



California Environmental Protection Agency
AIR RESOURCES BOARD

California State Plan for Municipal Solid Waste Landfills

Under Clean Air Act Section 111(d)

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California Environmental Protection Agency
Air Resources Board
1001 I Street
Sacramento, California 95814

California State Plan for Municipal Solid Waste Landfills

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This State Plan has been reviewed by the staff of the California Air Resources Board (ARB) and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of ARB.

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EXECUTIVE SUMMARY

On August 29, 2016, the U.S. Environmental Protection Agency (U.S. EPA) published final Emission Guidelines (or “Guidelines”) to reduce both methane and non-methane organic compound (NMOC) emissions from existing municipal solid waste (MSW) landfills (81 Fed. Reg. 59275 [Aug. 29, 2016]). The Guidelines apply to “existing” MSW landfills that commenced construction, modification, or reconstruction before July 17, 2014, and that have accepted waste at any time since November 8, 1987, or have additional capacity for future waste acceptance. The Guidelines require the installation of a landfill gas collection and control system (GCCS) at larger MSW landfills that exceed a specified design capacity and NMOC emission threshold.

The Guidelines require that the state submit a plan to the U.S. EPA, which identifies how the state intends to meet the federal requirements contained in the Guidelines. This document presents California’s State Plan to implement the Guidelines. It was developed by the California Air Resources Board (ARB) with the assistance of the air quality management and air pollution control districts (districts) and others working together as an ad hoc Landfill 111(d) Workgroup.

1. What do the Guidelines require?

The Guidelines require owners or operators of MSW landfills that have design capacities equal to or greater than 2.5 million megagrams (Mg) by mass and 2.5 million cubic meters (m³) by volume to install a GCCS at each landfill that (1) accepted waste at any time since November 8, 1987; (2) commenced construction, reconstruction, or modification on or before July 17, 2014; and (3) has a NMOC emission rate greater than or equal to 34 Mg per year (50 Mg for MSW landfills in the closed landfill subcategory) or reaches a surface methane concentration of 500 parts per million (ppmv) or greater, according to optional Tier 4 surface emissions monitoring. Landfills must combust the collected gas at 98 percent efficiency, or provide equivalent control. The federal regulation also contains requirements for surface methane emissions monitoring, wellhead monitoring, recordkeeping, and reporting requirements.

2. Why were the Guidelines developed?

As the waste in a MSW landfill decomposes, it breaks down to form landfill gas which includes methane (50%), carbon dioxide (CO₂) (50%), and NMOCs (<1%). Methane is a potent greenhouse gas (GHG). NMOCs include precursors to photochemical smog (ozone), odorous compounds, and toxics. Toxics are pollutants known or suspected to cause cancer, birth defects, and other serious adverse health effects. The Guidelines are intended to significantly reduce landfill gas emissions from large landfills.

3. How many existing landfills will be affected by the Guidelines?

U.S. EPA has identified a total of 195 MSW landfills in California that are subject to the Guidelines. These landfills are also subject to California's Landfill Methane Regulation (LMR). However, upon further review of U.S. EPA's list, and consultation with the Sacramento Metropolitan Air Quality Management District, it has been determined that L and D landfill is not subject to the Guidelines, although it continues to be subject to the LMR. Therefore, our State Plan does not include L and D landfill, resulting in 194 landfills in California actually affected by the Guidelines. Of these landfills, 105 are required by the Guidelines to install GCCS. All 105 landfills requiring controls have already installed GCCS because they are subject to the LMR. A table of MSW landfills that are subject to the Guidelines is provided in Appendix C.

4. What is the purpose of the State Plan?

The purpose of the State Plan is to implement the requirements of the Guidelines specified in 40 Code of Federal Regulations (CFR) Part 60, Subpart Cf--Emission Guidelines and Compliance Times for MSW Landfills. The Guidelines apply to existing MSW landfills that have accepted waste since November 8, 1987, or have the capacity to accept future waste and are not new (i.e., not subject to the New Source Performance Standards – 40 CFR Subpart XXX). Section 111(d) of the federal Clean Air Act (CAA) and 40 CFR Part 60 Subpart B (Adoption and Submittal of State Plans for Designated Facilities) require ARB and the districts to submit a State Plan to the U.S. EPA Regional Administrator. Under 40 CFR Part 60 Subpart Cf, States were required to submit their State Plans by May 30, 2017.

5. What are the major elements of the State Plan?

The major elements of the State Plan are a description of the legal basis and authority to implement the Guidelines, emission standards and compliance times, procedures (such as test methods) used for determining compliance with the emissions standards, legally enforceable increments of progress towards compliance, source and emission inventories of designated facilities, provisions for annual emission reporting and progress reports on enforcing the Guidelines, and a description of public participation in implementing the Guidelines.

6. What is the status of the Guidelines implementation?

This document demonstrates that California's statewide LMR is procedurally equal to and substantively more stringent than the federal Guidelines, not only achieving, but exceeding the reductions specified in the Guidelines. Therefore, the LMR is being submitted as the State's plan to implement the Guidelines. California's LMR which reduces emissions of methane and NMOCs from MSW landfills was approved by the Board on June 25, 2009. The LMR became effective on June 17, 2010; it requires owners and operators of certain uncontrolled MSW landfills to install GCCS's and requires existing and newly installed GCCSs to operate in an optimal manner. The

regulation is a discrete early action measure to reduce GHG emissions under California's Assembly Bill 32 (AB 32).

In every relevant instance, the LMR produces results as or more stringent than the Guidelines require. The LMR has improved how California captures and controls landfill gas emissions. Prior control devices were only required to achieve a NMOC destruction efficiency of 98 percent. Under the LMR, most control devices must achieve a methane destruction efficiency of at least 99 percent. Prior to the LMR, most landfills were only required to meet an instantaneous surface emission standard of 500 ppmv. Under the LMR, landfills must meet both an instantaneous surface emission standard of 500 ppmv and an integrated surface emission standard of 25 ppmv. By controlling landfill gas, you control emissions of methane, NMOC, toxic substances, and odorous compounds.

Landfill owners and operators are familiar with the requirements of the LMR and many key requirements in the LMR mirror those found in the Guidelines. Should U.S. EPA approve the LMR as California's compliance plan, recognizing that it provides equivalent or greater reductions, sources complying with the requirements of California's LMR will also comply with the Guidelines. A copy of the LMR is located at: <https://www.arb.ca.gov/regact/2009/landfills09/landfillfinalfro.pdf>.

I.

INTRODUCTION

ARB is a world leader in addressing climate change, and fully supports U.S. EPA's rulemaking efforts to reduce both methane and NMOC from landfills. Recognizing the importance of reducing methane emissions, ARB's first Scoping Plan,¹ identifies methane reductions from landfills as a priority discrete early action measure in California's suite of GHG-reduction measures. As a result, ARB adopted the LMR as a statewide regulation² which became effective on June 17, 2010. As demonstrated in Appendix F "Emissions Reductions from California's Landfill Methane Regulation Beyond the Emission Guidelines," ARB estimates that, in addition to the methane reductions that could be realized with implementation of the Guidelines, the LMR regulates an additional 30 landfills in California, resulting in an additional 91,193 metric tons of CO₂e per year³ of GHG reductions and 198 short tons per year of NMOC.

Further demonstrating that reducing landfill emissions can play a key role in meeting our climate change goals, the Board recently approved the Short-Lived Climate Pollutant Reduction Strategy,⁴ which includes targets for the diversion of organics from landfills by 50 percent of 2014 levels by 2020, and 75 percent of 2014 levels by 2025. We anticipate that this measure will result in an additional reduction of 4 million metric tons of methane in 2030, which results in 14 million tons of methane reduced over the lifetime of waste decomposition. Finally, ARB's 2017 Climate Change Scoping Plan Update⁵ highlights our past accomplishments and identifies additional waste management sector measures to reduce GHG emissions.

As California's state plan, the LMR builds on ARB's existing programs that, together, significantly reduce landfill emissions. Although there are some non-substantive differences between California's LMR and the Guidelines, the LMR imposes fundamentally similar procedural requirements on operators and is more stringent in substance than the Guidelines because it applies to smaller landfills (in addition to larger landfills) and has more stringent requirements for methane collection and control, component leak testing, and surface emissions monitoring and compliance time

¹ California Air Resources Board, *Climate Change Scoping Plan* (2008) available at https://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf was written in response to the California Global Warming Solutions Act of 2006, Health & Saf. Code § 38500, et seq., Assembly Bill 32 (Nunez, ch. 488, Stats. of 2006).

² Methane Emissions from Municipal Solid Waste Landfills, Cal. Code Regs. tit., § 95460, et seq., available at <https://www.arb.ca.gov/regact/2009/landfills09/landfillfinalfro.pdf>.

³ Based on 2015 Emissions.

⁴ California Air Resources Board, *Short-Lived Climate Pollutant Reduction Strategy* (Mar. 2017) available at https://www.arb.ca.gov/cc/shortlived/meetings/03142017/final_slcp_report.pdf.

⁵ California Air Resources Board, *The 2017 Climate Change Scoping Plan Update* (Jan. 2017) available at https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.

frames. It also regulates all of the landfills subject to subpart Cf, as well as an additional 30 landfills, and delivers more reductions than the Guidelines.

This State Plan is organized as follows:

- Appendix A contains California's LMR which was approved by the Board on June 25, 2009 as an early action measure under AB 32 and which became effective on June 17, 2010.
- Appendix B supplements the demonstration of legal authority in this plan. It contains the 1997 Attorney General's certification that the laws of California provide adequate authority to carry out the State Plan. It also contains the 1993 Attorney General's certification that the laws of California provide adequate authority to implement Title V (Operating Permits) of the CAA. The provisions of law under these two certifications were previously submitted and approved under 40 CFR Part, 60, Subpart B.⁶
- Appendix C provides a listing of MSW landfills that are affected by the Guidelines.
- Appendix D contains the meeting notices for ARB's workshop dated January 10, 2017, and Board hearing dated May 25, 2017, informing the public of California's 111(d) MSW landfill compliance strategy, along with a summary of public comments and other relevant information.
- Appendix E is a comparison of the major provisions of the Guidelines and California's LMR.
- Appendix F identifies emissions reductions from California's LMR beyond the Guidelines.
- Appendix G contains the MOUs signed between ARB and California's districts regarding implementation and enforcement of California's LMR.
- Appendix H contains the relevant provisions of law that were not previously certified or submitted under the 1997 Guidelines State Plan, or the 1993 operating permit State Plan, and are therefore required to be submitted under 40 CFR Part 60, Subpart B.
- Appendix I contains ARB Resolution 17-16, adopted by the Board on May 25, 2017.

⁶ 40 CFR § 60.26.

II.

FEDERAL REQUIREMENTS

A. EMISSION GUIDELINES FOR MUNICIPAL SOLID WASTE LANDFILLS

The U.S. EPA promulgated the Guidelines for MSW landfills to implement section 111(d) of the CAA. The Guidelines require the states to submit a plan that establishes standards and compliance schedules for existing landfills (e.g., standards for the landfill GCCS and compliance schedule for installing controls). The Guidelines establish minimum criteria that a state is to use in developing its emissions standards. ARB is the state agency charged with CAA compliance and with greenhouse gas regulations, and is responsible for this plan. However, California air districts are otherwise the primary regulators of stationary sources and, recognizing their important role, the ARB LMR is implemented in partnership with the air districts. Therefore, ARB and the districts are together responsible for developing a plan for implementing the Guidelines and submitting the plan to the U.S. EPA Administrator for approval. ARB and districts have determined that submittal of the LMR as California's State Plan is the best strategy for compliance with the Guidelines.

An existing MSW landfill subject to the requirements of the Guidelines is a landfill that commenced construction, modification, or reconstruction before July 17, 2014, and has accepted waste at any time since November 8, 1987, or has additional capacity for future waste deposition. The Guidelines require owners or operators of MSW landfills meeting these conditions, and that have design capacities equal to or greater than 2.5 million Mg by mass and 2.5 million m³ by volume to install a GCCS at each landfill that:

- Accepted waste at any time since November 8, 1987;
- Commenced construction, reconstruction, or modification on or before July 17, 2014; and
- Has a NMOC emission rate greater than or equal to 34 Mg per year (50 Mg for MSW landfills in the closed landfill subcategory) or the optional Tier 4 surface emissions monitoring shows a surface emission concentration of 500 ppmv methane or greater.

The collected gas must be combusted at 98 percent efficiency, unless equivalent control is implemented. The federal regulation also contains requirements for surface methane emissions monitoring, wellhead monitoring, and recordkeeping and reporting.

Owners and operators of MSW landfills subject to the Guidelines are not required to comply with its requirements until such time U.S. EPA has approved the State Plan or

promulgated a federal plan for districts that fail to submit their own plans through ARB. However, all of these landfills continue to be regulated under, and responsible for compliance with, ARB's LMR, regardless of federal implementation status.

B. STATE PLAN

California is submitting its LMR as its State Plan for implementing the Emission Guidelines for existing MSW landfills as required by Section 111(d) of the CAA and 40 CFR Part 60 Subpart B. Under this approach, landfills subject to the Guidelines (40 CFR Part 60, Subpart Cf) will have a federally enforceable obligation to comply with the LMR, while other landfills not subject to the Guidelines will continue to have only state-enforceable obligations. U.S. EPA could recognize this distinction in its notice of decision.

Much like its counterpart provision for criteria pollutant planning, section 110, section 111(d) is intended to provide states with appropriate discretion to secure federally-required emission reductions. ARB appreciates that U.S. EPA has recognized, in the recent section 111(d) rulemaking for the power sector, that state measures can supply appropriate compliance pathways if they satisfy federal requirements. This degree of state flexibility is important to integrate successful state programs into the federal structure, consistent with the cooperative federalism approach of the CAA. It also helps to ensure that innovative state rulemakings can inform progress on the federal level, and perhaps be adopted by other states. ARB looks forward to working with U.S. EPA to ensure that the LMR can serve to comply with these important federal emissions reduction requirements.

ARB accordingly demonstrates herein that the LMR is in fact more stringent than the Guidelines. Capturing methane captures NMOC because it is all landfill gas and the control system does not distinguish the compounds within the landfill gas. The LMR has more stringent requirements for methane collection and control, component leak testing, surface emissions monitoring, and compliance time frames. It also applies to more landfills than does the federal rule. In addition, California's statewide LMR has been in effect since 2010 and is being jointly implemented and enforced by ARB and the districts.

The LMR, in sum, nets a greater reduction in methane emissions as described above, and U.S. EPA approval of the LMR as California's compliance plan will reduce regulatory burden on operators while achieving all of the goals of the Guidelines. Affected landfill owners and operators are already familiar with the LMR, and many key requirements in the Guidelines mirror those found in the LMR. Sources complying with the requirements of California's more stringent LMR will reduce their emissions at least as much as the Guidelines require. A copy of the LMR is provided in Appendix A and can also be found at: <https://www.arb.ca.gov/regact/2009/landfills09/landfillfinalfro.pdf>.

A comparison of the key provisions of the Guidelines and California's LMR demonstrating that the LMR satisfies the requirements specified in the Guidelines is provided in Appendix E "Comparison of the Major Provisions of the Emission Guidelines and California's Landfill Methane Regulation." Appendix F illustrates the emissions reductions from California's LMR that exceed those required by the Guidelines. The State Plan also includes the major components listed below.

1. Legal Basis and Authority; Identification of Enforceable Mechanism

The State Plan must include a demonstration of the state's legal authority to carry out the State Plan. Pursuant to 40 CFR Part 60, Subpart B, section 60.26, States must show they have legal authority, through enforceable mechanisms to "(1) establish emission standards and compliance schedules applicable to designated facilities and pollutants identified under the Guidelines; (2) enforce applicable laws, regulations, standards, and compliance schedules, and seek injunctive relief; (3) obtain information necessary to determine whether designated facilities are in compliance with applicable laws, regulations, standards, and compliance schedules, including authority to require recordkeeping and to make inspections and conduct tests of designated facilities; and (4) require owners or operators of designated facilities to install, maintain, and use emission monitoring devices and make periodic reports to the State on the nature and amounts of emissions from such facilities and for the State to make such data available to the public." States may adopt and enforce more stringent standards than required by the Guidelines under 40 CFR Part 60, Subpart B, section 60.24(g).

ARB's authority to regulate and plan for compliance with the CAA requirements is extensive. By statute, ARB is "designated as the air pollution control agency for all purposes set forth in federal law," including 111(d) of the CAA, and Guidelines promulgated under that section.⁷ This includes all acts "as may be necessary for the proper execution of its duties," including adopting and implementing rules and regulations.⁸ ARB also has authority to gather information on air pollutants and their sources.⁹ ARB also has primary AB 32 authority over sources of GHG emissions, with the authority to coordinate with other agencies for implementation and enforcement.¹⁰ Districts also have authority to implement and enforce this State Plan pursuant to an MOU. California Health and Safety Code section 40000 states that the districts have primary responsibility for control of stationary sources. In the case of the LMR, section 95473 allows ARB to enter into agreements with the districts to implement and enforce the LMR.¹¹ ARB signed an MOU with most districts for implementation and enforcement of the LMR. Under these provisions, ARB and the districts have ample statutory and regulatory authority to develop, implement, and enforce the State Plan.

⁷ Health & Saf. Code §39602.

⁸ Health & Saf. Code §§39600, 39601.

⁹ Health & Saf. Code § 39607.

¹⁰ Health & Saf. Code § 38501.

¹¹ Health & Saf. Code §§ 38501, 38510, 38560, 38560.5, 38580, 39600, 39601; Cal. Code Regs., tit. 17, § 95473.

Specific authority is outlined below. Copies of referenced laws or regulations are attached in Appendix H and include the date of adoption, last amendment date, and effective date, where applicable. The specific authorities provided are contained in statutes, regulations, and MOUs, which are or will be fully effective by the time the State Plan is approved, and include those identified below and those incorporated by reference from Appendix B, the enclosed letter dated February 3, 1997, addressing California's authority to implement the initial Guidelines for Municipal Solid Waste Landfills promulgated in 1997; and the enclosed letter dated November 12, 1993, addressing California's authority to implement Title V (Operating Permits) of the CAA. In both letters, the Attorney General certified that the State and districts have the authority to implement the federal CAA Guidelines and Title V operating permits. Although such a certification is not required by the Guidelines, it further supports the demonstration here.

Authority to Adopt Emission Standards and Enforceable Conditions

State law provides authority for ARB and California's 35 districts to: (1) adopt rules and regulations establishing emission standards and other requirements applicable to the designated facilities; and (2) issue operating permits to the designated facilities and to incorporate into permits conditions that assure compliance with each applicable requirement of the CAA. State law also provides for prohibition of permit issuance to facilities that do not comply with applicable requirements. Applicable requirements include the requirements of Guidelines promulgated under CAA section 111(d). Applicable requirements also include district prohibitions against discharge of air contaminants under Health and Safety Code section 41700.

These authorities are cited in the enclosed February 3, 1997 letter, page 1, "Adoption of Emission Standards and Enforceable Conditions," page 2, "Enforcement of the Relevant Laws, Regulations, Standards, and Compliance Schedules," and page 5, "Retention of Delegated Enforcement Authority," and the enclosed November 12, 1993 letter, pages 1-3, "Authority to Issue Permits," page 7, "Incorporation of All Applicable Requirements into Permit," and as additionally specified below.

- *Federal Authority:* CAA § 111(b)(1)(A) [42 U.S.C. § 7411(b)(1)(A)], 111(d) [42 U.S.C. § 7411(d)]; 40 CFR Part 60, Subpart CC: 40 CFR §§ 60.33c, 60.34c, 60.35c, and 60.36c; 40 CFR Part 70, Subpart C: 40 CFR §§ 70.2, 70.3(a), and 70.3(b); 40 CFR Part 60, Subpart Cf: 40 CFR §§ 60.30f, 60.31f, 60.32f, 60.33f, 60.34f, 60.35f, 60.36f, 60.37f, 60.38f, 60.39f, 60.40f, and 60.41f.
- *Statutory Authority:* Health and Safety Code §§ 38501, 38510, 38551, 38560, 38560.5, 38562, 38566, 38580, 38592, 38597, 39002, 39003, 39600, 39601, 39602.5, 39659, 40000, 40001, 40506.1, 40752, 41500, 41511, 41513, 40702, 41700, 41701, 42300, 42300.1, 42301.1, 42301.6, 42301.12, 42315, 42350, 42353, 42400, 42400.1, 42400.2, 42400.3, 42400.3.5, 42400.4, 42400.8, 42401, 42402.1, 42402.2, 42402.4, 42403, and 42450.

- *Regulatory Authority:* Cal. Code Regs. tit, 17 §§ 95461, 95463, 95464, 95465, 95469, 95472, and 95473.

Authority to Adopt Compliance Schedules

State law provides authority for the districts to issue permits to sources that are not in compliance with applicable requirements, and to include compliance schedules in permits to bring sources into compliance through adoption of compliance schedules applicable to the designated facilities and pollutants. These authorities are cited in the enclosed February 3, 1997 letter, pages 3-4, "Adoption of Compliance Schedules," and the enclosed November 12, 1993 letter, pages 3-4, "Authority to Issue Permits to Noncomplying Sources" and as additionally specified below.

- *Federal Authority:* CAA §§111(b)(1)(A) [42 U.S.C. §7411(b)(1)(A)], 111(d) [42 U.S.C. §7411(d)]; 40 CFR Part 60, Subpart CC: 40 CFR §60.36c; 40 CFR Part 60, Subpart Cf: 40 CFR §§60.32f and 60.36f.
- *Statutory Authority:* Health and Safety Code §§ 39601, 40702, 41703, 42301.1, 42301.5, 42315, 42353, 42357, and 42358.
- *Regulatory Authority:* Cal. Code Regs., tit. 17, §§ 95463, 95464, 95469, 95470, and 95473.

Authority to Enforce Relevant Laws, Regulations, Standards, and Compliance Schedules and Seek Injunctive Relief

State law provides civil and criminal enforcement authority to enforce relevant laws, regulations, standards, and compliance schedules, including authority to seek injunctive relief, as cited in the February 3, 1997 letter, page 3, "Enforcement of Relevant Laws, Regulations, Standards, and Compliance Schedules" and in the enclosed November 12, 1993 letter, page 11, "Enforcement of Permits Program Requirements" and as additionally specified below.

- *Federal Authority:* CAA §§111(b)(1)(A) [42 U.S.C. §7411(b)(1)(A)], 111(d) [42 U.S.C. §7411(d)]; 40 CFR Part 60, Subpart CC: 40 CFR §60.36c; 40 CFR Part 60, Subpart Cf: 40 CFR §§ 60.30f, 60.31f, 60.32f, 60.33f, 60.34f, 60.35f, 60.36f, 60.37f, 60.38f, 60.39f, 60.40f, and 60.41f.
- *Statutory Authority:* Health and Safety Code §§ 39601, 39659, 41513, 42300.1, 42301, 42453, 42356, 42362, 42402, and 42402.3.
- *Regulatory Authority:* Cal. Code Regs., tit., 17 § 95473.

Authority to Obtain Information

State law provides authority to obtain information necessary to determine whether designated facilities are in compliance with applicable laws, regulations, standards, and compliance schedules, including authority to require recordkeeping and to make inspections and conduct tests of designated facilities; and provides authority to request information from regulated sources regarding their compliance status as cited in the February 3, 1997 letter, pages 3-5, "Authority to Obtain Information" and "Authority to Require Recordkeeping, Make Inspections, and Conduct Tests," and in the enclosed November 12, 1993 letter, page 6, "Monitoring, Recordkeeping, and Reporting," and as additionally specified below.

- *Federal Authority:* CAA §§ 111(b)(1)(A) [42 U.S.C. § 7411(b)(1)(A)], 111(d) [42 U.S.C. § 7411(d)], 114 [42 U.S.C. § 7414]; 40 CFR Part 60, Subpart CC: 40 CFR § 60.35c; 40 CFR Part 60, Subpart Cf: 40 CFR §§ 60.36f, 60.37f, 60.38f, and 60.39f.
- *Statutory Authority:* Health and Safety Code §§ 39600, 39601, 39605, 39607, 39659, 41510, 41513, 42301.3, 42303.5, 42336, 42706, 44341, 44344, and 44344.5.
- *Regulatory Authority:* Cal. Code Regs., tit. 17, §§ 95463, 95464, 95470, and 95473.

Authority to Require Recordkeeping, Make Inspections, and Conduct Tests

State law provides authority to require recordkeeping, incorporate recordkeeping requirements into operating permits, provides authority to inspect sources and any records required to determine a source's compliance status, and provides authority to conduct tests as cited in the February 3, 1997 letter, page 4, "Authority to Require Recordkeeping, Make Inspections, and Conduct Tests," and in the November 12, 1993 letter, pages 6-7, "Monitoring, Recordkeeping, and Reporting," page 7, "Inspection/Entry Authority," and as additionally specified below.

- *Federal Authority:* CAA §§ 111(b)(1)(A) [42 U.S.C. § 7411(b)(1)(A)], 111(d) [42 U.S.C. § 7411(d)], 114 [42 U.S.C. § 7414], 504 [42 U.S.C. 7661c]; 40 CFR Part 60, Subpart CC: 40 CFR §§ 60.35c and 60.34c; 40 CFR Part 70, Subpart C: 40 CFR § 70.6(c)(1); 40 CFR Part 60, Subpart Cf: 40 CFR §§ 60.37f, 60.38f, and 60.39f.
- *Statutory Authority:* Health and Safety Code §§ 39601, 40701, 41513, 42707, 44366, 39607, 41510, 41511, 42303, 44340, and 44342.
- *Regulatory Authority:* Cal. Code Regs., tit. 17 §§ 95470 and 95473.

Authority to Require Use of Monitors and Require Emission Reports

State law provides authority to require owners or operators of designated facilities to install, maintain, and use emission monitoring devices and make periodic reports to the State on the nature and amounts of emissions from such facilities and to incorporate monitoring and reporting requirements into operating permits as cited in the February 3, 1997 letter, page 5, "Authority to Require Use of Monitors and Require Emission Reports," and in the enclosed November 12, 1993 letter, pages 6- 7, "Monitoring, Recordkeeping, and Reporting" and as additionally specified below.

- *Federal Authority:* CAA §§111(b)(1)(A) [42 U.S.C. §7411(b)(1)(A)], 111(d) [42 U.S.C. §7411(d)]; 40 CFR Part 60, Subpart CC: 40 CFR §§ 60.34c and 60.35c; 40 CFR Part 60, Subpart Cf: 40 CFR §§ 60.33f, 60.34f, 60.35f, 60.36f, 60.37f, 60.38f, 60.39f, and 60.40f.
- *Statutory Authority:* Health and Safety Code §§ 39601, 39607, 39659, 41513, 42315, 42303, 44344.5, and 44344.7.
- *Regulatory Authority:* Cal. Code Regs. tit, 17 §§ 95469, 95470, and 95473.

Authority to Make Emission Data Available to the Public

State law provides authority to make available to the public emissions data, any permit application, compliance plan, permit, and monitoring and compliance certification report, except for information entitled to confidential treatment as cited in the enclosed February 3, 1997 letter, page 5, "Authority to Make Emission Data Available to the Public," and the November 12, 1993 letter, pages 10-11, "Public Access to Permit Information" and as additionally specified below. State law also provides that the contents of an operating permit, except for trade secret information which is not emission data, shall not be entitled to confidential treatment.

- *Federal Authority:* CAA §§111(b)(1)(A) [42 U.S.C. §7411(b)(1)(A)], 111(d) [42 U.S.C. §7411(d)], 114(c) [42 U.S.C. §7414(c)], 502(b)(8) [42 U.S.C. §7661a(b)(8)], 503(e) [42 U.S.C. §7661b(e)], 5 U.C.S. §552; 40 CFR Part 70, Subpart C: 40 CFR §70.4.
- *Statutory Authority:* Health and Safety Code §§ 39601, 39601.5, 39604, 39607, 41513, 42301.6, 42337, 42409; and Gov. Code § 6254.7.
- *Regulatory Authority:* Cal. Code Regs., tit. 17, § 91001 and 93300.5.

Authority to Retain Delegated Enforcement Authority

State law provides authority for the State to retain enforcement authority even when such authority is delegated to the districts as cited in the enclosed February 3, 1997 letter on pages 3-4 "Retention of Delegated Enforcement Authority" along with the

November 12, 1993 letter on page 11, "Enforcement of Permits Program Requirements," and as additionally specified below.

- *Federal Authority:* CAA §§111(b)(1)(A) [42 U.S.C. §7411(b)(1)(A)], 111(d) [42 U.S.C. §7411(d)]; 40 CFR Part 60, Subpart A: 40 CFR § 60.10; 40 CFR Part 60, Subpart Cf: 40 CFR § 60.30f.
- *Statutory Authority:* Health and Safety Code §§ 38510, 38580, 39001, 39002, 39003, 39600, 39601, 39602, 39605, ~~40000~~, ~~40001~~, ~~40701~~, ~~40702~~, ~~41500~~, 41513, 42362, 44365, and 42362.
- *Regulatory Authority:* Cal. Code Regs. tit., 17 95473; Memorandum of Understanding Between the California Air Resources Board and Districts Regarding Implementation and Enforcement of Regulation to Reduce Methane Emissions from Municipal Solid Waste Landfills.

2. Emission Standards and Compliance Schedules

The emission standards adopted by the state cannot be less stringent than the Guidelines. In addition, pursuant to 40 CFR Part 60 Subpart B, Adoption and Submittal of State Plans for Designated Facilities, section 60.24(c), compliance schedules must match those of the Guidelines. As we explain below, the LMR is more stringent than the Guidelines, and its reporting provisions and compliance schedules allow ARB and the districts to ensure that compliance is maintained, and to file any necessary reports with U.S. EPA.

Emission Standards

In every relevant instance, the LMR produces results as or more stringent than the Guidelines require. The Guidelines require that GCCS must be operated so that the methane concentration is less than 500 ppmv above background at the surface of the landfill. Section 95465 of the LMR requires that the GCCS be operated so that at no location on the landfill surface exceeds methane concentrations of 500 ppmv instantaneous surface methane emission standard, in addition to a 25 ppmv integrated surface emission standard; which is more stringent than the Guidelines.

The Guidelines require that a control device must achieve a NMOC destruction efficiency of 98 percent. Carbon adsorption and passive GCCS are allowed if specified conditions are met. Because section 95464 of the LMR requires a methane destruction efficiency of 99 percent for most control devices; the LMR complies with the Guidelines. In addition, section 95464(b)(1)(B) establishes a component leak standard of 500 ppmv that is not specified in the Guidelines. The LMR does not allow the use of carbon adsorption or passive GCCS.

For all of these reasons, ARB is confident that continuing compliance with the LMR will satisfy the pollution reductions required by the Guidelines.

Compliance Schedules

In general, the LMR's compliance timeframes are more stringent than the Guidelines as illustrated in Appendix E and discussed in section II, subsection 4 on page 15.

3. Test Methods; Monitoring, Recordkeeping and Reporting Requirements

The State Plan must contain test methods and procedures for determining compliance with the emission standards. States can choose test methods or procedures that are different than those specified in 40 CFR Part 60. However, the test methods or procedures must be shown to be equivalent to the federal requirements including monitoring, recordkeeping, and reporting procedures.

Test Methods

The Guidelines requires the use of the following test methods and procedures:

- Specified equations are to be used for determining: (1) the NMOC emission rate if the actual year-to-year solid waste acceptance rate is known, (2) the NMOC emission rate if the actual year-to-year solid waste acceptance rate is unknown, (3) determining NMOC emission rate when a gas system can be removed, (4) control efficiency, and (5) maximum gas generation flow rate.
- Method 21 must be used for the measurement of methane utilizing a gas detector.
- Method 2E must be used to determine site-specific methane generation rate.
- Methods 25, 25C, or 18 of appendix A must be used for the performance test to determine compliance and to determine NMOC concentration.
- Method 3 or 3A must be used to determine oxygen for correcting the NMOC concentration as hexane to 3 percent.
- Method 3C must be used to determine the nitrogen level and Method 3A, 3C, or ASTM D6522-11 must be used to determine the oxygen level by using an oxygen meter for wellhead monitoring.

As illustrated in Appendix E, and in section 95471 "*Test Methods and Procedures*," the LMR requires the use of the similar test methods and procedures. Both the Guidelines and LMR contain requirements for wellhead monitoring. The LMR focuses on requiring pressure monitoring for fire prevention, and to demonstrate sufficient vacuum on individual extraction wells in order to minimize methane emissions.

Monitoring

Both the Guidelines and the LMR require surface methane emissions monitoring. However, the LMR again goes further. It requires both instantaneous and integrated surface methane emissions monitoring. Integrated monitoring averages the point source measurements and is a good indicator of how well the gas collection system is operating overall. The LMR provides an incentive for establishing a history of compliance with the surface methane emission standards. If in compliance, the landfill owner or operator of a closed or inactive MSW landfill can decrease their sampling frequency from quarterly to annually.

The Guidelines provides a walking pattern spacing of 30 meters (or about 100 feet), whereas section 95471(c)(1)(B) of the LMR requires an initial walking pattern spacing of 25 feet, then 100 feet once consistent compliance is demonstrated and maintained.

Recordkeeping and Reporting Requirements

The Guidelines require recordkeeping provisions for the landfill and GCCS design; GCCS monitoring data; performance test data; and emissions related data. Reporting is required for a design capacity report, amended design capacity report, design plan, closure notification, equipment removal report, annual report, NMOC emission rate report, and an initial performance test report.

As illustrated in Appendix E, the LMR requires similar recordkeeping provisions for the landfill and GCCS design; GCCS monitoring data; performance test data; and emissions related data. Reporting provisions required by the LMR include a waste-in-place (WIP) report, landfill gas heat input capacity (HIC) report, design plan, amended design plan, closure notification, equipment removal report, annual report, and an initial performance test report, in addition to an annual source test report; which is more stringent than the Guidelines.

4. Legally Enforceable Increments of Progress Toward Compliance

Rules or other mechanisms developed by the states to implement the Guidelines must include enforceable compliance dates for submitting the final control plan, awarding contracts for construction of the GCCS, initiating on-site construction or installation of the GCCS, completing on-site construction or installation of the GCCS, and final compliance. The LMR, already in force, has already moved all covered landfills toward compliance as all of these landfills were already required to install a GCCS.

The Guidelines require that:

- MSW landfills having a design capacity of ≤ 2.5 million Mg by mass and 2.5 million m³ by volume, must submit an initial design capacity report within 90 days of the U.S. EPA approved State Plan.

- MSW landfills having a design capacity of ≥ 2.5 million Mg by mass and 2.5 million m^3 by volume, must submit a NMOC emission rate report within 90 days of the U.S. EPA approved State Plan.
- A Design Plan must be submitted within one year after determining NMOC emission rate is ≥ 34 Mg/yr (or ≥ 50 Mg/yr for closed landfill subcategory).
- If a MSW landfill has a design capacity of ≥ 2.5 million Mg by mass and 2.5 million m^3 by volume, a GCCS must be installed:
 - Within 30 months after NMOC emission rate is ≥ 34 Mg/yr, or within 30 months after NMOC emission rate is 50 Mg/yr for closed landfill subcategory; or
 - Within 30 months after the date of the most recent NMOC emission rate is ≥ 34 Mg/yr, or Tier 4 surface emissions monitoring shows a surface methane emission measurement of ≥ 500 ppmv.
- Initial Performance Test of GCCS within 180 days from initial startup.

The LMR has more stringent compliance timeframes, which are already being met by most landfills. The compliance timeframes require:

- Active MSW landfills having <450,000 tons of WIP, must submit a WIP report within 90 days of effective date of the LMR.
- MSW landfills having $\geq 450,000$ tons of WIP or upon reaching 450,000 tons of WIP, must submit a landfill gas HIC report within 90 days of effective date of the LMR and annually thereafter if the HIC is ≥ 3.0 million British thermal units per hour (MMBtu/hr).
- MSW landfills that have not yet installed a GCCS must submit a Design Plan by June 17, 2011; or within one year after determining landfill gas HIC is ≥ 3.0 MMBtu/hr; or within one year of detecting any leak on the landfill surface > 200 ppmv pursuant to the surface methane demonstration test.
- MSW landfills having a WIP of $\geq 450,000$ tons and gas HIC of ≥ 3.0 MMBtu/hr, must install a GCCS within the following timeframe after approval of the Design Plan:
 - 18 months for active MSW landfills.
 - 30 months for closed or inactive MSW landfills.

- MSW landfills must conduct Initial Performance Test of the GCCS within 180 days from the initial start-up and annually thereafter. Testing is allowed to be performed every three years if specified conditions are met.

5. Source and Emission Inventories

The State Plan must contain a complete source and emissions inventory of existing MSW landfills in California that are regulated by the Guidelines. The source inventory must include all existing MSW landfills that have accepted waste since November 8, 1987. For the purpose of the State Plan, the source inventory must include MSW landfills with design capacities above the 2.5 million Mg by mass and 2.5 million m³ by volume, along with the names and locations of the landfills, and their design capacities if this information is available.

The emission inventory must provide estimates of the NMOC emissions from the large MSW landfills that are subject to the Guidelines. These requirements are met by Appendix C, which contains source and emissions inventory information for MSW landfills in California that are subject to the Guidelines as identified by U.S. EPA and the districts.

Additional information on California landfills is available in the California Department of Resource Recovery and Recycling's (CalRecycle) Solid Waste Information System (SWIS) database. Users are able to query SWIS on multiple parameters. The database is updated continuously and is located at:
<http://www.calrecycle.ca.gov/SWFacilities/Directory/Search.aspx>.

6. Annual Emission Reporting and Progress Reports

40 CFR Part 60, Subpart B, sections 60.25 (a), (e) and (f) require state plans to provide for the submittal of annual progress reports to U.S. EPA on the status of enforcing the Guidelines. Each progress report must include summaries of enforcement actions taken and the progress made on each, a list of designated facilities that have ceased operation during the reporting period, updated NMOC emission inventories for MSW landfills that are subject to the Guidelines, and copies of technical reports on all performance testing and compliance information.

ARB believes that the annual progress reporting requirements can be satisfied through the annual reports received from the districts that signed the MOU to implement and enforce the LMR, and MSW landfills that are subject to the LMR. ARB will aggregate and submit these reports.

MOU District Annual Reporting

Districts that have signed an MOU to implement and enforce the LMR are required to submit annual reports to ARB summarizing:

- Any Notice of Violations (NOV) or other citations issued by the district specifying the issue date, landfill name, and section of the LMR cited for each NOV or other citation.
- The total number of instantaneous surface methane readings of 200 ppmv or greater pursuant to sections 95470(a)(1)(D) and 95471(c)(2)(A) of the LMR.
- A summary of alternative compliance options approved by the district pursuant to section 95468 for sections 95464, 95469, and 95471 of the LMR. The district must provide the landfill name, address, nature of request, approval date, and section of the LMR cited for each alternative compliance option approved.
- The emission data required in section 95470(b)(3)(A) through 95470(b)(3)(I) of the LMR for each landfill since the previous annual report, except a topographic map of the landfill need only be submitted on a one-time basis.

Twenty-three districts have signed MOUs. ARB implements and enforces the LMR in those districts that have not signed an MOU.

Annual Reports

Section 95470 of the LMR requires MSW landfill owners and operators to submit an annual report for the period of January 1 through December 31 of each year. The annual report must contain detailed information about the landfill design, including GCCS monitoring data; performance test data; and emissions related data. Additionally, there are some specific reports that may be submitted under specific conditions, such as a WIP report for landfills with less than 450,000 tons of WIP or a closure notification report for landfills that are ceasing waste acceptance and closing. Any landfill seeking to decommission the GCCS must submit an equipment removal report. These reporting requirements are similar to the Guidelines' requirements. Again, ARB commits, as part of this State Plan, to aggregate and submit these reports in cooperation with the districts and regulated landfills.

7. Public Participation

The State Plan and U.S. EPA's general regulations for state plan submittals require that noticed public hearings be held on proposed compliance plans and that the state certify that such hearings have been held, and that all interested parties were notified at least 30 days prior to the date of the hearing. The certification submittal must include a list of all witnesses who offered testimony at the hearings, their organizational affiliations, and a brief summary of each presentation or submission.

On January 10, 2017, after providing notice on December 28, 2016, ARB held a public meeting to discuss California's strategy for compliance with U.S. EPA's new federal requirements for MSW landfills. Notice was provided to the public and all interested parties via internet list serves, email, interagency working group meetings, and

telephone communications.¹² ARB presented two paths for compliance with the Guidelines: (1) using the LMR as California's State Plan, and (2) districts revising their existing rules to comply with the Guidelines.

ARB regularly consulted with the districts, the California Air Pollution Control Officers Association (CAPCOA), and solid waste industry representatives. ARB has received comments from both the districts and the solid waste industry supporting the approach taken in this State Plan.

On May 25, 2017, ARB held a second public meeting to discuss ARB's intentions to submit the LMR as California's State Plan. The notice for this meeting along with this State Plan was released on April 24, 2017. ARB also sent the notice and State Plan to U.S. EPA and the districts.

A summary of the comments that were received from the January and May public meetings, including witness names and affiliations, is provided in Appendix D.

ARB hereby certifies that it held a public meeting that was held in accordance with the notice required by paragraph (d) of 40 CFR Part 60, Subpart B section 60.23.

8. Process for Review and Approval of Site-Specific Gas Collection and Control System Design Plans

The State Plan must include a process for the review and approval of site-specific design plans for the required GCCS.¹³ If a landfill's NMOC emissions equal or exceed 34 Mg per year (50 Mg per year for a landfill in the closed subcategory), the landfill owner or operator must submit a site-specific design plan within one year to comply with the Guidelines.¹⁴ The plan must also meet the design specifications for active collection systems or include alternative provisions.¹⁵ This requirement will be satisfied through the LMR and implemented by the districts. The Air Pollution Control Officer (APCO) has the authority to review and to approve or disapprove the site-specific design plans under the LMR and any alternative provisions. In addition, Title V and district operating permit procedures provide for review and approval of permit terms and conditions including site-specific design plan provisions.

¹² See 40 CFR Part 60, Subpart B, § 60.23.

¹³ See 40 CFR § 60.38f(d).

¹⁴ *Ibid.*

¹⁵ See 40 CFR §§ 60.40f and 60.38f(d).

III.

ENVIRONMENTAL ANALYSIS

Introduction

This chapter provides the basis for ARB's determination that the proposed State Plan is exempt from the requirements of the California Environmental Quality Act (CEQA).¹⁶ A brief explanation of this determination is provided in section B below. ARB's regulatory program, which involves the adoption, approval, amendment, or repeal of standards, rules, regulations, or plans for the protection and enhancement of the State's ambient air quality, has been certified by the California Secretary for Natural Resources under Public Resources Code section 21080.5 of CEQA. Public agencies with certified regulatory programs are exempt from certain CEQA requirements, including but not limited to, preparing environmental impact reports, negative declarations, and initial studies. ARB, as a lead agency, prepares a substitute environmental document (referred to as an "Environmental Analysis" or "EA") as part of the State Plan prepared for a proposed action to comply with CEQA.¹⁷ If the State Plan is finalized, a Notice of Exemption will be filed with the Office of the Secretary for the Natural Resources Agency and the State Clearinghouse for public inspection.

Analysis

ARB has determined that the proposed State Plan is exempt from CEQA under the "general rule" or "common sense" exemption.¹⁸ The common sense exemption states a project is exempt from CEQA if "the activity is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA." The proposed State Plan makes a previously analyzed, adopted, and state-enforced California regulation federally enforceable, which is administrative in nature. The continued implementation of an already existing regulation has no potential to adversely affect air quality or any other environmental resource area. Based on ARB's review it can be seen with certainty that there is no possibility that the proposed State Plan may result in a significant adverse impact on the environment; therefore, this activity is exempt from CEQA.

¹⁶ Cal. Code Regs., tit. 14, § 15251(d).

¹⁷ Cal. Code Regs., tit. 17, §§ 60000-60008.

¹⁸ Cal. Code Regs., tit. 14, §15061(b)(3)).

IV.

APPENDICES

- Appendix A: Landfill Methane Regulation
- Appendix B: 1993 and 1997 Attorney General's Certification of Legal Authority
- Appendix C: Municipal Solid Waste Landfills Affected by the Emission Guidelines
- Appendix D: Public Meeting Notices and Summary of Public Comments
- Appendix E: Comparison of the Major Provisions of the Emission Guidelines and California's Landfill Methane Regulation
- Appendix F: Emissions Reductions from California's Landfill Methane Regulation Beyond the Emission Guidelines
- Appendix G: Memoranda of Understanding (MOU) Between California Air Resources Board and Districts Regarding Implementation and Enforcement of Regulation to Reduce Methane Emissions from Municipal Solid Waste Landfills
- Appendix H: Relevant Legal Authorities
- Appendix I: Resolution 17-16