June 12, 2023

Re: Environmental Defense Fund Comments on Proposed Amendments to the Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities

Dear Board Members and Clerk of the Air Resources Board:

Thank you for accepting these comments submitted by Environmental Defense Fund ("EDF") on the California Air Resources Board's ("CARB") Proposed Amendments to the Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities. In October 2022 we submitted comments to CARB on Potential Changes to the Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities ("Oil and Gas Methane Regulation").[1] These comments elaborate on our previous comments and address the proposed remotely detected emission plumes provision put forth by CARB.

We appreciate CARB's efforts to strengthen the protectiveness and enforceability of its Oil and Gas Methane Regulation. CARB's current methane rule contains a suite of best practices to reduce methane from oil and gas facilities across the oil and natural gas supply chain. The revisions CARB proposes here will further the reductions achieved by the current rule and assist the state in reaching its GHG reduction goals. CARB's Scoping Plan for Achieving Carbon Neutrality, adopted by the Board in November 2022, lays out the sector-by-sector roadmap for California to achieve carbon neutrality by 2045 or earlier, as called for in Assembly Bill 1279.

EDF is an international membership organization with more than 3 million members and activists worldwide and almost half a million in the state of California, many of whom are deeply concerned about the pollution emitted from oil and natural gas development and operations. EDF brings a strong commitment to sound science, collaboration, and market-based solutions to our most pressing environmental and public health challenges.

I. Introduction

In this rulemaking, CARB is proposing to amend the Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities regulation., 17 C.C.R. § 95665 et seq. CARB is proposing revisions to address comments from US EPA on the sufficiency of revisions CARB submitted to

[1] Environmental Defense Fund Comments on Potential Changes to the Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities (Oil and Gas Methane Regulation) (Oct. 11, 2022) [hereinafter "*EDF 2022 Comments*"].

the California State Implementation Plan ("SIP") in 2018 and to authorize a new program to allow CARB to use remote sensing technology to detect super emitters. As background, CARB submitted its Oil and Gas Methane Regulation to the SIP because the regulation achieves important co-benefits of volatile organic compounds ("VOCs"). In 2022, US EPA issued a "limited approval, limited disapproval" of the California Oil and Gas Methane Regulation in the SIP. US EPA's SIP decision was based on a determination that certain provisions in the SIP did not comport with the EPA's Control Techniques Guidelines for oil and gas sources. CARB's proposal to amend the Oil and Gas Methane Regulation aims to address the deficiencies identified by US EPA, to improve and clean up provisions based on implementation experience, and to add a provision requiring owners or operators of oil and gas facilities to respond to remotely detected methane emission plumes.

We greatly appreciate CARB's efforts to strengthen the protectiveness and enforceability of its Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities. The 2017 methane rule contains a number of best practices to reduce methane, and co-pollutants including VOCs and hazardous air pollutants, from oil and gas facilities across the oil and natural gas supply chain. In particular, CARB requires operators of production facilities and compressor stations in the gathering and boosting segment and in the transmission segment to conduct quarterly instrument-based inspections to detect leaks. CARB has required operators install only non-emitting continuous pneumatic controllers at new facilities since January 1, 2019, and has included continuous and intermittent bleed controllers in LDAR inspections as a way to mitigate leaks from abnormally operating controllers.

CARB's Scoping Plan for Achieving Carbon Neutrality, adopted by the Board in November 2022, lays out the sector-by-sector roadmap for California to achieve carbon neutrality by 2045 or earlier, as called for in Assembly Bill 1279. We appreciate CARB's leadership with respect to eliminating or reducing methane and other harmful emissions from oil and natural gas facilities. The current proposal furthers CARB's leadership role and will the aid the state in achieving carbon neutrality by 2045. We support the proposal. We offer suggestions to achieve additional reductions from the proposed remotely detected emission plumes provision. Specifically, we urge CARB to:

(1) expand the provision to allow CARB to use other types of remote detection technology capable of identifying "super-emitters" rather than limiting the proposal to satellites;

(2) require operators to investigate all detected super emitters, even those that may occur due to authorized maintenance activities

(3) publicize the data identified and reported to CARB as part of the remotely detected emissions plumes program so that community members are updated while the events are occurring.

A. The Problem of Super Emitters

Super-emitters are individual sources that emit huge amounts of methane and other pollution, typically as a result of malfunctions or abnormal processes.[2] These events contribute to the "heavy-tailed" distribution commonly observed across the oil and gas sector,[3] meaning that a small number of sources are responsible for a disproportionate share of total emissions from the industry.[4] This often means that the top 5-10% of sources contribute 50% or more of total emissions.[5] This phenomenon has been well documented in academic studies over the past decade.[6]

New studies published in the year have only further solidified the problem posed by super-emitters, documenting the widespread existence of sources emitting at or well-above a threshold of 100 kg/hr. A study by Chen et al. released in March 2022 found that just 118 out of 958 sources surveyed in the Permian Basin using an aerial monitoring program were responsible for 50% of total emissions from the region.[7] Another study released in July 2022 found that super-emitting sources were responsible for nearly 40% of total methane emissions between 2019 and 2021 across five major oil and gas basins including the San Joaquin Valley in California (the other four basins were the Uinta Basin in Utah, Denver-Julesburg Basin in Colorado, the Permian Basin in Texas and New Mexico, and the Marcellus Shale Basin in Pennsylvania).[8] The study included super-emitting sources from oil and gas production, wet manure from animal feedlots, large landfills, and coal mine venting, but found that oil and gas production sources made up the majority of super-emitters in almost every basin except the Marcellus Shale, which was more heavily influenced by coal mine venting.[9]

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[2] Daniel Zavala-Araiza et al., *Super-emitters in natural gas infrastructure are caused by abnormal process conditions,* 8 Nature Commc'n 14012 (2017), https://www.nature.com/articles/ncomms14012#Sec6; 87 Fed. Reg. at 74746.

[3] *See, e.g.*, Yuanlei Chen et al., *Quantifying Regional Methane Emissions in the New Mexico Permian Basin with a Comprehensive Aerial Survey*, 56 Env't Sci. Tech. 4317, 4317-23 (2022), https://pubs.acs.org/doi/pdf/10.1021/acs.est.1c06458 [hereinafter "Chen et al., *Quantifying Methane Emissions in New Mexico Permian Basin*"].

[4] Env't Def. Fund et al., Comment Letter on Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review, Dkt. No. EPA-HQ-OAR-2021-0317-0844 (Jan. 31, 2022), at 63–68 [hereinafter "2022 Joint Environmental Comments"] .

[5] 87 Fed. Reg. at 74746.

[6] 2022 Joint Environmental Comments supra note **Error! Bookmark not defined.** at 23–24, 63–68, 98, 126–27, 200–01.

[7] Chen et al., *Quantifying Methane Emissions in New Mexico Permian Basin*, *supra* note **Error! Bookmark not defined.**.

[8] Daniel H. Cusworth et al., *Strong Methane Point Sources Contribute A Disproportionate Fraction of Total Emissions Across Multiple Basins in the United States*, 119 Proceedings of the Nat'l Acad. of Scis. 1, 1–4, 6 (2022), https://www.pnas.org/doi/10.1073/pnas.2202338119 [hereinafter "Cusworth et al., *Strong Methane Point Sources*"].

[9] *Id.* at 3–4.

Recent measurement-based studies again confirm that total oil and gas emissions are much higher than official estimates.[10] This discrepancy is attributed to "low-probability but high-consequence sources [that] can contribute the majority of methane emissions from an oil and gas producing region" but that are not well characterized in official inventories.[11] These studies underscore that addressing super-emitters is centrally important in efforts to drive down total emissions.

Studies have also identified and quantified ultra-emitters.[12] These sources are responsible for some of the largest methane plumes ever observed. An international study released in July 2022 used global satellite monitoring data to identify multiple ultra-emitters in the Permian Basin with emission rates ranging from 700 kg/hr up to a whopping 24,000 kg/hr.[13] NASA satellite monitoring data from the Earth Surface Mineral Dust Source Investigation mission has also identified at least one ultra-emitting facility in the Permian Basin with a recorded emissions rate of 18,300 kg/hr of methane released.[14]

Despite the significant contribution of these sources to overall methane pollution, these emission events can be difficult to capture through periodic monitoring programs because they tend to be intermittent and unpredictable.[15] Indeed, periodic LDAR can fail to capture super-emitters, especially within the timeframe required for mitigation.[16] For instance, if a super-emitter source

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[10] See, e.g., Evan Sherwin et al., Quantifying oil and natural gas system emissions using one million aerial site measurements, Preprint (2023) https://www.researchsquare.com/article/rs-2406848/v1 (finding that emissions from midstream facilities can make up 50 percent of the total in certain basins). (combining Carbon Mapper and Kairos surveys with an expanded version of the emissions simulation tool from Rutherford et al. 2021 to "infer emissions inventories for six regions in the United States comprising 52% of onshore oil and 29% of gas production over fifteen aerial campaigns. Total estimated emissions range from 9.63% of natural gas production, roughly nine times the US government estimate, to 0.75% in a high-productivity gas-rich region."); William Kunkel et al., *Extension of Methane Emission Rate Distribution for Permian Basin Oil and Gas Production Infrastructure By Aerial LiDAR*, Earth ArXiv (2023) (preprint), https://eartharxiv.org/repository/view/4895/ (Carbon Mapper and Bridger measurements in the Permian at 7,920 oil and gas production facilities increase the total emission rate for the survey region by a factor of 3.0 after controlling for scale factors such as survey area and number of scans per facility); Matthew Johnson et al., *Creating Measurement-Based Oil and Gas Sector Methane Inventories Using Source-Resolved Aerial Surveys*, Rsch. Square (2022) (preprint), https://www.researchsquare.com/article/rs-2203868/v1.

[11] Sherwin et al., *supra* note 10 at 4.

[12] *See, e.g.*, Sudhanshu Pandley et al., *Satellite Observations Reveal Extreme Methane Leakage From A Natural Gas Well Blowout*, 116 Proc. Nat'l Acad. Sci. 2376, 26376–81 (2019), https://www.pnas.org/doi/10.1073/pnas.1908712116 [hereinafter "Pandley et al., *Satellite Observations of Well Blowout*"].

[13] Daniel J. Jacob, et al., *Quantifying Methane Emissions From the Global Scale Down to Point Sources Using Satellite Observations of Atmospheric Methane*, 22 Atmos. Chem. Phys. 9617, 9617–46 (2022), https://acp.copernicus.org/articles/22/9617/2022/acp-22-9617-2022.pdf.

[14] Nat'l Aeronautics & Space Admin. Jet Propulsion Lab., *Methane 'Super-Emitters' Mapped By NASA New Earth Space Mission* (Oct. 25, 2022), https://www.nasa.gov/feature/jpl/methane-super-emitters-mapped-by-nasa-s-new-earth-space-mission [hereinafter "NASA Jet Propulsion Lab, Methane Mapped By Earth Space Mission"].

[15] 2022 Joint Environmental Comments, *supra* note 4, at 63. S*ee also* Cusworth et al., *Strong Methane Point Sources*, *supra* note 8, at 5; 87 Fed. Reg. at 74747.

[16] *See, e.g.*, 2022 Joint Environmental Comments, *supra* note 4, at 68. S*ee also* Cusworth et al., *Strong Methane Point Sources*, *supra* note 8, at 6; 87 Fed. Reg. at 74747 (explaining that periodic LDAR can miss these emission events).

at a well site starts leaking after an inspection, it could continue to leak 100 kg/hr unabated for three months–the period of time between quarterly inspections. That would equate to over 17.5 million metric tons of CO_2-e, or the annual emissions of 5,400 passenger cars.[17]

Moreover, super-emitters are widespread across the oil and gas sector, encompassing numerous sources scattered over broad geographic areas.[18] New studies from 2022 have identified large emission events at well sites, gas processing plants, compressor stations, storage tanks, and gathering pipelines.[19] As a result, there is a significant need for CARB's standards to address super-emitters.

There are a number of individuals and institutions that are already tracking super-emitters. As discussed above, scientists have been studying super-emitters for years and have gathered substantial amounts of data on the sources and locations of these emitters. Multiple organizations have also developed programs to identify super-emitters, collecting information on the location, facility type, and emission rates of these sources across the oil and gas industry.[20] For instance both Carbon Mapper and EDF's PermianMAP project provide interactive maps with the location and emission rate of methane emitting sources.[21] Satellites already in orbit and more under development also provide information on the location of super-emitter events. Federal and international agencies have been collecting data on super-emitters, including NASA's Jet Propulsion Lab and the United Nations Environment Programme's Methane Alert and Response (MARS) program.[22]

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[17] 100 kilograms * 24 hrs = 2,400 kilograms * 90 days = 216,000 kilograms. Env't Def. Fund, *Understanding the Near- and Long-Term Impacts of Emissions*, https://www.edf.org/understanding-near-and-long-term-impacts-emissions?co2=11&ch4=60000&n2o=6&hfc_134a=0 (last visited Feb. 4, 2023) [hereinafter EDF Methane Calculator].

[18] 2022 Joint Environmental Comments*, supra* note **Error! Bookmark not defined.**, at 98, 126–27, 200.

[19] Chen et al., *Quantifying Methane Emissions in New Mexico Permian Basin*, *supra* note **Error! Bookmark not defined.**, at 4318, Figure 1(d); Jevan Yu et al., *Methane Emissions from Natural Gas Gathering Pipelines in the Permian Basin*, 9 Env't Sci. Tech. Lett. 969, 969–74 (2022), https://pubs.acs.org/doi/10.1021/acs.estlett.2c00380; *see also* Carbon Mapper, *Carbon Mapper Data Portal*, https://data.carbonmapper.org/map#b=Mapbox_Satellite_Retina&l=AVIRIS_SOURCES_CLUSTER_MAP(1),AVIRIS(1),MITIGATION_EXAMPLES(1),AVIRIS_SOURCES_CLUSTER(1)&vm=2D&ve=-123.941240,31.444673,-91.641435,45.657885&pl=false&pb=false&tr=true&d=2023-02-01&tlr=days, (last visited Feb. 4, 2023) [hereinafter "Carbon Mapper, *Data Portal*"]; Env't Def. Fund, *Permian Methane Analysis Project (MAP): Equipment Emissions,* https://data.permianmap.org/pages/operators (last visited Feb. 4, 2023) (identifying major emission events at flares) [hereinafter EDF, *Permian (MAP)*"]; 87 Fed. Reg. at 74748 (stating that the most widely known sources of super-emitter events are controlled tank batteries, flares, natural-gas driven pneumatic controllers, and fugitive emission components).

[20] *See, e.g.*, Benjamin Hmiel et al., *Empirical Quantification of Methane Emission Intensity From Oil and Gas Producers in the Permian Basin*, 18 Env't Rsch. Letters 024, 029 (2023), https://iopscience.iop.org/article/10.1088/1748-9326/acb27e [hereinafter "Hmiel et al., *Empirical Quantification of Producers in the Permian Basin*"].

[21] Carbon Mapper, *Data Portal*, *supra* note 19; EDF, *Permian (MAP)*, *supra* note 19.

[22] *See, e.g.*, NASA Jet Propulsion Lab, Methane Mapped By Earth Space Mission, *supra* note 14; United Nations Env't Programme, *Methane Alert and Response System (MARS),* https://www.unep.org/explore-topics/energy/what-we-do/methane/imeo-action/methane-alert-and-response-system-mars (last visited Feb. 4, 2023). *See also* Carbon Mapper, *Resources,* https://carbonmapper.org/resources/, (last visited Feb. 4, 2023) (listing related methane monitoring programs).

Utilizing this kind of independent monitoring information to identify major emission events and help to ensure action to eliminate them makes sense from a practical standpoint. As the industry faces increasing scrutiny for its emissions, owners and operators will have bigger incentives to avoid detecting and disclosing large emissions.[23] Independent, third-party monitoring data can help to build confidence that efforts to reduce emissions are working. These data can be an important addition to the current industry self-reporting systems, under which numerous studies show that actual emissions are far higher than official estimates and do not align with operators' stated actions and goals.[24]

CARB's proposed remotely detected emissions plumes provision has the potential to achieve significant reductions in methane emissions from the oil and gas industry. Super-emitting sources, which can be intermittent and difficult to predict, pose unique problems for methane mitigation efforts. Thus, there is significant need for standards and rules that specifically address these major emission events.

B. EPA's Super-Emitter Response Program

EPA's November 2021 proposed rulemaking to reduce methane and other harmful pollution from the oil and natural gas industry and EPA's December 2022 supplemental proposal,[25] include a Super-Emitter Response Program (SERP) that has some similarities and differences to CARB's proposal. Comparing CARB's proposal to EPA's is helpful in determining the strongest elements of both proposals.

EPA's SERP program leverages widespread and growing use of advanced technologies by allowing certified entities to use approved technologies to identify very large emission events—i.e., events with emission rates of 100 kilograms per hour of methane (kg/hr) released. SERP requires that (1) the certified monitoring entity notify the responsible owner of the site responsible for the super-emitter event and (2) the responsible owner conduct a root cause analysis and, when appropriate, take corrective action to eliminate the emission event. For the notification to be actionable, it must contain numerous elements, including geographic coordinates, a quantified emissions rate, and imagery, among other things. EPA must also make information gathered and reported under the program publicly available. EPA proposed to require initiation of the root cause analysis and corrective actions within five calendar days of an owner or operator receiving the notification of the super-emitter emissions event, and completion of corrective actions within 10 days of the notification.

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[23] Cynthia Giles, Part 4: Preventing Widespread Violations that Threaten Climate Goals at 47, in Next Generation Compliance: Environmental Regulation for the Modern Era (2021).

[24] *See, e.g.*, Env't Def. Fund, *PermianMAP Final Report: A Look Back at Key Findings and Takeaways From the Permian Methane Analysis Project* (2021) https://blogs.edf.org/energyexchange/files/2022/11/PermianMAPFinalReport.pdf (finding that numerous operators had methane intensities that far exceeded their stated targets). *See also* Hmiel et al., *Empirical Quantification of Producers in the Permian Basin*, *supra* note 20 (using data gathered during aerial observations to calculate individual operator methane intensities).

[25] 86 Fed. Reg. 63110 (Nov. 15, 2021); 87 Fed. Reg. 74702 (Dec. 6, 2022).

EPA's SERP program differs from CARB in that EPA has a threshold of 100 kg/hr or greater and allows detection of the emission by a regulatory authority or qualified third parties using particular technologies. These technologies include the use of remote-sensing aircraft, mobile monitoring platforms, or satellites to identify super-emitter emissions events.[26] In our comments to EPA on its SERP proposal, we supported the technologies EPA specified, but pointed out there may be additional technologies that could operate within the requirements of the program that are excluded by including a limited list. For example, we pointed out that tower-based systems that can quantify emissions, if approved by EPA, should also be allowable under SERP.[27]

C. CARB's Remotely Detected Emission Plumes Provision Will Help Identify Super-Emitters

CARB proposes a new provision, Section 95669.1, Remotely Detected Emission Plumes. The provision authorizes CARB to use remote monitoring technology approved by CARB to detect and notify operators of detected methane emission plumes. Operators must inspect their facility for leaking or venting components within 5 days of receipt of CARB's notice using OGI or Method 21, unless they have records demonstrating the venting was occurring at the time of the remote emission detection due to an activity such as maintenance, in which case they may report that activity instead of performing an inspection. Within 24 hours of conducting the inspection, operators must report to CARB the following information: (A) The date of the CARB notification; (B) The emission ID number provided by CARB in the notification; (C) The date of the inspection; (D) The type of inspection performed (Method 21 or optical gas imaging); (E) The type of emission source found, which shall either be no emission source, a venting emission source, a leak detected using Method 21, or an unintentional emission source detected using optical gas imaging; (F) Initial mitigation plan, unless the emission source is not found or is a venting emission source. Operators must repair leaking or venting components, subject to the following exception. If the emission source is determined to be the result of permissible venting, the owner or operator must report to CARB within 5 calendar days of conducting an inspection the emission ID provided in the notification and a description of the venting, including a brief summary of the source of the venting and why the venting occurred.

We support CARB's proposed rule on Remotely Detected Emission Plumes. It is both appropriate and feasible to require operators to respond to remotely detected emissions. We offer recommendations below to strengthen CARB's proposal and align it more closely to EPA's recently proposed Super-Emitter Response Program (SERP).

[26] 87 Fed. Reg. 74702, 74749 (Dec. 6, 2022).
[27] 2022 Joint Environmental Comments, supra note 4, at 70.

II. Recommendations

A. CARB Should Allow Leak Detection by Other Types of Remote Sensing Technology, Not Just Satellites

CARB proposes to require owners or operators of oil and gas facilities to address emissions detected with satellite-based technologies. Specifically, the proposed amendments add a definition for "remote monitoring data," which the proposal defines as data CARB obtains from a satellite-based measurement technology capable of detecting methane plumes. CARB states it is proposing to utilize only data from satellite-based technologies "because the Governor and Legislature have recently authorized funding for the purchase of methane satellite data, and because CARB will receive this satellite-based data at the frequency and quality needed to support leak-detection and repair under this Regulation."[28]

As outlined in our prior comments to CARB, we are requesting CARB make this provision applicable to leaks detected by other types of remote sensing technology, not just satellites.[29] We recommend this course of action because multiple types of remote sensing technologies exist that can detect methane, doing so is consistent with EPA's proposed SERP (albeit with our recommendation to expand SERP to include even more technologies than currently proposed) and doing so will incent the use and development of remote sensing technologies. Notably, CARB's Initial Statement of Reasons for this proposal points to studies and pilot projects using remote imaging techniques that have demonstrated the potential for reducing emissions and utilized non-satellite technologies to detect plumes.[30]

B. We Recommend CARB Require Operators to Investigate Emissions Detected with Remote Monitoring Technologies Even Where Emissions Prove Permissible

CARB has proposed to require owners or operators conduct an inspection of a leak detected by CARB's remote sensing technologies within 5 days of receiving the notification from CARB unless the owner or operator has records demonstrating that venting was occurring at the time of the remote emission detection due to an allowable activity such as planned maintenance. Consistent with our prior comments, we urge CARB to require operators to investigate all emissions detected with remote monitoring technologies. Investigation of venting, even if such activity is permissible, nevertheless can provide highly useful information to CARB and the operator. For example, repeat detection of high emission events during maintenance activities, such as liquids unloading, could lead to future regulations where technologies exist to further cost effectively control such emissions. Similarly, operators may learn to optimize the efficiency

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[28] CARB, Public Hearing to Consider the Proposed Amendments to the Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities Staff Report: Initial Statement of Reasons (Apr. 25, 2023), at 17, (hereinafter "ISR"].

[29] EDF 2022 Comments, supra note 1, at 14-15.

[30] CARB states, "The California Methane Survey was performed from 2016-2018 using a visible/infrared imaging spectrometer mounted on an airplane to detect high-emitting methane sources (Duren et al. 2019)." ISR, at 9.

of certain activities resulting in gas loss that otherwise could be captured and sent to sales. Requiring investigation of all detected super-emitters is also consistent with EPA's SERP.

C. CARB Should Make Data on Plumes Publicly Available

We recommend CARB establish a notification framework to ensure information on these emissions events and the response action are publicly available and easily accessible in real time so that community members are updated while the events are occurring, not after the fact. We made a similar recommendation to EPA in our comments on SERP.[31]

Information, including the initial detection, initial operator response, repairs, corrective action planning and completion, and the final written report should be publicly-available in real time so that nearby communities and other stakeholders can stay informed and take protective action while emissions are occurring. Further, publicizing the operator's responsive actions can help build trust in the process and between communities and operators by demonstrating that responsible and quick action was taken. The initial detection by CARB should be immediately available to the public as soon as it is submitted to the operator. Communities must know about emissions of this size occurring in their vicinity.

We urge CARB to make this information publicly available in real time on a single, centralized website. The website should also include geographic and operator information, as well as links to the corrective action plan and other relevant follow-up information. A centralized database with geographic coordinates and ownership information can streamline and ensure detections are accurately attributed to the correct site and operator. CARB should also centrally maintain information including the site type, geographic location, responsible owner or operator, as well as other relevant records (e.g., fugitive monitoring plan and scheduled maintenance events), so that investigations after notifications are efficient.

III. Conclusion

We appreciate CARB's consideration of these comments and welcome the opportunity to discuss them and answer questions at CARB's convenience.

Respectfully submitted,

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[31] 2022 Joint Environmental Comments, supra note 4, at 72-73.

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