

OFFICE OF DISTRICT COUNSEL

Phone: (415) 749-4920 Fax: (415) 749-5103

February 1, 2024



FILED & SERVED BY ELECTRONIC MAIL

Honorable Valerie Armento, Esq., Chair Members of the Hearing Board Bay Area Air Quality Management District Hearing Board 375 Beale Street, Suite 600 San Francisco, California 94105

> Cover Letter to Proposed Amended Findings and Decision – Berkeley Landfill Re:

Hearing Board Docket No. 3747

Dear Chair Armento and Members of the Hearing Board:

Abatement Order Complainant Air Pollution Control Officer of the Bay Area Air Quality Management District (Air District) submits the enclosed Proposed Amended Findings and Decision for consideration by the Hearing Board at the February 6, 2024 hearing of the Berkeley Landfill Abatement Order case.

These Amended Findings make relatively minor corrections, improvements, and nonsubstantive changes to the original Proposed Findings and Decision filed by the Air District on January 18, 2024. No changes at all were made to the Proposed Order of Abatement that starts on page 7. Advance notice was given to counsel for Berkeley Landfill. Accordingly, Berkeley not only suffers no prejudice from this filing but benefits, like the Hearing Board, from the corrections and improvements made.









Chair & Members of the Hearing Board February 1, 2024 Page 2

The Air District respectfully requests consideration of the enclosed Proposed Amended Findings and Decision at the February 6 Hearing.

Respectfully submitted,

Joel Freid

JOEL FREID Assistant Counsel II

Cc: Berkeley Landfill Contact Mary Skramstad (By email: MSkramstad@BerkeleyCA.gov) Berkeley Deputy City Attorney Marc Shapp (By email: MShapp@BerkeleyCA.gov)

1 BEFORE THE HEARING BOARD OF THE 2 BAY AREA AIR QUALITY MANAGEMENT DISTRICT 3 STATE OF CALIFORNIA 4 5 In the Matter of the Docket No. 3747 6 AIR POLLUTION CONTROL OFFICER of [PROPOSED] AMENDED FINDINGS 7 the BAY AREA AIR QUALITY AND DECISION FOR AN ORDER OF MANAGEMENT DISTRICT **ABATEMENT** 8 DISTRICT REGULATION 8-34-301.1 9 Complainant, 10 VS. Hearing Date: February 6, 2024 9:30 am Time: 11 BERKELEY LANDFILL Place: Hearing Board Bay Area Air Quality Mgt Dist 12 Respondent. 375 Beale Street San Francisco, CA 94105 13 14 The Request of Complainant the Air Pollution Control Officer (hereinafter, the 15 "APCO") of the Bay Area Air Quality Management District (the "Air District") for an Order of 16 Abatement was heard on January 23 and February 6, 2024, in accordance with the provisions of 17 California Health and Safety Code ("HSC") § 40823 and Air District Hearing Board Rule § 18 6.2. The following Members of the Hearing Board were present: Chair Valerie Armento, and 19 Members Amelia Timbers, Danny Cullenward, and Rajiv Dabir, with Members Dr. Fung Lam, 20 Jeffrey Lee, and Sumeet Batra just observing. Respondent Berkeley Landfill was represented 21 by Marc Shapp, Deputy City Attorney, City of Berkeley. Complainant APCO of the Air 22 District was represented by Joel Freid, Assistant Counsel II, Air District. The public was given 23 the opportunity to testify, evidence was received, and the matter was submitted. Testimony 24

HEARING BOARD BAY AREA AIR QUALITY

MANAGEMENT DISTRICT

from the hearing on Respondent's application for a regular variance, Case No. 3741, was incorporated, without objection, into the record.

The Hearing Board finds and decides as follows:

FINDINGS OF FACT

- 1. The Air District is the governmental agency charged with the primary responsibility in the San Francisco Bay Area for controlling air pollution from all sources other than motor vehicles, for enforcing laws relating to air pollution, and for maintaining healthy air quality. The Air District is organized pursuant to the HSC Division 26, Part 3, Chapter 11.
- 2. The Complainant Air Pollution Control Officer ("APCO") is appointed by the Bay Area Air Quality Management District Board of Directors to enforce all orders, rules and regulations prescribed by the Air District Board. (HSC § 40750 *et seq.*) The APCO is authorized to request that the Hearing Board issue an Order of Abatement in accordance with HSC Section 42451(a).
- 3. Respondent Berkeley Landfill ("Landfill" or "Facility") is owned by the City of Berkeley (the "City"), operated by SCS Engineers ("SCS"), and subject to the jurisdiction of the Air District. Respondent owns the Landfill located at Cesar Chavez Park, at 11 Spinnaker Way, Berkeley, Alameda County, California.
- 4. Air District Regulation ("Reg.") 8-34-301.1, California Code of Regulations ("CCR") Title 17, Section 95464(b)(1)(A), a part of 17 CCR Sections 95460-94476, the State Landfill Methane Rule ("State LMR"), and the Landfill's Permit Condition ("P/C") 1826, Part 3, each require continuous operation of the Landfill's landfill Gas Collection and Control System ("GCCS").
- 5. The Facility is located within the Air District's jurisdiction and subject to the Air District's regulations. The Landfill is a closed landfill owned by the City and currently

developed as Cesar Chavez Park. The City also owns the land in the Berkeley Marina adjacent to Cesar Chavez Park, including the site of an operating hotel, collects gases including Methane offsite, meaning off of Cesar Chavez Park, and feeds those gases to the City's flare in the Park for abatement.

- 6. The Landfill has been closed, i.e. not accepting any new solid waste, since 1983. As part of required post-closure operations, the Landfill operates a GCCS, which collects landfill gas from the decomposing material in the Landfill and combusts it in an enclosed flare. The Landfill has contracted with SCS for the operation and maintenance of the Landfill and its GCCS and for compliance monitoring and measures necessary to comply with Air District and CA State Regulations.
- 7. Landfill Gas ("LFG") is comprised of Methane which is a potent greenhouse gas, Carbon Dioxide ("CO₂"), Carbon Monoxide ("CO"), Non-methane Organic Compounds ("NMOCs"), Toxic Air Contaminants ("TACs"), and other compounds which can be emitted when the Gas Collection System ("GCS") and flare are not operated continuously and when there are leaks of landfill gas from the landfill surface and/or from GCCS components.
- 8. Methane is a potent greenhouse gas at least 28 times more effective than CO₂ at trapping heat in the atmosphere. Methane has negative effects on human health, acting as an asphyxiant. When inhaled, methane displaces oxygen thus depriving the human body of the oxygen needed to breathe.
- 9. LFG is extracted from the Landfill using a series of vertical landfill gas collection wells, lateral piping, and a vacuum system that comprise the GCS which feeds the collected LFG to a flare where the landfill gas is burned and thereby abated, as required by Regulation 8, Rule 34 ("Reg. 8-34") and the State LMR. The Landfill is required by its Air

District permit to operate a GCS consisting of 42 vertical wells, 2 horizontal collectors, and 14 trench collectors.

- 10. A landfill subject to Reg. 8-34 is required to continuously operate a Gas Collection System and flare (or other abatement or control system) unless Less Than Continuous Operation ("LTCO") is approved by the Air District. The state LMR also requires continuous operation of the GCS unless the Air District approves an alternative compliance option. Landfills that are granted approval for LTCO are required to request approval of the LTCO allowance from the Air District every 3 years, and the Air District has the authority to approve, reject, or modify terms of LTCO.
- 11. The Air District has issued 15 Notices of Violation ("NOVs") to the Landfill since November 22, 2021 for noncontinuous operation of its GCCS, in violation of Reg. 8-34-301.1, the LMR, and the Landfill's P/C 1826, Part 3, among other violations. Berkeley Landfill is not operating its GCCS continuously, which results in illegal emissions to the atmosphere.
- 12. The Air District issued 14 "NOVs" to the Landfill over the past year, and 21 NOVs since 2019, including the 10 NOVs issued for noncontinuous operation of the GCCS in 2023. The cited violations include not operating and monitoring required landfill gas collection wells, leaks of landfill gas in violation of applicable regulations, improper maintenance of the flare, the flare exceeding its 57.6 MMBTU/day limit in violation of Reg. 2-1-307 and P/C 1826, Part 2, and noncontinuous operation of its GCCS.
- 13. As part of its application for a Regular Variance, Respondent acknowledged and presented evidence to support a finding that the Landfill is operating in violation of Reg. 8-34-303.1 and P/C 1826, Part 3.
- 14. Because the Landfill closed before 1987 it is exempt under Reg. 8-34-119 from the 5% oxygen content limit of Reg. 8-34-305.4. Whether or not this limit applies, high oxygen

24

readings indicate ambient air is being drawn into the GCS. In this case, oxygen readings of 20% have been recorded, indicating that ambient air is being drawn into the GCS instead of landfill gas. The Air District believes that this oxygen intrusion is due to poor maintenance and disrepair of the Landfill's GCS. At the Landfill, about half of the required landfill gas collection wells were collecting ambient levels of oxygen, indicating the wells were only collecting ambient air, rather than collecting landfill gas as required by the Landfill's Permit to Operate.

- 15. When LFG is not collected adequately, it builds up pressure within the Landfill and can move offsite, outside the Landfill boundary, where the LFG can become a safety hazard, as well as eventually being emitted to the atmosphere. Monitoring probes offsite near Cesar Chavez Park now situated upon the former the Landfill have detected methane levels above methane's Lower Explosion Limit (LEL), which is 5%. These high methane detections indicate a substantial likelihood that LFG has not been collected as required and has migrated off the Landfill. Offsite migration of LFG from a landfill violates Reg. 8-34-301 which requires landfills to collect LFG and abate the collected gas to prevent emissions to the atmosphere. In reports of offsite methane detections by monitoring probes, SCS stated that adjustments of the the Landfill GCS were made which eliminated the methane measured at the offsite probes, indicating a linkage between the Landfill's GCS and the methane detected offsite of Cesar Chavez Park. The Air District and CalRecycle, the Landfill's Local Enforcement Agency ("LEA") have met to discuss and develop the chemical fingerprinting methodology in Sections 4, 4.1, and 4.2 of the Order of Abatement below aimed to determine whether the methane measured offsite of Cesar Chavez Park is originating from the Landfill.
- 16. On May 18, 2022, the Landfill petitioned the Air District for approval of an LTCO allowance for the Landfill's new smaller flare under Reg. 8-34-404. The Landfill

claimed that it was not producing enough LFG to operate even the new smaller flare on a continuous basis.

- 17. At the end of 2022, Air District Engineering Staff met with CalRecycle,
 Berkeley LEA, SCS, and the City staff to discuss investigation into the offsite methane
 detections, and SCS/the City agreed to investigate. More than a year later, the City/SCS has not
 submitted any analysis or explanations to the Air District for the methane detected at the offsite
 probes nor the results of any investigations.
- 18. On March 21, 2023, the City's Landfill and its consultant, SCS, withdrew the application seeking LTCO for the new flare after the Air District expressed concerns about poor landfill gas collection, ambient levels of oxygen being captured by the GCS, and possible offsite landfill gas migration, but before the Air District reached a final decision on the Landfill's LTCO petition.
- 19. High levels of methane pose both a health and safety risk. The Landfill is in a well-populated area. Cesar Chavez Park, which is used by the public, is located on top of the Landfill and with an adjacent hotel. Accordingly, there is a strong public interest in bringing the Landfill into compliance with air emissions regulations and in determining whether or not landfill gas is migrating off of the Landfill site.

CONCLUSION

- 20. The Landfill is in violation of Reg.8-34-301.1, 2-1-307, State LMR Section 95464(b)(1)(A), and its P/C 1826, Part 3.
- 21. It is reasonable to require the Landfill to comply with District rules and its permit. Reg. 8-34 that applies in this case is a federally enforceable requirement.
- 22. The issuance of this Order of Abatement upon a noticed hearing does not constitute a taking of property without due process of law.

- 23. The issuance of the Order of Abatement is not expected to result in the closing or elimination of an otherwise lawful business, but if it does result in a closure or elimination, it would not be without a corresponding benefit in reducing air contaminants.
 - 24. The Order of Abatement is not intended to act as a variance.

ORDER OF ABATEMENT

THEREFORE based on the aforesaid statements and good cause appearing, the Hearing Board hereby orders Respondent the Landfill to immediately cease and desist from operating Respondent's closed the Landfill in a manner that violates Air District Reg. 8-34-301.1 or that violates the Landfill's P/C 1826, which require both the continuous operation of its landfill gas (LFG) collection system, consisting of 42 vertical wells, 2 horizontal collectors, 14 trench collectors, and the proper maintenance of and continuous operation of Flare A-4 combusting the collected LFG at a temperature of at least 1,400 degrees Fahrenheit, unless and until the Air District determines that all of the following compliance action conditions and increments of progress 1 through 11 have been met.

COMPLIANCE ACTION CONDITIONS AND INCREMENTS OF PROGRESS:

- 1. Locate all required vertical LFG collection wells pursuant to the BAAQMD Permit to Operate, Permit Condition 1826, Part 4 and on the attached Landfill Gas System Plan topographical site map, subject to Section 2 of this Abatement Order. (Reg. 8-34-301). Complete within 30 days of issuance of this Abatement Order.
- 2. Once Wells 14, 29, 33, 34, and 35 are located, immediately monitor each located well to confirm operation, measure well gas in accordance with Regulation 8-34-604, and measure pressure in accordance with Regulation 8-34-608. Adjust each well as needed to collect LFG. Submit the monitoring results and description of adjustments to the Air District within 5 business days. If any of these wells cannot be located, repaired, or brought into compliance with section 3, then submit an application to the Air District proposing an alteration to the LFG collection system to address the missing, unrepairable, or non-compliant wells. (Reg. 8-34-301, Permit Condition 1826). Complete within 30 days of issuance of this Abatement Order.
- 3. To the extent necessary to achieve the performance criteria herein, repair the LFG collection system such that, subsequent to inspection, repairs, or modifications as

24

described in sections 3.1, 3.2, 3.3, 3.4, and 3.5, all vertical LFG extraction wells, horizontal collectors, and trench collectors are optimally collecting LFG and limiting air intrusion to 5 percent oxygen by volume, except as otherwise provided in sections 3.4 and 3.5, and ensuring that each wellhead operates under a vacuum/negative pressure and LFG in each wellhead is less than 55° C (131° F), and ensure all system components comply with all applicable requirements in Reg. 8-34-301.2, and to ensure the gas collection system and landfill gas flare operate continuously as specified in Reg. 8-34-301.1 and meet the destruction efficiency requirement in Reg. 8-34-301.3. Complete the actions set forth in sections 3.3, 3.4, and 3.5 on an as-needed basis. (Reg. 8-34-301, Permit Condition 1826).

- 3.1 Complete an inspection of the integrity of each vertical LFG extraction well, LFG horizontal collector, LFG trench collector, LFG collection system lateral, and piping, including physical inspection, total depth and liquid level sounding, video camera inspection, and any other method(s) necessary to demonstrate that there are no blockages due to damage or from liquid within 90 days of issuance of this Abatement Order. Submit inspection results to the Air District within 30 days of the completion of the inspection, including a timeline for any repairs that are necessary based on the inspection. If LFG collection system component replacements are needed, an application to the Air District proposing an alteration to the LFG collection system to replace unrepairable LFG collection system components shall also be submitted with the inspection results. (Reg. 8-34-301, Permit Condition 1826).
- 3.2 At all vertical LFG extraction wells, replace existing near surface bentonite well bore seal and install additional well bore HDPE liner boot seals within 90 days of issuance of this Abatement Order. (Reg. 8-34-301, Permit Condition 1826).
- 3.3 As needed, install additional supplemental LFG collection system below grade pipelines to maintain vacuum distribution in the wellfield. Submit an application to the Air District if the installation(s) are not allowed by the current permit to operate. If any additional supplemental LFG collection system below grade pipelines are needed under this section 3.3, the City of Berkeley shall install those pipelines within 120 days of issuance of this Abatement Order. (Reg. 8-34-301, Permit Condition 1826).
- After measures 3.1, 3.2, and 3.3 have been completed, if any well gas 3.4 data from vertical wells, horizontal collectors, and trench wells (collectively and individually, the Well Gas Data) show oxygen concentrations greater than 5 percent by volume, submit to the Air District for approval a proposed Work Plan (WP) within 60 days of the last GCS repair done under sections 3.2 or 3.3 for a site-wide drone survey across the landfill and nearby areas that could be pathways of LFG migration to the offsite probes with methane detections per EPA approved Other Test Method 51 (OTM-51) – Unmanned Aerial Systems (UAS) Application for Surface Emissions Monitoring of Landfills. City of Berkeley staff shall seek approval from the Berkeley City Council for any drone survey under this section 3.4, if Council approval be needed under the Acquisition and Use of Surveillance Technology Ordinance, Berkeley Municipal Code Ch. 2.99. Upon the Air District's approval of the drone survey WP, within 30 days complete the drone survey. At the identified location(s) of landfill gas leak(s), locate the GCS damage causing the leak(s) and identify new GCS component(s) needed to eliminate the leak(s). Submit an application to the Air District proposing an alteration to the LFG collection system to replace piping, replace landfill gas wells, horizontal collectors, trench

24

wells, and/or install new landfill gas collection system components within 60 days of completing the survey. (Reg. 8-34-301, Permit Condition 1826).

- 3.5 If, after repairs of the GCS, the Well Gas Data at any well or collector continue to show an oxygen concentration greater than 5 percent by volume, develop a probe monitoring plan to measure LFG content in the area surrounding such well(s) or collector(s). Submit the probe monitoring plan, which shall include notice to the Air District to allow Air District personnel to attend the probe monitoring activity, to the Air District within 60 days of the last GCS repair done under sections 3.2, 3.3, or 3.4, for review, comment, and approval by the Air District. Complete the probe monitoring survey within 30 days of Air District approval of the probe monitoring plan, and submit the probe monitoring survey results report to the Air District within 7 days of Berkeley Landfill's receipt of the report and no later than 60 days of District approval of the probe monitoring plan. If any such well(s) or collector(s) are determined by the Air District to be collecting gas that is not representative of the LFG in the surrounding waste mass, locate the GCS damage causing the leak(s) and identify new GCS component(s) needed to eliminate the leak(s). Submit an application to the Air District proposing an alteration to the LFG collection system to replace piping, replace landfill gas wells, replace collectors, and/or install new landfill gas components, in accordance with direction by the Air District, within 60 days of receiving such direction by the Air District. (Reg. 8-34-301, Permit Condition 1826).
- 4. Submit to the Air District for approval a proposed Work Plan (WP) for the collection of gas and laboratory analysis meeting all requirements of, and containing all, the information specified in sections 4.1 and 4.2 below. (Reg. 8-34-301, Permit Condition 1826). Complete WP within 60 days of issuance of this Abatement Order. The WP will include details for:
- 4.1 Screening, collection, and testing gas at all existing permanent monitoring probes offsite of Cesar Chavez Park: Screening method to determine if methane is present and measure methane content. For locations at which methane is detected, a collection and test plan, including the number and size of representative gas samples collected and test methods to establish the source of the methane. The WP shall include at a minimum: collection protocols, advance notice to Air District of sampling to allow for Air District staff being present, type of approved-container, chain of custody, and deadlines for laboratory submittal; analysis of gas content, including methane, other gas fractions, and specific volatile organic compound (VOC) and toxic air contaminant (TAC) compounds by Methods ASTM D1946 and TO-15, and any other methods necessary to identify indicators of the source of methane gas. For locations at which methane is not detected, a follow up monitoring schedule, including frequency and duration; methane-containing gas from follow up monitoring shall be collected and submitted for testing. Deadlines for submittal of the initial field investigation report, results of ongoing monitoring, and laboratory analysis to the Air District. (Reg. 8-34-301, Permit Condition 1826).
- 4.2 Collection and testing of LFG from the Berkeley Landfill: Collection and test plan, including the number and size of representative LFG samples collected and well locations in proximity to each offsite probe. The plan shall include at a minimum: collection protocols, advance notice to the Air District of sampling to allow for Air District staff to be

21

22

23

24

present, type of approved container, chain of custody, and deadlines for laboratory submittal; analysis of gas content, including methane, other gas fractions, and specific VOC and TAC compounds by Methods ASTM D1946 and TO-15, and any other methods necessary to establish a fingerprint of the landfill gas. Deadlines for submittal of the field investigation report and laboratory analysis to the Air District. (Reg. 8-34-301, Permit Condition 1826).

- 5. Perform the sampling and collection of gas and initiate laboratory analysis in accordance with the Air District-approved WP. (Reg. 8-34-301, Permit Condition 1826). Complete within 60 days of receiving Air District approval of the WP.
- 6. Submit laboratory analyses and field investigation report(s) to the Air District for the gases collected from the offsite monitoring probes and from the Berkeley Landfill by the deadlines specified within the approved WP. The field investigation report(s) shall contain all the information required in the approved WP. (Reg. 8-34-301, Permit Condition 1826).
- 7. Schedule a full inspection and servicing of the onsite flare by the flare manufacturer. (Reg. 8-34-301, Permit Condition 1826). Complete within 60 days of issuance of this Abatement Order.
- 8. Submit results of flare inspection and details of the servicing to the Air District within 30 days of the inspection and servicing, including all details of the flare's compliance and/or non-compliance with regulatory requirements. (Reg. 8-34-301, Permit Condition 1826). Complete within 90 days of issuance of this Abatement Order.
- 9. For a period of at least 3 months following any repair or replacement of any component of the LFG collection system required under sections 2, 3, 3.1, 3.2, and 3.3 and until the Well Gas Data oxygen content at every well and collector has remained no more than 5 percent by volume for at least 3 months, and for a period of at least 3 months following installation of all GCS components required by sections 3.4 and 3.5, perform weekly monitoring of well gas at all vertical wells, horizontal collectors, and trench wells in accordance with Regulation 8-34-604, determine wellhead pressure in accordance with Regulation 8-34-608, and adjust or repair the wells and collectors as necessary to optimize gas recovery and minimize air intrusion. For a period of at least 6 months after weekly monitoring has ceased, perform monthly wellhead monitoring and continue to adjust wells and collectors to optimize gas recovery and minimize air intrusion. If the oxygen content exceeds 5 percent by volume at any well or collector, perform repairs and maintenance at those components to reduce oxygen content and revert back to the weekly monitoring schedule. When all of Berkeley Landfill's Well Gas Data demonstrate 6 months of continuous oxygen concentrations that do not exceed 5 percent by volume, Berkeley Landfill may revert back to the monitoring requirements in Regulation 8-34. Submit the monitoring results to the Air District within 5 business days following each monitoring event. (Regs. 8-34-301 and 8-34-303).
- 10. For the duration of Section 9, perform monthly monitoring for landfill gas leaks at all components containing landfill gas and for landfill surface leaks in accordance with the procedures in Regulation 8-34-602 and 8-34-607. Immediately address and repair any leaks in excess of 8-34-301.2 and 8-34-303 standards and submit the results of the monitoring and

1	repairs to the Air District within 2 weeks of the monitoring event. (Regs. 8-34-301 and 8-34-
2	303).
3	11. Any downtime of the LFG collection and control system that is reasonable in the determination of the Air District and required to conduct the actions specified under this Abatement Order shall not constitute a violation of Reg. 8-34-301.1, provided the City of
4 5	Berkeley provides documentation, if feasible in advance of the downtime events, including start and stop time, reason, and actions taken. Submit such documentation to the Air District, in compliance with Regulation 8-34-118, in advance if feasible, and no later than 5 business days
6	following each downtime event if advance notice is not feasible. Nothing in this Section 11 exempts Permittee Berkeley Landfill from the requirements of Regs. 2-1-301 and 2-1-302.
7	A. The Hearing Board shall retain jurisdiction over this matter until February 5,
8	2025 or until Respondent Berkeley Landfill has met all the Compliance Action Conditions and
9	Increments of Progress 1 through 11 hereunder, whichever occurs first, unless this Order is
10	amended or modified.
11	B. The Hearing Board may modify this Order without the stipulation of the parties
12	upon a showing of good cause, therefore, and upon making the findings required by HSC §
13	42451(a) and Hearing Board Rule § 4.13.
14	C. This Order is not and does not act as a variance; and Respondent Berkeley
15	Landfill is subject to all applicable rules and regulations of the Air District, and to all
16	applicable California law. Nothing herein shall be deemed or construed to limit the authority of
17	the Air District to issue Notices of Violation nor to seek civil or criminal penalties, or
18	injunctive relief, or to seek further orders of abatement or other administrative or legal relief.
19	
20	Dated: February, 2024 By:
21	CHAIR VALERIE ARMENTO HEARING BOARD
22	of the BAY AREA AIR QUALITY MANAGEMENT DISTRICT
23	
24	