

This detailed draft response should be an attachment to a one-page cover letter.

1. “What is the ARB’s existing statutory and regulatory authority to regulate air emissions that occur during oil and gas production?”

Under the Mulford-Carrell Air Resources Act of 1975, ARB has authority over vehicular sources of air pollution, while local air pollution control and air quality management districts (districts) have responsibility for pollutants from stationary sources, including oil and gas production wells and the associated emission sources found at oil and gas production facilities. (Health & Safety Code §§39002, 39003.) There are two significant exceptions discussed below.

The Global Warming Solutions Act of 2006 alters the traditional division of responsibility, giving ARB broad authority to regulate greenhouse gas (GHG) emissions from any ARB-identified source. (Health & Safety Code §38500 et seq.) In designing an overall suite of regulations, ARB has followed the Legislature’s direction to implement rules that maximize emission reductions in light of technological feasibility and cost effectiveness. (Health & Safety Code §38560.) Using those criteria, ARB developed a scoping plan in 2008 to identify our GHG regulatory priorities.

Major GHG reduction actions to date include regulations limiting passenger vehicle GHG emissions, the Low Carbon Fuel Standard, and the Cap-and-Trade program, as well as a number of additional targeted measures directed at specific source categories. Because oil and gas production generates emissions of methane and carbon dioxide (both GHGs), ARB may regulate those emissions. Oil and gas production facilities that exceed an annual GHG emission threshold must already report emissions to ARB; such facilities will have corresponding compliance obligations under the Cap-and-Trade regulation.

Methane, as a potent GHG, has gotten special attention from ARB. ARB has conducted an extensive survey to better assess the opportunity for controlling methane emissions from the oil and gas sector. We are developing a regulation addressing methane emissions from the oil and gas sector. That effort is likely to focus on requirements to reduce emissions from leaking components and storage tanks associated with oil and gas production.

A second major area where ARB has authority over stationary sources involves toxic air contaminants. Health & Safety Code section 39666 gives ARB authority to promulgate “airborne toxic control measures” (ATCMs) using a process and criteria set forth in section 39665. Such measures are designed to address sources of the air toxics presenting the highest health risks statewide (like diesel engines and chrome platers). ARB staff does not currently have information indicating there are significant toxic emissions from California oil and gas operations warranting the promulgation of an ATCM for these facilities. We do, however, recognize that oil and gas production methods are evolving and may become more widespread, and new information may result in future regulations.

Districts also play a significant role in regulating air toxic emissions. In those cases where ARB has promulgated an ATCM for a class of stationary sources, districts are required under State law to adopt and enforce the ATCM or an equal or more stringent measure. See <http://www.arb.ca.gov/toxics/atcm/atcm.htm>. And where ARB has not promulgated an ATCM for a class of stationary sources, districts have authority under State law to promulgate their own airborne toxic control measures.

2. “Can you explain how the ARB and local air districts share authority over hydraulic fracturing emissions, including:

- **emissions during transport of hydraulic fracturing fluids to oil and gas fields?**
- **emissions of volatile components from hydraulic fracturing fluids or naturally-occurring hydrocarbons during the hydraulic fracturing process at the well-head (including fugitive emissions), subsequent production of the well, and wastewater disposal?”**

After constructed, well sites in California are not open holes in the ground from which large, uncontrolled volumes of pollutants are released into the air. Instead, California well sites are designed to be operated normally as closed systems, with vapors and other fluids from the wells being directed through a series of pipes, valves, and flanges into storage tanks, compressors, processors, and other equipment. To the extent such pipes, valves, flanges, and other equipment leak or otherwise emit volatile organic compounds (VOCs) to the air, the districts have clear authority to regulate such air emissions from well sites and the oil and gas production facilities that operate those wells.

In ozone nonattainment areas, a number of air districts have acted to control VOCs that contribute to the formation of ozone from these oil and gas facilities. Rather than focusing on a particular activity (like hydraulic fracturing), the district regulations apply to specific equipment types at those facilities.

Examples of district regulations that apply to various aspects of oil and gas operations include South Coast Air Quality Management District (SCAQMD) Rules 463 [organic liquid storage], 464 [wastewater separators], 1148.1 [oil and gas production wells], 1173 [control of volatile organic compound leaks and releases from components at petroleum facilities and chemical plants]; and San Joaquin Valley Air Pollution Control District (SJVAPCD) Rules 4402 [crude oil production sumps], 4409 [components at light crude oil production facilities, natural gas production facilities, and natural gas processing facilities], 4623 [storage of organic liquids], and 4625 [wastewater separators]. Together, these rules control emissions of the VOCs that would otherwise be unregulated from these sources.

Regardless of whether a well site is hydraulically fractured or not, the gases and fluids that come out of the wells are routed through a closed and interconnected piping and processing system, and fugitive or intentional (e.g., emergency) releases of such gases

from that system are regulated pursuant to the applicable district regulation(s) designed to control VOC emissions. While methane does not fall within the definition of VOC (because it is not highly reactive in terms of ozone formation), the air districts' VOC regulations also control methane – again, a potent GHG – as a co-benefit. For example, district rules typically require control devices to capture or combust vapors, which would otherwise escape from petroleum storage tanks. In the process of controlling those vapors, the devices control the gaseous release of both VOCs and methane. We defer to the air districts for more information on concurrent control of VOCs and methane because the air districts are better situated to describe the reach of their regulations. Some of the same co-benefits from VOC controls may also result from the U.S. Environmental Protection Agency's (U.S. EPA) 2012 regulations of oil and gas production.

Because “produced water” from an oil and gas well site contains dissolved gases, including methane, enclosing such fluids could also reduce emissions. Again, this is a matter of local district regulations, which vary.

We are not aware that the transportation of hydraulic fracturing fluids is a significant source of air pollutants, including GHGs. ARB does set standards for the truck engines and increasingly requires diesel soot filters, but those standards are not specific to this particular cargo.

3. “Are emissions and potential emissions from hydraulic fracturing and related operations continuously regulated during the hydraulic fracturing lifecycle? If not, please describe statutory and regulatory gaps in authority.”

The lifecycle of air emissions involved in oil and gas operations, including any emissions that may result from hydraulic fracturing, involves elements from both mobile and stationary sources. As noted above, the emissions from stationary sources (i.e., the oil and gas operation facility itself, including the wells) are subject to local air district regulations for VOCs and toxics as provided under State law, and will be subject to upcoming ARB regulations for GHGs. With regard to the criteria and toxic pollutants from mobile and non-stationary sources operating at oil and gas facilities (e.g., nitrogen oxides (NOx) and toxics from diesel trucks and portable equipment), ARB has a suite of control measures designed to reduce those emissions. ARB shares with the districts a collaborative regulatory program over the control and registration of portable equipment (Portable Equipment Registration Program, or PERP).

To the extent there are gaps, they include the exemption of methane in most districts' regulations requiring VOC reductions, which were developed to address ozone formation (not GHG). We will be considering the most appropriate ways to address this with the districts and through our upcoming rulemaking on upstream oil and gas operations. Moreover, submittal of information relating to the composition of the fluids used in hydraulic fracturing operations would be important for identifying potential impacts to GHG and toxic air contaminant emissions from oil and gas operations. For

example, in a large spill scenario involving fracturing fluid, it would be important to know the composition of the fluid in order to conduct relevant health risk assessments.

4. “How are emissions and potential emissions from hydraulic fracturing and related operations monitored? Are the data generated readily available to the public? What inspection, auditing and enforcement does the air board currently perform related to these operations?”

ARB does ambient air monitoring that is designed to understand regional air quality, rather than emissions from individual sources. Because they are considered stationary sources, ARB does not currently inspect oil and gas wells.

In terms of publicly available information, ARB has published the results of a one-time oil and gas sector survey it conducted to evaluate potential methane control measures. Those results are summarized on our website at: <http://www.arb.ca.gov/cc/oil-gas/finalreport.pdf> . In addition, oil and gas production facilities with combined GHG emissions over 25,000 tons of carbon dioxide equivalents are required to measure, calculate, and report those emissions under the “Mandatory Greenhouse Gas Emissions Reporting” regulation, title 17 California Code of Regulations §95100 et seq. That information is available to the public at http://www.arb.ca.gov/cc/reporting/ghg-rep/reported_data/ghg-reports.htm .

5. “Was the ARB consulted in the development of DOGGR’s proposal for draft hydraulic fracturing regulations?”

Yes, ARB staff has discussed DOGGR’s proposal with them, and we have offered our assistance to them in their regulatory efforts.

6. “In your opinion, are ARB’s existing statutory authority and regulations sufficient to mitigate risks to air quality from hydraulic fracturing? If not, what changes are necessary?”

ARB believes that its existing statutory authority is adequate, and continues to exercise its AB 32 authority to develop a measure particularly applicable to oil and gas production. However, information is needed on potential toxic materials used in fracking fluids, and such information is not readily available at this time.