State of California
AIR RESOURCES BOARD

REGULATION FOR GREENHOUSE GAS EMISSION STANDARDS FOR CRUDE OIL AND NATURAL GAS FACILITIES

Resolution 16-9

July 21, 2016

Agenda Item No.: 16-7-2

WHEREAS, section 38510 of the Health and Safety Code designates the Air Resources Board (ARB or Board) as the State agency charged with monitoring and regulating sources of greenhouse gas (GHG) emissions that cause global warming in order to reduce such emissions;

WHEREAS, section 38551 of the Health and Safety Code directs that the statewide greenhouse gas limit shall remain in place indefinitely and be used to maintain and continue reductions beyond 2020;

WHEREAS, section 38560 of the Health and Safety Code directs the Board to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG emissions reduction from sources or categories of sources, subject to the criteria and schedules specified in Part 4 of Division 25.5 of the Health and Safety Code;

WHEREAS, section 38561 of the Health and Safety Code directs the Board to prepare and approve a scoping plan that shall identify and make recommendations on direct emission reduction measures, among other mechanisms, which are necessary or desirable to facilitate the achievement of the maximum feasible and cost-effective reductions of GHG emissions by 2020 and to update this plan for achieving the maximum technologically feasible and cost-effective reductions of GHG emissions at least once every five years;

WHEREAS, section 38562 of the Health and Safety Code provides the Board with continuing authority to revise regulations and adopt additional regulations to further the provisions of Division 25.5 of the Health and Safety Code;

WHEREAS, among other requirements, section 38562 of the Health and Safety Code directs the Board to develop such regulations while ensuring that they complement, and do not interfere with, efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants;

WHEREAS, section 39600 authorizes the Board to do such acts as may be necessary for the proper execution of the powers and duties granted to and imposed upon it and section 39601 of the Health and Safety Code directs the Board to adopt standards, rules, and regulation necessary for the proper execution of the powers and duties granted to and imposed upon the Board;

WHEREAS, section 41511 of the Health and Safety Code authorizes the Board to adopt rules and regulations to require the owner or operator of any air pollution emission source to take reasonable actions for the determination of the amount of such emission from such source;

WHEREAS, the Board identified measures in the 2008 Scoping Plan to reduce emissions from oil and gas production and processing as appropriate to take to achieve the maximum technologically feasible and cost-effective GHG reductions to support the purposes of Division 25.5 of the Health and Safety Code;

WHEREAS, the Board again identified measures in the 2014 Scoping Plan Update to reduce emissions from oil and gas production and processing as appropriate to take to achieve the maximum technologically feasible and cost-effective GHG reductions to support the purposes of Division 25.5 of the Health and Safety Code;

WHEREAS, short-lived climate pollutants, including methane, pose an especially potent threat to the stability of the global climate, are emitted in large quantities from certain sources in California, and, if controlled, offer significant opportunities to protect public health and slow the pace of climate change;

WHEREAS, methane, in particular, is the second largest anthropogenic contributor to GHG emissions globally, with a global warming potential at least 72 times greater than that of CO_2 when considered on a 20 year timeframe;

WHEREAS, oil and gas systems are responsible for approximately 4 percent of methane emissions from California;

WHEREAS, recent remote sensing survey and detection efforts by staff have demonstrated the presence of substantial methane emissions from oil and gas systems, including from so-called "super-emitting" equipment leaking at a high rate;

WHEREAS, the recent methane leak at the Aliso Canyon natural gas storage facility, which disrupted local communities and leaked large amounts of methane into the atmosphere, has further underlined the importance of comprehensive efforts to address pollution from oil and gas systems;

WHEREAS, section 39730 of the Health and Safety Code directed the Board to prepare a plan identifying measures to control emissions of short-lived climate pollutants, including methane;

WHEREAS, the Proposed Short-Lived Climate Pollutant Reduction Strategy, recently presented to the Board and still under consideration, identifies measures to reduce emissions from oil and gas production and processing as an important part of short-lived climate pollutant reduction efforts and calls for a 40-45 percent reduction in methane from the oil and gas sector as a whole by 2025;

WHEREAS, reductions of short-lived climate pollutants also have important public health benefits, including for communities (including disadvantaged communities) affected by sources of these pollutants;

WHEREAS, reducing methane emissions from the oil-and-gas sector also creates opportunities to reduce emissions of reactive organic gases and toxic air contaminants, and can be designed consistently with efforts to control other air pollutants, including nitrogen oxides and particulate matter, via well-designed control strategies;

WHEREAS, staff has conducted an extensive survey of available information on oil and gas sector GHG emissions, beginning in 2009, producing a comprehensive dataset regarding the California oil and gas sector, and has regularly added to this information via regular studies of the scientific literature, information from industry groups and non-governmental organizations, and other regulatory bodies;

WHEREAS, staff has worked closely and collaboratively with staff at California's local air districts throughout this process and has benefitted from the extensive experience the local air districts have developed in regulating oil and gas systems for other pollutants for many years;

WHEREAS, the extensive emissions regulations for oil and gas systems already in place in California, though not sufficient to control all methane emissions, demonstrate that effective regulation of the industry can substantially and effectively control emissions;

WHEREAS, staff has conducted many public workshops and stakeholder meetings during the regulatory development process;

WHEREAS, after many years of development and research in close consultation with stakeholders, staff has developed a Proposed Regulation for Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities, released to the public on May 31, 2016;

WHEREAS, the Proposed Regulation is based on an extensive analysis demonstrating that significant methane emission reductions from the oil and gas sector may be cost-effectively achieved;

WHEREAS, the Proposed Regulation and the Staff Report: Initial Statement of Reasons for the Proposed Regulation have been circulated and made available for public comment for at least 45 days;

WHEREAS, staff is pursuing a scientific peer review of relevant elements of the Proposed Regulation, consistent with Health and Safety Code § 57004;

WHEREAS, staff estimates that the Proposed Regulation, when fully implemented, would reduce methane emissions by the equivalent of approximately 1.5 million metric tons of CO_2;

WHEREAS, staff estimates that the Proposed Regulation would have the co-benefit of reducing hydrocarbon emissions by thousands of tons each year and would also reduce emissions of toxic air contaminants and, for these and other reasons, would complement, and not interfere with, efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants;

WHEREAS, staff reports that aspects of the regulation that avoid the use of combustion-based controls where possible, require the replacement of inefficient combustion controls where such

controls are necessary, and require rigorously low-polluting controls when controls are used, would reduce NOx emissions in some regions and avoid significant NOx impacts throughout the state, and that staff also continues to work with affected air districts to further reduce criteria pollutant emissions;

WHEREAS, communities, including disadvantaged communities, in proximity to oil and gas operations could benefit both from the reduced climate risk associated with the Proposed Regulation as well as from reduced exposure to other air pollutants as a result of the Proposed Regulation;

WHEREAS, several other efforts are underway by staff and by other State agencies to control methane emissions from the oil and gas system, including collaborative efforts between ARB and the Public Utilities Commission to address emissions from the natural gas transmission and distribution system;

WHEREAS, several other regulatory programs to control oil and gas systems, GHG, and other air pollutant emissions are underway nationally, including proposed and final rules issued by the U.S. Environmental Protection Agency and U.S. Bureau of Land Management;

WHEREAS, programs to control emissions of air pollutants to comply with state and federal ambient air quality standards, including by reducing emissions from the oil and gas sector, continue in local air districts throughout California;

WHEREAS, staff has taken considerable steps to ensure that the Proposed Regulation is designed to complement and support compliance with these related regulatory efforts, and continue to identify opportunities to coordinate with these complementary efforts;

WHEREAS, the Proposed Regulation contains provisions inviting close collaboration with California's local air districts in implementation and enforcement, including via joint enforcement of aspects of the Proposed Regulation and the development of Memoranda of Agreement to further implementation efforts;

WHEREAS, ARB's regulatory program that involves the adoption, approval, amendment, or repeal of standards, rules, regulations, or plans has been certified by the Secretary for Natural Resources under Public Resources Code section 21080.5 of the California Environmental Quality Act (CEQA; California Code of Regulations, title 14, section 15251(d)), and ARB conducts its CEQA review according to this certified program (California Code of Regulations, title 17, sections 60000-60007);

WHEREAS, ARB prepared a draft environmental analysis (Draft EA) under its certified regulatory program for the Proposed Regulation and circulated it as Appendix C of the Staff Report for at least 45 days, from May 31, 2016, to July 18, 2016, and

WHEREAS, the Draft EA concluded that implementation of the Proposed Regulation would result in beneficial impacts to GHGs through reductions in methane emissions from oil and gas operations in California; that the Proposed Regulation would result in less-than-significant long-term impacts to air quality, along with reductions in VOCs; that the Proposed Regulation could result in less-than-significant or no impacts to aesthetics, agriculture resources,

biological resources (long term), energy demand, GHG (short term), geology and soils (long term), hazards and hazardous materials, hydrology and water quality (long term), land use planning, transportation and traffic, mineral resources, noise, population and housing, public services, recreation, and utilities and service systems; and that potentially significant and unavoidable adverse impacts due to short term construction related impacts to biological resources (short term), cultural resources (short term), geology and soils (short term), and hydrology and water quality (short term) are reasonably foreseeable as a result of the Proposed Regulation.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby directs the Executive Officer to take the following actions:

1. Continue to work closely with California's local air districts to develop the Proposed Regulation, including pursuing options to provide the districts with additional resources, working with San Joaquin Valley to quantify NOx emissions and drive further NOx and criteria pollutant reductions, and developing Memoranda of Understanding or similar documents to aid in implementation of the Proposed Regulation, if it is adopted.

2. Continue to work with other California state agencies to ensure that the Proposed Regulation is coordinated with other methane control activities and other oil and gas sector regulatory measures, and other air pollution control efforts, throughout State government.

3. Continue to identify opportunities to coordinate development and implementation of the Proposed Regulation with federal regulatory measures where possible.

4. Continue to consult with industry groups, non-governmental organizations, representatives of disadvantaged communities, and other stakeholders.

5. Continue consulting with the AB 32 Environmental Justice Advisory Committee as appropriate.

6. Work with all stakeholders to ensure that the Proposed Regulation achieves the maximum technologically feasible and cost-effective reductions of GHGs from the oil and gas sector, while ensuring that it complements, and does not interfere with, efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

7. Evaluate comments received during the formal public comment periods, including comments raising significant environmental issues, and prepare written responses to such comments as required by ARB's certified regulations at California Code of Regulations, title 17, sections 60000-60007.

8. Further evaluate the proposed modifications presented to the Board and, if appropriate, make modifications to the regulatory language, and any additional modifications that are appropriate, along with any additional supporting documents

and information, available for public comment for a period of at least 15 days; also consider written comments submitted during the public review period and make any further modifications that are appropriate available for public comment for at least 15 days.

9. If appropriate, prepare and circulate any further environmental analysis to the extent required by ARB's regulations at California Code of Regulations, title 17, sections 60000-60007, and as necessary, consider feasible mitigation or alternatives that could eliminate or substantially lessen any significant adverse environmental impacts identified.

10. Present to the Board, at a subsequently scheduled public hearing, staff's responses to comments raising significant environmental issues, along with the final environmental analysis, for consideration for approval; and

11. Present to the Board, at a subsequently scheduled public hearing, the Proposed Regulation for consideration for adoption.

I hereby certify that the above is a true and correct copy of Resolution 16-9 as adopted by the Air Resources Board.

Tracy Jensen

Tracy Jensen, Clerk of the Board

Resolution 16-9

July 21, 2016

Identification of Attachments to the Board Resolution

Attachment A: Staff's Suggested Modifications to the Original Proposal (Distributed at the July 21, 2016, ARB hearing)

Attachment A:
Staff's Suggested Modifications to the Proposed GHG Emission Standards for Crude Oil and Natural Gas Facilities

This attachment presents an overview of the main topics ARB staff is proposing for further public consideration as part of the subsequent 15-day comment period. This list is based on staff recommendations and does not include changes inclusive of all stakeholder comments, thus the list is not exhaustive and it does not include minor technical changes that may be proposed. This list in no way limits ARB's authority to make other changes to the proposed regulatory amendments, consistent with the requirements of California law.

Staff will continue to coordinate with stakeholders in the development of the regulatory text. Modified regulatory language will be developed by staff as described below, and the modified language will be made available to the public for a 15-day comment period prior to final adoption.

Leak Detection and Repair Requirements

Staff proposes to remove the step-down provision in the leak detection and repair portion of the regulation. The May 31, 2016 version of the proposed regulation includes quarterly leak detection and repair with a provision that would allow facilities to "step-down" to annual inspections with 5 consecutive quarters with no violations. Since the May 31 version, it has been suggested that staff remove this "step-down" provision in order to ensure leaks are found and repaired in a timely manner. The U.S. Environmental Protection Agency released its final regulations for new and modified sources in this sector and removed a similar step-down provision. In addition, a recent state-sponsored symposium brought to light new research on the unpredictability of leak events over time. This research will be added to the rulemaking record along with any 15 day changes. Finally, recent well leakage events at both McDonald Island and Aliso Canyon underground storage facilities highlight the need for regular inspections.

Natural Gas Storage Monitoring

Staff intends to clarify requirements and make any adjustments necessary if legislation related to leak detection and monitoring is enacted.

Definitions, Clarifications, and Error Corrections

Staff intends to propose changes to correct small errors in the regulatory text and clarify definitions and regulatory text.

Revisions to Economic Analysis

Staff intends to revise the economic analysis for two sectors: idle wells and gauge tanks. Both are included in the regulatory analysis but staff became aware that the costs were not completely incorporated. For idle wells, staff will provide updated information on the costs to industry as well as to districts or ARB for enforcement and implementation.

In addition, in the May 31 proposal, staff included gauge tanks in the control strategy for oil and water separators and tanks. Gauge tanks are tanks before the separator and may be used for different purposes including but not limited to measurement of oil and water percentages in the produced fluids. Staff was made aware of these tanks during informal industry discussions and since they are the first point at which the produced fluids reach atmosphere and release air pollutants, staff included these tanks in the control strategies. The economic analysis assumed these were not significant additional costs, but staff will continue to consult with stakeholders on this matter, and revisit this assumption and revise the analysis if appropriate. Staff does not believe the revised economic analysis will impact regulatory requirements but if either revision to the economic analysis results in changes to staff proposals, those changes will also be made available for the 15-day comment period.