

Arvin/Lamont Inspection Summary

Methane Task Force

The Methane Task Force was initiated at the request of Governor Newsom, who asked that the California Air Resources Board (CARB) and the California Geologic Energy Management Division (CalGEM) work together to identify and address methane leaks from oil infrastructure near communities. CARB and CalGEM are partnering with local agencies such as the San Joaquin Valley Air Pollution Control District (SJVAPCD) to ensure a comprehensive approach to addressing these leaks. Below is a summary of health and safety risks related to methane and inspection updates presented at the Arvin/Lamont Community Steering Committee Oil and Gas Subcommittee meeting held on May 31st. More can be found about the Methane Task Force at: <https://www.conservation.ca.gov/calgem/Pages/Methane-Task-Force.aspx>.

Overview of Risks Associated with Methane Leaks

Health Risk. Exposure to methane itself, except at very high levels, is not considered a direct health risk. However, methane leaks from oil and gas production facilities can be associated with leaks of other toxic compounds.

While State officials did not test for toxic compounds in the recent round of inspections, it's valuable to note that exposure to toxic compounds potentially associated with methane is influenced by many factors, including:

- Distance from leak – pollutants tend to disperse relatively quickly.
- Components of gas – underground storage facilities and natural gas pipelines contain nearly all methane, while production facilities and associated tanks have the potential to emit other toxics in addition to methane.
- Wind direction and whether sensitive receptors, eg, homes, schools, hospitals, are downwind of a leak.
- Time of day – meteorologic conditions can concentrate pollutants during evening and overnight.

In addition, other emissions sources impact public exposure to toxic compounds as well, e.g., mobile sources, agriculture, other industrial sources. Exposure to any level of carcinogen is associated with cancer risk, and there are known carcinogens like diesel particulate matter from mobile sources operating on the roadway or on the oilfield itself, that may drive most of a person's risk.

Safety Risk. Methane can present an explosion hazard at very high concentrations under specific circumstances, such as in enclosed areas, and when an ignition source is present. These conditions together were not detected in the recent round of inspections.

Confidential Pursuant to Interagency Agreement

- Lower Explosive Limit (LEL) for methane is generally considered to be 5% by volume or 50,000 ppm. This means it is the concentration at which the methane could ignite if there is an ignition source.
- Flammability or explosive properties are significantly minimized as methane dissipates. Methane dissipates quickly from most leaks found in components at oil and gas facilities, including wells.
- Leaking industrial or residential natural gas pipelines typically pose a larger safety concern because they typically have higher pressure levels.

Inspection Summary

The original plan was to inspect 67 wells that are within 3,200 feet of the Assembly Bill (AB) 617 boundaries for Arvin and Lamont.

Inspectors from all three regulatory agencies (CalGEM, CARB, and SJVAPCD) were present at each well.

The inspections occurred over three days (May 23rd to May 25th). For most, the operator was onsite during inspections.

Since methane is not visible, our inspection teams had special equipment for detecting leaks. CalGEM used a Forward-Looking Infrared Camera (FLIR) that can detect escaping gases. The three agencies also used a variety of methane and volatile gas detectors, including the Remote Methane Leak Detector (RMLD), Toxic Vapor Analyzer (TVA), Detecto Pak-Infrared (DPIR), and RKI Eagle 2.

Altogether, 68 wells were inspected. One well was already plugged and abandoned. Inspectors identified another nearby well and it was inspected.

In total, 27 out of the 68 wells were found to be leaking. Four were able to be repaired immediately onsite during the inspections, bringing the total down to 23 wells requiring remediation after the inspections.

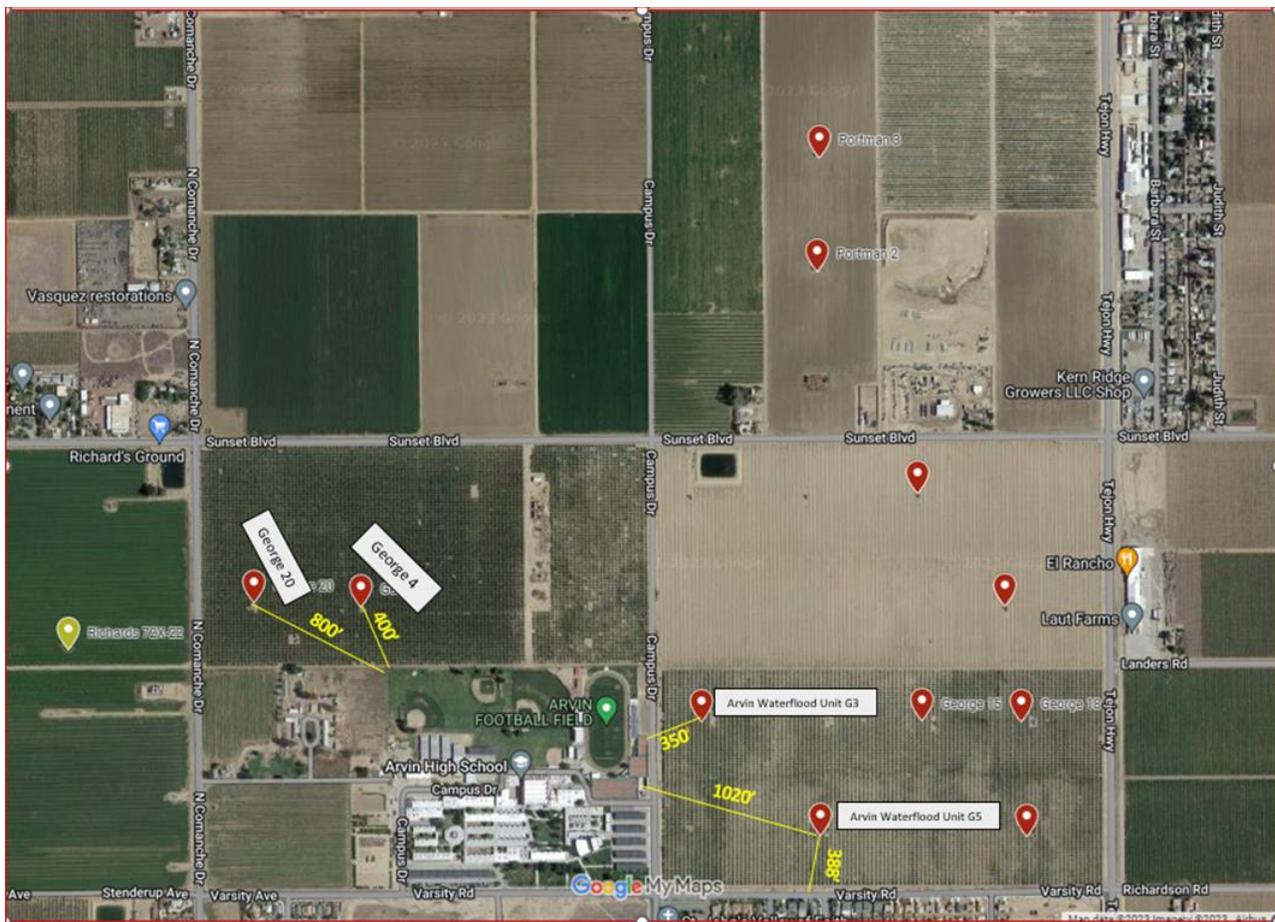
Fifteen (15) of the 27 leaking wells had leaks exceeding 50,000 parts per million, the lowest concentration at which the gas could potentially ignite if there is an ignition source. All of these dissipated to background levels (no longer detectable) within two to three feet of the source except for one, which took up to 15 feet to dissipate. However, this well was located a thousand feet from any occupied residence or school and therefore not an active explosion risk. None of these leaks were occurring under high pressure or in an enclosed space. As such, the risk of explosion was found to be extremely minimal. If an ignition occurred, the result would be a slow burn similar to gas on a stove.

Despite dissipation to background levels within feet of the well, in an abundance of caution, three of these wells were reported by the SJVAPCD to CalOES, California's Office of Emergency Services, due to being within 1,000 feet of a school and having a concentration exceeding 50,000 parts per million. These wells were:

Confidential Pursuant to Interagency Agreement

- Arvin Waterflood Unit G5
 - API# 0402914577
 - GPS coordinates: 35.2172699 / -118.8300781
 - Distance to school: 1020' (388' from a residence)
- George 4
 - API# 0402914587
 - GPS coordinates: 35.22077942 / -118.8394928
 - Distance to school: 400' (448' from a residence)
- George 20
 - API# 0402914596
 - GPS coordinates: 35.2208985 / -118.8412128
 - Distance to school: 800' (419' from a residence)

A map for the leaking wells is provided below. Please note that the Arvin Waterflood Unit G3 noted on the map below had a leak measuring 10,300 ppm and was therefore not reported to CalOES.



Confidential Pursuant to Interagency Agreement

All operators have been contacted to repair the leaks. By May 30th, except for the 11 deserted wells, all the other wells were reported as being repaired. Re-inspections occurred on May 31st and June 1st for eight wells and one storage tank. During re-inspections, one well was discovered to have a new leak greater than 50,000 PPM, and an existing leak over 50,000 PPM was reduced to 10,000 PPM. Additional re-inspections are planned for June 6-8, 2023, by CalGEM and the SJVAPCD.

For 11 of the leaking wells, CalGEM had previously determined that the operators, Sunray Petroleum, Inc. and Blackstone Oil and Gas Co., deserted the wells and CalGEM ordered the operators to plug and abandon the leaking wells. Because the wells are deserted and the operators did not repair the leaks, CalGEM is preparing an emergency contract to have the leaks repaired. The contractor, Drilltek, was at the site on May 30th to do a cost and time estimate. The cost estimate and timeline to repair the leaks was received from Drilltek on June 5, 2023. Drilltek believes that some of these leaks are minor and may only require a few days to assess pressure, relieve pressure and tighten existing connections and flanges. If this initial work does not fix the leaks, Drilltek will proceed with a rig intervention.

The funding source to do these repairs comes from oil and gas industry idle well fees.

To date SJVAPCD has issued five NOVs for violations discovered. After re-inspection occurs, all remaining NOVs will be issued based on required repair timelines and re-inspection findings. Additional details on all NOVs issued will be forthcoming.

Next Steps

All three agencies plan to take several steps to address these leaks, and to help ensure they remain leak free:

- **Continued updates to community.** As we committed to, we plan to provide updates on repairs on these wells to the community. In addition to providing initial findings here, as progress is made in repairing leaks, we will provide updates using the means requested by the community, including:
 - Regular email updates to CSC members.
 - Representatives from the three agencies plan to attend the upcoming IVAN Kern meeting to also present an overview of inspection results and repairs.
 - As the subcommittee meets, we are happy to provide additional updates.
- **Enforcement Action.** Additional enforcement actions may be forthcoming from the Air District should any leaks not be repaired as required.
- **Ongoing inspections.** CalGEM puts wells that have leaked on an annual inspection list, in addition to the critical and environmentally sensitive wells that CalGEM inspects on an annual basis. The Air District has an increased inspection additional enforcement cycle and inspects wells that have leaked every 6 months. CARB will coordinate with the Air District on inspection of additional wells in the area to ensure compliance throughout the year. Joint agency inspections will continue based on community input and our resource availability. While resource availability may preclude all three agencies from conducting joint inspections together at a given time, we will coordinate remediation and

enforcement actions based on inspection results and monitoring efforts from our participating agencies.

- **CalGEM Training with Community on Identifying Potential Hazards.** CalGEM would like to move forward on holding the training requested by the Arvin/Lamont community on how to identify potential hazards that may be of concern and warrant reporting.
 - **Discussion with Subcommittee on in-person/virtual preference and identifying a date that works for them for the training.**

Complaints and Concerns

While the inspection efforts just outlined are designed to help identify and address methane leaks from active, idle, and orphan wells, these efforts may not be able to address all leaks that arise in the future. Even with additional inspections planned for these wells, a leak could arise at any time.

This is why CalGEM looks forward to hosting the training requested by the Arvin/Lamont community on how to identify hazards that may be of concern.

In addition, CalGEM encourages members of the public who do have immediate concerns about gas leaks in their community to dial 911. This includes, for instance, if you hear leaking gas coming from a well or attendant facility, if you suspect gas might be bubbling up within the cellar of a well, or if you feel something like a seismic event could have disrupted oil and gas infrastructure—call 911 immediately.

CalGEM encourages anyone who smells gas to not only dial 9-1-1, but to also call their local gas utility. Since natural gas is colorless and odorless, mercaptan is a foul-smelling gas that is added to natural gas used within the home to make it easier to detect. If community members smell gas, they should call their gas utility immediately, as it may indicate a leak in the home or within the natural gas distribution system.

If community members see black oil on the ground, they should report the spill to the California Office of Spill Prevention and Response, at 800 852-7550.

Community members may also have concerns about the impact of oil and gas production on their local air quality and public health, and as such, can contact their local air district and public health department with those questions.

If community members have a complaint about an operator or about oil and gas facilities in their community, the information below provides multiple avenues to submit those complaints.

Complaint Submittal

CalGEM has set up a dedicated website and process to receive and respond to community complaints. Community members can submit their concerns directly to

Confidential Pursuant to Interagency Agreement

communityconcern@conservation.ca.gov. This email box is checked daily by representatives within each district, who can assist in addressing the issue.

Complaints can also be provided to, CARB, and the SJVAPCD.

Complaints can be submitted to CARB

- by accessing CARB complaints webpage at:
<https://ww2.arb.ca.gov/environmental-complaints>
- by phone at 1-800- 952-5588
- by emailing helpline@arb.ca.gov.

Complaints can be sent to the SJVAPCD

- by calling 1-800-926-5550
- by accessing <https://ww2.valleyair.org/file-a-complaint> by accessing <https://ww2.valleyair.org/file-a-complaint>
- through the Valley Air District smart phone application available by searching "Valley Air".

Regulatory Updates

CARB is proposing amendments to the oil and gas methane regulation, to be considered by the Board on June 22nd. More about these regulatory updates can be found at:

- <https://ww2.arb.ca.gov/our-work/programs/oil-and-natural-gas-production-processing-and-storage>

The SJVAPCD is also proposing amendments to the District's oil and gas related regulations including lower leak thresholds and increasing the frequency operators have to perform leak detection and repair inspections. Additional information can be found at:

- https://www.valleyair.org/Workshops/public_workshops_idx.htm#06-15-23_rules

Upcoming Meetings

The Methane Task Force will have its next public meeting on June 27th, 2023 at 5:00 p.m. For more information on that meeting please visit:

<https://www.conservation.ca.gov/calgem/Pages/Methane-Task-Force.aspx>