Air Pollution Control District Governing Board

San Diego County Air Pollution Control District

AGENDA ITEM #E.3

DATE: **March 9, 2023**

TO: San Diego County Air Pollution Control District Governing Board

SUBJECT:
ADOPTION OF PROPOSED NEW RULE 69.7 - LANDFILL GAS FLARES

REQUESTED ACTION:

1. Find that the adoption of proposed new Rule 69.7 - Landfill Gas Flares is categorically exempt from the provisions of the California Environmental Quality Act pursuant to California Code of Regulations, Title 14, Section 15308, as an action taken to assure the protection of the environment, and pursuant to Section 15061(b)(3) since it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment.
2. Adopt the Resolution entitled: RESOLUTION ADOPTING NEW RULE 69.7 - LANDFILL GAS FLARES, OF REGULATION IV OF THE RULES AND REGULATIONS OF THE SAN DIEGO COUNTY AIR POLLUTION CONTROL DISTRICT.
3. Direct the Air Pollution Control Officer to forward a copy of this Resolution and new Rule 69.7 to the California Air Resources Board (CARB) for approval and subsequent submittal to the U.S. Environmental Protection Agency (EPA) for inclusion into the State Implementation Plan (SIP).

OVERVIEW:
Pursuant to the Federal Clean Air Act (CAA), the EPA has established the National Ambient Air Quality Standards (NAAQS) for six common, yet harmful, outdoor air pollutants to protect public health and the environment. Each area of the nation with air pollution levels exceeding a federal ambient air quality standard must be designated by the EPA as a "Nonattainment Area" for that standard.

San Diego County's ambient air quality currently meets the NAAQS for five of the six air pollutants. The one exception is ozone. In July 2021, the San Diego Air Basin was reclassified as a Severe Nonattainment Area for both the 2008 and 2015 eight-hour ozone NAAQS. Because of this reclassification, the federal major stationary source threshold for the San Diego region was reduced from 50 tons per year to 25 tons per year of an ozone-forming pollutant (i.e., nitrogen oxides (NOx) or volatile organic compounds (VOC)). Consequently, the EPA requires the San Diego County Air Pollution Control District (District) to write new or amend existing regulations to control emissions from newly specified major stationary sources meeting or exceeding this new, more stringent threshold. Specifically, CAA Section 182(f) requires the District to adopt rules implementing Reasonably Available

Control Technology (RACT) emission limits on major stationary sources of ozone precursors (i.e., NOx and VOC). According to the EPA, RACT is defined as the lowest emission limit that a source can meet by applying control technology that is reasonably available considering technological and economic feasibility.

The District is proposing new Rule 69.7 to fulfill the District's commitment in its 2020 Ozone SIP to adopt a RACT rule to control NOx emissions from landfill gas flares. The federal deadline for rule submittal to the EPA, through CARB, is April 30, 2023, pursuant to a proposed nationwide consent decree that sets federal deadlines for certain EPA actions. Failure to adopt and submit the proposed rule to the EPA by this date could result in possible future regionwide sanctions, including withholding of highway transportation funds. If adopted, proposed new Rule 69.7 will be submitted to the EPA (through CARB) for inclusion into the San Diego County portion of the California SIP for attaining and maintaining the air quality standards.

Landfill gas flares are combustion devices that destroy methane and carbon dioxide gas which are given off from the decomposition of waste at a landfill. The flare burns landfill gas at high temperature and produces NOx and carbon monoxide (CO) as byproducts. Proposed new Rule 69.7 would apply to all existing landfill gas flares operating at municipal solid waste (MSW) landfills in San Diego County, where the aggregate actual or potential emissions from such flares are at or above 25 tons per year or more of NOx. Enclosed landfill gas flares subject to the proposed rule would be required to emit no more than 0.06 pounds of NOx per million British thermal units of heat input (lbs/MMBtu), and no more than 0.20 lbs/MMBtu of carbon monoxide (CO).

The District evaluated existing facility data for MSW landfills in San Diego County with flares subject to proposed new Rule 69.7 and determined that all existing flares currently emit at or below the NOx and CO emission limits in the proposed rule. Though no emission reductions are anticipated should the proposed rule be adopted by the Governing Board, emission standards contained in the proposed rule will ensure the existing flares are not replaced with more polluting equipment in the future. The proposed rule will also make sure facilities comply with stringent testing and monitoring procedures to ensure that their emissions remain below the required standards. Proposed new Rule 69.7 is also cost-effective to implement. Cost-effectiveness of proposed new Rule 69.7 with its NOx emission standard of 0.06 lbs/MMBtu, is estimated to be $0.31 per pound of NOx emissions reduced.

The District determined proposed new Rule 69.7 met federal RACT requirements by evaluating landfill flare rules in other air districts, including South Coast Air Quality Management District (SCAQMD) Rule 1118.1, San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 4311, as well as other proposed or existing rules for non-refinery flares throughout California. The SCAQMD and SJVAPCD landfill gas flare rules contain a lower NOx emission limit of 0.025 lbs/MMBtu, which is more stringent (i.e., lower) than the proposed 0.06 lbs/MMBtu NOx limit in proposed new Rule 69.7.

Staff considered a lower NOx standard for proposed new Rule 69.7 found in the SCAQMD and SJVAPCD rules during the rule development process, but found it was cost prohibitive for sources in

San Diego County at an estimated $21 per pound of NOx emissions reduced. This significantly exceeds both the EPA's RACT guidance threshold ($2.50 per pound), as well as the cost-effectiveness of the District's other prohibitory rules ($6 per pound). Furthermore, both the SCAQMD and SJVAPCD rule emission limits are "technology forcing" and have not been adopted in any nonattainment areas that are not classified as an Extreme Nonattainment Area for federal ozone standards. Regardless, new landfill gas flares that are installed in San Diego County in the future would be subject to more stringent New Source Review permit requirements, including Best Available Control Technology (BACT). This process would potentially necessitate complying with a low NOx limit of 0.025 lbs/MMBtu. Additional cost-effectiveness information can be found in the Incremental Cost-Effectiveness Analysis (Attachment C).

FISCAL IMPACT:
There is no fiscal impact associated with proposed new Rule 69.7. A Socioeconomic Impact Assessment (Attachment D) prepared by the District demonstrates that adopting the proposed rule will not have a significant adverse impact on affected industries in the region.

ENVIRONMENTAL STATEMENT:
California Environmental Quality Act (CEQA) requires environmental review of certain actions. District staff conducted a review of whether CEQA applies to the adoption of proposed new Rule 69.7. The proposed rule will not result in greater air pollutant emissions from existing federal major stationary sources in San Diego County. Additionally, the proposed rule is required pursuant to Section 182(f) of the CAA. District staff therefore determined that adoption of proposed new Rule 69.7 is exempt from the provisions of CEQA pursuant to California Code of Regulations, Title 14, Section 15308, as an action taken to assure the protection of the environment, and pursuant to Section 15061(b)(3), since it can be seen with certainty that there is no possibility that the activity in question may have a significant adverse effect on the environment.

PREVIOUS RELEVANT BOARD ACTIONS:
N/A

PUBLIC ENGAGEMENT AND OUTREACH:
A virtual public workshop was conducted on December 20, 2022, to gather input on proposed new Rule 69.7 from members of the public, regulated community, and other stakeholders. The public workshop was attended by 18 people. The District received comments related to the applicability of the proposed rule, proposed emission standard limits, and actions upon approval of the proposed rule. In response to comments submitted, the District has revised the proposed rule to clarify the applicability and standard emission limits.

The District received additional comments during and after the public workshop and responded to all stakeholder comments in a Workshop Report (Attachment E). Furthermore, a public notice regarding today's hearing was posted in a local newspaper, on the District's website, and sent to subscribers of the District's email notification service, the EPA, and CARB.

EQUITY IMPACT STATEMENT

Today's item supports the District's vision of 'Clean Air for All' by proposing a new rule to control air pollution emissions and to help attain national ozone standards in communities across the region.

RECOMMENDED BY:

Michael Watt, APCD Deputy Director

CONTACT PERSON(S):

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ATTACHMENTS:

Item E3_AttA_Rule 69.7 Resolution.pdf
Item E3_AttB_Rule 69.7 Comparative Analysis.pdf
Item E3_AttC_Rule 69.7 Incremental Analysis.pdf
Item E3_AttD_Rule 69.7 SIA.pdf
Item E3_AttE_Rule 69.7 Workshop Report.pdf
Item E3_AttF_Rule 69.7 Post Workshop Change Copy.pdf

Resolution No: 23-005
Meeting Date: 3/9/2023 (E.3)

RESOLUTION ADOPTING NEW RULE 69.7 – LANDFILL GAS FLARES, OF REGULATION IV OF THE RULES AND REGULATIONS OF THE SAN DIEGO COUNTY AIR POLLUTION CONTROL DISTRICT

On motion of Member Sanchez, seconded by Member Medina, the following resolution is adopted:

WHEREAS, the San Diego County Air Pollution Control District Governing Board (Governing Board), pursuant to Section 40702 of the California Health and Safety Code, adopted Rules and Regulations of the San Diego County Air Pollution Control District (District); and

WHEREAS, said Governing Board now desires to amend said Rules and Regulations; and

WHEREAS, notice has been given and a public hearing has been held relating to the amendments of said Rules and Regulations pursuant to Section 40725 of the California Health and Safety Code and Section 51.102 of Title 40 of the Code of Federal Regulations; and

WHEREAS, pursuant to Section 40727 of the California Health and Safety Code, the Governing Board makes the following findings:

(1) (Necessity) The adoption of proposed new Rule 69.7 is necessary in order to implement federal requirements for Reasonably Available Control Technology (RACT) and state requirements for all feasible control measures to achieve the ambient air quality standards for ozone by revising emissions of nitrogen oxides (NOx) in San Diego County;

(2) (Authority) The adoption of proposed new Rule 69.7 is authorized by Sections 39002, 40000, 40001, and 40702 of the California Health and Safety Code;

(3) (Clarity) Proposed new Rule 69.7 can be easily understood by persons directly affected by it;

(4) (Consistency) The adoption of proposed new Rule 69.7 is in harmony with, and not in conflict with or contrary to, existing statutes, court decisions, and state and federal regulations;

(5) (Non-duplication) The adoption of proposed new Rule 69.7 does not impose the same requirements as an existing state or federal regulation unless the District finds that the requirements are necessary or proper to execute the power and duties granted to, and imposed upon, the District;

(6) (Reference) The adoption of proposed new Rule 69.7 is necessary to comply with: federal law, Clean Air Act Section 182 (f) which requires implementation of RACT on stationary sources of NOx emissions; and state law, California Health and Safety Code Section 40914(b)(2), which requires adoption of every feasible control measure to reduce ozone-precursor emissions;

WHEREAS, the Governing Board further finds pursuant to the California Health and Safety Code Section 40001 that adoption of proposed new Rule 69.7 will facilitate the attainment and maintenance of ambient air quality standards; and

WHEREAS, the Governing Board further finds that an analysis comparing proposed new Rule 69.7 with applicable requirements of federal and local regulations is required pursuant to Section 40727.2 of the California Health and Safety Code and has been prepared; and

WHEREAS, the Governing Board further finds that an incremental cost-effectiveness analysis pursuant to Section 40920.6(a) of the California Health and Safety Code has been prepared for proposed new Rule 69.7 and has been made available for public review and comment, and has been actively considered; and

WHEREAS, the Governing Board further finds pursuant to Section 40728.5(e) of the California Health and Safety Code that proposed new Rule 69.7 only adopts requirements that are substantially similar to, or required by, state or federal statutes, regulations, or formal guidance documents, and as such, the socioeconomic analysis required to analyze either the impact of the adoption of proposed new Rule 69.7 on employment and the economy of the region, or the availability and cost-effectiveness of alternatives to proposed new Rule 69.7, and that as a result a socioeconomic impact analysis of the remaining factors specified in the California Health and Safety Code Section 40728.5(b) has been prepared; and

WHEREAS, proposed new Rule 69.7 will be submitted to CARB and U.S. EPA for inclusion into the State Implementation Plan.

NOW THEREFORE IT IS RESOLVED AND ORDERED by the San Diego County Air Pollution Control Governing Board that the Rules and Regulations of the San Diego County Air Pollution Control District be, and hereby are amended as follows:

1. Proposed new Rule 69.7 is to read as follows:

RULE 69.7 LANDFILL GAS FLARES (Adopted and Effective *(date of adoption)*)

(a) **APPLICABILITY**

This rule shall apply to all landfill gas flares at a municipal solid waste (MSW) landfill where the aggregate actual or potential emissions, from such flares, are at or above the federal major stationary source threshold for nitrogen oxides (NOx).

(b) **EXEMPTIONS**

Sections (d) Standards, (h) Test Methods, and (i) Source Test Requirements of this rule shall not apply to existing open landfill gas flares.

(c) **DEFINITIONS**

For the purposes of this rule, the following definitions shall apply:

(1) **"Btu"** means British thermal unit.

(2) **"Calendar Year"** means the same as defined in Rule 2 – Definitions.

(3) **"CFR"** means Code of Federal Regulations.

(4) **"Enclosed Flare"** means a flare composed of multiple gas burners that are grouped in an enclosure, which operates at a wide range of flow rates and constant limited peak temperature.

(5) **"Existing Flare"** means a flare which commenced operation on or before *(date of adoption)*.

(6) **"Federal Major Stationary Source"** means the same as defined in Rule 20.1 – New Source Review – General Provisions.

(7) **"Flare Maintenance Event"** means a regularly scheduled course of procedure designed to prevent equipment failure or decline of equipment function.

(8) **"Gas Mover Equipment"** means the equipment (e.g., fan, blower, compressor) used to transport landfill gas through the header system.

(9) **"Landfill Gas"** means any gas derived through a natural process from the decomposition of waste deposited in a landfill.

(10) **"Landfill Gas Flare"** means a combustion device that oxidizes combustible landfill gases or vapors, where the combustible landfill gases or vapors being destroyed are routed into the burner. Types of landfill gas flares include open and enclosed flares.

(11) **"Municipal Solid Waste (MSW) Landfill"** means an entire disposal facility in a contiguous geographical space, publicly or privately owned, where household waste is placed in or on land. Portions of an MSW landfill may be separated by access roads. An MSW landfill may also receive other types of Resource Conservation and Recovery Act (RCRA) Subtitle D (40 CFR Parts 257 and 258) wastes such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste.

(12) **"New Flare"** means a flare which commenced operation after *(date of adoption)*.

(13) **"Open Flare"** means a flare without enclosure or shroud.

(14) **"Pilot"** means an auxiliary burner used to ignite the vent gas routed to a flare.

(d) **STANDARDS**

A person shall not install and/or operate an enclosed landfill gas flare subject to this rule unless:

(1) Emissions of NOx, calculated as nitrogen dioxide, do not exceed 0.06 pounds per million Btu of heat input.

(2) Emissions of carbon monoxide (CO) do not exceed 0.20 pounds per million Btu of heat input.

(e) **OPERATIONAL REQUIREMENTS**

(1) The landfill gas flare shall be properly maintained and operational at all times when the collected landfill gas is routed to the flare.

(2) In the event the landfill gas collection system or landfill gas flare is inoperable, the gas mover equipment shall be shut down and all valves in the collection system and flare contributing to venting of the gas to the atmosphere shall be closed within one hour.

(3) An enclosed flare shall be:

(i) Equipped with automatic dampers, an automatic shutdown device, a flame arrester, and continuous-recording temperature sensors.

(ii) Operated within the parameter ranges established during the initial or most recent source test.

(4) An open flare shall be:

(i) Equipped with a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the flare pilot flame or the flare flame itself to indicate the continuous presence of a flame. The heat-sensing device shall be maintained and

calibrated in accordance with the manufacturer's specifications and recommendations.

(ii) Operated in accordance with Title 17, California Code of Regulations, Subsection 95464(b)(2)(B).

(f) **MONITORING REQUIREMENTS**

An owner or operator of any landfill gas flare shall install and maintain in good working order the following:

(1) A gas flow rate measuring device to monitor, display, and record the landfill gas flow rate to each flare at least once every 15 minutes. The gas flow rate measuring device shall be calibrated at least once per calendar year in accordance with the manufacturer's specifications and recommendations.

(2) For an enclosed flare: a gas temperature measuring device equipped with a continuous recorder which has an accuracy of ±1% of the temperature being measured. The gas temperature measuring device shall be calibrated in accordance with the manufacturer's specifications and recommendations.

(3) For an open flare: a heat device to continuously monitor for the presence of a flare pilot flame or flare flame using an ultraviolet beam sensor or thermocouple, and any additional monitoring requirements as specified by the Air Pollution Control Officer.

(g) **RECORD KEEPING REQUIREMENTS**

An owner or operator of a landfill gas flare shall maintain, at a minimum, the following:

(1) Records of the landfill gas flow rate.

(2) Records of all landfill gas flow rate-measuring device calibrations pursuant to Subsection (f)(1).

(3) Records of the landfill gas throughput in standard cubic feet, which shall be recorded based on actual readings of the landfill gas flow rate-measuring device.

(4) Records of all periods when the flare is non-operational.

(5) Records of all flare maintenance events, including dates maintenance was performed and the nature of the maintenance.

(6) Records of any source test as conducted in accordance with Section (i) Source Test Requirements.

(7) A manual of recommended maintenance as provided by the flare manufacturer, or other maintenance procedures as approved in writing by the Air Pollution Control Officer.

(8) For an enclosed flare:

(i) Records of all 3-hour periods of operation during which the average temperature difference was more than 82°F (28°C) below the average combustion temperature during the most recent source test at which compliance with Title 17, California Code of Regulations, Sections 95464(b)(2) and 95464(b)(3)(A) was determined.

(ii) Records of the flare temperature, expressed in °F or °C.

(iii) Records of all flare temperature-measuring device calibrations pursuant to Subsection (f)(2).

(9) For an open flare:

(i) Records of the flare pilot flame or flare flame continuous monitoring.

(ii) Records of all periods of operation during which the flare pilot flame or the flare flame is absent.

All records shall be retained in electronic and/or hardcopy format on-site for at least five calendar years and made available to the District upon request.

(h) **TEST METHODS**

When more than one test method or set of test methods are specified in this section, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of this rule.

(1) Measurement of NOx and CO emissions in pounds per million Btu of heat input shall be determined using the emission concentrations measured in accordance with Subsection (h)(2) and the gas composition of the total gas or vapor combusted in the landfill gas flare measured in accordance with Subsection (h)(3), and calculated using the procedures in 40 CFR Part 60, Appendix A, Method 19 (Determination of Sulfur Dioxide Removal Efficiency and Particulate, Sulfur Dioxide and Nitrogen Oxides Emission Rates).

(2) Measurement of NOx, CO and oxygen content of the exhaust gas shall be determined in accordance with the San Diego County Air Pollution Control District Test Method 100 (Test Procedures for the Determination of Nitrogen Oxides, Carbon Monoxide and Diluent Gases by Continuous Emission Monitoring), May 1995, or its most current version approved by the U.S. Environmental Protection Agency (EPA).

(3) Landfill gas composition shall be determined in accordance with the following methods:

(i) ASTM D3588-98(2017)e1 (Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels), or its most current version; and

(ii) ASTM D1945-14(2019) (Standard Test Method for Analysis of Natural Gas by Gas Chromatography), or its most current version; or

(iii) EPA Method 25C (Determination of Nonmethane Organic Compounds (NMOC) in Landfill Gases).

(4) Other test methods which are determined to be equivalent to the test methods specified in this rule and approved in writing by the Air Pollution Control Officer, the California Air Resources Board, and EPA may be used in place of the test methods specified in this rule.

(i) **SOURCE TEST REQUIREMENTS**

Source tests for enclosed landfill gas flares shall be conducted according to the following:

(1) For initial compliance determination with Section (d) Standards, a landfill gas flare shall be source tested under the following conditions:

(i) For an existing flare: at typical operating conditions according to the facility specifications. An initial compliance determination is required if source test documentation demonstrating compliance with Subsections (d)(1) and/or (d)(2) is older than three calendar years.

(ii) For a new flare: at typical operating conditions according to the facility specifications and at maximum temperature and maximum fuel flow according to the manufacturer's specifications.

(2) After initial compliance has been determined, any landfill gas flare shall be source tested under typical operating conditions according to the facility specifications, and with the following frequency:

(i) For an existing flare: in accordance with the current compliance schedule pursuant to Title 17, California Code of Regulations, Section 95464 (b)(4)(A), or

(ii) For a new flare: in accordance with Title 17, California Code of Regulations, Section 95464 (b)(4)(A).

(3) Measurement of NOx and CO emission concentrations shall be based on a continuous sampling period of 15 minutes or more, and not to exceed 60 minutes. For the purpose of averaging, a minimum of five data sets with averaging intervals no greater than three minutes shall be used.

(4) Emissions source testing shall be conducted using the test methods specified in Section (h) Test Methods and a source test protocol approved in writing by the Air Pollution Control Officer prior to testing.

(j) **COMPLIANCE SCHEDULE**

(1) All new landfill gas flares shall comply with all applicable requirements of this rule upon initial startup.

(2) The owner or operator of an existing enclosed landfill gas flare shall:

(i) By *(6 months after date of adoption)*, submit to the Air Pollution Control Officer current documentation which demonstrates that the flare is in compliance with Section (d) Standards emission limits, or

(ii) By *(12 months after date of adoption)*, conduct a source test in accordance with Subsections (i)(1)(i), (i)(3), and (i)(4), and submit to the Air Pollution Control Officer documentation which demonstrates that the flare is in compliance with all applicable requirements of this rule.

FURTHER RESOLVED AND ORDERED that proposed new Rule 69.7 of Regulation IV shall take effect *(date of adoption)* and be submitted to the U.S. Environmental Protection Agency (through the California Air Resources Board) for inclusion in the San Diego County portion of the California State Implementation Plan (SIP).

PASSED AND ADOPTED by the Air Pollution Control District Governing Board of the San Diego County Air Pollution Control District, this 9th day of March, 2023, by the following votes:

AYES: Bush, Gloria, Gomez, Martinez, Medina, Sanchez
ABSENT: Birkbeck-Garcia, Elo-Rivera, Lawson-Remer, Shu, Vargas

APPROVED AS TO FORM AND LEGALITY
COUNTY COUNSEL

BY: Veera Tyagi, Senior Deputy

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STATE OF CALIFORNIA)
County of San Diego)SS
I hereby certify that the foregoing is a full, true and correct copy of the Original Resolution entered in the Minutes of the San Diego County Air Pollution Control District Governing Board.

MARVICE MAZYCK
Clerk of the San Diego County Air Pollution Control District Governing Board

COMPARATIVE ANALYSIS OF
PROPOSED NEW RULE 69.7 – LANDFILL GAS FLARES

Statutory Requirements

Pursuant to California Health and Safety Code Section 40727, the San Diego County Air Pollution Control District Governing Board is required to make findings of necessity, authority, clarity, consistency, non-duplication, and reference prior to adopting, amending, or repealing a rule or regulation. As part of the consistency finding to ensure proposed new Rule 69.7 – Landfill Gas Flares requirements do not conflict with or contradict other San Diego County Air Pollution Control District (District), state or federal regulations, the California Health and Safety Code Section 40727.2(a) requires the District to perform a written analysis identifying and comparing the requirements and other provisions of proposed new Rule 69.7 with existing or proposed District rules and guidelines, and existing state and federal rules, regulations, and guidelines applying to the same source category.

Analysis

The proposed new Rule 69.7 is a new regulation that would apply to landfill gas flares at municipal solid waste (MSW) landfills to satisfy federal Reasonably Available Control Technology (RACT) requirements. Facilities subject to proposed new Rule 69.7 would be required to operate landfill gas flare equipment that meets minimum emission standards for nitrogen oxides (NOx) and carbon monoxide (CO), among other operational and testing requirements.

Comparison with Existing District Rules and Regulations

Though Rule 59 also applies to landfill gas flares in San Diego County, no comparison is presented since the standards of Rule 59 are applicable to odors, toxic air contaminants and/or reactive organic compounds emissions, and does not regulate NOx and CO emissions. Additionally, no comparison to Rule 59.1 is presented because the standards included in Rule 59.1 require landfill emission control systems to meet the federal requirements found in 40 CFR Part 60 Subpart WWW, which is reflected in Table 1.

Comparison with existing Federal Rules and Regulations

With the exception of District Rules 59 and 59.1, the District presents a detailed comparative analysis of proposed new Rule 69.7 to one existing District rule and four federal regulations which have specific sections applicable to landfill gas flares. The results of this analysis are provided in Table 1.

Table 1

Detailed Comparison – Rule 69.7 Landfill Gas Flares

Rule Element	Rule 69.7	Rule 20.3	40 CFR Part 60 Subpart WWW	40 CFR Part 60 Subpart XXX	40 CFR Part 63 Subpart AAAA	17 CCR, Sections 95460-95476
Applicability	This rule applies to MSW landfill gas flare, or collection of landfill gas flares, that is itself a federal major stationary source of NOx.	This rule applies to… any new or modified federal major stationary source, … and to any relocated emission unit being moved to a stationary source if, after completion of the project, the stationary source will be a… federal major stationary source…	This rule applies to each MSW landfill that commenced construction, reconstruction, or modification on or after May 30, 1991, but before July 18, 2014.	This rule applies to each municipal solid waste landfill that commenced construction, reconstruction, or modification after July 17, 2014.	This rule applies to MSW landfill that has accepted waste since November 8, 1987 or has additional capacity for waste deposition and meets any one of the three criteria specified 63.1935(a)(1) through (3) of this subsection.	This rule applies to all MSW landfills that received solid waste after January 1, 1977.
Standard	Emissions of NOx for an enclosed flare do not exceed 0.06 pounds per million Btu of heat input.	Any increase in potential emissions of NOx and has a post-project potential to emit 10 pounds per day or more of NOx shall be equipped with BACT for NOx.	No standards for NOx emissions.	No standards for NOx emissions.	No standards for NOx emissions.	No standards for NOx emissions.

Rule Element	Rule 69.7	Rule 20.3	40 CFR Part 60 Subpart WWW	40 CFR Part 60 Subpart XXX	40 CFR Part 63 Subpart AAAA	17 CCR, Sections 95460-95476
Standard	Emissions of carbon monoxide (CO) for an enclosed flare do not exceed 0.20 pounds per million Btu of heat input.	No standard for CO emissions.	No standard for CO emissions.	No standard for CO emissions.	No standard for CO emissions.	No standard for CO emissions.
Operational Requirements	The flare shall be properly maintained and operated.	NA	Operate the control system at all times when the collected gas is routed to the system.	Operate the control system at all times when the collected gas is routed to the system.	Operate the control system at all times when the collected gas is routed to the system.	Operate a flare… to prevent unburned collected methane from being emitted to the atmosphere.
Operational Requirements	When the landfill gas collection system or landfill gas flare is inoperable, the gas mover equipment shall be shut down and… venting of the gas to the atmosphere shall be closed within one hour.	NA	When the collection or control system is not operating, the gas mover system must be shut down and… venting of the gas to the atmosphere must be closed within one hour.	When the collection or control system is not operating, the gas mover system must be shut down and… venting of the gas to the atmosphere must be closed within one hour.	NA	NA
Operational Requirements	An enclosed flare shall be equipped with automatic dampers, an automatic shutdown device, a flame arrester, and continuous-recording temperature sensors; and operated within the parameter ranges established during the initial or most recent source test.	NA	An enclosed combustor shall calibrate, maintain, and operate… a temperature monitoring device equipped with a continuous recorder.	An enclosed combustor must calibrate, maintain, and operate… a temperature monitoring device equipped with a continuous recorder.	NA	A flare must… be equipped with… a continuous recording temperature sensors.

Rule Element	Rule 69.7	Rule 20.3	40 CFR Part 60 Subpart WWW	40 CFR Part 60 Subpart XXX	40 CFR Part 63 Subpart AAAA	17 CCR, Sections 95460-95476
Operational Requirements	An open flare shall be equipped with a heat sensing device… to indicate the continuous presence of a flame. The heat-sensing device shall be maintained and calibrated in accordance with the manufacturer's specifications and recommendations.	NA	Open flare must install, calibrate, maintain, and operate according to the manufacturer's specifications a heat sensing device to indicate the continuous presence of a flame.	Non-enclosed flare must install, calibrate, maintain, and operate according to the manufacturer's specifications a heat sensing device to indicate the continuous presence of a flame.	NA	NA
Monitoring Requirements	Monitor, display, and record the landfill gas flow rate to each flare at least once every 15 minutes.	NA	Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the control device at least every 15 minutes.	Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the control device at least every 15 minutes.	Install, calibrate, and maintain a gas flow rate measuring device that must record the flow to the control device at least every 15 minutes.	Owner or operator must record the flow to the control device(s) at least every 15 minutes.
Monitoring Requirements	For an enclosed flare: install and maintain in good working order a gas temperature measuring device equipped with a continuous recorder which has an accuracy of ±1% of the temperature being measured.	NA	Owner or operator using an enclosed combustor must calibrate, maintain, and operate a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ±1 percent of the temperature being measured expressed in degrees Celsius or ±0.5 degrees Celsius, whichever is greater.	Owner or operator using an enclosed combustor must calibrate, maintain, and operate a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ±1 percent of the temperature being measured expressed in degrees Celsius or ±0.5 degrees Celsius, whichever is greater.	Owner or operator using an enclosed combustor must calibrate, maintain, and operate a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ±1 percent of the temperature being measured expressed in degrees Celsius or ±0.5 degrees Celsius, whichever is greater.	For enclosed flares, a temperature monitoring device must be installed, calibrated, maintained, and operated according to the manufacturer's specifications and equipped with a continuous recorder which has an accuracy of plus or minus (±) 1 percent of the temperature being measured expressed in degrees Celsius or Fahrenheit.

Rule Element	Rule 69.7	Rule 20.3	40 CFR Part 60 Subpart WWW	40 CFR Part 60 Subpart XXX	40 CFR Part 63 Subpart AAAA	17 CCR, Sections 95460-95476
Monitoring Requirements	For an open flare: install and maintain in good working order a heat device to continuously monitor for the presence of a flare pilot flame or flare flame.	NA	Owner or operator using a non-enclosed flare must install, calibrate, maintain, and operate a heat sensing device to indicate the continuous presence of a flame.	Owner or operator using a non-enclosed flare must install, calibrate, maintain, and operate a heat sensing device to indicate the continuous presence of a flame.	Owner or operator using a non-enclosed flare must install, calibrate, maintain, and operate a heat sensing device to indicate the continuous presence of a flame.	Owner or operator using a non-enclosed flare must install, calibrate, maintain, and operate a heat sensing device to indicate the continuous presence of a flame.
Record Keeping Requirements	(g)(1) Maintain records of the landfill gas flow rate, calibration, non-operational status, maintenance, source testing, temperature, flame presence	NA	Must keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters and periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.	Must keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters and periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.	Must keep records specified in this subpart the general provisions of 40 CFR part 63 as shown in Table 1 to this subpart	Must maintain records of the equipment operating parameters monitored as well as records for periods of operation during which the parameter boundaries established during the most recent source test are exceeded.
Test Methods	Specified test methods or methods approved by the District, CARB or EPA.	NA	NA	NA	NA	NA
Source Test Requirements	Flare shall be source tested at typical operating conditions according to the facility specifications.	NA	NA	NA	NA	NA
Source Test Requirements	After initial compliance has been determined, an existing landfill gas flare shall be source tested under typical operating conditions.	NA	NA	NA	NA	NA

Rule Element	Rule 69.7	Rule 20.3	40 CFR Part 60 Subpart WWW	40 CFR Part 60 Subpart XXX	40 CFR Part 63 Subpart AAAA	17 CCR, Sections 95460-95476
Source Test Requirements	Measurement of NOx and CO emission concentrations shall be based on a continuous sampling period of 15 minutes or more, and not to exceed 60 minutes and conducted using approved test methods.	NA		NA	NA	NA. Test requirements are to determine the methane destruction efficiency of the control device.
Compliance Schedule	(j)(1) All new landfill gas flares shall comply with all applicable requirements of this rule upon initial startup.	NA		NA	63.1945(a) If your landfill is a new affected source, you must comply with this subpart by January 16, 2003, or at the time you begin operating, whichever is later.	NA
Compliance Schedule	(j)(2) The owner or operator of an existing landfill gas flare shall: (i) By *(6 months after date of adoption)*, submit documentation which demonstrates compliance or (ii) By *(12 months after date of adoption)*, conduct a source test and submit documentation which demonstrates compliance.	NA		NA	63.1945(b) If your landfill is an existing affected source, you must comply with this subpart by January 16, 2004.	NA

Conclusion

As shown in Table 1, there are no conflicts or contradictions between Rules 69.7 and District rules or other regulations applicable to landfill gas flares. The requirements of other regulations that are similar, support Rule 69.7 or adds related requirements.

INCREMENTAL COST-EFFECTIVENESS ANALYSIS

PROPOSED NEW RULE 69.7 – LANDFILL GAS FLARES

The California Health and Safety Code Section 40920.6 (a) requires air pollution control districts to identify one or more potential control options that achieve at least the same benefit as the proposed new rule, assess the cost-effectiveness of those options, and calculate the incremental cost-effectiveness of each identified option. Incremental cost-effectiveness is defined as the difference in control costs divided by the difference in emission reductions between two potential options achieving the same emission reduction goal.

The only potential option that achieves at least the same or better environmental benefits from controlling nitrogen oxides (NOx) emissions from the operation of landfill gas flares at municipal solid waste landfills would be to adopt the lower NOx emission limits of Rule 1118.1 (Control of Emissions from Non-Refinery Flares) of the South Coast Air Quality Management District (SCAQMD).

Table 1. San Diego Air Pollution Control District (SDAPCD) Rule 69.7 – Proposed New Rule

NOx Emission Reductions	25.5 tons per year = 51,000 pounds per year[1]
Annualized Cost for Proposed Rule 69.7	$16,026 per year[2]
Cost-Effectiveness	$0.31 per pound of NOx reduced

Table 2. SCAQMD Rule 1118.1 - 2019

NOx Emission Reductions	70.2 tons per year = 140,400 pounds per year
Annualized cost	$1,885,041 per year
Cost-Effectiveness	$13.43 per pound of NOx reduced

Table 3. Incremental Cost-Effectiveness

Incremental Annualized Cost	$1,885,041 – $16,026 = $1,869,015 per year
Incremental Annual Emission Reductions	140,400 – 51,000 = 89,400 pounds per year
Incremental Cost-Effectiveness	$20.91 per pound of NOx reduced

[1] Assumed NOx reductions are only representative of the change in the default emission factor currently assigned to landfill gas flares in the SDAPCD Emissions Inventory (EI), should proposed new Rule 69.7 be adopted. The current default NOx emission factor for landfill gas flares in the EI is 0.08 lbs/MMBtu. Should proposed new Rule 69.7 be adopted, the default factor will decrease to 0.06 lbs/MMBtu. The emission factor change will result in an assumed decrease of 25.5 tons per year of NOx only in the SDAPCD EI. However, because all facilities subject to the proposed rule currently operate flares that already comply with the proposed NOx limit of 0.06 lbs/MMBtu, no emission reductions in practice will be achieved, nor assumed for State Implementation Plan purposes.

[2] Assumed SDAPCD source testing fees.

As shown in Table 3. Incremental Cost-Effectiveness, each extra pound of NOx emissions that would be reduced by adopting the more stringent limits of SCAQMD Rule 1118.1 would result in compliance costs of $20.91 for existing facilities in San Diego County due to the additional expense of advanced emission-control technology. This cost significantly exceeds both the EPA's Reasonably Available Control Technology (RACT) threshold for NOx emission control measures, as well as the cost-effectiveness of the District's other prohibitory rules, therefore the more stringent limits are not recommended at this time.

ATTACHMENT D

SOCIOECONOMIC IMPACT ASSESSMENT

PROPOSED NEW RULE 69.7 - LANDFILL GAS FLARES

February 2023

Prepared by

San Diego County Air Pollution Control District
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SOCIOECONOMIC IMPACT ASSESSMENT
PROPOSED NEW RULE 69.7 –
LANDFILL GAS FLARES

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The San Diego County Air Pollution Control District (District) is required by federal and state law to adopt and periodically update rules to control and reduce ozone-forming emissions from stationary sources in the San Diego region, which is an ozone nonattainment area. The District's proposed new Rule 69.7 – Landfill Gas Flares is the result of these federal and state requirements.

Additionally, when adopting, amending, or repealing a rule that can significantly affect air quality or increase emissions, the District is required by state law to assess the socioeconomic impacts. Proposed new Rule 69.7 would affect emissions limitations by establishing emissions standards for landfill gas flares operated at municipal solid waste (MSW) landfills. Accordingly, this Socioeconomic Impact Assessment (SIA) has been prepared pursuant to state law.

The Federal Clean Air Act (CAA) Section 182(f) requires ozone nonattainment areas (Moderate and above) to implement Reasonably Available Control Technology (RACT) for specific types of nitrogen oxides (NOx) sources. In July 2021, the San Diego Air Basin was reclassified as a Severe Nonattainment Area for the 2008 ozone and 2015 eight-hour ozone National Ambient Air Quality Standards (NAAQS). Consequently, the federal major stationary source threshold for the San Diego region was reduced from 50 tons per year to 25 tons per year of NOx and volatile organic compounds (VOC). The U.S. Environmental Protection Agency (EPA) requires the District to write new or amend existing regulations for sources meeting or exceeding this new federal major stationary source threshold. Proposed new Rule 69.7 is being proposed pursuant to these federal requirements and a corresponding commitment in the District's 2020 Ozone State Implementation Plan (SIP) to regulate landfill gas flares operated at MSW landfills that are federal major stationary sources of NOx emissions.

Overall, the proposed new rule is expected to have no significant impact on employment, business creation, elimination or expansion, or business competitiveness in the San Diego region. MSW landfills that operate landfill gas flares subject to the rule currently comply with the proposed emission limits and requirements. Since the affected MSW landfills already comply with the proposed emission limits and requirements, proposed new Rule 69.7 would not result in any NOx emission reductions. Affected facilities would only incur additional costs for ongoing compliance source testing required by the proposed new rule.

I. INTRODUCTION

California law requires air pollution control districts (with populations of 500,000 people or higher) to perform an SIA when adopting, amending, or repealing rules and regulations that will significantly affect air quality and emission limitations.

The California Health and Safety Code Section 40728.5(b), specifies the following elements to be included in the SIA:

1. The type of industry or business, including small business, affected by the rule or regulation.

2. The impact of the rule or regulation on employment and the economy of the region affected by the adoption of the rule or regulation.

3. The range of probable costs to industry or business, including small business, of the rule or regulation.

4. The availability and cost-effectiveness of alternatives to the rule or regulation.

5. The emission reduction potential of the rule or regulation.

6. The necessity of adopting, amending, or repealing the rule or regulation in order to attain state and federal ambient air quality standards.

Pursuant to the California Health and Safety Code Section 40728.5(e), the analyses specified in items 2 and 4 listed above are not required if the proposed rule is substantially similar to or required by a state or federal law, regulation, or formal guidance document, including federal Control Techniques Guidelines. The District is proposing a NOx emission standard within proposed new Rule 69.7 that is considered RACT and thus is required pursuant to both federal law and the District's 2020 Ozone SIP. Therefore, based on the California Health and Safety Code stipulation, this SIA does not address either the availability or the cost-effectiveness of the alternatives to proposed new Rule 69.7, or its impact on the employment and the economy of San Diego County.

II. NECESSITY OF PROPOSED NEW RULE 69.7

The San Diego County Air Basin is not in attainment with National and State Ambient Air Quality Standards for ozone. Both federal and State laws require the District to adopt and implement rules that control emissions of ozone precursors – NOx and VOCs. Similarly, the California Clean Air Act requires the District to adopt all feasible measures to control and reduce ozone precursor emissions from stationary sources.

The District is required to implement air quality attainment plans that demonstrate our progress towards meeting all federal NAAQS for ozone. Because the attainment plans are developed using air quality models that depend on how much air pollution is emitted into the air, it is important to account for all air emissions reductions that occur as a result of the District's activities and because of the rules adopted by the Governing Board. Adopting proposed new Rule 69.7 with its emissions

requirements, and revised baseline emission factors, would allow the District to account for those emissions reductions in the region's air quality attainment plans, which will improve ozone modeling will improve modeling accuracy and the prognosis for attaining each ozone NAAQS.

III. SUMMARY OF PROPOSED NEW RULE 69.7

In summary, proposed new Rule 69.7 will include the following requirements:

- A NOx emission standard of 0.06 pounds per million British thermal units (Btu) of heat input
- A carbon monoxide (CO) emission standard of 0.20 pounds per million Btu of heat input
- Operational, monitoring, record keeping, and source test requirements
- Test methods and compliance schedule

IV. TYPE OF INDUSTRIES AFFECTED BY THE PROPOSED NEW RULE

Proposed new Rule 69.7 applies to all landfill gas flares located at a MSW landfill where the aggregate actual or potential emissions from such flares are at or above the federal major stationary source threshold of 25 tons per year for NOx. There are six enclosed landfill gas flares permitted with the District currently being operated at three MSW landfills that would be subject to the proposed rule.

V. RANGE OF PROBABLE COSTS TO INDUSTRY INCLUDING SMALL BUSINESSES

Proposed new Rule 69.7 is expected to have no significant impact on employment, business creation, elimination or expansion, or business competitiveness in the San Diego region. The proposal will not significantly affect MSW landfills operating flares because these landfills currently comply with the proposed emission limits, as well as operational and testing requirements required by state regulations. Therefore, only additional costs for ongoing compliance source testing would be required by the proposed new rule.

VI. EMISSION REDUCTION POTENTIAL AND COST-EFFECTIVENESS OF THE PROPOSED NEW RULE

NOx emission reductions of proposed new Rule 69.7 were determined using emission factors based on (1) District source testing of enclosed flares, (2) the District's existing emission factor of 0.08 pounds per million Btu of heat input (MM/Btu) for landfill gas flares, (3) a revised emission factor of 0.06 lbs/MMBtu consistent with the proposed rule, and (4) the annual landfill gas throughput obtained from the 2021 Emissions Inventory or source test data.

Since the subject landfills currently comply with the proposed requirements, there are no SIP-creditable NOx emission reductions, and no costs associated with the proposed new rule, outside of ongoing costs incurred for source testing.

VII. CONCLUSION

Overall, the proposed new rule is expected to have no significant impact on employment, business creation, elimination or expansion, or business competitiveness in the San Diego region. MSW landfills that operate flares subject to the proposed new rule currently comply with the proposed requirements.

The proposed new rule will provide air quality benefits by ensuring NOx emissions from regulated sources, which are precursors of ground level ozone, a major component of photochemical smog, remain below the required standards.

SAN DIEGO COUNTY
AIR POLLUTION CONTROL DISTRICT

DRAFT PROPOSED NEW
RULE 69.7 – LANDFILL GAS FLARES

WORKSHOP REPORT

The San Diego County Air Pollution Control District (District) held a virtual public workshop on December 20, 2022, to discuss and receive input on draft proposed new Rule 69.7 – Landfill Gas Flares. A meeting notice was mailed to all owners or operators of municipal solid waste (MSW) landfills in San Diego County, which included the four facilities that the proposed new rule may apply to. Additionally, a meeting notice was posted on the District's website, on social media, and distributed to interested parties via the District's electronic mail service.

The virtual workshop was attended by 18 people. A summary of the comments and District responses are provided below:

1. WORKSHOP COMMENT

If a MSW landfill site does not fall under the California Landfill Methane Rule (LMR), is a source test still required to comply with draft proposed new Rule 69.7?

DISTRICT RESPONSE

Yes. Draft proposed new Rule 69.7 would apply to a MSW landfill where the aggregate actual or potential emissions from the landfill gas flares are at or above the federal major stationary source threshold for nitrogen oxides (NOx), even if the source is not subject to the LMR. Currently, the San Diego Air Basin's federal major stationary source threshold, as a Severe Nonattainment area, is 25 tons of NOx per year.

2. WORKSHOP COMMENT

What are the next steps if the draft proposed new rule is approved by the San Diego County Air Pollution Control District Governing Board (Governing Board)? What is the role of the California Air Resources Board (CARB) and/or the Environmental Protection Agency (EPA) upon rule approval by the Governing Board?

DISTRICT RESPONSE

If approved by the Governing Board, draft proposed new Rule 69.7 would be submitted to CARB for approval with a request to forward the rule to EPA for approval and inclusion in the State Implementation Plan (SIP). The rule will be in effect upon the date of adoption by the Governing Board.

3. CARB COMMENT

CARB has no official comments at this time.

4. EPA COMMENT

Section (d) Standards is not enforceable for open flares. The District should consider clarifying that the standards in proposed new Rule 69.7 are only for enclosed flares. Optionally, the District should explain how emission standards can be enforced for open flares.

DISTRICT RESPONSE

The District agrees and has added language in Section (d) Standards to clarify that NOx and Carbon Monoxide (CO) standards would only apply to enclosed landfill gas flares. Currently, there are no open flares operating at MSW landfills in San Diego County. Additionally, language in Section (b) Exemptions has been added to clarify that Sections (d) Standards, (h) Test Methods, and (i) Source Test Requirements of proposed new Rule 69.7 would not apply to existing open landfill gas flares.

5. EPA COMMENT

EPA recommends including an explanation of how the District set emission limits contained in Section (d) of proposed new Rule 69.7. EPA recently approved South Coast Air Quality Management District (SCAQMD) Rule 1118.1 and San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 4311, both with landfill gas flare emission limits that go beyond what is considered to be Reasonably Available Control Technology (RACT).

DISTRICT RESPONSE

The District proposes to adopt new Rule 69.7 to satisfy federal RACT requirements. RACT requirements extend to major sources of NOx pursuant to Clean Air Act (CAA) Section 182(f). Cost-effectiveness criteria for NOx emission reductions are utilized to determine what is considered RACT, as well as if other air districts have adopted similar emission limits.

The District considers EPA's RACT guidance in adopting NOx controls for RACT, using a threshold of $5,000 per ton of NOx reduced (i.e., $2.50 per pound), which exceeds EPA's inflation adjusted threshold found in the RACT guidance. The District also considers a local cost-effectiveness threshold of $12,000 per ton of NOx reduced (i.e. $6 per pound) when adopting all rules to control emissions from existing sources. The District evaluated existing facility data for MSW landfills with flares subject to proposed new Rule 69.7, and determined that all existing flares already comply with the proposed NOx and CO emission limits in Section (d). Therefore, proposed new Rule 69.7 is cost-effective to implement, and satisfies EPA RACT guidance and District rule development thresholds. Cost-effectiveness for proposed new Rule 69.7, with a NOx emission standard of 0.06 pounds per million BTU of heat input (lbs/MMBtu), is estimated to be

$0.31 per pound of NOx reduced. At the time the Governing Board considers the proposed rule for adoption, the District will include additional cost-effectiveness information in the Incremental Cost-Effectiveness Analysis.

To determine whether the proposed NOx emission limit in proposed new Rule 69.7 is RACT, the District evaluated landfill flare rules found in various air districts in California, including SCAQMD Rule 1118.1 and SJVAPCD Rule 4311, as well as documentation for a proposed landfill gas flare rule in Bay Area Air Quality Management District (BAAQMD). For both SCAQMD and SJVAPCD rules, both air districts have set a "low-NOx" level for non-refinery flares at 0.025 lbs/MMBtu. The District evaluated a low-NOx standard for proposed new Rule 69.7, but determined the threshold was not yet cost-effective to implement in San Diego County. Preliminary incremental cost-effectiveness estimates determined controlling emissions at the low-NOx level in San Diego County would result in costs of up to $21 per pound of NOx reduced. This significantly exceeds both EPA's RACT guidance threshold, as well as the local District rule development threshold. Furthermore, both the SCAQMD and SJVAPCD rule emission limits are considered to be "technology-forcing" and have yet to be adopted in nonattainment areas that are not classified as an extreme nonattainment area for federal ozone standards. Additionally, documentation from BAAQMD in 2017 for enclosed biogas flares similarly concluded a NOx emission limit of 0.06 lbs/MMBtu was considered to be RACT level of control.[1] As such, staff determined the low-NOx emission limit to exceed RACT level of emission control for existing landfill gas flares in San Diego County. However, new landfill gas flares that are installed in San Diego County in the future would be subject to New Source Review permit requirements including Best Available Control Technology (BACT), and thus would need to meet the established low-NOx limit.

6. POST-WORKSHOP CLARIFICATION

The District has amended the language in Section (a) Applicability to clarify that draft proposed new Rule 69.7 would apply to all enclosed flares at a MSW landfill if the combined actual or potential emissions from such flares are at or above the federal major stationary source threshold for NOx. Currently, the San Diego Air Basin's federal major stationary source threshold, as a Severe Nonattainment area, is 25 tons of NOx per year.

7. POST-WORKSHOP CLARIFICATION

The District has amended the language in Subsection (c)(10), definition of "Landfill Gas Flare", to clarify that flares subject to the rule are those that combust landfill gas. Additionally, unnecessary language regarding energy recovery was removed since landfill gas flares operate independently from energy recovery plant(s).

[1] "Spare The Air – Cool the Climate. A Blueprint for Clean Air and Climate Protection in the Bay Area. Final 2017 Clean Air Plan." Volume 2 – Stationary Source Sector. Stationary Source Control Measure #SS23. Page SS-76. Adopted April 19, 2017.

8. POST-WORKSHOP CLARIFICATION

For the purposes of the District's emission inventory, the current emission factor for landfill gas flares in San Diego County will be revised should proposed new Rule 69.7 be adopted by the Governing Board. NOx emissions from landfill gas flares are currently estimated using a default emission factor of 0.08 lbs/MMBtu. This emission factor would be revised to 0.06 lbs/MMBtu to reflect the NOx emission limit found in the proposed rule.

NC:MS:jlm
02/03/23

RULE 69.7 LANDFILL GAS FLARES (Adopted and Effective *(date of adoption)*)

(a) **APPLICABILITY**

This rule shall apply to all landfill gas flares at ~~any~~ a municipal solid waste (MSW) landfill ~~gas flare, or collection of landfill gas flares, that is itself a~~ where the aggregate actual or potential emissions, from such flares, are at or above the federal major stationary source threshold ~~of~~ for nitrogen oxides (NOx).

(b) **EXEMPTIONS**

Sections (d) Standards, (h) Test Methods, and (i) Source Test Requirements of this rule shall not apply to existing open landfill gas flares.

(c) **DEFINITIONS**

For the purposes of this rule, the following definitions shall apply:

(1) **"Btu"** means British thermal unit.

(2) **"Calendar Year"** means the same as defined in Rule 2 – Definitions.

(3) **"CFR"** means Code of Federal Regulations.

(4) **"Enclosed Flare"** means a flare composed of multiple gas burners that are grouped in an enclosure, which operates at a wide range of flow rates and constant limited peak temperature.

(5) **"Existing Flare"** means a flare which commenced operation on or before *(date of adoption)*.

(6) **"Federal Major Stationary Source"** means the same as defined in Rule 20.1 – New Source Review – General Provisions.

(7) **"Flare Maintenance Event"** means a regularly scheduled course of procedure designed to prevent equipment failure or decline of equipment function.

(8) **"Gas Mover Equipment"** means the equipment (e.g., fan, blower, compressor) used to transport landfill gas through the header system.

(9) **"Landfill Gas"** means any gas derived through a natural process from the decomposition of waste deposited in a landfill.

(10) **"Landfill Gas Flare"** means a combustion device that oxidizes combustible landfill gases or vapors, where the combustible landfill gases or vapors being destroyed are routed ~~directly~~ into the burner ~~without energy recovery~~. Types of landfill gas flares include open and enclosed flares.

(11) **"Municipal Solid Waste (MSW) Landfill"** means an entire disposal facility in a contiguous geographical space, publicly or privately owned, where household waste is placed in or on land. Portions of an MSW landfill may be separated by access roads. An MSW landfill may also receive other types of Resource Conservation and Recovery Act (RCRA) Subtitle D (40 CFR Parts 257 and 258) wastes such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste.

(12) **"New Flare"** means a flare which commenced operation after *(date of adoption)*.

(13) **"Open Flare"** means a flare without enclosure or shroud.

(14) **"Pilot"** means an auxiliary burner used to ignite the vent gas routed to a flare.

(d) **STANDARDS**

A person shall not install and/or operate ~~a~~ an enclosed landfill gas flare subject to this rule unless:

(1) Emissions of NOx, calculated as nitrogen dioxide, do not exceed 0.06 pounds per million Btu of heat input.

(2) Emissions of carbon monoxide (CO) do not exceed 0.20 pounds per million Btu of heat input.

(e) **OPERATIONAL REQUIREMENTS**

(1) The landfill gas flare shall be properly maintained and operational at all times when the collected landfill gas is routed to the flare.

(2) In the event the landfill gas collection system or landfill gas flare is inoperable, the gas mover equipment shall be shut down and all valves in the collection system and flare contributing to venting of the gas to the atmosphere shall be closed within one hour.

(3) An enclosed flare shall be:

(i) Equipped with automatic dampers, an automatic shutdown device, a flame arrester, and continuous-recording temperature sensors.

(ii) Operated within the parameter ranges established during the initial or most recent source test.

(4) An open flare shall be:

(i) Equipped with a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the flare pilot flame or the flare flame itself to indicate the continuous presence of a flame. The heat-sensing device shall be maintained and calibrated in accordance with the manufacturer's specifications and recommendations.

(ii) Operated in accordance with Title 17, California Code of Regulations, Subsection 95464(b)(2)(B).

(f) **MONITORING REQUIREMENTS**

An owner or operator of any landfill gas flare shall install and maintain in good working order the following:

(1) A gas flow rate measuring device to monitor, display, and record the landfill gas flow rate to each flare at least once every 15 minutes. The gas flow rate measuring device shall be calibrated at least once per calendar year in accordance with the manufacturer's specifications and recommendations.

(2) For an enclosed flare: a gas temperature measuring device equipped with a continuous recorder which has an accuracy of ±1% of the temperature being measured. The gas temperature measuring device shall be calibrated in accordance with the manufacturer's specifications and recommendations.

(3) For an open flare: a heat device to continuously monitor for the presence of a flare pilot flame or flare flame using an ultraviolet beam sensor or thermocouple, and any additional monitoring requirements as specified by the Air Pollution Control Officer.

(g) **RECORD KEEPING REQUIREMENTS**

An owner or operator of a landfill gas flare shall maintain, at a minimum, the following:

(1) Records of the landfill gas flow rate.

(2) Records of all landfill gas flow rate-measuring device calibrations pursuant to Subsection (f)(1).

(3) Records of the landfill gas throughput in standard cubic feet, which shall be recorded based on actual readings of the landfill gas flow rate-measuring device.

(4) Records of all periods when the flare is non-operational.

(5) Records of all flare maintenance events, including dates maintenance was performed and the nature of the maintenance.

(6) Records of any source test as conducted in accordance with Section (i) Source Test Requirements.

(7) A manual of recommended maintenance as provided by the flare manufacturer, or other maintenance procedures as approved in writing by the Air Pollution Control Officer.

(8) For an enclosed flare:

(i) Records of all 3-hour periods of operation during which the average temperature difference was more than 82°F (28°C) below the average combustion temperature during the most recent source test at which compliance with Title 17, California Code of Regulations, Sections 95464(b)(2) and 95464(b)(3)(A) was determined.

(ii) Records of the flare temperature, expressed in °F or °C.

(iii) Records of all flare temperature-measuring device calibrations pursuant to Subsection (f)(2).

(9) For an open flare:

(i) Records of the flare pilot flame or flare flame continuous monitoring.

(ii) Records of all periods of operation during which the flare pilot flame or the flare flame is absent.

All records shall be retained in electronic and/or hardcopy format on-site for at least five calendar years and made available to the District upon request.

(h) **TEST METHODS**

When more than one test method or set of test methods are specified in this section, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of this rule.

(1) Measurement of NOx and CO emissions in pounds per million Btu of heat input shall be determined using the emission concentrations measured in accordance with Subsection (h)(2) and the gas composition of the total gas or vapor combusted in the landfill gas flare measured in accordance with Subsection (h)(3), and calculated using the procedures in 40 CFR Part 60, Appendix A, Method 19 (Determination of Sulfur Dioxide Removal Efficiency and Particulate, Sulfur Dioxide and Nitrogen Oxides Emission Rates).

(2) Measurement of NOx, CO and oxygen content of the exhaust gas shall be determined in accordance with the San Diego County Air Pollution Control District Test Method 100 (Test Procedures for the Determination of Nitrogen Oxides, Carbon Monoxide and Diluent Gases by Continuous Emission Monitoring), May 1995, or its most current version approved by the U.S. Environmental Protection Agency (EPA).

(3) Landfill gas composition shall be determined in accordance with the following methods:

(i) ASTM D3588-98(2017)e1 (Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels), or its most current version; and

(ii) ASTM D1945-14(2019) (Standard Test Method for Analysis of Natural Gas by Gas Chromatography), or its most current version; or

(iii) EPA Method 25C (Determination of Nonmethane Organic Compounds (NMOC) in Landfill Gases).

(4) Other test methods which are determined to be equivalent to the test methods specified in this rule and approved in writing by the Air Pollution Control Officer, the California Air Resources Board, and EPA may be used in place of the test methods specified in this rule.

(i) **SOURCE TEST REQUIREMENTS**

Source tests <u>for enclosed landfill gas flares</u> shall be conducted according to the following:

(1) For initial compliance determination with Section (d) Standards, a landfill gas flare shall be source tested under the following conditions:

(i) For an existing flare: at typical operating conditions according to the facility specifications. An initial compliance determination is required if source test documentation demonstrating compliance with Subsections (d)(1) and/or (d)(2) is older than three calendar years.

(ii) For a new flare: at typical operating conditions according to the facility specifications and at maximum temperature and maximum fuel flow according to the manufacturer's specifications.

(2) After initial compliance has been determined, any landfill gas flare shall be source tested under typical operating conditions according to the facility specifications, and with the following frequency:

(i) For an existing flare: in accordance with the current compliance schedule pursuant to Title 17, California Code of Regulations, Section 95464 (b)(4)(A), or

(ii) For a new flare: in accordance with Title 17, California Code of Regulations, Section 95464 (b)(4)(A).

(3) Measurement of NOx and CO emission concentrations shall be based on a continuous sampling period of 15 minutes or more, and not to exceed 60 minutes. For the purpose of averaging, a minimum of five data sets with averaging intervals no greater than three minutes shall be used.

(4) Emissions source testing shall be conducted using the test methods specified in Section (h) Test Methods and a source test protocol approved in writing by the Air Pollution Control Officer prior to testing.

(j) **COMPLIANCE SCHEDULE**

(1) All new landfill gas flares shall comply with all applicable requirements of this rule upon initial startup.

(2) The owner or operator of an existing enclosed landfill gas flare shall:

(i) By *(6 months after date of adoption)*, submit to the Air Pollution Control Officer current documentation which demonstrates that the flare is in compliance with Section (d) Standards emission limits, or

(ii) By *(12 months after date of adoption)*, conduct a source test in accordance with Subsections (i)(1)(i), (i)(3), and (i)(4), and submit to the Air Pollution Control Officer documentation which demonstrates that the flare is in compliance with all applicable requirements of this rule.