Bay Area Air Quality Management District

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Statement of Basis
for
MAJOR FACILITY REVIEW PERMIT
MINOR REVISION

Waste Management of Alameda County
Facility #A2066

Facility Address:
10840 Altamont Pass Road
Livermore, CA 94550

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Application Engineer: Carol Allen
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Application: 15454

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STATEMENT OF BASIS

for

MFR Permit: Minor Revision

Waste Management of Alameda, Inc.; PLANT # 2066

APPLICATION # 15454

A. BACKGROUND

Site Description

Waste Management of Alameda, Inc. (Waste Management or WM) 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), and one 71 MM BTU/hour Landfill Gas Flare (A-15).

This facility also has wastewater 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 seven diesel engines that provide portable or standby power.

Current Project

Application # 15454 is for a Minor Revision of the MFR Permit that will incorporate the permit condition changes that were approved pursuant to NSR Application # 15453. These condition revisions clarify the daily CO monitoring requirements for the S-23 and S-24 Landfill Gas Fired IC Engines and are necessary due to the engine facility's staffing constraints. The condition changes will require CO monitoring only during normal staffing times (Monday through Friday, 8 am to 5 pm) and only when the engines are producing power. The daily CO test will not be required when the engine facility is not staffed (weekends or holidays) or during startup, shutdown, or malfunction conditions. The proposed permit condition revisions are discussed in detail in the Engineering Evaluation for Application # 15453 (see Appendix A).

B. EMISSIONS

As discussed in Appendix A, the proposed clarification of the daily CO monitoring requirements for S-23 and S-24 will not result in any emission increases for this site.

C. PROPOSED MFR PERMIT MODIFICATIONS

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, December 21, 2004, April 5, 2005, October 4, 2005, December 15, 2005, May 17, 2007, and July 17, 2007. Pursuant to Application # 11370, the District is proposing to revise the current MFR Permit for Site # A1179. Since Statements of Basis were prepared for the initial MFR Permit and for each subsequent revision of this permit that fully describe and explain the legal and factual basis for the current MFR Permit, this report will only address the proposed revisions to the current MFR Permit.

This application involves the incorporation of permit condition revisions for S-23 and S-24 that do not result in any emission increases and that are neither significant nor administrative in nature. Consequently, these proposed revisions will require a Minor Revision of the MFR Permit in accordance with Regulation 2-6-215.

The proposed changes to the MFR permit sections are described below in the order they appear in the permit. All proposed changes to the permit are identified by strikeout and underline formatting in the attached proposed MFR Permit for Site # A2066.

Sections I-V

No changes are proposed for these sections.

Section VI

The District is proposing to modify Condition # 19237, Part 9 by clarifying when the daily CO monitoring test should be conducted. This change will eliminate the need to test for CO on weekends or holidays when the engine facility is not normally staffed and when the engine is in a startup, shutdown, or malfunction mode.

Sections VII-IX

No changes are proposed for these sections.

Section X

These proposed MFR permit revisions will be summarized in the revision history section.

Sections XI-XII

No changes are proposed for these sections.

D. SUMMARY OF PROPOSED ACTIONS

The District is proposing a minor revision of the MFR Permit for Site # A2066 that will:

- Clarify the daily CO monitoring requirements for the S-23 and S-24 IC Engines in Condition # 19237, Part 9.

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APPENDIX A

ENGINEERING EVALUATION

APPLICATION # 15453

ENGINEERING EVALUATION

Waste Management of Alameda, Inc.; PLANT # 2066

APPLICATION # 15453

A. BACKGROUND

Waste Management of Alameda, Inc. operates the Altamont Landfill and Resource Recovery Facility (Plant # 2066) in Livermore, CA. This facility includes an active landfill (S-2 with 40 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), wastewater 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 submitted this application to request a modification of Condition # 19237 for the landfill gas fired IC Engines (S-23 and S-24) at Plant # 2066. Regulation 8-34-509 requires that Waste Management monitor a key emission control system operating parameter for these landfill gas fired engines. This key parameter should demonstrate on-going compliance with the Regulation 8-34-301.4 NMOC emission limit between annual source tests. To comply with Regulation 8-34-509, Waste Management is monitoring the carbon monoxide (CO) concentration, corrected to 15% oxygen (O_2), as the key parameter for these engines. Currently, Part 9 requires the engine operator to measure the CO and O_2 concentrations in the exhaust from each IC engine once per operating day using a portable analyzer. Part 9 allows this monitoring frequency to be reduced to once per week, if corrected CO concentrations are consistently less than 75% of the limit; however, these engines have not met all requirements for reducing this monitoring frequency to a weekly basis.

The engine facility is normally staffed on weekdays from 8:00 am to 5:00 pm. The daily CO and O_2 measurements are normally conducted shortly after 8:00 am, if an engine is operating. A recent engine shut down event highlighted an unanticipated problem with the current Part 9 language that requires the operator to test these engines “once per operating day”. An engine went off line shortly after midnight and the engine operator could not restart the engine later that day. As a result, the daily CO and O_2 exhaust gas measurements were not taken that morning. Since an operating day is normally defined as operation occurring between 12:00 am midnight and 11:59 pm, the current Part 9 language could be interpreted as requiring a CO measurement at midnight, even though the engine is only operated for a short while after midnight. To avoid being out of compliance with this monitoring requirement, Waste Management has been staffing the engine facility at midnight and on weekends, for the sole purpose of taking the engine exhaust gas measurements.

This staffing arrangement is not an acceptable long-term solution for Waste Management. Therefore, Waste Management has requested changes to Condition # 19237, Part 9 that would require daily measurements of CO and O_2 in the engine exhaust on weekdays when the engine facility staff is normally on-site (between 8:00 am to 5:00 pm) rather than once per operating day. Waste Management also requested an identical revision to the Title V permit conditions under Application # 15454.

B. EMISSIONS

The proposed changes to the exhaust gas monitoring requirements for the S-23 and S-24 IC engines will have no impact on emission limits or the actual emissions from these engines. Consequently, this request will not result in any emission increases.

C. STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

This application is for a change of permit conditions at the IC engines, which does not involve any physical modifications of the engines or any emission increases. Therefore, this application is categorically exempt from CEQA review pursuant to Regulation 2-1-312.1.

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, Rules 2 and 5:

Since this application does not result in any emission increases, this project is not subject to New Source Review (NSR) for either criteria or toxic pollutants. No new BACT, T-BACT, Offset or PSD requirements will apply, and this project does not trigger a risk screening analysis.

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, December 21, 2004, April 5, 2005, October 4, 2005, and December 15, 2005. The proposed permit condition changes for this application will require a minor revision of the MFR permit. The proposed MFR permit changes will be discussed in detail in the Statement of Basis for Application # 15454.

Regulation 8, Rule 34:

The S-23 and S-24 IC Engines are subject to Regulation 8, Rule 34 "Solid Waste Disposal Sites". Regulation 8-34-301.4 limits the organic emissions from landfill gas combustion operations (other than flares) and requires S-23 and S-24 to achieve 98% destruction of non-methane hydrocarbons (NMHC) or to emit no more than 120 ppmv of NMHC, expressed as methane, at 3% oxygen. Recent source test results confirm that these engines are complying with the NMOC outlet concentration limit. The Permit Holder will continue to comply with Regulation 8-34-509 by monitoring the CO and O_2 outlet concentrations using a portable analyzer. Regulation 8-34-509 requires that key parameter monitoring be conducted "on a schedule approved by the APCO." Therefore, Regulation 8-34-509 allows the APCO to approve the proposed alternative monitoring frequency of once per weekday instead of once per operating day. Since the current permit conditions already allow monitoring to be reduced to once per week under certain circumstances, this potential change from monitoring 7 days/week to 5 days/week does not constitute a significant change in the monitoring frequency.

Regulation 9, Rule 1:

Regulation 9-1-302 limits sulfur dioxide in the exhaust from the IC Engines to 300 ppmv. At the maximum expected landfill gas sulfur content of 150 ppmv, the exhaust from these devices will contain less than 30 ppmv of SO_2. Therefore, this equipment will comply with 9-1-302. Since this equipment will comply with 9-1-302, it is also expected to comply with the ground level SO_2 limits of 9-1-301.

Regulation 9, Rule 8:

Each IC Engine (S-23 and S-24) is also subject to Regulation 9, Rule 8. These engines will only be burning waste derived fuel gases (no fossil fuels). Therefore, Section 9-8-301 is not applicable. Regulation 9-8-302.2 only applies to rich burn engines and is not applicable to S-23 and S-24. These IC Engines will comply with the Regulation 9-8-302.1 NO_x limit of 140 ppmv at 15% O_2, because the BACT requirement (0.6 grams NO_x/bhp-hour) is equivalent to about 36 ppmv of NO_x at 15% O_2. These IC Engines will also comply with the Regulation 9-8-302.3 CO limit of 2000 ppmv at 15% O_2, because the BACT requirement (2.1 grams CO/bhp-hour) is equivalent to about 207 ppmv of CO at 15% O_2. Sections 330 and 331 (concerning standby emergency engines) are not applicable.

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. Regulation 8, Rule 34 is the District's approved method for implementing the federal EG. Since the S-23 and S-24 IC Engines are expected to comply with Regulation 8-34-301.4, these engines 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 continue to comply with these requirements.

D. PERMIT CONDITION REVISIONS

The District is proposing to modify Condition # 19237, Part 9 as indicated below. This change will require monitoring on weekdays between the hours of 8 am and 5 pm instead, after the engine has been operating for at least 3 hours, instead of once per operating day regardless of when that operating time occurs. The main purpose of this change is to eliminate a staffing burden for Waste Management by requiring this test only during normal weekday day shift hours rather than at midnight seven days/week. Requiring testing after the engine has been operating for three hours will ensure that testing is conducted under normal steady state operating conditions and will prevent the need to test if the engine is operated intermittently due to low gas flow rates or mechanical problems. Since each engine has now been operated for at least ninety days, the subpart a text: "for at least ninety operating days" is obsolete and will be deleted.

Condition # 19237
FOR: S-23 INTERNAL COMBUSTION ENGINE AND
FOR: S-24 INTERNAL COMBUSTION ENGINE

... (No changes to Parts 1-8)

9. Carbon monoxide (CO) concentration in the engine exhaust shall be used as the key emission control system operating parameter in order to demonstrate compliance with the Regulation 8-34-301.4 NMOC emission limit between annual source tests at S-23 and S-24. For the purpose of this part only, the CO concentration in the exhaust from S-23 and S-24 shall not exceed 330 ppmv at 15% oxygen (O_2), dry basis. Any CO concentrations that are measured using the procedures described in this part shall not be used to evaluate compliance with the CO emission limits in Part 7. CO and O_2 concentrations shall be measured according to the monitoring schedule in subparts a-c below using a portable flue gas analyzer capable of measuring CO concentrations within +/- 2% accuracy and O_2 concentrations within +/- 1% accuracy. The monitoring schedule in subparts a-c below shall become effective for each engine (S-23 or S-24) upon the first date that the engine is operated after February 5, 2004. (Basis: BACT and Regulations 8-34-301.4, 8-34-501.11, and 8-34-509)

   a. The Permit Holder shall measure the concentrations of CO and O_2 in the exhaust of each engine once per ~~operating~~ weekday (Monday through Friday, excluding weekends and holidays) on any weekday when the engine is supplying power to the grid between the hours of 8:00 am and 5:00 pm and the engine has been operating for at least three consecutive hours ~~for at least ninety operating days for each engine~~. The Permit Holder shall calculate the average and standard deviation of the corrected CO concentration measurements (dry basis CO concentrations after correction to 15% O_2) once per calendar month (or after thirty daily measurements if the engine is not operated each day during the month). If none of the daily corrected CO concentrations exceed the limit in this part, each average corrected CO concentration is no more than 75% of the limit, and the standard deviation of these measurements does not exceed 10 ppmv, then the Permit Holder may use the monitoring schedule described in subpart b for that engine.

   b. The Permit Holder shall measure the concentrations of CO and O_2 in the exhaust of each engine once per operating week for at least fifty-two operating weeks for each engine. The Permit Holder shall calculate the average and standard deviation of the corrected CO concentration measurements (dry basis CO concentrations after correction to 15% O_2) once per calendar quarter (or after thirteen weekly measurements if the engine is not operated each week during the quarter). If none of the weekly corrected CO concentrations exceed the limit in this part, each average corrected CO concentration is no more than 50% of the limit, and the standard deviation of these measurements does not exceed 10 ppmv, then the Permit Holder may use the monitoring schedule described in subpart c. If a corrected CO concentration exceeds the limit in this part, or if the average exceeds 75% of the limit, or

if the standard deviation exceeds 10 ppmv, the Permit Holder shall revert to the subpart a monitoring frequency.

c. The Permit Holder shall measure the concentrations of CO and O_2 in the exhaust of each engine once per operating month. The Permit Holder shall calculate the average and standard deviation of the corrected CO concentration measurements (dry basis CO concentrations after correction to 15% O_2) once per calendar year (or after twelve monthly measurements if the engine is not operated each month during the year). If a corrected CO concentration exceeds the limit in this part, or if the average exceeds 50% of the limit, or if the standard deviation exceeds 10 ppmv, the Permit Holder shall revert to the subpart b monitoring frequency.

~~(Basis: BACT and Regulations 8-34-301.4, 8-34-501.11, and 8-34-509)~~

... (No changes to Parts 10 or 11)

E. RECOMMENDATION

Issue a Change of Permit Conditions for the following equipment:

S-23 Internal Combustion Engine
S-24 Internal Combustion Engine

signed by Carol S. Allen — January 11, 2007
By: Carol S. Allen — Date
Senior Air Quality Engineer