

Bay Area Air Quality Management District

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**Statement of Basis
for
MAJOR FACILITY REVIEW PERMIT
MINOR REVISION**

**for
City of Mountain View (Shoreline)
Facility #A2740**

Facility Address:

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Mountain View, CA 94043

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Application Engineer: Carol Allen
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Application: 11467

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STATEMENT OF BASIS

City of Mountain View (Shoreline); PLANT # 2740

APPLICATION # 11467

A. BACKGROUND

Site Description:

The City of Mountain View's Shoreline complex (Facility # A2740) is located, east of Highway 101, on Shoreline Boulevard. Shoreline is a recreational and wildlife area constructed over approximately 600 acres of closed landfills. The individual landfills are referred to as the 544-Acre Landfill, which includes the golf course and sailing lake areas, the Crittenden Landfill, and the Vista Landfill. A small portion of the Vista Landfill was leased to Shoreline Amphitheatre (Facility # A2561), which is owned and operated by Bill Graham Presents.

The City of Mountain View (Shoreline) includes the following permitted operations: the Closed Landfills with Gas Collection Systems (S-1), three Landfill Gas Flares (A-3, A-4, and A-5), and a Diesel Engine for the Emergency Standby Generator (S-11). The MFR Permit also includes two Microturbines (S-12 and S-13), which began operating in November 2004.

Landfills generate landfill gas due to the waste decomposition process. The landfill gas contains methane, carbon dioxide, and small amounts of non-methane organic compounds (NMOC) and sulfur compounds. Many of the NMOCs are precursor organic compounds (POC) and/or toxic air contaminants (TACs).

District and EPA regulations require that landfill gas from larger landfills be collected and controlled to reduce emissions of NMOCs to the atmosphere. In accordance with these requirements, the City of Mountain View's Closed Landfills (S-1) are equipped with landfill gas collection systems and landfill gas control systems. Currently, the City of Mountain View is collecting an average of 1650 cfm of landfill gas from S-1. Most of this collected landfill gas is controlled by combustion in enclosed ground flares (A-3, A-4, and A-5). A small portion of the landfill gas (about 100 cfm) may be diverted from the flares to the S-12 and S-13 Microturbines. In addition to controlling landfill gas, the microturbines generate about 140 kW of power for pumps and other operations.

Current Project (Application # 11466 and Docket # 3498):

The City of Mountain View is working with ALZA Corporation to develop beneficial uses for the landfill gas that is collected from the Shoreline landfills. ALZA has several pharmaceutical research and development and manufacturing facilities located in Mountain View near the Shoreline landfills. In 2004, the District issued Authorities to Construct to ALZA for three landfill gas fired IC engines. Each IC engine will be located at a different ALZA site (Facility # A5081, # B3816, and # B3817). Each 1341 bhp engine will burn up to 11 MM BTU/hour (470 scfm) of landfill gas and will generate about 1 MW of power. These engines are capable of controlling about 85% of the landfill gas that is currently collected from the Shoreline landfills. None of the three ALZA sites are subject to Title V permitting requirements.

On March 25, 2005, the District approved a Change of Permit Condition # 16065, Part 2 pursuant to Application # 11466. This condition change allows the sale of landfill gas to ALZA Corporation as an approved control option for the collected landfill gas. This condition change requires a revision of the MFR permit for Site # A2740.

In order to deliver adequate quality landfill gas to these IC engines, ALZA is planning to install a landfill gas treatment and compression station at the City of Mountain View's Shoreline facility. After treatment,

Modify Landfill Gas Control Options for S-1 and Modify Conditions for S-12 and S-13

the compressed landfill gas will be sent via an underground pipeline to ALZA Corporation's three sites. The landfill gas treatment and compression station does not require an Authority to Construct. However, the installation of this treatment and compression station will require several short term shut downs of the entire landfill gas collection system. Regulation 8, Rule 34 does have any exemptions that authorize a landfill gas collection system to be shut down for the purpose of installing and commissioning off-site control equipment.

The City of Mountain View discussed this situation with the legal division and subsequently applied for a variance from several sections of Regulation 8, Rule 34 and analogous parts of Condition # 16065 during the anticipated collection system shutdown periods. This matter was assigned Docket # 3498. The BAAQMD Hearing Board held a public hearing on Docket # 3498 on August 25, 2005 and decided to grant a variance subject to a number of conditions. The final order granting the variance and stipulating the conditions of this variance was issued on September 29, 2005. The District anticipates that a Schedule of Compliance will need to be added to the MFR Permit for Site # A2740 to address these collection system shutdown activities and the limiting conditions of the variance granted pursuant to Docket # 3498. The specific citations in the final order granting the variance and the conditions of this variance are discussed in detail in the Schedule of Compliance section of this document.

Current Project (Application # 6697):

Pursuant to Application # 6697, the District has issued the Permits to Operate for two landfill gas fired Microturbines (S-12 and S-13). These microturbines began operating in November 2004. Initial compliance demonstration tests that were conducted in January 2005 successfully demonstrated compliance with all requirements. The District issued the Permits to Operate for S-12 and S-13 in April 2005 and made several administrative changes to Condition # 20297 to clarify the temperature limit and to delete unnecessary text. These permit condition changes require a revision of the MFR Permit. In addition, the MFR Permit needs to be updated to reflect that the Permits to Operate for S-12 and S-13 have been issued.

B. EMISSIONS

As discussed below, the proposed revisions to the MFR Permit for Site # A2740, which are identified in the MFR Permit Modifications section of this document, will not result in any changes in maximum permitted emission rates at this facility.

The proposed revisions of Condition #16065 for the City of Mountain View's S-1 Shoreline Landfills will authorize landfill gas to be burned at an off-site location and will significantly reduce the amount of landfill gas that must be burned in the on-site flares. This reduction of landfill gas throughput to the flares may reduce actual flare emissions by as much as 11.1 tons/year of NO_x, 37.1 tons/year of CO, 1.1 tons/year of PM₁₀, and 0.2 tons/year of SO₂. Since the flares will continue to operate as back up devices to the ALZA engines, there will be no change in permitted emission rates for the City's flares.

Although the landfill gas treatment and compression station will be located on City of Mountain View property, it will be owned and operated by ALZA Corporation. Therefore, the landfill gas treatment and compression station is not part of the landfill gas collection and control system for the Shoreline Landfills (S-1), and the installation of this station will not impact maximum permitted emission rates for S-1.

The proposed revisions of Condition # 20297 for the City of Mountain View's Microturbines (S-12 and S-13) will clarify monitoring and source testing requirements and eliminate obsolete language. These revisions will have no impact on actual or permitted emission rates from the microturbines.

C. PROPOSED MFR PERMIT MODIFICATIONS

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Volume 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a designated facility as defined by BAAQMD Regulation 2-6-204. The Emission Guidelines for Municipal Solid Waste Landfills (40 CFR Part 60, Subpart Cc) require the owner or operator of a landfill that is subject to this part and that has a design capacity of greater than or equal to 2.5 million megagrams and 2.5 million cubic meters to obtain an operating permit pursuant to Part 70. As discussed in more detail below, this facility is subject to these emission guidelines and meets the designated facility criteria listed in 40 CFR § 60.32c(c).

In accordance with 40 CFR § 60.32c(c), the landfill size thresholds (design capacity of at least 2.5 million m³ and at least 2.5 million Mg of waste) that trigger the Emission Guidelines for MSW Landfills and the Title V permitting requirements apply to all solid waste disposal sites located on contiguous property. Since the Vista Landfill, the 544-Acre Landfill, and the Crittenden Landfill are located on contiguous property, the combined size of these three landfills was used to determine Title V applicability for these landfills. The combined size of the three contiguous landfills is 19.4 million yd³ (14.8 million m³) and 13.1 million tons (11.9 million Mg). Therefore, a Title V Permit is required for all three landfills. The MFR permit for Site # A2740 covers all equipment that is operated by the City of Mountain View. A separate MFR Permit for Facility # A2561 covers the equipment that is operated by Bill Graham Presents' Shoreline Amphitheatre.

The initial MFR Permit for this facility was issued on July 28, 2003 and was revised by administrative revisions on September 10, 2003 and April 1, 2004, and by a minor revision on June 17, 2004. Pursuant to Application # 11467, the District is proposing to revise the current MFR Permit for Site # A2740. 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. The District is proposing to clarify the monitoring requirements for the microturbines but is not proposing to reduce the frequency of the required monitoring.
- Regulation 2-6-226.4: This application does not involve limits imposed to avoid an applicable requirement.
- Regulation 2-6-226.5 and 226.6: This application does not involve the establishment of or change to any case-by-case emission limits or standards or any facility-specific determinations.
- Regulation 2-6-226.7: This application does not involve the incorporation of any requirements promulgated by the EPA.

Since this application does not involve any of the above actions, it does not require a significant revision. This application will involve MFR permit revisions other than those allowed under the definition of administrative amendment in Regulation 2-6-201. In particular, this application will allow the change of an applicable requirement (up to 1410 scfm of landfill gas will no longer be subject to the Regulation 8-34-301.3 NMOC control requirement at this site) and the addition of a Schedule of Compliance. Therefore, this revision will be handled as a minor revision of the MFR Permit.

The proposed MFR permit revisions related to this application are described below.

Section I:

No changes are proposed to this section.

Modify Landfill Gas Control Options for S-1 and Modify Conditions for S-12 and S-13

Section II:

Table II-A will be modified as shown below to reflect that the S-12 and S-13 Microturbines are now installed and operating.

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-1	Landfill (includes the 544-acre Landfill, Crittenden Landfill and the major portion of the Vista Landfill) Landfill Gas Collection System	Closed Solid Waste Disposal Site Active		Maximum Design Capacity: 18,852,000 yd ³ (14,413,400 m ³); Maximum Cumulative Waste In Place: 12,725,000 tons; 7 horizontal collectors 264 vertical wells
S-11	Diesel Engine for Emergency Standby Generator	Cummins	6CTA8.3 G-2	207 bhp, 506 in ³ , 10.6 gallons/hour of diesel oil, 1.453 MM BTU/hour
S-12	Microturbine, landfill gas fired (not installed yet)	Ingersoll-Rand	70LM	71 kW nominal, 92 kW maximum at 0 °F, 1.27 MM BTU/hour
S-13	Microturbine, landfill gas fired (not installed yet)	Ingersoll-Rand	70LM	71 kW nominal, 92 kW maximum at 0 °F, 1.27 MM BTU/hour
S-14	Diesel Engine for Emergency Standby Generator	Kohler	D300 12.1A65	469 bhp, 740 in ³ , 19.8 gallons/hour of diesel oil, 2.772 MM BTU/hour

Section III:

No changes are proposed to this section.

Section IV:

The District amended Regulation 8, Rule 34 on June 15, 2005 to include references to the District's new NSR rule for TACs (Regulation 2, Rule 5). This amendment did not change any of the applicable requirements in Tables IV-A or IV-C, but the amendment date for Regulation 8, Rule 34 will be corrected as shown below.

In addition, the District is proposing to delete the future effective date for S-12 and S-13 from Table IV-C to reflect that the S-12 and S-13 Microturbines are now installed and operating.

Modify Landfill Gas Control Options for S-1 and Modify Conditions for S-12 and S-13

Table IV – A
Source-Specific Applicable Requirements
S-1 LANDFILL AND GAS COLLECTION SYSTEM,
A-3 LANDFILL GAS FLARE,
A-4 LANDFILL GAS FLARE, AND
A-5 LANDFILL GAS FLARE

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
...			
BAAQMD Regulation 8, Rule 34	Organic Compounds – Solid Waste Disposal Sites (10/6/1999/15/2005)		
...			

Table IV – C
Source-Specific Applicable Requirements
S-12 MICROTURBINE AND S-13 MICROTURBINE

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
BAAQMD Regulation 1	General Provisions and Definitions (5/2/2001)		Upon Initial Startup of S-12 or S-13
1-523	Parametric Monitoring and Recordkeeping Procedures	N	
1-523.1	Reporting requirement for periods of inoperation > 24 hours	Y	
1-523.2	Limit on duration of inoperation	Y	
1-523.3	Reporting requirement for violations of any applicable limits	N	
1-523.4	Records of inoperation, tests, calibrations, adjustments, & maintenance	Y	
1-523.5	Maintenance and calibration	N	
SIP Regulation 1	General Provisions and Definitions (6/28/1999)		Upon Initial Startup of S-12 or S-13
1-523	Parametric Monitoring and Recordkeeping Procedures	Y ¹	
1-523.3	Reports of Violations	Y ¹	
1-523.5	Maintenance and Calibration	Y ¹	
BAAQMD Regulation 6	Particulate Matter and Visible Emissions (12/19/1990)		Upon Initial Startup of S-12 or S-13
6-301	Ringelmann No. 1 Limitation	Y	

Modify Landfill Gas Control Options for S-1 and Modify Conditions for S-12 and S-13

Table IV – C
Source-Specific Applicable Requirements
S-12 MICROTURBINE AND S-13 MICROTURBINE

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
6-305	Visible Particles	Y	
6-310	Particulate Weight Limitation	Y	
6-401	Appearance of Emissions	Y	
BAAQMD Regulation 8, Rule 34	Organic Compounds - Solid Waste Disposal Sites (10/6/996/15/2005)		Upon Initial Startup of S-12 or S-13
8-34-113	Limited Exemption, Inspection and Maintenance	Y	
8-34-113.1	Emission Minimization Requirement	Y	
8-34-113.2	Shutdown Time Limitation	Y	
8-34-113.3	Records	Y	
8-34-301	Landfill Gas Collection and Emission Control System Requirements	Y	
8-34-301.1	Continuous Operation	Y	
8-34-301.2	Collection and Control Systems Leak Limitations	Y	
8-34-301.4	Limits for Other Emission Control Systems	Y	
8-34-411	Annual Report	Y	
8-34-412	Compliance Demonstration Tests	Y	
8-34-413	Performance Test Report	Y	
8-34-501	Operating Records	Y	
8-34-501.2	Emission Control System Downtime	Y	
8-34-501.4	Testing	Y	
8-34-501.6	Leak Discovery and Repair Records	Y	
8-34-501.10	Gas Flow Rate Records for All Emission Control Systems	Y	
8-34-501.11	Records of Key Emission Control System Operating Parameter Monitoring	Y	
8-34-501.12	Records Retention for 5 Years	Y	
8-34-503	Landfill Gas Collection and Emission Control System Leak Testing	Y	
8-34-504	Portable Hydrocarbon Detector	Y	
8-34-508	Gas Flow Meter	Y	
8-34-509	Key Emission Control System Operating Parameter(s)	Y	
BAAQMD Regulation 9, Rule 1	Inorganic Gaseous Pollutants – Sulfur Dioxide (3/15/1995)		Upon Initial Startup of S-12 or S-13
9-1-301	Limitations on Ground Level Concentrations	Y	
9-1-302	General Emission Limitations	Y	
BAAQMD Regulation 9, Rule 2	Inorganic Gaseous Pollutants – Hydrogen Sulfide (10/6/1999)		Upon Initial Startup of S-12 or S-13

Modify Landfill Gas Control Options for S-1 and Modify Conditions for S-12 and S-13

Table IV – C
Source-Specific Applicable Requirements
S-12 MICROTURBINE AND S-13 MICROTURBINE

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
9-2-301	Limitations on Hydrogen Sulfide	N	
40 CFR Part 60, Subpart A	Standards of Performance for New Stationary Sources – General Provisions (5/4/1998)		Upon Initial Startup of S-12 or S-13
60.4(b)	Requires Submission of Requests, Reports, Applications, and Other Correspondence to the Administrator	Y	
60.7	Notification and Record Keeping	Y	
60.8	Performance Tests	Y	
60.11	Compliance with Standards and Maintenance Requirements	Y	
60.11(a)	Compliance determined by performance tests	Y	
60.11(d)	Control devices operated using good air pollution control practice	Y	
60.12	Circumvention	Y	
60.13	Monitoring Requirements	Y	
60.13(a)	Applies to all continuous monitoring systems	Y	
60.13(b)	Monitors shall be installed and operational before performing performance tests	Y	
60.13(e)	Continuous monitors shall operate continuously	Y	
60.13(f)	Monitors shall be installed in proper locations	Y	
60.13(g)	Requires multiple monitors for multiple stacks	Y	
60.14	Modification	Y	
60.15	Reconstruction	Y	
60.19	General Notification and Reporting Requirements	Y	
40 CFR Part 60, Subpart Cc	Standards of Performance for New Stationary Sources – Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills (2/24/1999)		Upon Initial Startup of S-12 or S-13
60.36c(a)	Collection and Control Systems in Compliance by 30 months after Initial NMOC Emission Rate Report Shows NMOC Emissions \geq 50 MG/year	Y	
40 CFR Part 62	Approval and Promulgation of State Plans for Designated Facilities and Pollutants (9/20/2001)		Upon Initial Startup of S-12 or S-13
62.1115	Identification of Sources	Y	
40 CFR Part 63, Subpart A	National Emission Standards for Hazardous Air Pollutants: General Provisions (3/16/1994)		Upon Initial Startup of S-12 or S-13
63.4	Prohibited activities and circumvention	Y	

Modify Landfill Gas Control Options for S-1 and Modify Conditions for S-12 and S-13

Table IV – C
Source-Specific Applicable Requirements
S-12 MICROTURBINE AND S-13 MICROTURBINE

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
63.5(b)	Requirements for existing, newly constructed, and reconstructed sources	Y	
63.6(e)	Operation and maintenance requirements and SSM Plan	Y	
63.6(f)	Compliance with non-opacity emission standards	Y	
63.10(b)(2)(i-v)	Records for startup, shutdown, malfunction, and maintenance	Y	
63.10(d)(5)	Startup, Shutdown, and Malfunction (SSM) Reports	Y	
40 CFR Part 63, Subpart AAAA	National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills (1/16/2003)		Upon Initial Startup of S-12 or S-13
63.1945	When do I have to comply with this subpart?	Y	
63.1945(b)	Compliance date for existing affected landfills	Y	
63.1955	What requirements must I meet?	Y	
63.1955(a)(2)	Comply with State Plan that implements 40 CFR Part 60, Subpart Cc	Y	
63.1955(b)	Comply with 63.1960-63.1985, if a collection and control system is required by 40 CFR Part 60, Subpart WWW or a State Plan implementing 40 CFR Part 60, Subpart Cc	Y	
63.1955(c)	Comply with all approved alternatives to standards for collection and control systems plus all SSM requirements and 6 month compliance reporting requirements	Y	
63.1960	How is compliance determined?	Y	
63.1965	What is a deviation?	Y	
63.1975	How do I calculate the 3-hour block average used to demonstrate compliance?	Y	
63.1980	What records and reports must I keep and submit?	Y	
63.1980(a)	Comply with all record keeping and reporting requirements in 40 CFR Part 60, Subpart WWW or the State Plan implementing 40 CFR Part 60, Subpart Cc, except that the annual report required by 40 CFR 60.757(f) must be submitted every 6 months	Y	
63.1980(b)	Comply with all record keeping and reporting requirements in 40 CFR Part 60, Subpart A and 40 CFR Part 63, Subpart A, including SSM Plans and Reports	Y	
BAAQMD Condition # 20297			Upon Initial Startup of S-12 or S-13
Part 1	Landfill Gas Flow Rate Limit and Monitoring Requirements (Cumulative Increase, Offsets, and 2-1-301)	Y	

Table IV – C
Source-Specific Applicable Requirements
S-12 MICROTURBINE AND S-13 MICROTURBINE

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
Part 2	NOx Emissions Limit (Offsets)	Y	
Part 3	CO Emissions Limit (Cumulative Increase)	Y	
Part 4	NMOC Emissions Limit (Offsets and Regulation 8-34-301.4)	Y	
Part 5	Temperature Monitoring Device Requirement (Regulation 8-34-509)	Y	
Part 6	Source Testing Requirements (Cumulative Increase, Offsets, and Regulations 8-34-301.4 and 8-34-412)	Y	
Part 7	Temperature Limit and Monitoring Requirements (Regulation 8-34-509)	Y	
Part 8	Records (Regulations 2-6-501, 8-34-301.4, 8-34-412, 8-34-501.11, and 8-34-501.12)	Y	

Section V:

As discussed in the Background section of this document, the BAAQMD Hearing Board granted a variance to the City of Mountain View pursuant to Docket # 3498 that allows the City to shutdown the landfill gas collection system for short periods of time between July 26, 2005 through July 25, 2006 so that ALZA Corporation can complete the installation and initial commissioning of the landfill gas treatment and compression station, process control systems, and three landfill gas fired IC engines. The entire gas collection system needs to be shutdown while the main landfill gas header is rerouted and connected to the new on-site treatment and compression station. In addition, the collection system blowers may need to be shutdown during installation and startup of the process controllers that will coordinate proper operation of the on-site compression station, on-site flares, and off-site engines.

During the collection system shutdown events described above, the S-1 Shoreline Landfills will be out of compliance with the Regulation 8-34-301.1 requirement to operate the landfill gas collection system continuously, because none of the Regulation 8, Rule 34 exemptions from Section 301.1 apply to this type of collection system shutdown event. S-1 will also be out of compliance with Condition # 16065, Part 3, which contains an analogous continuous operation provision. During these shutdown events, the S-1 Shoreline Landfills may potentially exceed the Regulation 8-34-301.2 component leak limit, the Regulation 8-34-303 surface leak limit, the Regulation 8-34-305 wellhead standards, the Condition # 16065, Part 2 gas collection rate requirements, or the Condition # 16065, Part 5c provisions for subsurface vaults.

The final order for Docket # 3498 granted a variance from the above citations during these shutdown events, but limits the duration of the shutdown events and the duration of the non-compliance time for the leak limits, wellhead standards, and related permit condition provisions. This variance order also requires additional monitoring, record keeping, and reporting requirements to document the collection system shutdown events and non-compliant periods. The District is proposing to impose a Schedule of Compliance that will incorporate these variance conditions into the MFR Permit and will return this facility to full compliance as soon as possible. The specific limitations on shutdown events and associated non-compliant periods and the monitoring, record keeping, and reporting requirements from the final variance order for Docket # 3498 are identified in Section V.B.1-5 below.

V. SCHEDULE OF COMPLIANCE

A. STANDARD SCHEDULE OF COMPLIANCE

The permit holder shall comply with all applicable requirements cited in this permit. The permit holder shall also comply with applicable requirements that become effective during the term of this permit on a timely basis.

B. CUSTOM SCHEDULE OF COMPLIANCE

During landfill gas collection system shutdown events that are necessary to complete the installation and initial commissioning of the ALZA landfill gas treatment and compression station and the process control systems for this station, the on-site flares, and three off-site landfill gas fired IC engines, the permit holder will be out of compliance with the Regulation 8-34-301.1 and Condition # 16065, Part 3 requirements to continuously operate a landfill gas collection system at the S-1 Shoreline Landfills. In addition, the Permit Holder may be out of compliance with Regulations 8-34-301.2, 303, and 305 and Condition # 16065, Parts 2 and 5c during or immediately after these shutdown events. In order to reduce the duration of these non-compliant periods, to monitor the non-compliance, and to return this facility to a state of full compliance as soon as possible, the District is imposing the following Schedule of Compliance.

1. Downtime for the landfill gas collection and control system during the variance period (July 26, 2005 through July 25, 2006) is limited to 120 hours of actual downtime and 12 hours maximum downtime per day. In addition, the Permit Holder for the S-1 Shoreline Landfills is limited to 180 hours of non-compliant time beyond the 120 hours of shutdown time and 18 hours maximum of non-compliant time per shutdown event. (Basis: Docket # 3498)
2. The Permit Holder shall notify the District no later than two business days before each planned downtime event and within 24 hours after the discovery of any unplanned event. Notification may be made by fax to Director of Compliance and Enforcement at (415) 928-0338. (Basis: Docket # 3498)
3. The Permit Holder shall keep logs of any downtime events consistent with the requirements of Regulations 8-34-501.1 and 501.2. The logs must be clear about the reason(s) for the shutdown, including a short description of the work completed that necessitated the shutdown. The Permit Holder must provide enough information to verify that the shutdown was due to work authorized under the variance. In addition, the Permit Holder must record the date and time when vacuum was restored to the landfill gas system. The logs should also show calculated excess emissions. Records documenting well field monitoring must include a listing of wells and areas monitored, pressure readings at each wellhead monitored, and emission values in parts per million by volume of any surface or

Modify Landfill Gas Control Options for S-1 and Modify Conditions for S-12 and S-13

component leaks detected in accordance with Regulation 8, Rule 34 and the facility's MFR Permit. (Basis: Docket # 3498)

4. For every planned shutdown event of more than two hours, the Permit Holder shall monitor for pressure, surface emissions, and component leaks at landfill gas extraction wellheads in accordance with the provisions of this paragraph. Monitoring is to commence immediately after the landfill gas system goes back online. For purposes of monitoring, the landfill will be divided into the following six areas: Crittenden, Vista, From Nine, Back Nine, and 6A Northeast. In each area, the Permit Holder must test 15% of the wellheads for pressure and for surface/component leaks around the well casings or vaults. Different wells should be tested in each area after each event. The Permit Holder will follow the test procedures set out in site specific permit conditions, including Condition # 16065, Part 5c of the facility's MFR permit. If there are any exceedances, the Permit Holder shall return to the wellhead within two business days or sooner and conduct remonitoring. If an exceedance still exists after the remonitoring, the Permit Holder shall revert to the standard Regulation 8, Rule 34 regime of corrective action and remonitoring for that location. (Basis: Docket # 3498)

5. The Permit Holder shall utilize the analytical data, monitoring results, and downtime records to calculate the actual volatile organic compound and toxic air contaminant emissions that occurred during the variance period. These calculations shall be submitted to the District and the Hearing Board within ten working days after the end of the variance period or within ten working days after the project is complete, whichever occurs first. (Basis: Docket # 3498)

6. This Schedule of Compliance shall apply from [date of issuance] through and including July 25, 2006. Landfill gas collection system shutdowns - for the purposes of installing or commissioning of the treatment/compression station and associated process control equipment - are not authorized on or after July 26, 2006. (Basis: Docket # 3498)

Section VI:

The District is proposing to modify Condition # 16065, Part 2, as shown below, in order to allow landfill gas to be sold to ALZA Corporation for combustion in ALZA's new IC engines.

The District is proposing to modify Condition # 20297, Part 1, as shown below, to clarify the landfill gas flow rate monitoring requirements for the S-12 and S-13 Microturbines. When the Authority to Construct for S-12 and S-13 was issued, the District limited the maximum daily landfill gas flow rate to each microturbine (Condition # 20297, Part 1) and allowed two alternative methods for demonstrating compliance with this limit. The daily landfill gas flow rate could either be measured directly using a continuous gas flow meter or could be calculated on a monthly basis using an APCO approved calculation procedure. The District has reviewed and approved a landfill gas flow rate calculation procedure that uses

Modify Landfill Gas Control Options for S-1 and Modify Conditions for S-12 and S-13

continuous power measurements at each turbine, monthly methane measurements, and a constant heat rate term for both microturbines to determine the daily landfill gas flow rate to each source. The District is now proposing to specifically describe the approved measurement and calculation procedures in Part 1 and to cite these procedures in Tables VII-C and Table VIII. The new procedures use a combination of the two previously approved methods (continuous measurement, monthly measurement, daily calculations, and monthly summaries) and are no less frequent than the previously approved monitoring procedures, which allowed monthly calculations as an option.

The Authority to Construct conditions also allowed two alternative limits and monitoring procedures for the key emission control system operating parameter for S-12 and S-13. The District and the Permit Holder have agreed that the key emission control system operating parameter for S-12 and S-13 will be combustion zone temperature. As required by the existing text, combustion zone temperature will be monitored continuously. The appropriate minimum temperature was determined from the results of the initial compliance demonstration test. The District is proposing to add this specific minimum temperature (1500 °F) to Part 7 and to delete the language that allows an alternative key parameter from Parts 5-7. Obsolete references to the initial compliance demonstration test are also being deleted.

Condition # 16065

FOR: S-1 LANDFILL AND GAS COLLECTION SYSTEM; A-3 LANDFILL GAS FLARE; A-4 LANDFILL GAS FLARE; AND A-5 LANDFILL GAS FLARE;

(no changes to Part 1)

2. All landfill gas collected by the Landfill Gas Collection Systems for S-1 shall be: ~~abated by the Landfill Gas Flares (A-3, A-4, or A-5); abated by the Microturbines (S-12 or S-13); or sold to ALZA Corporation for off-site combustion in one or more of the following devices: S-29 IC Engine-Genset at Facility # A5081, S-2 IC Engine-Genset at Facility # B3816, or S-4 IC Engine-Genset at Facility # B3817. Upon installation of the S-12 or S-13 Microturbines, landfill gas may be vented to S-12 or S-13 in addition to A-3, A-4, or A-5. The Permit Holder may use any combination of the landfill gas control devices listed above, provided that sufficient landfill gas is collected and controlled to prevent violations of the Regulation 8-34-303 surface leak limit and provided that all of the following operating requirements are satisfied.~~
 - a. To ensure adequate landfill gas control capacity, the microturbines must be operated concurrently with other control devices such as at least one flare or the three off-site engines.
 - b. Raw or untreated landfill gas shall not be vented to the atmosphere, except for unavoidable landfill gas emissions that occur during collection system installation, maintenance, or repair (which is performed in compliance with Regulation 8, Rule 34, Sections 113, 117, and/or 118) and inadvertent component or surface leaks that do not exceed the limits specified in 8-34-301.2 or 8-34-303.

(Basis: Regulation 8-34-301)

(no changes to Parts 3-16)

Condition # 20297

FOR: S-12 MICROTURBINE AND S-13 MICROTURBINE;

1. The landfill gas flow rate to each Microturbine (S-12 and S-13) shall not exceed 76,200 cubic feet per day. To demonstrate compliance with this part, the Permit Holder shall ~~either:~~ determine the landfill gas flow rate to each microturbine using the Supervisory Controls and Data Acquisition (SCADA) system and the procedures described below.
 - a. ~~monitor and record landfill gas flow rate to each microturbine using a gas flow meter and recorder meeting the requirements of Regulation 8 34 508, or~~
 - b. ~~calculate and record, on a monthly basis, the maximum daily landfill gas flow rate to each microturbine using the landfill gas flow rate records for the entire gas collection system and daily records of operating time and operating rate for each device that is burning landfill gas. If this monitoring method will be used, the Permit Holder shall obtain APCO approval (prior to startup of S-12 or S-13) for the specific operating rates for which records will be maintained and for all calculation procedures that will be used to determine the maximum daily landfill gas flow rate to each microturbine.~~
 - a. The power output (P as kW) from each microturbine shall be monitored continuously and electronically entered into the data acquisition system.
 - b. On a monthly basis, the methane concentration of the landfill gas (%CH₄ as % by volume) shall be measured using a GEM gas meter or other APCO approved method and shall be entered into the data acquisition system. For this measurement, the landfill gas sample may be drawn from a location immediately upstream of a microturbine or from the main landfill gas header.
 - c. The data acquisition system shall calculate landfill gas flow rate (Q_{LFG} as scf/hour) according to the following equation: $Q_{LFG} = 1337.6 * P / \%CH_4$, and shall sum the calculated flow rate values for each day.
 - d. The data recorded above shall be summarized on a monthly basis. For each month, this summary shall show the measured methane concentration, the maximum daily landfill gas flow rate to each microturbine, and the total landfill gas flow rate to each microturbine.

(Basis: Cumulative Increase, Offsets, and Regulation 2-1-301)

(no changes to Parts 2-4)

Modify Landfill Gas Control Options for S-1 and Modify Conditions for S-12 and S-13

5. The Permit Holder shall install and operate one or more thermocouples that will accurately measure the combustion zone temperature ~~(or other APCO approved monitor for an alternative APCO approved key emission control system operating parameter)~~ at each Microturbine (S-12 and S-13). (Basis: Regulation 8-34-509)

6. To demonstrate compliance with Parts 1-5 above and Regulation 8, Rule 34, Sections 301.4 and 412, the Permit Holder shall conduct ~~an initial annual~~ annual compliance demonstration tests on the S-12 and S-13 Microturbines ~~within 60 days of the initial start-up date for each microturbine and annually thereafter.~~ The source tests shall determine the following:
 - a. landfill gas flow rate (dry basis) and heat input rate to the microturbine;
 - b. concentrations (dry basis) of carbon dioxide (CO₂), nitrogen (N₂), oxygen (O₂), total hydrocarbons (THC), methane (CH₄), non-methane organic compounds (NMOC) in the landfill gas;
 - c. stack gas flow rate from the microturbine (dry basis);
 - d. concentrations (dry basis) of NO_x, CO, THC, CH₄, NMOC, and O₂ in the stack gas,
 - e. NMOC destruction efficiency achieved by the microturbine;
 - f. the average combustion zone temperature in the microturbine ~~(or other appropriate key emission control system operating parameter)~~ during the test period.

The Source Test Section of the District shall be contacted to obtain approval of the source test procedures at least 14 days in advance of each source test. The Source Test Section shall be notified of the scheduled test date at least 7 days in advance of each source test. The source test report shall be submitted to the Compliance and Enforcement Division and the Source Test Section within 45 days of the test date. ~~If the Permit Holder is proposing to monitor a key emission control system operating parameter other than combustion zone temperature, the Permit Holder shall describe the following in the source test procedures: the proposed key emission control system operating parameter; how this operating parameter will affect NO_x, CO, and NMOC outlet concentration or NMOC destruction efficiency; the monitoring method for the proposed parameter; and the proposed monitoring frequency. The source test report shall identify the key emission control system operating parameter readings measured during the source test and shall propose appropriate minimum and/or maximum operating parameters or ranges that will ensure compliance with the emission limits in Parts 2-4. (Basis: Cumulative Increase, Offsets, and Regulations 8-34-301.4 and 8-34-412)~~

7. Within ~~10560~~ 60 days of the initial ~~start-up~~ source test date, the Permit Holder shall maintain the combustion zone temperature of S-12 and S-13

Modify Landfill Gas Control Options for S-1 and Modify Conditions for S-12 and S-13

~~at a minimum of [insert the temperature limit established during the initial compliance demonstration source test, which shall be 50 degrees F below the average combustion zone temperature measured during the source test] 1500 degrees F, averaged over any 3-hour period. The Permit Holder shall continuously monitor and record the combustion zone temperature to demonstrate compliance with this limit. If a source test demonstrates compliance with all applicable requirements at a different temperature, the APCO may revise the minimum combustion zone temperature limit in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415 and the following criteria. The minimum combustion zone temperature for a microturbine shall be equal to the average combustion zone temperature measured during the most recent complying source test minus 50 degrees F, provided that the minimum combustion zone temperature shall not be less than 1400 degrees F. Alternatively, upon receiving APCO approval for the use of a key emission control system operating parameter other than combustion zone temperature, the Permit Holder shall maintain one or more key emission control system operating parameters within the minimum and maximum ranges established during the initial compliance demonstration tests. The Permit Holder shall monitor and record any key emission control system operating parameters that have been approved by the APCO on the monitoring schedule approved by the APCO, provided that monitoring shall be no less frequent than once per month. The temperature limit or other key emission control system operating parameters will be added to this part in accordance with the procedures identified in Regulation 2-6-406. (Basis: Regulation 8-34-509)~~

(no changes to Part 8)

Section VII:

In Table VII-A, the District is proposing to clarify that the landfill gas throughput limit for the flares is a “gas flow” type of limit. This change is being made to improve consistency within the permit.

For Table VII-C, the District is proposing to delete the future effective dates for S-12 and S-13 to reflect that these microturbines are now installed and operating. The District is proposing to clarify that the landfill gas throughput limit applies to each microturbine and to properly cite the monitoring procedures from Condition # 20297, Part 1. The District is also proposing to add the minimum combustion zone temperature limit of 1500 °F that was established during the initial compliance demonstration test and to delete obsolete references to an alternative key parameter.

Table VII – A
Applicable Limits and Compliance Monitoring Requirements
S-1 LANDFILL AND GAS COLLECTION SYSTEM, A-3 LANDFILL GAS FLARE,
A-4 LANDFILL GAS FLARE, AND A-5 LANDFILL GAS FLARE

Modify Landfill Gas Control Options for S-1 and Modify Conditions for S-12 and S-13

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
...							
Gas Flow	BAAQMD Condition # 16065, Parts 2-3	Y		Landfill gas collection system shall operate continuously and all collected gases shall be vented to a properly operating control system	BAAQMD 8-34-501.1, 501.2, 501.10, and 508 and BAAQMD Condition # 16065, Part 6	C,P/E	Gas Flow Meter, Flare Alarms, and Records of Collection and Control Systems Downtime
Landfill Gas Throughput <u>Gas Flow</u>	BAAQMD Condition # 16065, Part 8	Y		<u>Total Landfill Gas Throughput to All Flares:</u> ≤ 4200 cfm, averaged over any calendar day (total limit for all flares)	BAAQMD 8-34-501.10 and 508	C	Gas Flow Meter and Recorder (every 15 minutes)
...							

**Table VII – C
Applicable Limits and Compliance Monitoring Requirements
S-12 MICROTURBINE AND S-13 MICROTURBINE**

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Landfill Gas Throughput <u>Gas Flow</u>	BAAQMD Condition # 20297, Part 1	Y	upon initial startup of S-12 or S-13	<u>Landfill Gas Throughput to Each Microturbine:</u> ≤ 76,200 ft ³ per day	BAAQMD 8-34-501.10 and 508 and BAAQMD Condition # 20297, Part 1a or 1b-d	C, P/M	Gas Flow Meter and Recorder (every 15 minutes) <u>Data Acquisition System, Methane Tests, Calculations, and Records</u>

Modify Landfill Gas Control Options for S-1 and Modify Conditions for S-12 and S-13

Table VII – C
Applicable Limits and Compliance Monitoring Requirements
S-12 MICROTURBINE AND S-13 MICROTURBINE

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Collection and Control Systems Shutdown Time	BAAQMD 8-34-113.2	Y	upon initial startup of S-12 or S-13	240 hours/year and 5 consecutive days	BAAQMD 8-34-501.2	P/D	Operating Records
Startup Shutdown or Mal-function Procedures	40 CFR 63.6(e)	Y	upon initial startup of S-12 or S-13	Minimize Emissions by Implementing SSM Plan	40 CFR 63.1980(a-b)	P/E	Records (all occurrences, duration of each, corrective actions)
Periods of Inoperation for Parametric Monitors	BAAQMD 1-523.2	Y	upon initial startup of S-12 or S-13	15 consecutive days/incident and 30 calendar days/12 month period	BAAQMD 1-523.4	P/D	Operating Records for All Parametric Monitors
Continuous Monitors	40 CFR 60.13(e)	Y	upon initial startup of S-12 or S-13	Requires Continuous Operation except for breakdowns, repairs, calibration, and required span adjustments	40 CFR 60.7(b)	P/D	Operating Records for All Continuous Monitors
TOC (Total Organic Compounds Plus Methane)	BAAQMD 8-34-301.2	Y	upon initial startup of S-12 or S-13	1000 ppmv as methane (component leak limit)	BAAQMD 8-34-501.6 and 503 and BAAQMD Condition # 16065, Part 15c	P/Q	Quarterly Inspection of control system components with Portable Analyzer and Records

Modify Landfill Gas Control Options for S-1 and Modify Conditions for S-12 and S-13

Table VII – C
Applicable Limits and Compliance Monitoring Requirements
S-12 MICROTURBINE AND S-13 MICROTURBINE

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Non-Methane Organic Compounds (NMOC)	BAAQMD 8-34-301.4 and BAAQMD Condition # 20297, Part 4	Y	upon initial startup of S-12 or S-13	98% removal by weight OR < 120 ppmv, dry basis @ 3% O ₂ , expressed as methane	BAAQMD 8-34-412 and 501.4 and BAAQMD Condition # 20297, Parts 6 and 8	P/A	Source Tests and Records
Temperature of Combustion Zone (CT) or Other APCO-Approved Parameter	BAAQMD Condition # 20297, Part 7	Y	105 days after initial startup of S-12 or S-13	CT ≥ [to be established by initial source test] 1500 °F, averaged over any 3-hour period; or other alternative parameter limits approved by APCO	BAAQMD 8-34-501.11 and 509 and BAAQMD Condition # 20297, Part 5	C or P/M	Temperature Sensor and Recorder or other APCO-Approved Monitor
Opacity	BAAQMD 6-301	Y	upon initial startup of S-12 or S-13	Ringelmann No. 1 for < 3 minutes/hour	None	N	NA
FP	BAAQMD 6-310	Y	upon initial startup of S-12 or S-13	≤ 0.15 grains/dscf	None	N	NA
SO ₂	BAAQMD 9-1-301	Y	upon initial startup of S-12 or S-13	Property Line Ground Level Limits: ≤ 0.5 ppm for 3 minutes and ≤ 0.25 ppm for 60 min. and ≤ 0.05 ppm for 24 hours (applies to flares only)	None	N	NA
SO ₂	BAAQMD Regulation 9-1-302	Y	upon initial startup of S-12 or S-13	≤ 300 ppm (dry basis) (applies to flares only)	BAAQMD Condition # 16065, Parts 12 and 15c	P/Q	Sulfur Analysis of Landfill Gas and Records

Modify Landfill Gas Control Options for S-1 and Modify Conditions for S-12 and S-13

Table VII – C
Applicable Limits and Compliance Monitoring Requirements
S-12 MICROTURBINE AND S-13 MICROTURBINE

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
H ₂ S	BAAQMD 9-2-301	N	upon initial startup of S-12 or S-13	Property Line Ground Level Limits: ≤ 0.06 ppm, averaged over 3 minutes and ≤ 0.03 ppm, averaged over 60 minutes	None	N	NA
NO _x	BAAQMD Condition # 20297, Part 2	Y	upon initial startup of S-12 or S-13	≤ 10 pounds per day or ≤ 78 ppmv, at 15% O ₂ , dry basis	BAAQMD Condition # 20297, Parts 6 and 8	P/A	Source Tests and Records
CO	BAAQMD Condition # 20297, Part 3	Y	upon initial startup of S-12 or S-13	≤ 10 pounds per day or ≤ 128 ppmv, at 15% O ₂ , dry basis	BAAQMD Condition # 20297, Parts 6 and 8	P/A	Source Tests and Records

Section VIII:

The District is proposing to revise the method for demonstrating compliance with the landfill gas flow rate limit in Condition # 20297, Part 1 in accordance with the condition revisions discussed in Section VI.

Table VIII
Test Methods

Applicable Requirement	Description of Requirement	Acceptable Test Methods
...		
BAAQMD Condition # 20297, Part 1	Landfill Gas Throughput Limit for Microturbines	APCO Approved Gas Flow Meter and Recorder and Operating Methane Measurement, Calculation Procedures, and Records as described in Condition # 20297, Parts 1a-d
...		

Section IX:

No changes are proposed to this section.

Modify Landfill Gas Control Options for S-1 and Modify Conditions for S-12 and S-13

Section X:

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

X. REVISION HISTORY

...

Minor Revision (Applications # 11467): **[insert approval date]**

- Delete future effective dates and other text in Tables II-A, IV-C, and VII-C to reflect that the S-12 and S-13 Microturbines are now installed and operating.
- Update the Regulation 8, Rule 34 amendment date in Tables IV-A and IV-C.
- Add a custom Schedule of Compliance to Section V for the gas collection system shutdown events that are necessary to complete the installation and initial commissioning of the ALZA landfill gas treatment and compression station and associated process control systems.
- Modify Condition # 16065, Part 2 to allow landfill gas to be burned in off-site IC engines.
- Modify Condition # 20297, Part 1, Table VII-C, and Table VIII to clarify the applicability of the landfill gas throughput limit and to correct the related monitoring requirements and calculation procedures.
- Revise Condition # 20297, Parts 5-7 and Table VII-C by inserting the specific combustion zone temperature limit established by the initial compliance demonstration tests and by deleting obsolete text.
- Update Revision History in Section X.
- Update website address in Section XII.

Section XI:

No changes are proposed to this section.

Section XII:

The District is proposing to update the website address for the BAAQMD SIP regulations as shown below.

XII. APPLICABLE STATE IMPLEMENTATION PLAN

The Bay Area Air Quality Management District's portion of the State Implementation Plan can be found at EPA Region 9's website. The address is:

<http://yosemite1.epa.gov/r9/r9sips.nsf/California?ReadForm&Start=1&Count=30&Expand=3.1>
<http://yosemite.epa.gov/r9/r9sips.nsf/Agency?ReadForm&count=500&state=California&cat=Bay+Area+Air+Quality+Management+District-Agency-Wide+Provisions>

D. SUMMARY OF PROPOSED ACTIONS

The District recommends approval of a proposed minor revision of the MFR Permit for Site # A2740 that will:

- Delete future effective dates and other text in Tables II-A, IV-C, and VII-C to reflect that the S-12 and S-13 Microturbines are now installed and operating.
- Update the Regulation 8, Rule 34 amendment date in Tables IV-A and IV-C.
- Add a custom Schedule of Compliance to Section V for the gas collection system shutdown events that are necessary to complete the installation and initial commissioning of the landfill gas treatment and compression station and associated process control systems.
- Modify Condition # 16065, Part 2 to allow landfill gas to be burned in off-site IC engines.
- Modify Condition # 20297, Part 1, Table VII-C, and Table VIII to clarify the applicability of the landfill gas throughput limit and to correct the related monitoring requirements and calculation procedures.
- Revise Condition # 20297, Parts 5-7 and Table VII-C by inserting the specific combustion zone temperature limit established by the initial compliance demonstration tests and by deleting obsolete text.
- Update Revision History in Section X.
- Update website address in Section XII.

APPENDIX A

ENGINEERING EVALUATION

APPLICATION # 11466

ENGINEERING EVALUATION

City of Mountain View (Shoreline); PLANT # 2740

APPLICATION # 11466

A. BACKGROUND

Site Description:

The City of Mountain View's Shoreline complex (Facility # A2740) is located, east of Highway 101, on Shoreline Boulevard. Shoreline is a recreational and wildlife area constructed over approximately 600 acres of closed landfills. The individual landfills are referred to as the 544-Acre Landfill, which includes the golf course and sailing lake areas, the Crittenden Landfill, and the Vista Landfill. A small portion of the Vista Landfill was leased to Shoreline Amphitheatre (Facility # A2561), which is owned and operated by Bill Graham Presents.

The City of Mountain View (Shoreline) includes the following permitted operations: the Closed Landfills with Gas Collection Systems (S-1), three Landfill Gas Flares (A-3, A-4, and A-5), and a Diesel Engine for the Emergency Standby Generator (S-11). The MFR Permit also includes two Microturbines (S-12 and S-13), which began operating in November 2004.

Landfills generate landfill gas due to the waste decomposition process. The landfill gas contains methane, carbon dioxide, and small amounts of non-methane organic compounds (NMOC) and sulfur compounds. Many of the NMOCs are precursor organic compounds (POC) and/or toxic air contaminants (TACs).

District and EPA regulations require that landfill gas from larger landfills be collected and controlled to reduce emissions of NMOCs to the atmosphere. In accordance with these requirements, the City of Mountain View's Closed Landfills (S-1) are equipped with landfill gas collection systems and landfill gas control systems. Currently, the City of Mountain View is collecting an average of 1650 cfm of landfill gas from S-1. Most of this collected landfill gas is controlled by combustion in enclosed ground flares (A-3, A-4, and A-5). A small portion of the landfill gas (about 100 cfm) may, at the City's discretion, be diverted from the flares to the S-12 and S-13 Microturbines. In addition to controlling landfill gas, the microturbines generate about 140 kW of power for pumps and other operations.

Current Project (Applications # 11466):

The City of Mountain View is working with ALZA Corporation to develop beneficial uses for the landfill gas that is collected from the Shoreline landfills. ALZA has several pharmaceutical research and development and manufacturing facilities located in Mountain View near the Shoreline landfills. In 2004, the District issued Authorities to Construct to ALZA for three landfill gas fired IC engines. Each IC engine will be located at a different ALZA site (Facility # A5081, # B3816, and # B3817). Each 1341 bhp engine will burn up to 11 MM BTU/hour (470 scfm) of landfill gas and will generate about 1 MW of power. These engines are capable of controlling about 85% of the landfill gas that is currently collected from the Shoreline landfills.

In order to deliver adequate quality landfill gas to these IC engines, ALZA is planning to install and operate a landfill gas treatment and compression station located at the City of Mountain View's Shoreline facility. After treatment, the compressed landfill gas will be sent via an underground pipeline to ALZA Corporation.

Modify Landfill Gas Control Options for S-1

The landfill gas treatment and compression station does not require an Authority to Construct. However, the installation of this system will require several short term shut downs of the entire landfill gas collection system. Regulation 8, Rule 34 does not currently have any exemptions that will allow the shutdown of the landfill gas collection system for the purpose of installing off-site control equipment. The City of Mountain View is currently discussing their compliance options with the Legal and Compliance and Enforcement Divisions. The District anticipates that a Schedule of Compliance will need to be added to the MFR Permit for Site # A2740 to address these shutdown activities. In addition, the City of Mountain View requires a change of Permit Condition # 16065, Part 2, in order to allow the sale of landfill gas to ALZA Corporation as an approved control option for the collected landfill gas. This condition change and the related MFR permit revisions are the subject of Application # 11466 and Application # 11467, respectively.

Applications # 9851, # 10197, and # 10369 describe the proposed landfill gas fired IC engines that will be owned and operated by ALZA Corporation at their three Mountain View facilities. None of the three ALZA sites are subject to Title V permitting requirements.

B. EMISSIONS

The proposed landfill gas treatment and compression station is not expected to result in any emission increases above the maximum permitted emission rate for the S-1 Closed Shoreline Landfills. This station will have no intended openings and no routine emissions to the atmosphere. The only emissions will be unintended fugitive emissions that may occur from valves, flanges, connectors, compressors, pressure relief devices, sample lines, and other components. The landfill gas generation from the Shoreline landfills has been declining since the late 1990s. The peak gas collection rate was 2930 cfm and occurred in 1998. The current landfill gas collection rate is less than 60% of this peak collection rate. Although the increase in the number valves, compressors, and other components may result in a small emission increase above the current actual fugitive emission rate from S-1, the proposed emissions are expected to be well below the maximum permitted emissions for the entire landfill gas collection system when it was operating at the maximum gas collection rate in 1998. Since proposed emissions will not exceed maximum permitted emissions, the addition of the treatment and compression station is not a modification of S-1.

The City of Mountain View has requested to sell landfill gas to ALZA Corporation as an approved control option. The landfill gas is currently controlled by on-site combustion in flares that are required to meet an NMOC outlet concentration limit of 30 ppmv as methane at 3% oxygen. ALZA has been permitted to control the landfill gas by combustion in IC engines that are required to meet an outlet concentration limit of 120 ppmv as methane at 3% oxygen. The control method change (burning 1420 scfm of landfill gas in IC engines instead of flares) will result in an outlet concentration increase of 90 ppmv as C₁ at 3% O₂ and overall emission increases of 6.5 tons/year of POC. However, all of the emission increases will occur at the ALZA facilities and not at the City of Mountain View site. In fact, at the City of Mountain View site, emissions from the flares are expected to decrease by about 2.2 tons/year of POC due to the reduced landfill gas throughput rate to the flares. The emission rates of nitrogen oxides (NO_x), carbon monoxide (CO), and particulate matter (PM₁₀) from ALZA's landfill gas fired IC engines are also expected to be higher than the NO_x, CO, and PM₁₀ emission rates from the City of Mountain View's flares. See Applications # 9851, # 10197, and # 10369 for a full discussion of the emissions from ALZA's proposed engines. The reduction of landfill gas throughput the City of Mountain View's flares will reduce actual flare emissions by about 11.1 tons/year of NO_x, 37.1 tons/year of CO, and 1.1 tons/year of PM₁₀. Since the flares will continue to operate as back up devices to the ALZA engines, there will be no change in permitted emission rates for the flares.

Modify Landfill Gas Control Options for S-1

C. STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

This application is for a change of permit conditions at the S-1 Closed Landfills concerning the abatement strategy for the collected landfill gas. This condition change will not result in any emission increases at the City of Mountain View facility. Therefore, this change of conditions is categorically exempt from CEQA review pursuant to Regulation 2-1-312.1 and 2-1-312.2.

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 project will not result in any increases of maximum permitted emissions at the City of Mountain View, this project is not subject to New Source Review or the requirements of Regulation 2, Rule 2.

New Source Review for Toxic Air Contaminants:

Since this project will not result in any increases of maximum permitted emissions at the City of Mountain View, this project is not subject to New Source Review for Toxic Air Contaminants.

Regulation 2, Rule 6:

This facility is subject to Title V Operating Permit Requirements. The initial Title V Permit for Site # A2740 was issued on July 28, 2003 and was revised on September 10, 2003, April 1, 2004, and June 17, 2004. This application will require a revision of the current MFR permit. The proposed MFR permit revisions related to this application are discussed in the Statement of Basis for Application # 11467.

Regulation 8, Rule 34:

This project will allow up to 1410 scfm of collected landfill gas to be sold to ALZA Corporation instead of burned in the on-site flares. As discussed in Applications # 9851, # 10197, and # 10369, the proposed off-site engines will control this landfill gas by combustion and are expected to comply with all applicable requirements of Regulation 8, Rule 34. Since all landfill gas will be continuously collected and vented to approved control devices, the S-1 Closed Landfills will comply with Regulation 8-34-301 and 301.1. This permit application constitutes a submittal of an amended Collection and Control System Design Plan for this facility, which is required pursuant to Regulation 8-34-408.

One or more of the on-site flares will continue to be used to control excess collected gas and for back up to the off-site engines and the on-site microturbines. The flares are expected to remain in compliance with all applicable requirements whenever more than 200-300 cfm of landfill gas is vented to a flare. However, some modifications of the flares may become necessary in the future as gas generation rates decline and the excess gas flow rate is reduced below these minimum rates. The City of Mountain View will propose any necessary flare modifications in future permit applications.

Regulation 9, Rule 1:

The on-site flares will continue to comply with the Regulation 9-1-302 limit of 300 ppmv of SO₂ in the exhaust from the flares. The off-site engines are also expected to comply with this limit.

Modify Landfill Gas Control Options for S-1

Federal Requirements:

EG for MSW Landfills: In the BAAQMD, Regulation 8, Rule 34 implements EPA's Emission Guidelines (EG) for Municipal Solid Waste (MSW) Landfills (40 CFR Part 60, Subpart Cc). Therefore, compliance with Regulation 8, Rule 34 constitutes compliance with the EG requirements.

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 (SSM Plans) and additional reporting requirements. The facility's SSM Plan will need to be updated to include the new abatement configuration and to add specific SSM plans for the landfill gas treatment and compression station. The revised SSM Plan should be on-site prior to initial operation of the landfill gas treatment and compression station. All applicable requirements are contained in the existing MFR permit, and this facility is expected to continue to comply with these requirements.

D. PERMIT CONDITIONS

This application will modify Condition # 16065, Part 2, as shown below, to allow landfill gas to be sold to ALZA Corporation for combustion in ALZA's IC engines.

Condition # 16065

FOR: S-1, LANDFILL AND GAS COLLECTION SYSTEM; A-3, LANDFILL GAS FLARE; A-4, LANDFILL GAS FLARE; AND A-5, LANDFILL GAS FLARE;

1. The S-1 Landfill is closed. The Permit Holder shall apply for and receive a Change of Permit Conditions before accepting any solid waste for disposal at S-1. The total cumulative amount of all wastes placed in the landfill areas controlled by the Permit Holder shall not exceed 12,725,000 tons. The maximum design capacity of the landfill (total volume of all wastes and cover materials placed in the landfill area controlled by the Permit Holder, excluding final cover) shall not exceed 18,852,000 cubic yards. (Basis: Regulation 2-1-301)
2. All landfill gas collected by the Landfill Gas Collection Systems for S-1 shall be: abated by the Landfill Gas Flares (A-3, A-4, or A-5); abated by the Microturbines (S-12 or S-13); or sold to ALZA Corporation for off-site combustion in one or more of the following devices: S-29 IC Engine-Genset at Facility # A5081, S-2 IC Engine-Genset at Facility # B3816, or S-4 IC Engine-Genset at Facility # B3817. Upon installation of the S-12 or S-13 Microturbines, landfill gas may be vented to S-12 or S-13 in addition to A-3, A-4, or A-5. The Permit Holder may use any combination of the landfill gas control devices listed above, provided that sufficient landfill gas is collected and controlled to prevent violations of the Regulation 8-34-303 surface leak limit and provided that all of the following operating requirements are satisfied.
 - a. To ensure adequate landfill gas control capacity, the microturbines must be operated concurrently with other control devices such as at least one flare or the three off-site engines.

Modify Landfill Gas Control Options for S-1

- b. Upon start-up of the landfill gas treatment and compression station, no more than 1410 scfm of landfill gas (expressed as 40% methane and averaged over any calendar day) may be diverted from on-site control equipment (flares and microturbines) to off-site control equipment (ALZA IC engines). To demonstrate compliance with the requirement, the landfill gas treatment and compression station shall be equipped with a continuous gas flow meter and recorder meeting the requirements of Regulation 8-34-508.
- c. Raw or untreated landfill gas shall not be vented to the atmosphere, except for unavoidable landfill gas emissions that occur during collection system installation, maintenance, or repair (which is performed in compliance with Regulation 8, Rule 34, Sections 113, 117, and/or 118) and inadvertent component or surface leaks that do not exceed the limits specified in 8-34-301.2 or 8-34-303.

(Basis: Regulation 8-34-301)

(no changes to Parts 3-16)

E. RECOMMENDATION

Issue a Change of Permit Conditions for the following equipment:

- S-1 Closed Landfills; abated by Flares (A-3, A-4, and A-5), Microturbines (S-12 and S-13), and off-site IC engines.**

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

3-25-05
Date

APPENDIX B

PERMIT TO OPERATE REPORT

APPLICATION # 6697

Permit to Operate Report
City of Mountain View; PLANT #2740
APPLICATION #6697

A. BACKGROUND

The City of Mountain View was issued an Authority to Construct for two landfill gas fired Microturbines (S-12 and S-13) on January 24, 2003. The City conducted a start-up trial on November 17, 2004 for S-12 and November 23, 2004 for S-13. Due to electrical and mechanical problems with the support systems, the units were taken off-line shortly after start-up. On January 4, 2005, the District authorized an extension of the due date for the initial compliance source tests for S-12 and S-13, because the microturbines were down for repairs. These repairs were completed, and the microturbines were restarted in January 2005. The initial compliance demonstration tests were conducted on January 12 and 13, 2005. As discussed in more detail below, the source tests showed compliance with all applicable limits.

The District is proposing to issue a Permit to Operate for the S-12 and S-13 Microturbines. Several administrative changes are being made to Condition # 20297 at this time. These changes are described in detail below. The MFR Permit will be revised accordingly pursuant to Application # 11467.

B. STATEMENT OF COMPLIANCE

Initial compliance demonstration tests were conducted by Advanced Air Testing for the S-13 Microturbine on January 12, 2005 and for the S-12 Microturbine on January 13, 2005. The test results and applicable limits are compared in Table 1 below.

Table 1. Summary of Initial Compliance Demonstration Test Results for Microturbines

Citation	Description of Limit	Units	Limit	S-12	S-13
	Landfill Gas Flow Rate	scfm		51	50
Cond. # 20297, Part 1	Landfill Gas Flow Rate	scf/day	76,200	73,440	72,000
Cond. # 20297, Part 2	Outlet NO _x	pounds/day	10.0	0.24	0.24
Cond. # 20297, Part 2	Outlet NO _x	ppmv at 15% O ₂	78	3.6	3.8
Cond. # 20297, Part 3	Outlet CO	pounds/day	10.0	>0.10	>0.07
Cond. # 20297, Part 3	Outlet CO	ppmv at 15% O ₂	128	>1.8	>1.1
Cond. # 20297, Part 4 and 8-34-301.4	Outlet NMOC (as C ₁)	ppmv at 3% O ₂	120	>6.4	>6.6
8-34-301.4	NMOC Destruction Efficiency	%	98%	>99.0	>99.0
	Avg. Combustion Temperature	°F		1550	1550
Cond. # 20297, Part 7	New Min. Temperature Limit	°F	1500	1500	1500

The tests showed compliance with all applicable limits.

C. ADMINISTRATIVE PERMIT CONDITION REVISIONS

Several administrative revisions are being made at this time to Condition # 20297 in order to delete obsolete language and clarify applicable limits. The reasons for each revision are discussed below.

Part 5: Parts 5, 6f, and 7 indicate that the key emission control system operating parameter that the District expects the Permit Holder to monitor is the combustion zone temperature of each microturbine. However, Parts 5, 6f and 7 also allow the Permit Holder to request to use an alternative key emission control system operating parameter, provided that the Permit Holder demonstrates compliance with Regulation 8-34-301.4 over the proposed operating ranges for the chosen parameter and monitors this parameter on an APCO approved schedule. The City of Mountain View has decided to use combustion zone temperature as the key emission control system operating parameter. Therefore, the text pertaining to an alternative key parameter is no longer necessary and will be deleted.

Part 6: Permit condition language pertaining to the initial compliance demonstration source tests will be deleted, because the City of Mountain View has complied with these testing requirements. Annual source testing will still be required. As discussed above for Part 5, the text in Part 6f and the following paragraph that describes an alternative key emission control system operating parameter is unnecessary and will be deleted.

Part 7: The specific temperature for the minimum combustion zone temperature limit will be added to Part 7. In addition, the District will clarify that the effective date for this microturbine combustion zone temperature limit is 60 days after the initial compliance demonstration tests were conducted. These tests were conducted on January 12, 2005 for S-13 and January 13, 2005 for S-12. Therefore, the effective dates for complying with the minimum combustion zone temperature limits are March 13, 2005 for S-13 and March 14, 2005 for S-12. Standard text describing the basis and procedures for revising the minimum combustion zone temperature limit will be added. As discussed above for Part 5, the text in Part 7 pertaining to an alternative key emission control system operating parameter will be deleted.

Condition # 20297

For S-12 and S-13 Microturbines

1. The landfill gas flow rate to each Microturbine (S-12 and S-13) shall not exceed 76,200 cubic feet per day. To demonstrate compliance with this part, the Permit Holder shall either:
 - a. monitor and record landfill gas flow rate to each microturbine using a gas flow meter and recorder meeting the requirements of Regulation 8-34-508, or
 - b. calculate and record, on a monthly basis, the maximum daily landfill gas flow rate to each microturbine using the landfill gas flow rate records for the entire gas collection system and daily records of operating time and operating rate for each device that is burning landfill gas. If this monitoring method will be used, the Permit Holder shall obtain APCO approval (prior to startup of S-12 or S-13) for the specific operating rates for which records will be maintained and for all calculation procedures that will be used to determine the maximum daily landfill gas flow rate to each microturbine.

(Basis: Cumulative Increase, Offsets, and Regulation 2-1-301)

2. The nitrogen oxide (NO_x) emissions from each Microturbine (S-12 and S-13) shall not exceed 10.0 pounds per day calculated as NO₂. Compliance with this emission limit may be demonstrated by having no emissions exceeding 78 ppmv of NO_x at 15% oxygen, dry basis. (Basis: Offsets)
3. The carbon monoxide (CO) emissions from each Microturbine (S-12 and S-13) shall not exceed 10.0 pounds per day. Compliance with this emission limit may be demonstrated by having no emissions exceeding 128 ppmv of CO at 15% oxygen, dry basis. (Basis: Cumulative increase)
4. Emissions of non-methane organic compounds (NMOC) from each Microturbine (S-12 and S-13) shall not exceed 120 ppmv of NMOC (expressed as methane) at 3% oxygen, dry basis. (Basis: Offsets and Regulation 8-34-301.4)
5. The Permit Holder shall install and operate one or more thermocouples that will accurately measure the combustion zone temperature ~~(or other APCO approved monitor for an alternative APCO approved key emission control system operating parameter)~~ at each Microturbine (S-12 and S-13). (Basis: Regulation 8-34-509)
6. To demonstrate compliance with Parts 1-5 above and Regulation 8, Rule 34, Sections 301.4 and 412, the Permit Holder shall conduct ~~an initial annual compliance demonstration tests~~ on the S-12 and S-13 Microturbines ~~within 60/20 days of the initial start-up date for each microturbine and annually thereafter~~. The source tests shall determine the following:
 - a. landfill gas flow rate (dry basis) and heat input rate to the microturbine;
 - b. concentrations (dry basis) of carbon dioxide (CO₂), nitrogen (N₂), oxygen (O₂), total hydrocarbons (THC), methane (CH₄), non-methane organic compounds (NMOC) in the landfill gas;
 - c. stack gas flow rate from the microturbine (dry basis);
 - d. concentrations (dry basis) of NO_x, CO, THC, CH₄, NMOC, and O₂ in the stack gas,
 - e. NMOC destruction efficiency achieved by the microturbine;
 - f. the average combustion zone temperature in the microturbine ~~(or other appropriate key emission control system operating parameter)~~ during the test period.

The Source Test Section of the District shall be contacted to obtain approval of the source test procedures at least 14 days in advance of each source test. The Source Test Section shall be notified of the scheduled test date at least 7 days in advance of each source test. The source test report shall be submitted to the Compliance and Enforcement Division and the Source Test Section within 45 days of the test date. ~~If the Permit Holder is proposing to monitor a key emission control system operating parameter other than combustion zone temperature, the Permit Holder shall describe the following in the source test procedures: the proposed key emission control system operating parameter; how this operating parameter will affect NO_x, CO, and NMOC outlet concentration or NMOC destruction efficiency; the monitoring method for the proposed parameter; and the proposed monitoring frequency. The source test report shall identify the key emission control system operating parameter readings measured during the source test and shall propose appropriate minimum and/or maximum operating parameters or ranges that will ensure compliance with the emission limits in Parts 2-4.~~ (Basis: Cumulative Increase, Offsets, and Regulations 8-34-301.4 and 8-34-412)

7. Within ~~40/60~~ days of the initial ~~start-up~~ source test date, the Permit Holder shall maintain the combustion zone temperature of S-12 and S-13 at a minimum of ~~insert the temperature limit established during the initial compliance demonstration source test,~~

~~which shall be 50 degrees F below the average combustion zone temperature measured during the source test, 1500 degrees F, averaged over any 3-hour period. The Permit Holder shall continuously monitor and record the combustion zone temperature to demonstrate compliance with this limit. If a source test demonstrates compliance with all applicable requirements at a different temperature, the APCO may revise the minimum combustion zone temperature limit in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415 and the following criteria. The minimum combustion zone temperature for a microturbine shall be equal to the average combustion zone temperature measured during the most recent complying source test minus 50 degrees F, provided that the minimum combustion zone temperature shall not be less than 1400 degrees F. Alternatively, upon receiving APCO approval for the use of a key emission control system operating parameter other than combustion zone temperature, the Permit Holder shall maintain one or more key emission control system operating parameters within the minimum and maximum ranges established during the initial compliance demonstration tests. The Permit Holder shall monitor and record any key emission control system operating parameters that have been approved by the APCO on the monitoring schedule approved by the APCO, provided that monitoring shall be no less frequent than once per month. The temperature limit or other key emission control system operating parameters will be added to this part in accordance with the procedures identified in Regulation 2-6-406. (Basis: Regulation 8-34-509)~~

8. The Permit Holder shall maintain all monitoring records and records of all test dates and test results for any tests that are conducted to demonstrate compliance with these conditions or any other applicable rule or regulation. All records shall be maintained on site in an APCO approved logbook or shall be made readily available to District staff upon request for a period of at least 5 years from the date of entry. These record keeping requirements do not replace the record keeping requirements contained in any applicable rules or regulations. (Basis: Cumulative Increase, Offsets, and Regulations 2-6-501, 8-34-301.4, 8-34-412, 8-34-501.11, and 8-34-501.12)

D. RECOMMENDATION

Issue a Permit to Operate for the following sources subject to Condition # 20297:

S-12 Microturbine, Ingersoll-Rand, 70 LM, 71 kW nominal, 92 kW maximum at 0 °F, 1.27 MM BTU/hour, burning landfill gas.

S-13 Microturbine, Ingersoll-Rand, 70 LM, 71 kW nominal, 92 kW maximum at 0 °F, 1.27 MM BTU/hour, burning landfill gas.

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

4-11-05
Date