State of California
AIR RESOURCES BOARD

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

Resolution 17-10

March 23, 2017

Agenda Item No.: 17-3-6

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (ARB or Board) to adopt standards, rules, and regulations and to do such acts as may be necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, section 38510 of the Health and Safety Code designates ARB 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 that emission reductions be continued and maintained beyond 2020;

WHEREAS, section 38566 of the Health and Safety Code further directs that ARB shall ensure that state greenhouse gas emissions are reduced to at least 40 percent below the statewide greenhouse gas limit no later than December 31, 2030;

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 for achieving the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions by 2020, and which shall identify and make recommendations on direct emission reduction measures, among other mechanisms, that are necessary or desirable to facilitate the achievement of the maximum feasible and cost-effective reductions of greenhouse gas emissions by 2020, and to update this plan for achieving the maximum technologically feasible and cost-effective reductions of greenhouse gas 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 purposes 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, to the extent feasible, 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 of the Health and Safety Code authorizes the Board to take 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 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 in the 2008 Scoping Plan;

WHEREAS, the Board again identified measures 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 in the 2014 Scoping Plan Update, and such measures are identified again in the Proposed 2017 Scoping Plan Update;

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 production, processing, and storage facilities are responsible for approximately four percent of methane emissions from California;

WHEREAS, recent remote sensing survey and detection efforts have demonstrated the presence of substantial methane emissions from oil and gas systems, including from so-called "super-emitting" equipment in the system 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 42710 of the Health and Safety Code directs the Board, in consultation with the Division of Oil, Gas, and Geothermal Resources and air districts, to develop a natural gas storage monitoring program;

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

WHEREAS, section 39730.5 of the Health and Safety Code further directs the Board to approve and begin implementing a plan to reduce these emissions by January 1, 2018, including reductions of methane emissions by 40 percent below 1990 levels;

WHEREAS, the proposed Short-Lived Climate Pollutant Reduction Strategy 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 regulatory measures can and have been designed consistently with efforts to control other air pollutants, including nitrogen oxides and particulate matter, via well-designed control strategies;

WHEREAS, beginning in 2009, staff has conducted an extensive survey of available information on oil and gas sector GHG emissions and control technology options, 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 have 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 (Proposed Regulation), 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 a Staff Report and Initial Statement of Reasons for the Proposed Regulation were circulated and made available for public comment for at least 45 days, with the documents posted May 31, 2016, for a public comment period beginning June 3, 2016;

WHEREAS, staff estimates that the Proposed Regulation, when fully implemented, would reduce methane emissions annually by the equivalent of approximately 1.4 million metric tons of CO2 ,based on a 20-year global warming potential, relative to business as usual;

WHEREAS, staff estimates that the Proposed Regulation would have the co-benefit of reducing reactive organic gas 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, 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 by staff and by other state agencies to control methane emissions from the oil and gas system are underway, 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 efforts to control oil and gas systems GHG and other air pollutant emissions are underway nationally, including proposed and final rules issued by the federal government, and that ARB staff are making continuing efforts to implement these state rules in complementary ways and to support methane reductions nationally, including through these federal rulemakings;

WHEREAS, efforts 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 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 fully control methane emissions, demonstrate that effective regulation of the industry can substantially and effectively control emissions;

WHEREAS, sections 39001, 39603, and 40701 of the Health and Safety Code direct that ARB and local air districts to take a cooperative approach to controlling air pollution to the extent possible, and authorize appropriate contracts and Memoranda of Agreement to do so;

WHEREAS, the Proposed Regulation contains provisions that call for close collaboration in implementation and enforcement with California's local air districts, and staff continue to develop Memoranda of Agreement to jointly implement and enforce the Proposed Regulation with interested local air districts;

WHEREAS, staff have made considerable efforts 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 draft environmental analysis shows, among other co-benefit pollutant reductions, a net decrease in NOx in the San Joaquin Valley compared to the CEQA baseline. ARB recognizes the potential for as yet undeveloped future rules considered by the San Joaquin Valley Air District to require the same or similar low NOx devices as required in the Proposed Regulation. Such a district rule might create opportunities to further reduce NOx emissions. Although not required to do so under CEQA, ARB analyzed ARB's Proposed Regulation relative to a potential future in which a district control requirement was also operating and found that there would still be a net decrease in emissions compared to existing conditions, but that implementation of the Proposed Regulation could result in approximately 0.01 tons/day fewer reductions than a future with the potential district rules alone. This emissions differential is less than SJVAPCD's CEQA significance threshold. Thus, any changes in emission reductions under such a hypothetical comparison would not result in any significant impacts under any scenario, and no further reductions efforts would be required even if such a comparison were required under CEQA. Nevertheless, ARB is committed to spurring innovation in, and application of, NOx control strategies, and will continue to monitor potential interactive effects, and to work with the San Joaquin Valley Air Pollution Control District to offset any diminished decrease in NOx reductions should it be attributable to the Proposed Regulation as compared to NOx reductions that would occur otherwise, in the absence of the Proposed Regulation, as a result of the implementation of any future final District rules requiring NOx reductions from flares.

WHEREAS, staff prepared and included in the Initial Statement of Reasons for the Proposed Regulation a Standardized Regulatory Impact Analysis (SRIA), consistent with section 11346.36 of the Government Code, submitting this SRIA to the Department of Finance on April 29, 2015, with the Department of Finance finding that it generally concurred with the SRIA methodology and further finding the SRIA to be "particularly well

constructed in relating the direct impacts of the proposed regulation to the overall impacts";

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 (EA) under its certified regulatory program for the proposed Regulation, and circulated it as Appendix C of the Staff Report for 45 days, posting the documents May 31, 2016, for a public comment period running from June 3, 2016, to July 18, 2016;

WHEREAS, the Draft EA concluded that implementation of the proposed regulations would result in long-term beneficial impacts to GHGs through reductions in methane emissions from oil and gas operations in California. The Draft EA concluded that the proposed regulation would result in less-than-significant long term impacts to air quality, as well as reductions in VOCs. The Draft EA also concluded the proposed regulations could result in less-than-significant or no impacts to aesthetics, agriculture resources, biological resources (long term), cultural resources (long term), energy demand, greenhouse gases (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;

WHEREAS, the Board conducted a public hearing on the Proposed Regulation on July 21, 2016, and, following the public hearing, issued Resolution 16-9 directing the Executive Officer to, among other actions, make modifications to the proposed regulatory language as appropriate, making those modifications along with any additional supporting documents and information available to the public for a period of at least 15 days; to consider written comments submitted during the public review period and make any further conforming modifications available for public comment for at least 15 days; evaluate all comments received during the public comment periods, including comments on the Draft EA, and prepare written responses to EA comments as required by ARB's certified regulations at California Code of Regulations, title 17, sections 60000-60007 and Government Code section 11346.9(a); and to present to the Board, at a subsequent scheduled public hearing, staff's written responses to any comments on the Draft EA, along with the Final Environmental Analysis for consideration for approval, and staff's final Proposed Regulation for consideration for adoption;

WHEREAS, following the July 2016 Board hearing, modified regulatory language and supporting documentation were made available for a 15-day public comment period, with the changes to the originally proposed text clearly indicated, according to provisions of California Code of Regulations, title 1, section 44 and Government Code section 11340.85 from February 3, 2017, through February 21, 2017;

WHEREAS, as codified in section 38562.5 of the Health and Safety Code, AB 197 (Garcia, Statutes of 2016) provides, among other things, that when adopting rules and regulations pursuant to Division 25.5 of the Health and Safety Code to achieve emissions reductions beyond the statewide greenhouse gas limit, ARB shall follow the rulemaking requirements of section 38562(b) of the code, consider the social costs of the emissions of greenhouse gases, and prioritize both emissions reduction rules and regulations that result in direct emission reductions at large stationary sources of greenhouse gas emissions sources and direct emission reductions from mobile sources, and emissions reduction rules and regulations that result in direct emission reductions from sources other than those sources;

WHEREAS, in addition to helping California reduce emissions to the statewide greenhouse gas limit, the Proposed Regulation may contribute to reductions beyond that limit;

WHEREAS, the United States Environmental Protection Agency, working with the federal Interagency Working Group on Social Cost of Greenhouse Gases, has produced a publicly available Technical Support Document on the basis of expert review providing nation-wide social cost values for carbon dioxide and for methane, and whereas, using a conservative 3% discount rate, the social cost of methane is between $1,000 and $1,600 per ton in the 2015-2030 period, and the social cost of carbon dioxide is between $36 and $50 per ton in the same period (calculated using $2007);

WHEREAS, the Proposed Regulation produces methane reductions at a cost of approximately $20 per ton (using 20-year Global Warming Potential) and does not address CO2 reductions directly;

WHEREAS, the Proposed Regulation produces direct emission reductions at large and other stationary sources, and these reductions are accompanied by many benefits to disadvantaged communities, including co-benefit emissions reductions of an estimated 3,285 tons per year of volatile organic compounds, 2 tons per year of nitrous oxides, and unquantified reductions of toxic air contaminants that have been correlated with reductions in adverse health impacts including premature mortality;

WHEREAS, the Proposed Regulation was developed in compliance with all other applicable provisions of AB 32, including the requirements of section 38562(b);

WHEREAS, under an agreement with the University of California, an external scientific peer review was conducted to evaluate the scientific bases for the Proposed Regulation

pursuant to Health & Safety Code section 57004; the peer reviewers generally found the Proposed Regulation to be well-grounded in the relevant science; and staff has appropriately responded to the peer reviewers' comments;

WHEREAS, staff reviewed written comments received on the draft EA and prepared written responses to comments received on the Draft EA during all comment periods, included as Attachment C to this resolution, and the Board has reviewed and considered the written responses along with the final environmental analysis;

WHEREAS, on March 10, 2017, staff posted on the rulemaking page the Final EA, which includes minor revisions, and the Response to EA comments;

WHEREAS, prior to the duly noticed public hearing held on March 23-24, 2017, staff presented the Final EA and the Response to EA Comments, as set forth in Attachments B and C to this resolution, to the Board for consideration;

WHEREAS, a public hearing and other administrative proceedings have been held according to the provisions of Chapter 3.5 (commencing with section 11340), part 1, division 3, title 2 of the Government Code; and

WHEREAS, in consideration of the ISOR, written comments, public testimony, the SRIA, the peer review, the responses to comments that staff has prepared, the final EA, and the entirety of the record, the Board finds that:

> Short-lived climate pollutants, including methane, must be reduced to meet the state's climate goals, to protect public health and welfare, to protect disadvantaged communities, and to secure air quality benefits for Californians;
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> Methane emissions from oil and gas systems comprise a significant share of state methane emissions, and must be reduced expeditiously from all sources covered by the Proposed Regulation;
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> The methane reductions that the Proposed Regulation will achieve are consistent with the state's climate policy mandates and targets, and will also provide substantial co-benefit reductions in other air pollutants;
>
> The Proposed Regulation was developed using the best available economic and scientific information and will achieve the maximum technologically feasible and cost-effective reductions in methane emissions from the oil and gas sectors covered by the Proposed Regulation;
>
> The Proposed Regulation complies with the rulemaking requirements of section 38562 of the Health and Safety Code which, among other requirements, directs the Board to develop such regulations while ensuring, to the extent feasible, 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;

The Proposed Regulation's scientific bases were peer reviewed consistent with section 57004 of the Health and Safety Code, and the peer review supports the core scientific conclusions drawn by staff in developing the regulation;

The Proposed Regulation is designed to be implemented in a cooperative manner with the local air districts, recognizing the extensive control programs and expertise already available in many local air districts;

The Proposed Regulation was developed in an open and public process, in consultation with affected parties, through numerous public workshops, individual meetings, and other outreach efforts, and those efforts are expected to continue as the regulation is implemented and future revisions to it are considered;

The Proposed Regulation is clear, consistent, enforceable, and transparent;

No reasonable alternatives to the Proposed Regulation considered to date, or that have otherwise been identified and brought to the attention of ARB, would be more effective at carrying out the purpose for which the regulation is proposed or would be as effective and less burdensome to affected entities than the Proposed Regulation;

To the extent that AB 197 applies to the Proposed Regulation, the Proposed Regulation has been developed in compliance with that statute. The Proposed Regulation was developed with due consideration of the social cost of greenhouse gas emissions and is consistent with a focus on direct emission reductions in the oil and gas industry, including in and around disadvantaged communities; and

The Proposed Regulation is consistent with ARB's environmental justice policies and does not disproportionately impact people of any race, culture, or income.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby certifies that the Final EA, set forth in Attachment B to this resolution, was completed in compliance with ARB's certified regulatory program to meet the requirements of CEQA, reflects the agency's independent judgment and analysis, and was presented to the Board whose members reviewed and considered the information therein before taking action to approve the Regulation.

BE IT FURTHER RESOLVED that the Board approves the Response to EA Comments set forth in Attachment C to this resolution.

BE IT FURTHER RESOLVED that in consideration of the Final EA, the Response to EA Comments, and the entirety of the record, the Board adopts the Findings and Statement of Overriding Considerations set forth in Attachment D to this resolution.

BE IT FURTHER RESOLVED the Board hereby approves for adoption new sections 95665, 95666, 95667, 95668, 95669, 95670, 95671, 95672, 95673, 95674, 95675, 95676, and 95677, and Appendices A, B, and C, of Title 17, Division 3, Subchapter 10 Climate Change, Article 4, California Code of Regulations, as set forth in Attachment A.

BE IT FURTHER RESOLVED that the adopted regulatory text may be further revised with non-substantial or grammatical changes, which will be added to the rulemaking record and indicated as such.

BE IT FURTHER RESOLVED that the Board directs staff to follow development of related SJVAPCD rules regarding flaring and explore options to further reduce NOx emissions, including through, among other options, further consideration of innovative NOx technologies or funding or implementation of NOx reduction projects to offset any diminished decrease in NOx reductions should it be attributable to the Proposed Regulation as compared to NOx reductions that would occur otherwise, in the absence of the Proposed Regulation, as a result of the implementation of any future final District rules requiring NOx reductions from flares.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to finalize the Final Statement of Reasons, to submit the completed rulemaking package to the Office of Administrative Law, and transmit the Notice of Decision with Responses to the EA Comments to the Secretary of the Natural Resources Agency for posting.

I hereby certify that the above is a true and correct copy of Resolution 17-10 as adopted by the Air Resources Board.

Rana McReynolds

Rana McReynolds, Clerk of the Board

Resolution 17-10

March 23, 2017

Identification of Attachments to the Board Resolution

Attachment A: Final Regulation Order

Attachment B: Final Environmental Analysis Prepared for the Regulation for the Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities, released to the public March 10, 2017.

Attachment C: Response to Comments on the Environmental Analysis Prepared for the Regulation for the Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities, released to the public March 10, 2017.

Attachment D: Findings and Statement of Overriding Considerations