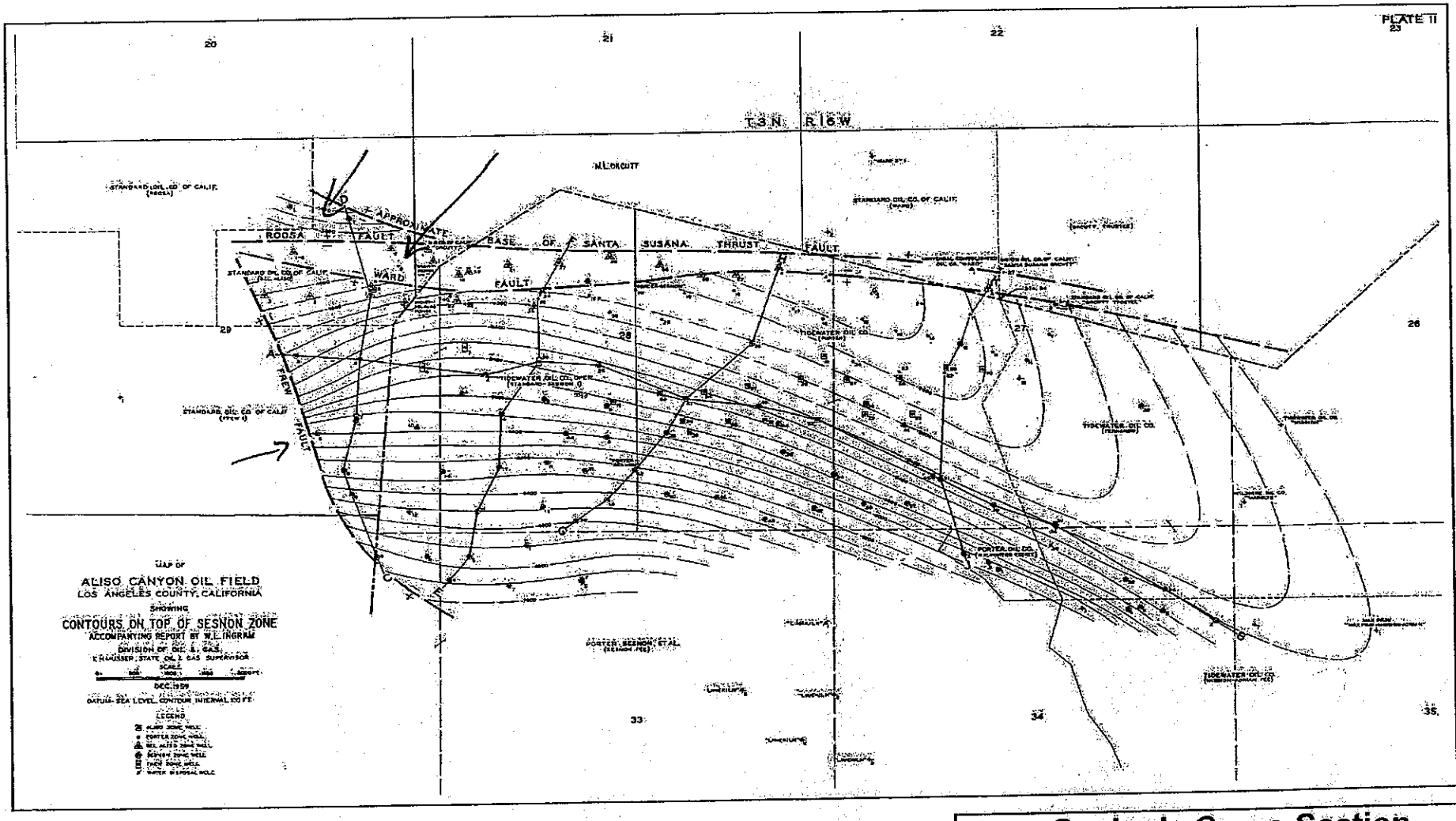

Geologic Cross-Section Reference Map

Technical Report
Aliso Canyon Gas Storage Facility
Los Angeles County, California

Geosyntec consultants

Los Angeles | April 2016

Figure A3

Note: Cross-Sections provided in Appendix B

C:\Copy\ACLSC0812_SoCalGasStorage\GW\AlisoGasXSRef.mxd\Gordon

S F E C

Castlebay Lane, Porter Ranch Schools to Relocate Due to Aliso Canyon Natural Gas Leak

Schools will share space with two other campuses for second semester

LOS ANGELES (Nov. 17, 2015) - The Board of Education took action today to expedite the temporary relocation of Castlebay Lane Charter and Porter Ranch Community School, where teaching and learning have been disrupted by a natural-gas leak in nearby Aliso Canyon.

When classes resume after the winter break, the 770 students in grades K-5 who attend Castlebay Lane will be relocated to Sunny Brae Avenue Elementary in Winnetka. Porter Ranch Community School, which has 1,100 students in grades K-8, will relocate to Northridge Middle School. Portable classrooms and available space at the host-schools will be used to house the Castlebay Lane and Porter Ranch students, teachers and staff.

To minimize disruption, the relocation will be in effect for the rest of the 2015-16 school year. Details are being finalized, and parents will be notified as decisions are made.

The board's unanimous approval will allow the District to make alterations or improvements at the Sunny Brae and Northridge campuses over the three-week winter break, without having to go through the time-consuming competitive-bidding process.

"This has been a difficult decision because it will impact the lives of so many families," said school board member Scott Schmerelson, who represents the West San Fernando Valley. "I believe this is the right decision to protect the health of our students and employees and to stabilize the learning environment."

The leak was discovered Oct. 23 in a natural-gas well owned by the Southern California Gas Co. Initial efforts to cap the well were unsuccessful, and the company estimates it will take up to four months to stop the leak.

Since late October, parents, employees and residents at Castlebay and Porter Ranch have been raising concerns about the effects of the odorant that allows natural gas to be detected. To ensure that schools, students and faculty remained safe, the District installed air filters in every classroom, assigned additional nurses and began independent air-quality monitoring at the two campuses.

L.A. Unified also worked with parents that relocated away from the Porter Ranch area to enroll their children in other District schools, and offered an independent study program for families that opted to keep their students at home.

Despite these efforts, absenteeism and visits to the health office increased. As a result, the Los Angeles County Department of Public Health issued a directive on Wednesday, ordering Southern California Gas to work with the District in relocating Castlebay Lane and Porter Ranch

students.

The board resolution adopted Thursday authorizes the District's Office of General Counsel to initiate litigation, if necessary, to recover the cost of temporarily relocating the schools.

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AQMD Meeting Notes

Item 8 Leak detection protocol—Include five main components to supplement present inspections and meet proactive requirement of #8.

1. Fence Line real time monitoring system surrounding the perimeter of ALL facilities which have nearby homes, schools, etc nearby.
2. Fixed site ground monitors which can be checked in real time by ARB and online by residents. Locations should be the places where high levels of methane have been found before.
3. Fly over monitoring by ARB using current technology and drones to be used in coordination with NASA Jet Propulsion Labs with a pilot program to be implemented at Aliso Canyon. http://www.jpl.nasa.gov/news/news.php?feature=6192
4. Li Cor vehicle with mobile methane monitoring must be used on a DAILY basis or 6 days a week and results posted online as soon as possible. This mobile monitoring helps keep the community informed and compliments nicely the LiCor mobile methane monitoring vehicle.
5. On site monitoring must include using BOTH the FLIR type camera as well as a TVA. Using one without the other means less of a chance of finding leaks. Also, the TVA is a valuable tool for quantifying the emissions rates.
6. The air monitoring should be with ARB in collaboration with NASA's Jet Propulsion Labs since they have a methane drone combined with the flyovers ARB has been doing to identify and estimate emissions.

With respect to the issue of confirming odor complaints due to "fleeting smells" which was a recurring theme and concern of the board...one idea is to create an application for cell phones. This "I smell something app" would be simple for residents to report odors and GPS locations could be sent in real time to appropriate agencies.

Secondly, I would request the help of local city and county fire/police/haz mat facilities near these natural gas storage sites to be equipped with sensitive detection equipment to aid in confirmation of symptoms, smells, etc. Fire and EMS have training in observing and reporting symptoms but more importantly the ability to respond very quickly, maybe in less than 5 minutes to help document the validity of the complaint.

Health Study--#14 Key requirements needed for a comprehensive symptom based study for impacted residents of Porter Ranch and neighboring communities:

1. Creation of a means for impacted residents to voluntarily submit pictures, logs and sworn statements of health impacts.
2. As requested by board member, testimony from an expert about the AQMD proposed National Academy of Sciences. The public and board should be presented with a summary of the details for public review and comment.
3. Study length to remain open for one decade given the sometimes long period for onset of certain types of cancers.

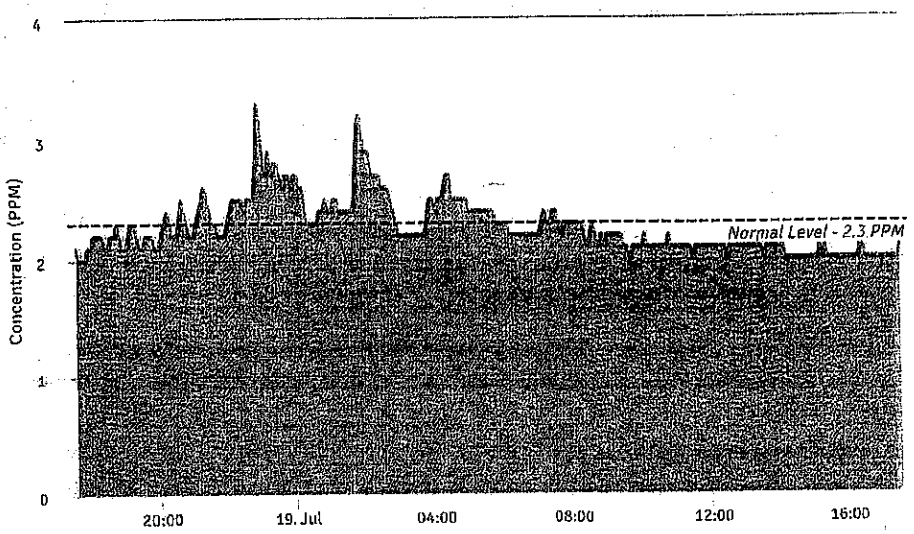
PORTER RANCH REAL-TIME COMMUNITY AIR MONITORING DATA

Message Board

06/04/2016 19:10 - We want to let you know we had to do some modification to the Porter Ranch Fence Line website. It turns out the air monitor we were using to detect Benzene, Toluene, and Xylene was a lot sicker than we originally thought. One of the electronic boards needed to operate the system burned out and it will take two months to get a replacement shipped to us. So to help keep the community up to date on what's going on, we're now taking the data from the benzene monitoring systems the Air District operates and are putting it on the website. The methane system continues to provide updated data every five minutes and nothing has changed with respect to that system.

Real-Time Air Monitoring Data	
Methane	2.1 PPM
Benzene Air District Site #5	Non-Detect
Benzene Air District Site #7	Offline
Weather Conditions	
Wind blowing from the WSW (248°) direction at the speed of 2 MPH	
Subscribe to Alert Notification List	
First Name:	
Last Name:	
Email:	
Submit	

24-Hour Plot for Methane



This website presents real-time air monitoring data at the fence line between the Aliso Canyon gas storage facility and the community of Porter Ranch. The systems are currently setup to monitor for methane, benzene, toluene, and xylene gases on a real-time basis. Information from the monitoring equipment is updated on the website every five minutes. The equipment is being supplied by Argos Scientific, Boreal Laser, and WeatherUnderground. Special thanks is given to Councilman Mitch Englander for facilitating the installation of this equipment and the development of this real-time website for the community of Porter Ranch.

Ambient air quality data provided on this website is raw data at the time of collection and has not undergone Quality Assurance Checks. If you have a health emergency please contact local emergency agency.

Abbreviations

PPM - Parts per million
MPH - Miles per hour

This site is maintained and operated by Argos Scientific and is part of the fenceline.org network

Contact Argos Scientific

Jet Propulsion Laboratory
California Institute of Technology

NEWS | MARCH 28, 2016

Mini NASA Methane Sensor Makes Successful Flight Test

A JPL mini methane gas sensor is flight tested on a small unmanned aerial system (sUAS) under a project to improve energy pipeline industry safety. The sensor enables methane detection with higher sensitivity than previously available for the industry in hand-carried or sUAS-deployable instruments.Credit: University of California, Merced
› Larger image

As part of a project to improve safety in the energy pipeline industry, researchers have successfully flight-tested a miniature methane gas sensor developed by NASA's Jet Propulsion Laboratory, Pasadena, California, on a Vertical Take-off and Landing small unmanned aerial system (sUAS). The sensor, similar to one developed by JPL for use on Mars, enables detection of methane with much higher sensitivity than previously available for the industry in hand-carried or sUAS-deployable instruments.

The tests were conducted in central California at the Merced Vernal Pools and Grassland Reserve, and were funded by Pipeline Research Council International (PRCI). The jointly conducted test of NASA's Open Path Laser Spectrometer (OPLS) sensor is the latest effort in a methane testing and demonstration program conducted on various platforms since

Popular

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Curiosity Mars Rover Resumes Full Operations

NASA Sails Full-Speed Ahead in Solar System Exploration

2014. The ability of the OPLS sensor to detect methane in parts per billion by volume could help the pipeline industry more accurately pinpoint small methane leaks.

Researchers from JPL and the Mechatronics, Embedded Systems and Automation (MESA) Lab at the University of California, Merced, conducted the flight tests in late February. They flew a small unmanned aerial system equipped with the OPLS sensor at various distances from methane-emitting gas sources. Tests were done in a controlled setting to test the accuracy and robustness of the system.

The advanced capabilities provided by sUASs, particularly enhanced vertical access, could extend the use of methane-inspection systems for detecting and locating methane gas sources.

Additional flight testing this year will feature a fixed-wing UAS, which can fly longer and farther. Those capabilities are necessary for monitoring natural-gas transmission pipeline systems, which are often hundreds of miles long and can be located in rural or remote areas.

This latest round of tests furthers the team's goal to develop sUASs to improve traditional inspection methods for natural-gas pipeline networks, which may enhance safety and improve location accuracy.

"These tests mark the latest chapter in the development of what we believe will eventually be a universal methane monitoring system for detecting fugitive natural-gas emissions and contributing to studies of climate change," said Lance Christensen, OPLS principal investigator at JPL.

NASA uses the vantage point of space to increase our understanding of our home planet, improve lives, and safeguard our future. NASA develops new ways to observe and study Earth's interconnected natural systems with long-term data records. The agency freely shares this unique knowledge and works with institutions around the world to gain new insights into how our planet is changing.

For more information about NASA's Earth science activities, visit:

http://www.nasa.gov/earth

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2016-088

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Mobile Methane Measurement Surveys

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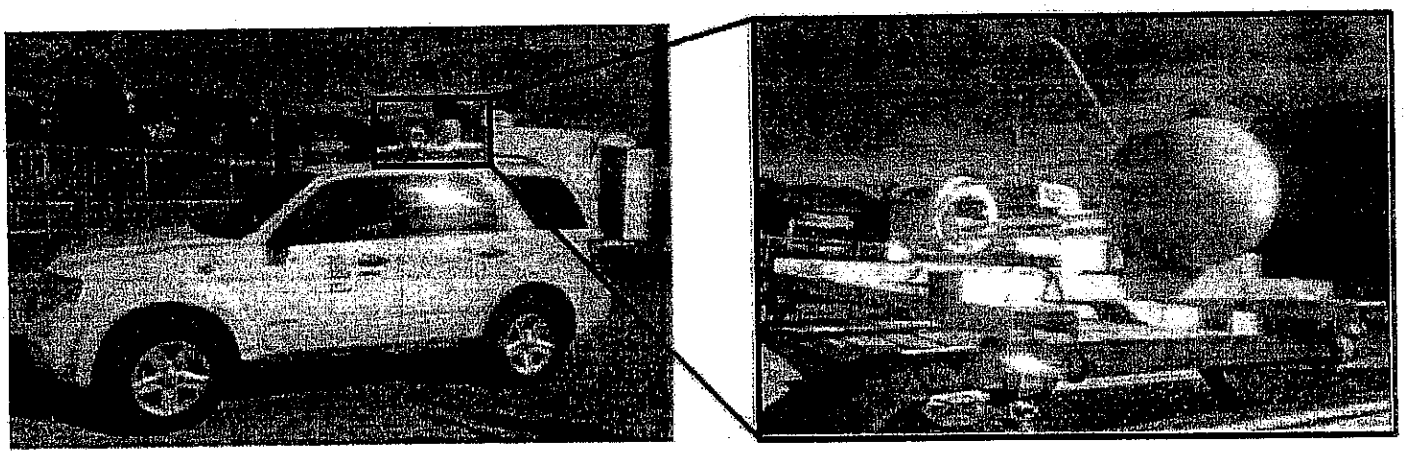
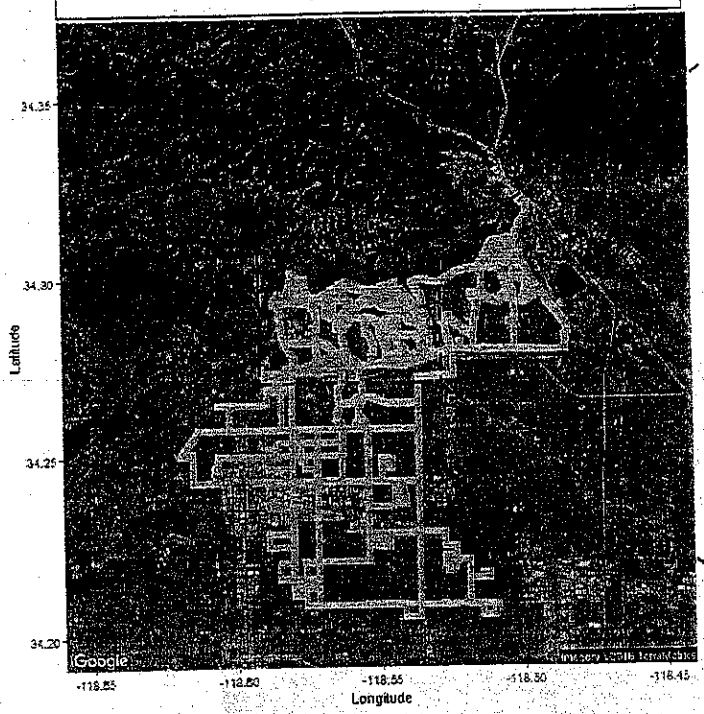
Beginning December 21, 2015, SCAQMD has been conducting mobile survey measurements in and around Porter Ranch to better characterize methane concentration levels and concentration gradients within the community and to support the fixed site methane monitoring efforts. For this purpose, a state-of-the-art methane analyzer (LI-COR 7700) and a Global Positioning System (GPS) were mounted on top of a hybrid vehicle and driven around Porter Ranch and other surrounding areas of the San Fernando Valley.



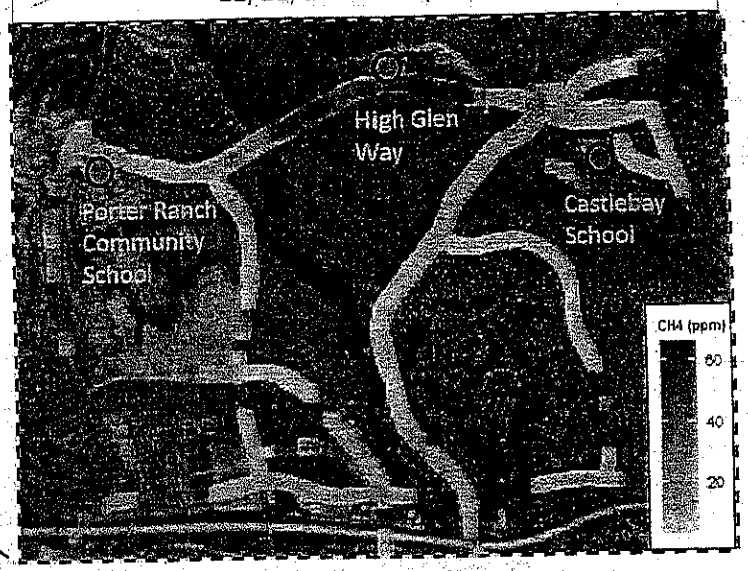
The LI-COR 7700 is an open-path instrument capable of measuring methane concentrations as low as single parts per billion (ppb) at rates as fast as 40 times per second with high accuracy and precision. This technology has previously been used and validated by the Environmental Defense Fund (EDF), Google Earth Outreach, and Colorado State University (CSU) for mapping methane plumes rising from leaking natural gas pipes below streets: **https://www.edf.org/climate/methanemaps** (https://www.edf.org/climate/methanemaps)

Several routes in and around Porter Ranch and neighboring communities were selected for these surveys. Monitoring was conducted during different times of the day (e.g., morning, afternoon and evening) and under different meteorological conditions. As depicted in the map below, the highest methane concentrations measured thus far (up to 70 part per million [ppm]) were recorded at night in Sesnon Blvd, south of the Aliso Canyon Facility. These results support the placement of the SCAQMD fixed monitoring sites and the idea that the fixed SCAQMD sites will provide appropriate coverage for long term monitoring in Porter Ranch.

Area covered by mobile measurements between 12/21/15 and 01/29/16



Map of the highest (12-70 ppm) methane concentration measurements collected between 12/21/15 and 01/29/16



● Current SCAQMD measurement sites

Additional methane maps created using this mobile system can be found **here** (/docs/default-source/compliance/aliso-cyn/porter-ranch---all-maps-(070816)a466aaefc2b66f27bf6fff00004a91a9.pdf?sfvrsn=0).

Trending

Lawn Equipment (/home/programs/community/community-detail?title=lawn-equipment)

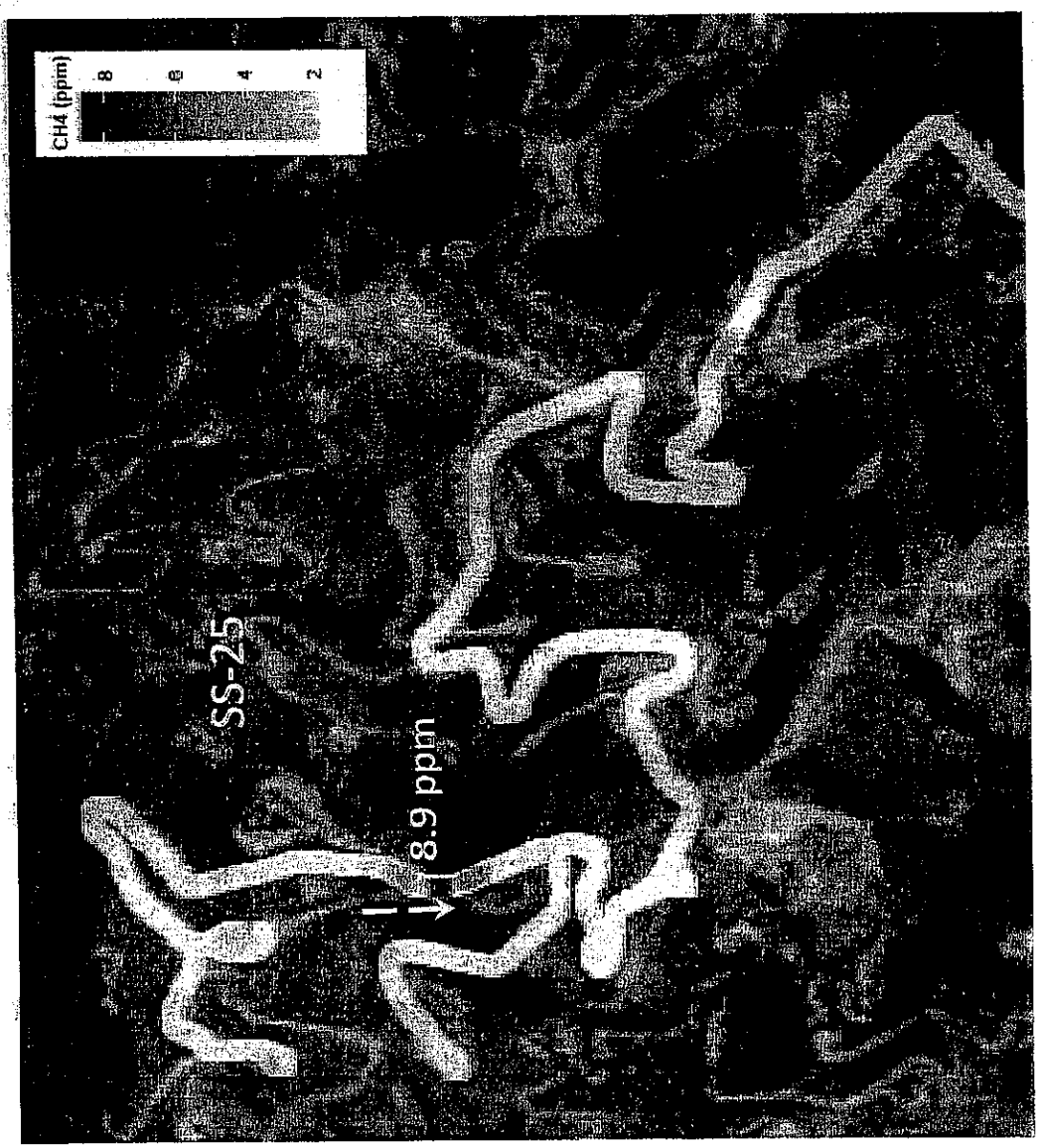
Draft 2016 Air Quality Management Plan (/home/library/clean-air-plans/air-quality-mgt-plan/Draft2016AQMP)

SCAQMD Rule Book (/home/regulations/rules/scaqmd-rule-book)

Rules (/home/regulations/rules)

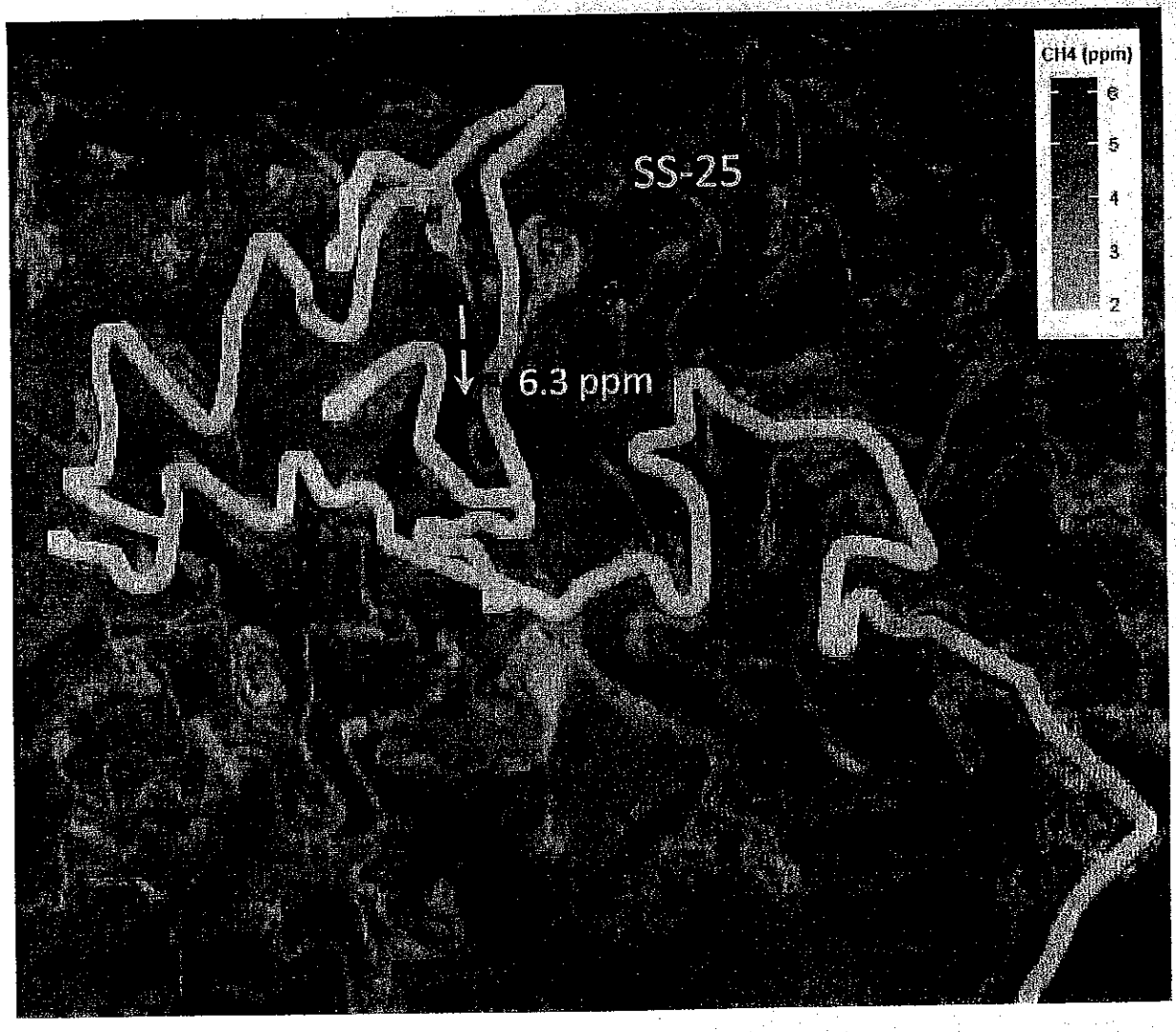
Lawn Mower Exchange Program (/home/programs/community/lawnmower-registration)

Li Cor Mobile Methane Map



07/01/16 (09:02am – 09:52am)

07/05/16 (09:25am – 10:21am)



07/08/16 (08:49am – 09:41am)