

Bay Area Air Quality Management District

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**Permit Evaluation
and
Statement of Basis
for
MAJOR FACILITY REVIEW PERMIT
MINOR REVISION**

**for
Waste Management of Alameda County
Facility #A2066**

Facility Address:

10840 Altamont Pass Road
Livermore, CA 94550

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Applications: 7363 and 10004

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ENGINEERING EVALUATION and STATEMENT of BASIS

Waste Management of Alameda, Inc.; PLANT # 2066

APPLICATIONS # 7363 and 10004

A. BACKGROUND

Waste Management of Alameda, Inc. operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA. This facility includes the Bay Area's largest active landfill (S-2 with more than 30 million tons of refuse in place), two 3 MW Gas Turbines (S-6 and S-7, landfill gas fired) equipped with Fogging Systems (A-6 and A-7), two 1877 bhp IC Engines (S-23 and S-24, landfill gas fired), one 71 MM BTU/hour Landfill Gas Flare (A-15), waste water treatment operations (permitted: S-19, S-140, and S-141; exempt: S-12, S-20, S-28, S-130, A-130, and S-180), a non-retail gasoline dispensing facility (S-99), and nine diesel engines providing portable or standby power (S-190, S-191, S-192, S-193, S-194, and S-195, S-196, S-197, and S-198).

Waste Management has completed numerous modifications of the landfill gas collection system for the S-2 Altamont Landfill that were authorized in May 2003 pursuant to Application # 7363. The District is proposing to incorporate these collection system changes by modifying the collection system description in Condition # 19235. In addition, Waste Management submitted Application # 10004 to request additional modifications of the landfill gas collection system for S-2. These applications will also require a minor revision of the MFR Permit for Site # A2066 to modify the collection system description in Table II-A and Condition # 19235.

B. COLLECTION SYSTEM DESCRIPTION

As of November 23, 2004, the landfill gas collection system for the S-2 Altamont Landfill consisted of the following collection system components: 70 vertical wells, 13 horizontal trench collectors, and 1 leachate collection system clean-out riser. Condition # 19235, Part 1a will be modified to reflect this current list of collection system components. Specific component identification numbers are listed in Table 1.

Table 1. Current Landfill Gas Collection System Components

Vertical Landfill Gas Extraction Wells								Horizontal Collectors		Other Components
VW-#	VW-#	VW-#	VW-#	VW-#	VW-#	VW-#	VW-#	HC-#	HC-#	
1	21	47	66	83	223	420	436	102	314	LCRS-201
2	23	48	67	84	401	423		103	315	
3	24	50	68	85	402	424		104	316	
8	26	51	69	86	403	426		106		
11	29	53	70	87	404	428		107		
	33	54	71	88	405	430		302B		
15	37	55	73	210	406	431		311A		
16	40	56	74	216	414	432		311B		
18	44	59	77	219	415	433		312		
19	45	64	80	222	416	435		313		

Authority to Construct # 7363 authorized the following collection system modifications, which are currently described in Condition # 19235, Part 1b:

- Install 36 new vertical wells

- Decommission 40 vertical wells (these changes are already reflected in Part 1a above)
- Install 10 horizontal trench collectors (shredded tires may be used as fill material)
- Interconnect 10 horizontal collectors with existing tire trench collectors (these changes are reflected in Part 1a)
- Install header valves, risers, and piping connections between existing horizontal collectors as needed to optimize gas collection
- Modify wellhead monitoring locations as needed

Waste Management has submitted five letters to notify the District that collection system modifications have been completed pursuant to Application # 7363. The collection system modifications described in these letters are summarized below.

Table 2. Collection System Modifications Completed Pursuant to Application # 7363

Letter Date	Installed New Vertical Wells	Decommissioned Vertical Wells	Installed New Horizontal Collectors	Decommissioned Horizontal Collectors
2/23/04	21	17	3	4
4/5/04	1	12		
8/2/04		3		
11/10/04		2		
11/23/04		1		
Summary of Completed Modifications	22	35	3	4
Remaining Authorized Modifications	14	5	7	6

Pursuant to Application # 10004, Waste Management requested the following additional modifications to the landfill gas collection system:

- Install 35 new vertical wells
- Decommission 15 vertical wells
- Install 20 horizontal trench collectors
- Decommission 7 horizontal collectors

A revised Permit to Operate will be issued for existing the collection system described in Table 1 pursuant to Application # 7363. Application # 7363 will be closed and the remaining authorized collection system modifications from Authority to Construct # 7363 will be re-authorized pursuant to Application # 10004. The total collection system changes that will be authorized pursuant to Application # 10004 are as follows:

- Install 49 new vertical wells
- Decommission 20 vertical wells
- Install 27 horizontal trench collectors
- Decommission 13 horizontal collectors

C. EMISSIONS

From the October 9, 2004 Annual Update Report, Waste Management is currently collecting an average of 3330 cfm of landfill gas (average methane content is 53%). The corrected collection rate at 50% methane is 3530 cfm. The new collection system equipment is expected to increase the landfill gas flow rate by 25 cfm for each new well or collector. The landfill gas collection rate is expected to increase by 1900 cfm up to a total collection rate of 5430 cfm. The wells and collectors that will be decommissioned are currently not performing well and are not collecting much landfill gas. Therefore, shutting these wells/collectors down will result is little if any reduction in the overall landfill gas collection rate.

Waste Management vents all of their collected landfill gas to the turbines, IC Engines, or flare. The combined capacity of all control equipment is about 7360 cfm of landfill gas (peak daily rate at 50% methane) and 6720 cfm (annual average rate at 50% methane). The existing control devices have sufficient capacity to handle the proposed landfill gas collection rate (annual average rate of 5430 cfm) with no permit modifications. Therefore, this application will not result in any emission increases.

D. STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

This application is for a change of permit conditions at the S-2 Landfill with Gas Collection System that involves modifications of the gas collection system only. The gas collection system is part of the landfill gas abatement systems for the landfill. The proposed modifications do not result in any emission increases. Therefore, this application is categorically exempt from CEQA review pursuant to Regulation 2-1-312.2. In addition, the Engineering Evaluation for this application uses fixed standards and objective measurements and does not involve any element of discretion. In accordance with District Permit Handbook Chapter 8.1 "Landfills", this application is considered ministerial. No further CEQA review is required.

The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

Regulation 2, Rule 2:

Since this application does not result in any emission increases, this project is not subject to New Source Review (NSR). No new BACT, Offset or PSD requirements will apply.

New Source Review for Toxic Air Contaminants:

This application does not result in any increases of Toxic Air Contaminants (TACs). Therefore, NSR for TACs is not triggered, and no new T-BACT requirements will apply.

Regulation 2, Rule 6:

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act (40 CFR, Part 70) and BAAQMD Regulation 2, Rule 6, Major Facility Review (MFR), because it is a major facility for NO_x and CO emissions and also because it is a designated facility (since it is subject to the control requirements of the Emission Guidelines for MSW Landfills). Therefore, this facility is required to have an MFR permit pursuant to Regulations 2-6-301 and 2-6-304.

The initial MFR Permit for this facility was issued on December 1, 2003 and was revised on February 5, 2004. A significant revision and two additional minor revisions have been proposed. All comment periods are complete. The final issuance package for these revisions is currently circulating within the District and is expected to be signed in early December 2004.

This application will modify permit conditions and will therefore require a revision of the current MFR permit. The definition of significant revision is discussed below to determine if this application constitutes a significant MFR revision.

- Regulation 2-6-226.1 and 226.2: This application does not involve the incorporation of a change considered to be a major modification, or a modification under NSPS, NESHAPs, or Section 112 of the CAA.
- Regulation 2-6-226.3: This application does not involve the relaxation of any monitoring, record keeping or reporting requirements.

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- Regulation 2-6-226.4: This application does not establish or change any limits to avoid applicable requirements.
 - Regulation 2-6-226.5: This application does not involve the establishment of or change to a case-by-case emission limit or standard.
 - Regulation 2-6-226.7: This application does not involve the incorporation of any requirements promulgated by the EPA.

Since this application does not meet any of the above criteria for a significant revision, this application will be handled as a minor revision to the MFR Permit.

The proposed MFR permit revisions related to this application are described later in this document.

Regulation 8, Rule 34:

Waste Management's Altamont Landfill (S-2) is subject to Regulation 8, Rule 34. S-2 is expected to comply with Regulation 8-34-301 by:

- (a) continuously operating the gas collection system (which will consist of 99 vertical wells, 27 horizontal collectors, and 1 leachate clean-out riser with gas collection upon completion of this application) and continuously operating a gas control systems (including S-5, S-6, S-23, S-24, and/or A-15),
- (b) having no leaks (exceeding 1000 ppmv) from the gas collection system, and
- (c) processing all collected gases in control devices achieving at least 98% NMOC destruction efficiency (or emitting less than 20 ppmv of NMOC from the IC engines and gas turbines).

The S-2 Altamont Landfill is also subject to Regulation 8-34-303, which limits leaks on the surface of the landfill to less than 500 ppmv as methane. This site has generally been complying with the surface leak requirements. However, surface leaks above the standard are occasionally discovered by the facility and are typically eliminated within a few days of discovery. The proposed collection system modifications are intended to improve the gas collection rate and reduce the rate of surface leaks at this landfill.

The proposed collection system modifications will, in part, assure compliance with the collection system installation dates specified in Regulation 8-34-304. This site is complying with all applicable monitoring requirements (8-34-505-510).

No violations of Regulation 8, Rule 34 have been documented since July 2002.

Landfill Gas Collection System Adequacy:

As of October 31, 2004, the Altamont Landfill contained 36,832,311 tons of refuse and was accepting an average of 2 million tons of refuse per year. The landfill gas generation rate (at 50% methane) is estimated to be 7438 cfm for 2004, 7755 cfm for 2005, and 8065 for 2006 and will peak at 8208 cfm in 2007.

The current collection rate (3530 cfm) exceeds the minimum target gas collection rate of 2381 cfm in Condition # 19235, Part 2a that was established in 2003. However, the 2004 overall gas collection efficiency is only about 47%, which is far below the target collection efficiency of 75%. The target gas collection rate in Condition # 19235, Part 2a appears to be too low. The relationship between the projected landfill gas generation rate, the actual landfill gas collection rate, and the minimum (or target) collection rate that is necessary to prevent surface emission leaks will be explored in more detail pursuant to Application # 8303.

The proposed collection system modifications will increase the gas collection rate to 5430 cfm by 2005. These modifications will increase the overall collection system efficiency to 70% of the 2005 gas generation rate. These collection system improvements will significantly increase the landfill gas collection rate and are expected to prevent surface emission leaks within the next year.

Vertical gas collection wells are spaced about 200-400 feet apart. Horizontal collectors are installed throughout the landfill. The proposed spacing between vertical wells and horizontal collectors are with the normal ranges for active landfills. The proposed collection system locations are expected to provide adequate gas collection in all landfill areas that contain decomposable materials.

Federal Requirements:

EG for MSW Landfills: The landfill at this facility is subject to the 40 CFR Part 60, Subpart Cc Emission Guidelines (EG) for Municipal Solid Waste (MSW) Landfills. Effective November 19, 2001, the District's Regulation 8, Rule 34 was approved into the State Plan for MSW Landfills (40 CFR 62.1115). Regulation 8, Rule 34 is now the approved method for implementing this federal EG. Since the S-2 Altamont Landfill with Gas Collection System is expected to comply with Regulation 8, Rule 34, this landfill will also comply with 40 CFR, Part 60, Subpart Cc and 40 CFR 62.1115.

NESHAPs for MSW Landfills: Any landfills that are subject to the landfill gas collection and control requirements of either the NSPS for MSW Landfills or the EG for MSW Landfills are also subject to the NESHAPs for MSW Landfills (40 CFR, Part 63, Subpart AAAA). This NESHAP requires that subject facilities prepare and implement startup, shutdown, malfunction plans and additional reporting requirements. All applicable requirements are contained in the existing MFR permit, and this facility is expected to comply with these requirements.

E. MFR PERMIT MODIFICATIONS

Section I:

No changes are proposed to this section.

Section II:

The landfill gas collection system that is described in Condition # 19235, Part 1a is also listed in Table II. The gas collection system components are being revised as indicated below.

Table II A - Permitted Sources

Each of the following sources has been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. The capacities in this table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-301.

S#	Description	Make or Type	Model	Capacity
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Table II A - Permitted Sources

Each of the following sources has been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. The capacities in this table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-301.

S#	Description	Make or Type	Model	Capacity
S-2	Altamont Landfill Landfill Gas Collection System	Active, Class II, solid waste disposal site that accepts municipal, commercial, industrial, construction, and designated/special wastes (industrial and sewage sludge and contaminated soils) active		Maximum Waste Acceptance Rate = 11,150 tons/day Maximum Design Capacity = 58.9 E6 yd ³ (45.0 E6 m ³) Maximum Cumulative Waste = 47.1 E6 tons (42.7 E6 Mg) 44-70 vertical wells 14-13 horizontal collectors 3 combination collectors 2-1 leachate collection risers
...				

Sections III-V:

No changes are proposed to these sections.

Section VI:

This MFR Permit revision will modify Condition # 19235, Part 1. All text changes are shown below in strikeout and underline format.

Condition # 19235

FOR: S-2 ALTAMONT LANDFILL WITH LANDFILL GAS COLLECTION SYSTEM, AND A-15 LANDFILL GAS FLARE:

1. The S-2 Altamont Landfill shall be equipped with a landfill gas collection system, which shall be operated continuously as defined in Regulation 8-34-219. Wells, collectors, and adjustment valves shall not be disconnected, removed, or completely closed, without prior written authorization from the District, unless the Permit Holder complies with all applicable provisions of Regulation 8, Rule 34, Sections 113, 116, 117, and 118.
 - a. The Permit Holder has been issued a Permit to Operate for the landfill gas collection system components listed below as of November 29, 2004. Well and collector locations, depths, and lengths are as described in detail in Permit Application # 7363. The Permit Holder shall apply for and receive an Authority to Construct before modifying the landfill gas collection system

described below. Increasing or decreasing the number of vertical wells, changing the length of horizontal collectors, or moving the locations of vertical wells or horizontal collectors are considered modifications that are subject to the Authority to Construct requirement. Adding or modifying risers, laterals, or header pipes are not subject to this Authority to Construct requirement. The authorized number of landfill gas collection system components is the baseline count listed below plus any components added and minus any components decommissioned pursuant to Part 1b as evidenced by start-up/shut-down notification letters submitted to the District.

~~44-70~~ vertical wells (~~excluding wells that will be decommissioned per Part 1b~~)

~~14-13~~ horizontal trench collectors (shredded tires may be used as fill material)

~~3- combination collectors (with both horizontal and vertical sections of perforated pipe)~~

~~2-1~~ leachate collection system clean-out risers

- b. The Permit Holder has been issued an Authority to Construct to allow for the landfill gas collection system modifications described below as of November 29, 2004. Well and collector locations, depths, and lengths are as described in detail in Permit Application # ~~7363-10004~~.

- Install up to 36-49 vertical wells. (~~As of 5/22/03, 23 wells are installed but are not operational. These 23 wells will be added to Part 1a upon receipt of the start-up notification for the new wells.~~)
- Decommission up to 40-20 vertical wells (~~these changes are reflected in Part 1a~~).
- Install up to 40-27 horizontal trench collectors:
- ~~Interconnect 10~~ Decommission up to 13 horizontal trench collectors ~~with existing tire trench collectors (these changes are reflected in Part 1a)~~.
- Install header valves, risers, and connections between existing horizontal collectors, as needed, to optimize gas collection and maintain compliance with Regulation 8, Rule 34.
- Modify wellhead monitoring locations, as needed, provided that each landfill gas collection system component identified in Part 1a and each new collection system component installed per Part 1b is adequately represented by a wellhead monitoring location. The Permit Holder shall maintain documentation on site that identifies all landfill gas collection system components that are represented by each wellhead monitoring location.

(Basis: Regulations 8-34-301.1, 8-34-303, 8-34-304, and 8-34-305)

... (No changes to Parts 2-23)

Sections VII-IX:

No changes are proposed to these sections.

Section X:

These above revisions are summarized in the revision history section as shown below.

X. Revision History

Title V Permit Issuance (Application # 25828): **December 1, 2003**

Significant Revision (Application # 8324): **February 5, 2004**

- Modify Permit Condition # 19237, Parts 4, 9, 10, and 11 to revise monitoring procedures for the internal combustion engines (S-23 and S-24).
- Revise Tables IV-D, VII-D, and VIII to reflect revisions to Condition # 19237.
- Make minor corrections to requirements in Tables III, IV-A, IV-B, IV-D, and IV-E.

Minor Revision (Application # 9326): **December __, 2004**

- Revise minimum combustion chamber discharge temperature in Permit Condition # 18773, Part 9 and in Table VII-B.

Significant Revision (Application # 8583): **December __, 2004**

- In Table II-A, add maximum firing capacity to the equipment descriptions for the S-6 and S-7 Gas Turbines.
- In accordance with the July 2004 amendments of 40 CFR Part 60, Subpart GG, delete the Custom Schedule of Compliance in Section V.B. Update citation references, monitoring requirements, and test methods in Tables IV-B, VII-B, and VIII.
- Amend the turbine NOx and CO emission limits in Section VI, Condition # 18773, Parts 1 and 2 and in Table VII-B. Revise the basis for Parts 1 and 2 in Table IV-B.

- Delete the turbine NMOC concentration limit from Section VI, Condition # 18773, Part 3 and from Tables IV-B and VII-B.
- Add daily and annual heat input limits for the turbines to Section VI, Condition # 18773, Part 8, and to Table IV-B and VII-B.
- Add the BACT fuel sulfur content limit for the turbines to Section VI, Condition # 18773, Part 10 and to Tables IV-B and VII-B.
- Clarify turbine source testing requirements and calculation procedures in Section VI, Condition # 18773, Part 11, and in Tables VII-B and VIII.
- Correct citations in Tables IV-A, IV-B, IV-D, VII-A, VII-B, and VII-D.
- Change the Responsible Official to Mr. Ken Lewis pursuant to a July 20, 2004 petition from the facility.
- Update Section X, Revision History.

Minor Revision (Application # 10013):

December __, 2004

- For the S-23 and S-24 IC Engines, revise the maximum CO concentration (when measured using a portable analyzer) and the CO/NMOC correlation ratio in Condition # 19237, Parts 9 and 10g and in Table VII-D based on recent source test data, which showed compliance with the NMOC outlet concentration limit at a higher CO concentration and a higher correlation ratio. Revise monitoring procedures in Parts 9a-c by requiring daily monitoring for a longer period of time and adding restrictions on when monitoring may be reduced to weekly or monthly frequency.
- Delete the S-25 and S-26 LNG Plants from Table II, delete all of Tables IV-E and VII-E, delete Condition # 19238, and remove related test methods from Table VIII, because the LNG Plants were never installed and the Authority to Construct has expired.
- Revise Condition # 19235, Parts 2 and 16 and Condition # 19237, Part 1 to reflect the deletion of S-25 and S-26 from this permit but continue to allow for the possibility of landfill gas

treatment in an off-site LNG Plant with on-site
combustion of LNG Plant waste gas.

- Renumber Tables IV-F-J and VII-F-J as Tables
IV-E-I and VII-E-I.
- Update Section X, Revision History.

Minor Revision (Application # 7326 and 10004): **[insert approval date]**

- Modify collection system description in Table
II-A and Condition # 19235, Part 1.

Sections XI-XII:

No changes are proposed to these sections.

F. RECOMMENDATION

Issue a Permit to Operate pursuant to Application # 7363 for the following equipment:

- S-2 Altamont Landfill with Landfill Gas Collection System consisting of 70 vertical wells, 13 horizontal collectors, and 1 leachate collection system clean-out riser.**

Issue an Authority to Construct pursuant to Application # 10004 for the following equipment modifications:

- S-2 Altamont Landfill: modify landfill gas collection system by installing up to 49 vertical wells, decommissioning up to 20 vertical wells, installing up to 27 horizontal collectors, and decommissioning up to 13 horizontal collectors.**

By: signed by Carol S. Allen
Carol S. Allen
Senior Air Quality Engineer

November 23, 2004
Date

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