Bay Area Air Quality Management District

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Statement of Basis
for
MAJOR FACILITY REVIEW PERMIT RENEWAL

for

Keller Canyon Landfill Company
Facility #A4618

Facility Address:
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Pittsburg, CA 94565

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Application Engineer: Carol Allen
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Application: 24616

March 2014

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STATEMENT of BASIS

Keller Canyon Landfill Company; SITE # A4618

APPLICATION #24616

Major Facility Review Permit: Renewal

A. BACKGROUND

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Title 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review, because it is a major facility as defined by BAAQMD Regulation 2-6-212.1. It is a major facility because it has the "potential to emit," as defined by BAAQMD Regulation 2-6-218, of more than 100 tons per year of a regulated air pollutant (in this case, carbon monoxide). Therefore, this facility is required to have an MFR permit pursuant to Regulation 2-6-301.

In addition, it is a designated facility as defined by BAAQMD Regulation 2-6-204. The Standards of Performance for Municipal Solid Waste Landfills (40 CFR Part 60, Subpart WWW) 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. This facility is subject to this NSPS because it commenced construction after May 30, 1991 and has design capacities that are larger than 2.5 million Mg and larger than 2.5 million m^3. Therefore, this facility is required to have an MFR permit pursuant to Regulation 2-6-304.

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70 as contained in BAAQMD Regulation 2, Rule 6. The permits must contain all applicable requirements (as defined in BAAQMD Regulation 2-6-202), monitoring requirements, recordkeeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year.

In the Bay Area, state and District requirements are also applicable requirements and are included in the permit. These requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

Each facility in the Bay Area is assigned a facility identifier that consists of a letter and a 4-digit number. This identifier is also considered to be the identifier for the permit. The identifier for this facility is A4618.

This facility received its initial Title V permit on September 20, 2001. The permit was revised six times during 2002-2007 and was renewed on January 3, 2008. The permit was subsequently revised on October 9, 2008 and January 11, 2012. This application is for a permit renewal. Although the current permit expired on January 4, 2013, it continues in force until the District takes final action on the permit renewal. The standard sections of the permit have been upgraded to include new standard language used in all Title V permits. The proposed renewal permit clearly shows all proposed changes to the permit in strikeout/underline format.

B. FACILITY DESCRIPTION

Keller Canyon Landfill Company (KCLC), a subsidiary of Allied Waste Industries, Inc., owns and operates the Keller Canyon Landfill Facility (Facility # A4618) in Pittsburg, CA. This facility includes: an active Class II MSW landfill (S-1, S-4, and S-5), yard and green waste stockpiles (S-3), and two enclosed flares (A-1 and A-2).

The Keller Canyon Landfill began accepting waste in 1992 and has a current expected closure date of 2034. The maximum design capacity for this landfill is approximately 75 million cubic yard. The landfill is currently permitted to accept a maximum of 3500 tons/day of refuse and to dispose of a total of 38.4 million tons of decomposable materials. As of June 30, 2013, KCLC reported that the landfill contained 16.0 million tons of decomposable waste (about 42% of total capacity). In addition to MSW, this site is allowed to accept designated wastes including petroleum-contaminated soils. From July 2012-June 2013, KCLC reported that 42,323 tons of contaminated soil were accepted at this site.

As required by District, state, and federal regulations, the Keller Canyon Landfill – Waste Decomposition Process (S-1) is equipped with landfill gas collection and control systems that are designed to reduce the emissions of methane, precursor organic compounds (POC), toxic air contaminants (TAC), and greenhouse gases (GHG) from the landfill. All areas of the landfill that contain decomposable waste include vertical wells or horizontal collectors (perforated piping systems) that are buried in the waste and connected to blowers. The blowers operate continuously to maintain a vacuum within the piping systems, which draws the landfill gas into the piping systems, and then vent this collected landfill gas to the control systems. As of June 2013, this gas collection system was collecting an average of 2700 cfm of landfill gas.

The landfill gas control systems for this site include both on-site controls (A-1 and A-2 Enclosed Landfill Gas Flares) and off-site controls (Ameresco Keller Canyon LLC Landfill Gas to Energy Plant (Site # B7667). During 2013, an average of 1470 cfm of landfill gas or about 55% of the total gas collected was vented to the on-site flares for control.

The enclosed landfill gas flares (A-1 and A-2) destroy at least 98% of the non-methane organic compounds (NMOC), sulfur compounds, and toxic air contaminants (TACs) that are present in the collected landfill gas and at least 99% of the methane in the landfill gas. The flares produce secondary emissions of nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM_{10}), formaldehyde (a TAC) and acid gases (such as hydrogen chloride and hydrogen fluoride).

The remainder of the collected landfill gas (about 45% during 2013) is vented to the independently owned and operated landfill gas energy plant. Although the landfill gas energy plant is located on property owned by KCLC, it is owned and operated by an independent company: Ameresco Keller Canyon LLC (Site # B7667). Therefore, this energy plant is not part of this Title V permit for Keller Canyon Landfill Company. The landfill gas energy plant includes a landfill gas treatment system, two lean-burn IC engines that are fired exclusively on treated landfill gas, and a small enclosed waste gas flare. This energy plant will be discussed in detail in a separate Title V permit for Site # B7667 (see Application # 17615 for the Initial Title V permit for this site).

KCLC also operates Yard and Green Waste Stockpiles (S-3) that are permitted to accept up to 70,200 tons/year of yard waste material for recycling. For 2013, KCLC reported that S-3 accepted 0. tons of materials.

Two sources, S-4 and S-5, were added to this facility in 2011 to represent various particulate emitting activities at the landfill. S-4 is for waste and cover material dumping. S-5 is for bulldozing, compacting, and excavating activities.

District Permit Applications Included In This Proposed Permit:

After the Title V permit for this facility was revised in January 2012, the District issued a Change of Conditions (Application # 24016) in March 2012 for this site that added several landfill gas collection wells to the list of wells that are subject to alternative wellhead limits. These wells were subsequently shut down and removed from this list. In addition, the facility made a number of updates to the landfill gas collection system during January 2012-January 2014 that were previously authorized pursuant to new source review Application # 23460. As a result, the District is proposing to incorporate all of these gas collection system alterations in this Title V renewal permit by revising the landfill gas collection system descriptions in Table II and in Condition # 17309, Parts 18 and 19.

Emission Changes for Site # A4618:

As discussed in the Engineering Evaluation Reports for Applications # 24016 and # 23460, landfill gas collection system alterations do not result in any changes in permitted emission levels for the landfill. The current maximum permitted emission levels for Site # A4618 are presented below in Table 1.

Table 1. Maximum Permitted Emissions for Site # A4618

(Emissions, tons/year)	CO	PM_{10}	NO_x	POC	SO_2	GHG*
A-1 Landfill Gas Flare	95.5	5.4	19.1	4.4	31.8	26,030
A-2 Landfill Gas Flare	66.6	11.2	20.0	4.6	33.3	27,220
S-1 KCL – Waste Decomposition Process				40.6		190,270
S-3 Yard and Green Waste Stockpiles		0.1				
S-4 KCL – Waste and Cover Material Dumping		24.5				
S-5 KCL – Bulldozing, Compacting, and Excavating Activities						
Facility Wide Permitted Emissions	162.1	41.2	39.1	49.7	65.1	243,520

* GHG emissions are expressed as CO2 equivalent emissions and include both biogenic and non-biogenic GHGs.

The changes in actual emissions from this facility since the permit was last renewed are presented in Table 2. Overall, the actual landfill emissions from this site have increased due to the increases in the total amount of waste that has been placed in this landfill. Since this permit was last renewed in January 2008, much of the landfill gas combustion emissions shifted to the off-site landfill gas energy plant. However, the gas generation rate for this site now exceeds the energy plant capacity, and the District expects flare emissions to continue to increase in the future as more waste is placed in the landfill.

Table 2. Changes in Actual Emissions for Site # A4618 Since Last Renewal

Facility Wide Actual Emissions	Emissions (tons/year)				
	CO	PM_{10}	NO_x	POC	SO_2
as of June 30, 2007	30.5	22.3	9.3	36.9	4.0
as of June 30, 2013	38.5	26.8	11.9	85.1	5.0
Actual Emission Changes	+ 8.0	+ 4.5	+ 2.6	+ 48.2	+ 1.0

C. PERMIT CONTENT

The legal and factual basis for the permit follows. The permit sections are described in the order that they are presented in the permit. Routine changes to the standard permit text in Sections I "Standard Conditions", III "Generally Applicable Requirements", and X "Glossary" are not considered part of the Title V permit renewal process, but may be made at the discretion of the District during the term of this permit.

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities. If the Title IV (Acid Rain) requirements for certain fossil-fuel fired electrical generating facilities or the accidental release (40 CFR § 68) programs apply, the section

will contain a standard condition pertaining to these programs. This permit does not include Title IV or accidental release provisions.

Many of these conditions derive from 40 CFR § 70.6, Permit Content, which dictates certain standard conditions that must be placed in the permit. The language that the District has developed for many of these requirements has been adopted into the BAAQMD Manual of Procedures, Volume II, Part 3, Section 4, and therefore must appear in the permit.

The standard conditions also contain references to BAAQMD Regulation 1 and Regulation 2. These are the District's General Provisions and Permitting rules.

Changes to Permit, Section I:

- The District is updating the amendment dates for several BAAQMD rules in Standard Condition 1.A.
- The District is updating the permit issuance date, expiration data, and renewal application due dates in Standard Condition I.B.1.
- The District is removing obsolete report submittal dates from Standard Condition I.F.
- The District is removing a reference to District generated compliance certification forms because the District is no longer generating these site-specific forms.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S24).

Permitted sources are those sources that require a BAAQMD operating permit pursuant to BAAQMD Rule 2-1-302.

Significant sources are those sources that have a potential to emit of more than 2 tons of a "regulated air pollutant," as defined in BAAQMD Rule 2-6-222, per year or 400 pounds of a "hazardous air pollutant," as defined in BAAQMD Rule 2-6-210, per year. This facility has no unpermitted significant sources.

All abatement (control) devices that control permitted or significant sources are listed. Each abatement device whose primary function is to reduce emissions is identified by an A and a number (e.g., A-24). If a source is also an abatement device, such as when an engine controls VOC emissions, it will be listed in the abatement device table but will have an "S" number. An abatement device may also be a source (such as a thermal oxidizer that burns fuel) of secondary emissions. If the primary function of a device is to control emissions, it is considered an abatement (or "A") device. If the primary function of a device is a non-control function, the device is considered to be a source (or "S").

The equipment section is considered to be part of the facility description. It contains information that is necessary for applicability determinations, such as fuel types, contents or sizes of tanks, etc. This information is part of the factual basis of the permit.

Each of the permitted sources has previously been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. These permits are issued in accordance with state law and the District's regulations. The capacities in the permitted sources table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-403.

Between the date that the Title V permit was last renewed (January 2008) and the permit proposal date, the District added two new sources (S-4 and S-5) to describe the particulate emitting activities that occur at landfills. Previously, all of the particulate emitting landfill activities were included under a single source number (S-1). To improve emissions tracking for these activities, the District has now split the waste decomposition related emissions (S-1) from the particulate emitting activities (S-4 and S-5). In addition, the District is updating the landfill gas collection system description for S-1 based on alterations that were previously approved by the District and implemented by Keller Canyon Landfill Company during January 2012 through January 2014.

Changes to Permit, Section II:

- In Table II-A, the District is revising the description of S-1 to clarify that this source now represents the waste decomposition related process and associated emissions from this landfill.
- In Table II-A, the District is updating the gas collection system description for S-1 based on well start-up and decommission notices sent by KCLC and received by the District as of 2/28/14. These alterations were previously approved by the District pursuant to Application # 23460.
- The District is adding two new sources that were added to this permit by the District in 2011. As discussed above, the District split out the particulate emitting activities from S-1 and created: S-4 Keller Canyon Landfill – Waste and Cover Material Dumping and S-5 Keller Canyon Landfill – Excavating, Bulldozing, and Compacting Activities.

III. Generally Applicable Requirements

This section of the permit lists requirements that generally apply to all sources at a facility including insignificant sources and portable equipment that may not require a District permit. If a generally applicable requirement applies specifically to a source that is permitted or significant, the standard will also appear in Section IV and the monitoring for that requirement will appear in Sections IV and VII of the permit. Parts of this section apply to all facilities (e.g., particulate, architectural coating, odorous substance, and sandblasting standards). In addition, standards that apply to insignificant or unpermitted

sources at a facility (e.g., refrigeration units that use more than 50 pounds of an ozone-depleting compound) are placed in this section.

Unpermitted sources are exempt from normal District permits pursuant to an exemption in BAAQMD Regulation 2, Rule 1. They may, however, be specifically described in a Title V permit if they are considered significant sources pursuant to the definition in BAAQMD Rule 2-6-239. This facility has no unpermitted significant sources.

Changes to Permit, Section III:

- For Table III, the District is amending dates of adoption or approval of the rules, correcting the "federal enforceability" status for these rules, and adding or deleting rules and standards to conform to current practice. The rules that are being amended, added, or removed are listed below:
  - Updating amendment date for Regulation 2, Rule 1, General Requirements
  - Updating amendment dates for EPA Regulation 40 CFR, Part 61, Subparts A and M
  - Removing California Code of Regulations Title 17, Section 93115 et seq., Airborne Toxic Control Measure for Stationary Compression Ignition Engines, because any engines subject to this requirement will be required to have a District permit and will be described specifically in Section IV.

IV. Source-Specific Applicable Requirements

This section of the permit lists the applicable requirements that apply to permitted or significant sources. These applicable requirements are contained in tables that pertain to one or more sources that have the same requirements. The order of the requirements is:

- District Rules
- SIP Rules (if any) are listed following the corresponding District rules. SIP rules are District rules that have been approved by EPA for inclusion in the California State Implementation Plan. SIP rules are "federally enforceable" and a "Y" (yes) indication will appear in the "Federally Enforceable" column. If the SIP rule is the current District rule, separate citation of the SIP rule is not necessary and the "Federally Enforceable" column will have a "Y" for "yes". If the SIP rule is not the current District rule, the SIP rule or the necessary portion of the SIP rule is cited separately after the District rule. The SIP portion will be federally enforceable; the non-SIP version will not be federally enforceable, unless EPA has approved it through another program.
- Other District requirements, such as the Manual of Procedures, as appropriate.
- Federal requirements (other than SIP provisions)
- BAAQMD permit conditions. The text of BAAQMD permit conditions is found in Section VI of the permit.
- Federal permit conditions. The text of Federal permit conditions, if any, is found in Section VI of the permit.

Section IV of the permit contains citations to all of the applicable requirements. The text of the requirements is found in the regulations, which are readily available on the District's or EPA's websites, or in the permit conditions, which are found in Section VI of the permit. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements. A discussion of monitoring is included in Section C.VII of this permit evaluation/statement of basis.

Complex Applicability Determinations:

S-1 Keller Canyon Landfill – Waste Decomposition Process; abated by A-1 and A-2 Landfill Gas Flares; S-4 Keller Canyon Landfill – Waste and Cover Material Dumping; and S-5 Keller Canyon Landfill – Excavating, Bulldozing, and Compacting Activities

The waste decomposition related landfill emissions at this site are subject to BAAQMD Regulation 8, Rule 34, because the Keller Canyon Landfill has accepted waste within the last 30 years and contains more than 1,000,000 tons of decomposable refuse. S-1 is also subject to the NSPS for MSW Landfills (40 CFR, Part 60, Subpart WWW) and the NESHAP for MSW Landfills (40 CFR, Part 63, Subpart AAAA), because (1) it commenced construction on the landfill after May 30, 1991, (2) it has accepted waste after November 8, 1987, (3) it has a design capacity of greater than 2.5 million cubic meters and greater than 2.5 million megagrams, and (4) the uncontrolled NMOC generation rate from the landfill exceeds 50 Mg/year. There have been no significant changes to these applicable requirements since the Title V permit was last revised. The District is updating amendment dates for several applicable requirements and adding a missing subsection.

There are numerous other applicable District requirements for the Landfill Gas Flares (A-1 and A-2) and the landfill's particulate emitting activities (S-4 and S-5). All of these requirements have been identified in Table IV-A. The District is adding the new source descriptions for S-4 and S-5 to the list of subject equipment in the title of Table IV-A, but there have been no changes to the specific applicable requirements since the last permit revision.

Changes to Permit, Section IV:

- The District is updating the source description for S-1 and adding the new descriptions for S-4 and S-5 to the list of subject equipment in the title of Table IV-A.
- In Table IV-A, the District is updating the amendment date for 40 CFR Part 60 Subpart A and adding Section 60.4.
- In Table IV-A, the District is updating the amendment date for 40 CFR Part 63 Subpart A.

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10 which provides that a major facility review permit shall contain the following information and provisions:

"409.10 A schedule of compliance containing the following elements:

10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;

10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and

10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted."

Since the District has not determined that the facility is out of compliance with an applicable requirement, the schedule of compliance for this permit contains only sections 2-6-409.10.1 and 2-6-409.10.2.

Changes to Permit, Section V:

- None

VI. Permit Conditions

During the Title V permit development, the District has reviewed the existing permit conditions, deleted the obsolete conditions, and, as appropriate, revised the conditions for clarity and enforceability. Each permit condition is identified with a unique numerical identifier, up to five digits.

When necessary to meet Title V requirements, additional monitoring, recordkeeping, or reporting has been added to the permit.

All changes to existing permit conditions are clearly shown in "strike-out/underline" format in the proposed permit. When the permit is issued, all 'strike-out" language will be deleted and all "underline" language will be retained, subject to consideration of comments received.

The existing permit conditions are derived from previously issued District Authorities to Construct (A/C) or Permits to Operate (P/O). Permit conditions may also be imposed or revised as part of the annual review of the facility by the District pursuant to California Health and Safety Code (H&SC) § 42301(e), through a variance pursuant to H&SC § 42350 et seq., an order of abatement pursuant to H&SC § 42450 et seq., or as an

administrative revision initiated by District staff. After issuance of the Title V permit, permit conditions are revised using the procedures in Regulation 2, Rule 6, Major Facility Review.

Conditions that are obsolete or that have no regulatory basis have been deleted from the permit.

The regulatory basis is listed following each condition. The regulatory basis may be a rule or regulation. The District is also using the following terms for regulatory basis:

- BACT: This term is used for a condition imposed by the Air Pollution Control Officer (APCO) to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- Cumulative Increase: This term is used for a condition imposed by the APCO which limits a source's operation to the operation described in the permit application pursuant to BAAQMD Regulation 2-1-403.
- Offsets: This term is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- PSD: This term is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit issued pursuant to Regulation 2, Rule 2.
- TRMP: This term is used for a condition imposed by the APCO to ensure compliance with limits that arose from the District's Toxic Risk Management Policy and that were imposed prior to adoption of Regulation 2, Rule 5 NSR for Toxic Air Contaminants.

Under previous Title V permit applications, parameter monitoring was added for each abatement device. Additional monitoring was added, where appropriate, to assure compliance with the applicable requirements.

As discussed previously, the District is including the new source descriptions for S-1, S-4, and S-5 throughout this permit. S-4 and S-5 were added to the list of sources subject to Condition # 17309. The other proposed permit conditions changes are explained below.

<u>Changes to Permit, Section VI:</u>

- In Condition # 17309, Part 18a(i. & ii.), the District is updating the gas collection system descriptions based on alterations completed as of 2/28/14 and reported by KCLC in well start-up and decommission notification letters. The list of remaining allowable gas collection system alterations in Part 18b(i) is also being updated.
- In Condition # 17309, Part 19b, the District is updating the list of wells subject to alternative wellhead standards. The wells being removed from this list have been shut-down according to KCLC notification letters.
- In Condition # 17309, Part 36c, the District is clarifying an equation.

VII. Applicable Limits and Compliance Monitoring Requirements

This section of the permit is a summary of numerical limits and related monitoring requirements for each source. The summary includes a citation for each monitoring requirement, frequency of monitoring, and type of monitoring. The applicable requirements for monitoring are completely contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

The District has reviewed all monitoring and has determined that the existing monitoring is adequate. The tables below contain only the federally enforceable limits for which there is no monitoring in the applicable requirements. The District has examined the monitoring for other limits and has determined that monitoring is adequate to provide a reasonable assurance of compliance. Calculations for potential to emit will be provided in the discussion when no monitoring is proposed due to the size of a source.

Monitoring decisions are typically the result of a balancing of several different factors including: 1) the likelihood of a violation given the characteristics of normal operation, 2) degree of variability in the operation and in the control device, if there is one, 3) the potential severity of impact of an undetected violation, 4) the technical feasibility and probative value of indicator monitoring, 5) the economic feasibility of indicator monitoring, and 6) whether there is some other factor, such as a different regulatory restriction applicable to the same operation, that also provides some assurance of compliance with the limit in question.

These factors are the same as those historically applied by the District in developing monitoring for applicable requirements**.** It follows that, although Title V calls for a re-examination of all monitoring**,** there is a presumption that these factors have been appropriately balanced and incorporated in the District's prior rule development and/or permit issuance. It is possible that, where a rule or permit requirement has historically had no monitoring associated with it, no monitoring may still be appropriate in the Title V permit if, for instance, there is little likelihood of a violation**.** Compliance behavior and associated costs of compliance are determined in part by the frequency and nature of associated monitoring requirements. As a result, the District will generally revise the nature or frequency of monitoring only when it can support a conclusion that existing monitoring is inadequate**.**

SO_2 Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
A-1 and A-2 Landfill Gas Flares	BAAQMD 9-1-301	Property Line Ground Level Limits: ≤ 0.5 ppm for 3 minutes, AND ≤ 0.25 ppm for 60 minutes, AND ≤0.05 ppm for 24 hours	None

SO_2 Discussion:

Potential to Emit Calculations for the A-1 and A-2 Landfill Gas Flares:

Maximum potential SO_2 emissions are based on the maximum permitted total reduced sulfur compound concentration of 300 ppmv as H_2S from BAAQMD Condition # 17309, Part 34 and the maximum permitted heat input limits for these flares in BAAQMD Condition # 17309, Part 35. All calculations below assume that the landfill gas contains 50% methane with an HHV of 497 BTU/scf LFG and that the standard volume of gas at 70 °F is 387 scf/lbmol. The calculation equations are shown below for each flare.

A-1 Landfill Gas Flare:
(636,852 MM BTU/year)/(497 MM BTU/MM scf LFG)*(300 scf H_2S/MM scf LFG)/
(387 scf H_2S/1 lbmol H_2S)*(1 lbmol SO_2/1 lbmol H_2S)*(64.06 pounds SO_2/lbmol SO_2)/
(2000 pounds SO_2/ton SO_2)
= 31.816 tons SO_2/year

A-2 Landfill Gas Flare:
(665,760 MM BTU/year)/(497 MM BTU/MM scf LFG)*(300 scf H_2S/MM scf LFG)/
(387 scf H_2S/1 lbmol H_2S)*(1 lbmol SO_2/1 lbmol H_2S)*(64.06 pounds SO_2/lbmol SO_2)/
(2000 pounds SO_2/ton SO_2)
= 33.260 tons SO_2/year

Based on the theoretical flue gas generation rate of 4.785 scf of flue gas per scf of landfill gas containing 50% methane and the landfill gas H_2S limit above, the maximum SO_2 concentration in the exhaust gases from the flares will be: 63 ppmv of SO_2 at 0% oxygen. At typical exhaust gas oxygen concentrations of 10% or higher, the outlet SO_2 concentration will be less than 33 ppmv.

BAAQMD Regulation 9-1-301: This facility is subject to federally enforceable limits that will ensure compliance with the Regulation 9-1-302 gas stream emission limit of 300 ppmv of SO_2 in the exhaust from each flare. As shown above, the flares will have an

outlet concentration of less than 33 ppmv of SO2, which is no more than 11% of the Regulation 9-1-302 limit.

Based on modeling analyses conducted at another landfill site, sources complying with the Regulation 9-1-302 limit are not expected to result in an excess of the ground level concentration limits listed in Regulation 9-1-301. Since the A-1 and A-2 Flares are subject to permit condition limits that will ensure that the outlet SO_2 is no more than 11% of the Regulation 9-1-302 limit, the District expects that these flares will result in ground level SO_2 concentrations that are far below the Regulation 9-1-301 ground level SO_2 limits.

Monitoring for ground level SO_2 concentrations is very expensive. The District routinely monitors exhaust gas SO_2 levels and fuel sulfur content in lieu of conducting ground level SO_2 monitoring unless a compliance issue is suspected. Since the margin of compliance is high and no compliance problems are expected, the District has determined that routine monitoring of the landfill gas sulfur content is adequate to demonstrate on-going compliance and that ground level SO_2 monitoring would not be appropriate. Therefore, the District has not proposed any ground level SO_2 monitoring for this site.

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
A-1 and A-2 Landfill Gas Flares	BAAQMD 6-1-301 and SIP 6-301	$\leq$ Ringelmann No. 1 for 3 minutes in any hour	None
A-1 and A-2 Landfill Gas Flares	BAAQMD 6-1-310 and SIP 6-310	$\leq$ 0.15 grains/dscf	None

PM Discussion:

Potential to Emit Calculations for the A-1 and A-2 Landfill Gas Flares:

Maximum potential PM emissions for A-1 are based on the AP-42 emission factor for landfill gas fired flares (17 lbs PM_{10}/MM dscf of methane). Maximum potential PM emissions were determined using this factor and the maximum permitted landfill gas flow rate. This factor has also been converted to units of grains/dscf of exhaust as shown below. All calculations assume that the landfill gas contains 50% methane with an HHV of 497 BTU/scf LFG and that this landfill gas produces 4.785 sdcf of exhaust at 0% oxygen per scf of landfill gas burned.

A-1 Landfill Gas Flare:
(636,852 MM BTU/year)/(497 MM BTU/MM scf LFG)*(0.5 MM scf CH_4/MM scf LFG)
*(17 lbs PM_{10}/MM dscf CH_4)/(2000 pounds PM_{10}/ton PM_{10})
= 5.446 tons PM_{10}/year

(0.0171 lbs PM_{10}/MM BTU)*(7000 grains PM/lb PM)/(1E6 BTU/MM BTU)*
(497 BTU/scf LFG)/(4.785 sdcf exhaust/scf LFG) = 0.012 grains/dscf exhaust at 0% O_2

Maximum permitted PM emissions for A-2 were based on a manufacturer's guaranteed emission limit of 0.001 pounds/hour of PM per scfm of landfill gas burned. Maximum potential PM emissions were determined using this factor and the maximum permitted landfill gas flow rate. This factor has also been converted to units of grains/dscf of exhaust as shown below. All calculations assume that the landfill gas contains 50% methane with an HHV of 497 BTU/scf LFG and that this landfill gas produces 4.785 sdcf of exhaust at 0% oxygen per scf of landfill gas burned.

A-2 Landfill Gas Flare:
(76 MM BTU/hour)/(60 min/hour)*(1E6 BTU/MM BTU)/(497 BTU/scf)
= 2548.6 scfm of LFG

(0.001 pounds PM_{10}/hour / scfm of LFG)*(2548.6 scfm of LFG)*(24 hrs/day)*
(365 days/year)/(2000 pounds PM_{10}/ton PM_{10})
= 11.163 tons PM_{10}/year

(0.0335 lbs PM_{10}/MM BTU)*(7000 grains PM/lb PM)/(1E6 BTU/MM BTU)*
(497 BTU/scf LFG)/(4.785 sdcf exhaust/scf LFG) = 0.024 grains/dscf exhaust at 0% O_2

BAAQMD 6-1-301 and SIP 6-301: Visible particulate emissions are not normally associated with combustion of gaseous fuels, such as natural gas, propane, or landfill gas. Since particulate emissions from these flares are not substantial (16.6 tons/year combined), and it is highly unlikely that violations of the Ringelmann 1.0 limit would occur, periodic monitoring for the Ringelmann 1.0 limit is not justified.

BAAQMD Regulation 6-1-310 and SIP 6-310: Regulations 6-1-310 and 6-310 limit filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. As shown above in the potential to emit calculations for these devices, the flares will emit less than 0.024 gr/dscf of exhaust at 0% oxygen. The actual flare exhaust will contain at least 10% O_2. The ratio of exhaust volumes for 10% O_2 versus 0% O_2 is 1.913:1. Therefore, the grain loading in the actual flare exhaust will be: (0.024/1.913) < 0.013 gr/dscf for exhaust at 10% oxygen. The compliance ratio (limit/emissions or 0.15/0.013) for the landfill gas flares is more than 11 to 1. Since the Regulation 6-1-310 and 6-310 grain loading limits are far above any expected PM emissions and total potential PM emissions from the flares are fairly low, it would not be appropriate to add periodic monitoring for this standard.

POC Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-1, S-4, and S-5 Keller Canyon Landfill	BAAQMD 8-40-117	Soil Contaminated by Accidental Spillage of ≤ 5 gallons of Liquid Organic Compounds	None

POC Discussion:

Potential to Emit Calculations for Keller Canyon Landfill: During the aeration of soil, all organic compounds are assumed to be emitted into the atmosphere. For a maximum spill volume of five gallons and an average density for organic liquids of 7.0 pounds/gallon, the maximum potential to emit per aeration event is:
(5 gals/event)*(7.0 pounds POC/gal)/(2000 pounds POC/ton POC)
= 0.018 tons of POC/event

The aeration of soil contaminated by small spills is expected to be a rare occurrence (no more than once per year). Therefore the annual potential to emit associated with BAAQMD 8-40-117 is 0.018 tons/year of POC.

BAAQMD 8-40-117: If this facility plans to employ the Regulation 8-40-117 exemption to allow the aeration of soil that has been contaminated by a spill, the spill volume cannot exceed five gallons. For such rare and unpredictable aeration events, it may be difficult to obtain accurate records of spill volumes and maintaining such records would be burdensome. In addition, the maximum potential emissions from such an event are very small (0.018 tons/year of POC). Since the likelihood of non-compliance is low and the consequences of non-compliance are insignificant, it would not be appropriate to add periodic monitoring for this spill volume limit.

Changes to Permit, Section VII:

- In Table VII-A, the District is adding the new source descriptions for S-1, S-4, and S-5 to the table title.
- In Table VII-A, the District is clarifying that the NMOC destruction efficiency and outlet concentration limits in BAAQMD Regulation 8, Rule 34 and in 40 CFR Part 60, Subpart WWW apply to the two landfill gas flares.

VIII. Test Methods

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not applicable requirements.

If a rule or permit condition requires ongoing testing, the requirement will also appear in Section IV of the permit.

Changes to Permit, Section VIII:

- The District is adding the applicable EPA test methods for several regulatory limits including BAAQMD 6-1-301 and SIP 6-301.
- The District is correcting or clarifying the descriptions for several citations.

IX. Permit Shield:

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in a major facility review permit explaining that specific federally enforceable regulations and standards do not apply to a source or group of sources, or (2) A provision in a major facility review permit explaining that specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting are subsumed because other applicable requirements for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

The second type of permit shield is allowed by EPA's White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program. The District uses the second type of permit shield for all streamlining of monitoring, recordkeeping, and reporting requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

This facility has no permit shields. This permit has no streamlining.

Changes to Permit, Section IX:

- None

X. Revision History

This section of the permit summarizes each revision to the permit.

Changes to Permit, Section X:

- The District is adding the summary of each permit revision associated with this proposed MFR Renewal Permit (Application # 24616) to Section X.

XI. Glossary

This section of the permit defines and explains acronyms, abbreviations, and other terms that are used in this permit.

Changes to Permit, Section XI:

- The District is updating the Section XI Glossary by clarifying explanations and adding numerous new terms.

D. ALTERNATIVE OPERATING SCENARIOS

No alternate operating scenarios have been requested for this facility.

E. COMPLIANCE STATUS

The responsible official for Keller Canyon Landfill Company submitted a signed Certification Statement form with submittal of the application for renewal of the Title V permit, dated June 27, 2012, and an updated signed Certification Statement, dated January 22, 2014. On this form, the responsible official certified that the following four statements are true:

> Based on information and belief formed after reasonable inquiry, the source(s) identified in the
> Applicable Requirements and Compliance Summary form that is(are) in compliance will continue to comply with the applicable requirement(s);
>
> Based on information and belief formed after reasonable inquiry, the source(s) identified in the
> Applicable Requirements and Compliance Summary form will comply with future-effective applicable requirement(s), on a timely basis;
>
> Based on information and belief formed after reasonable inquiry, information on application forms, all accompanying reports, and other required certifications is true, accurate, and complete;
>
> All fees required by Regulation 3, including Schedule P have been paid.

F. DIFFERENCES BETWEEN THE APPLICATION AND THE PROPOSED PERMIT

The Title V permit renewal application was received on July 5, 2012. This application and the previous permit are the basis for constructing the proposed Title V permit. All differences between the Title V renewal application and the proposed permit have been discussed in this Permit Evaluation and Statement of Basis. The Applicant did not request any specific changes to this permit other than corrections to the gas collection system descriptions, which the District has incorporated into this proposed permit.

The following NSR applications have been discussed in this Statement of Basis and included in the proposed renewal of the Title V Permit:

- Permit Application #24016 in which the District updated the gas collection system description and authorized alternative wellhead standards for several individual wells, which were subsequently decommissioned.

There are no unfinished or outstanding NSR applications for this site. All applications reviewed to date have been included in this proposed permit renewal.

APPENDIX A

GLOSSARY

ACT
Federal Clean Air Act

AP-42
An EPA Document "Compilation of Air Pollution Emission Factors" that is used to estimate emissions from numerous source types. It is available electronically from EPA's web site at: http://www.epa.gov/ttn/chief/ap42/index.html

APCO
Air Pollution Control Officer: Head of Bay Area Air Quality Management District

API
American Petroleum Institute

ARB
Air Resources Board (same as CARB)

ASTM
American Society for Testing and Materials

ATC
Authority to Construct

ATCM
Airborne Toxic Control Measure

BAAQMD
Bay Area Air Quality Management District

BACT
Best Available Control Technology

BARCT
Best Available Retrofit Control Technology

Basis
The underlying authority that allows the District to impose requirements.

C1
An organic chemical compound with one carbon atom, for example: methane

C3
An organic chemical compound with three carbon atoms, for example: propane

C5
An organic chemical compound with five carbon atoms, for example: pentane

C6
An organic chemical compound with six carbon atoms, for example: hexane

CAA
The federal Clean Air Act

CAAQS
California Ambient Air Quality Standards

CAPCOA
California Air Pollution Control Officers Association

CARB
California Air Resources Board (same as ARB)

CCR
California Code of Regulations

CEC
California Energy Commission

CEM
A "continuous emission monitor" is a monitoring device that provides a continuous direct measurement of some pollutant (e.g. NOx concentration) in an exhaust stream.

CEQA
California Environmental Quality Act

CFR
The Code of Federal Regulations. 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs.

CH4 or CH_4
Methane

CI
Compression Ignition

CIWMB
California Integrated Waste Management Board

CO
Carbon Monoxide

CO2 or CO_2
Carbon Dioxide

CO2e
Carbon Dioxide Equivalent. A carbon dioxide equivalent emission rate is the emission rate of a greenhouse gas compound that has been adjusted by multiplying the mass emission rate by the global warming potential of the greenhouse gas compound. These adjusted emission rates for individual compounds are typically summed together, and the total is also referred to as the carbon dioxide equivalent (CO2e) emission rate.

CT
Combustion Zone Temperature

Cumulative Increase
The sum of permitted emissions from each new or modified source since a specified date pursuant to BAAQMD Rule 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Rule 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Used to determine whether threshold-based requirements are triggered.

District
The Bay Area Air Quality Management District

E 6, E 9, E 12
Very large or very small number values are commonly expressed in a form called scientific notation, which consists of a decimal part multiplied by 10 raised to some power. For example, 4.53 E 6 equals (4.53) x (10^6) = (4.53) x (10 x 10 x 10 x 10 x 10 x 10) = 4,530,000. Scientific notation is used to express large or small numbers without writing out long strings of zeros.

EG
Emission Guidelines

EO
Executive Order

EPA
The federal Environmental Protection Agency.

ETP
Effluent Treatment Plant

Excluded
Not subject to any District Regulations.

Federally Enforceable, FE
All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60, (NSPS), Part 61, (NESHAPs), Part 63 (HAP), and Part 72 (Permits Regulation, Acid Rain), and also including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP.

FP
Filterable particulate as measured by BAAQMD Method ST-15, Particulate.

FR
Federal Register

GDF
Gasoline Dispensing Facility

GHG
Greenhouse Gas

GLM
Ground Level Monitor

grains
1/7000 of a pound

GWP
Global Warming Potential. A comparison of the ability of each greenhouse gas to trap heat in the atmosphere relative to that of carbon dioxide over a specific time period.

H2S or H_2S
Hydrogen Sulfide

H2SO4 or H_2SO_4
Sulfuric Acid

H&SC
Health and Safety Code

HAP
Hazardous Air Pollutant. Any pollutant listed pursuant to Section 112(b) of the Act. Also refers to the program mandated by Title I, Section 112, of the Act and implemented by 40 CFR Part 63.

Hg
Mercury

HHV
Higher Heating Value. The quantity of heat evolved as determined by a calorimeter where the combustion products are cooled to 60F and all water vapor is condensed to liquid.

KCLC
Keller Canyon Landfill Company

LEA
Local Enforcement Agency

LFG
Landfill gas

LHV
Lower Heating Value. Similar to the higher heating value (see HHV) except that the water produced by the combustion is not condensed but retained as vapor at 60 °F.

Long ton
2200 pounds

Major Facility
A facility with potential emissions of: (1) at least 100 tons per year of any regulated air pollutant, (2) at least 10 tons per year of any single hazardous air pollutant, and/or (3) at least 25 tons per year of any combination of hazardous air pollutants, or such lesser quantity of hazardous air pollutants as determined by the EPA administrator.

MAX or Max.
Maximum

MFR
Major Facility Review. The District's term for the federal operating permit program mandated by Title V of the Federal Clean Air Act and implemented by District Regulation 2, Rule 6.

MIN or Min.
Minimum

MOP
The District's Manual of Procedures.

MSDS
Material Safety Data Sheet

MSW
Municipal solid waste

MTBE
methyl tertiary-butyl ether

MW
Molecular weight

N2 or N_2
Nitrogen

NA
Not Applicable

NAAQS
National Ambient Air Quality Standards

NESHAPs
National Emission Standards for Hazardous Air Pollutants contained in 40 CFR Parts 61 and 63.

NMHC
Non-methane Hydrocarbons (same as NMOC).

NMOC
Non-methane Organic Compounds (same as NMHC).

NO2 or NO_2
Nitrogen Dioxide.

NOx or NO_x
Oxides of nitrogen.

NSPS
Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Federal Clean Air Act, and implemented by both 40 CFR Part 60 and District Regulation 10.

NSR
New Source Review. A federal program for pre-construction review and permitting of new and modified sources of air pollutants for which the District is classified "non-attainment". Mandated by Title I of the Clean Air Act and implemented by 40 CFR Parts 51 and 52 as well as District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

O2 or O_2
Oxygen

Offset Requirement
A New Source Review requirement to provide federally enforceable emission offsets at a specified ratio for the emissions from a new or modified source and any pre-existing cumulative increase minus any onsite contemporaneous emission reduction credits. Applies to emissions of POC, NOx, PM10, and SO2.

PERP
Portable Equipment Registration Program

Phase II Acid Rain Facility
A facility that generates electricity for sale through fossil-fuel combustion and by virtue of certain other characteristics (defined in Regulation 2, Rule 6) is subject to Titles IV and V of the Clean Air Act.

POC
Precursor Organic Compounds

PM
Total Particulate Matter

PM10 or PM_{10}
Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

PM2.5 or $PM_{2.5}$
Particulate matter with aerodynamic equivalent diameter of less than or equal to 2.5 microns.

PSD
Prevention of Significant Deterioration. A federal program for permitting new and modified sources of air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2.

PV or P/V Valve or PRV
Pressure/Vacuum Relief Valve

Regulated Organic Liquid
"Regulated organic liquids" are those liquids which require permits, or which are subject to some regulation, when processed at a liquid-handling operation. For example, for refinery marine terminals, regulated organic liquids are defined as "organic liquids" in Regulation 8, Rule 44.

RICE
Reciprocating Internal Combustion Engine

RMP
Risk Management Plan

RWQCB
Regional Water Quality Control Board

S
Sulfur

SCR
A "selective catalytic reduction" unit is an abatement device that reduces NOx concentrations in the exhaust stream of a combustion device. SCRs utilize a catalyst, which operates at a specific temperature range, and injected ammonia to promote the conversion of NOx compounds to nitrogen gas.

Short ton
2000 pounds

SIP
State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act.

SO2 or SO_2
Sulfur dioxide

SO3 or SO_3
Sulfur trioxide

SSM
Startup, Shutdown, or Malfunction

SSM Plan
A plan, which states the procedures that will be followed during a startup, shutdown, or malfunction, that is prepared in accordance with the general NESHAP provisions (40 CFR Part 63, Subpart A) and maintained on site at the facility.

TAC
Toxic Air Contaminant (as identified by CARB)

TBACT
Best Available Control Technology for Toxics

THC
Total Hydrocarbons includes all NMHC plus methane (same as TOC).

therm
100,000 British Thermal Unit

Title V
Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

TOC
Total Organic Compounds includes all NMOC plus methane (same as THC).

TPH
Total Petroleum Hydrocarbons

TRMP
Toxic Risk Management Policy: In 1987, BAAQMD adopted a "Toxic Risk Management Policy" to implement the District's new source review requirements for new and modified sources of toxic air contaminants. The TRMP was replaced by BAAQMD Regulation 2, Rule 5 on June 15, 2005. The previous TRMP and the subsequent rule are not federally enforceable.

TRS
Total Reduced Sulfur, which is a measure of the amount of sulfur-containing compounds in a gas stream, typically a fuel gas stream, including, but not limited to, hydrogen sulfide. The TRS content of a fuel gas determines the concentration of SO_2 that will be present in the combusted fuel gas, since sulfur compounds are converted to SO_2 by the combustion process.

TSP
Total Suspended Particulate

TVP
True Vapor Pressure

VMT
Vehicle Miles Traveled

VOC
Volatile Organic Compounds

Symbols:

<	=	less than
>	=	greater than
$\leq$	=	less than or equal to
$\geq$	=	greater than or equal to

Units of Measure:

atm	=	atmospheres
bbl	=	barrel of liquid (42 gallons)
bhp	=	brake-horsepower
btu	=	British Thermal Unit
BTU	=	British Thermal Unit
°C	=	degrees Centigrade
cfm	=	cubic feet per minute
dscf	=	dry standard cubic feet
°F	=	degrees Fahrenheit
ft^3	=	cubic feet
g	=	grams
gal	=	gallon

gpm	=	gallons per minute
gr	=	grains
hp	=	horsepower
hr	=	hour
in	=	inches
kW	=	kilowatts
lb	=	pound
lbmol	=	pound-mole
m^2	=	square meter
m^3	=	cubic meters
Mg	=	mega grams
min	=	minute
mm	=	millimeter
mm Hg	=	millimeters of mercury (pressure)
MM	=	million
MM BTU	=	million BTU
M cf	=	one thousand cubic feet
M scf	=	one thousand standard cubic feet
MM cf	=	one million cubic feet
MM scf	=	one million standard cubic feet
MW	=	megawatts
ppb	=	parts per billion
ppbv	=	parts per billion, by volume
ppm	=	parts per million
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scf	=	standard cubic feet
scfm	=	standard cubic feet per minute
sdcf	=	standard dry cubic feet
sdcfm	=	standard dry cubic feet per minute
yd	=	yard
yd^3	=	cubic yards
yr	=	year

APPENDIX B

ENGINEERING EVALUATION
FOR
APPLICATION # 24016

ENGINEERING EVALUATION

Keller Canyon Landfill Company; Site # A4618

APPLICATION # 24016

Add 9 Wells to List of Wells Subject to High O2 Limit

G. BACKGROUND

Site Description:

Keller Canyon Landfill Company (KCLC), a subsidiary of Allied Waste Industries, Inc., owns and operates the Keller Canyon Landfill Facility (Facility # A4618) in Pittsburg, CA. The current permit includes the following equipment: S-1, S-3, S-4, S-5, A-1, and A-2, which is described in detail below.

The Keller Canyon Landfill is an active Class II MSW landfill. Three active landfill operations are covered by three source numbers: S-1 Keller Canyon Landfill – Waste Decomposition Process, Equipped with Landfill Gas Collection System, S-4 Keller Canyon Landfill – Waste and Cover Material Dumping, and S-5 Keller Canyon Landfill – Excavating, Bulldozing, and Compacting Activities. This landfill is currently permitted to accept a maximum 3500 tons/day of refuse and is permitted to dispose of 38.4 million tons of decomposable waste in the landfill. As of June 30, 2011, the landfill contained 13.0 million tons of decomposable waste. In addition to MSW, this site is allowed to accept designated wastes including petroleum-contaminated soils. From July 2010-June 2011, KCLC reported accepting 41,020 tons of contaminated soil.

Landfill gas that is collected from S-1 may either be sent to an independent energy plant (Ameresco Keller Canyon, LLC, Plant # 17667) or to the on-site enclosed Landfill Gas Flares (A-1 and A-2). The energy plant uses landfill gas as fuel in their two IC engines, which produce electricity for sale to the grid, and as supplemental fuel for a small waste gas flare, which controls emissions from the landfill gas treatment system at this site. During July 2010-June 2011, KCLC reported that 0.585 million scf of landfill gas was delivered to the energy plant and 0.505 million scf of landfill gas was burned in the on-site landfill gas flares.

This facility also has a Yard and Green Waste Stockpile (S-3) that is permitted to accept up to 70,200 tons/year of waste material for recycling. For July 2010-June 2011, KCLC reported that S-3 accepted 0 tons/year of materials.

Current Project:

This application concerns the landfill gas collection system that is included as part of S-1. In 2006, the District approved permit condition changes for S-1 under Application # 13178 that would allow a small number of landfill gas collection components to be operated at an alternative wellhead oxygen standard compared to the limit cited in Regulation 8-34-305.4. For the specified wells, the wellhead oxygen limit was increased from 5% by volume to 15% by volume in Condition # 17309, Part 19b(i). Additional surface monitoring in the vicinity of these wells is required to ensure that wells operating at the higher oxygen content do not result in excess surface emission leaks.

KCLC submitted Application # 24016 to request a Change of Conditions that would add nine landfill gas collection wells to the list of wells that are currently subject to the alternative wellhead oxygen limit described above. The nine wells are: A001, A002, A003, A004, A005, A021, A029, A030, and A032. These wells have been sporadically experiencing oxygen levels that exceed 5% by volume. KCLC has attempted various corrections such as adjusting the vacuum and sealing the surface near these wells to prevent air intrusion, but these corrections have not been successful at eliminating all excursions above the 5% O_2 limit. KCLC would like to continue operating these wells to ensure that no surface leaks occur in this area, but continue operation will require the alternative wellhead oxygen limit of 15% by volume.

In addition to the request above, KCLC notified the District on 10/12/11 that 2 vertical wells (E025R and L039) had been decommissioned in accordance with the Condition #17309, Part 18b(i). This change will be incorporated into the well list in Part 18a and the authorized collection system changes in Part 18b.

An accelerated permit to operate was approved for these landfill gas collection system well alterations on December 27, 2011 under Application # 24016.

H. EMISSIONS

In accordance with Regulation 8-34-305, the District may establish alternatives to the wellhead standards listed in Regulation 8-34-305.1-4. The wellhead temperature (8-34-305.2), nitrogen (8-34-305.3) and oxygen (8-34-305.4) standards are intended to prevent subsurface fires and to give additional leeway in determining the proper operating levels for an adequately functioning well. Therefore, subjecting a well to an alternative oxygen standard is not expected to influence surface emission leaks from the landfill and is not expected to cause emission increases.

KCLC has submitted information demonstrating that the nine wells under review are adequately collecting landfill gas even though these wells have oxygen levels greater than 5% by volume. The high oxygen levels do not appear to be inhibiting anaerobic decomposition, and subsurface fires have not been observed at this site. Therefore, adding these twenty-four wells to the list of wells subject to the alternative oxygen standard of 15% by volume will not result in any emission increases.

Landfill gas collection system alterations are intended to ensure that the landfill gas collection system is properly maintained and operated. These alterations optimize the performance of the landfill gas collection system and maintain or improve the overall capture efficiency of the gas collection system. Since these alterations will not result in gas collection rates that exceed the permitted capacity of the control systems for this site, these alterations will not result in any changes to the maximum permitted emissions from the landfill or the on-site flares.

I. STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

This action concerns a change of permit conditions at the S-1 Keller Canyon Landfill that could involve minor alterations of the landfill gas collection system, which is part of the overall emission control system for the landfill. However, these alterations and permit condition

revisions will not allow any expansion of any operations beyond the currently permitted maximum operating rates and will not result in any emission increases at this facility. There is no possibility that the proposed permit condition revisions or collection system alterations could have any significant impact on the environment. Therefore, this proposed change of permit conditions is categorically exempt from CEQA review pursuant to Regulations 2-1-312.1, 2-1-312.2, and 2-1-312.6. No further CEQA review is required.

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

Regulation 2, Rule 2:

Since this project will not result in any increases of maximum permitted emissions from S-1, this project is not subject to New Source Review or any requirements of Regulation 2, Rule 2.

Regulation 2, Rule 5:

Since this project will not result in any increases of maximum permitted emissions from S-1, this project is not subject to New Source Review for Toxic Air Contaminants or any requirements of Regulation 2, Rule 5.

Regulation 2, Rule 6:

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. In addition to being a designated facility, the maximum permitted CO emission rate for this site exceeds 100 tons/year of CO. Therefore, a Title V permit is required pursuant to Regulation 2-6-301 as well as Regulation 2-6-304.

This facility received its initial Title V permit on September 20, 2001. The Title V permit was renewed on January 3, 2008 and was last revised on January 11, 2012.

These proposed permit condition revisions will require a minor revision of the MFR permit and will be discussed in detail in the Statement of Basis for Application # 13651.

Regulation 8, Rule 34:

Regulation 8-34-305 states:

> **8-34-305** **Wellhead Requirements:** Effective July 1, 2002 and except as provided in Sections 8-34-119 or 120, each wellhead in the gas collection system shall meet the requirements of Sections 8-34-305.1 and 305.2 and either 305.3 or 305.4, unless the operator has discovered the excess and has satisfied all of the requirements of Section 8-34-414; or the operator has received permit conditions containing alternative operating levels:
>
> 305.1 Each wellhead shall operate under a vacuum (negative pressure); and
>
> 305.2 The landfill gas temperature in each wellhead shall be less than 55° C (131° F); and either
>
> 305.3 The nitrogen concentration in each wellhead shall be less than 20% by volume; or

> 305.4 The oxygen concentration in each wellhead shall be less than 5% by volume.

While Regulation 8-34-305.4 establishes a default wellhead oxygen (O_2) limit of 5% by volume, the preamble states that compliance with this limit may be demonstrated by meeting permit conditions containing alternative operating levels. Under Applications # 11378, the District established an alternative operating level of 15% O_2 by volume. Nine wells are currently subject to this alternative wellhead oxygen limit. This current application will allow 9 additional wells to be subject to the alternative oxygen standard of 15% by volume. This elevated oxygen level is not expected to cause fires or to inhibit anaerobic decomposition. The permit holder is required to demonstrate compliance with this alternative standard in accordance with Regulation 8-34-505, which requires monthly monitoring of all landfill gas wells for gauge pressure, temperature, and oxygen content. To ensure that approving elevated oxygen levels at these wells will not result in emission increases, the District is requiring that surface emission monitoring frequency be increased in the vicinity of these wells.

Regulation 8-34-414 identifies a repair schedule that should be followed if an excess of a Regulation 8-34-305 wellhead limit is discovered. Permit conditions clarify that this repair schedule should also be followed if an excess of the alternative oxygen concentration limit is discovered. However, the District notes that a potential conflict exists in the language of Sections 414.3 and 414.4. Section 414.3 states that the gas collection system shall be expanded, if the wellhead excess cannot be repaired within 15 days of the date that the excess was first discovered. In some cases, a landfill gas collection system expansion is not the appropriate way to bring collection system wells back into compliance with applicable wellhead standards. This is especially true for excesses of temperature limits or oxygen concentration limits. If fire is the suspected cause of a temperature excess, the appropriate response would be to temporarily disconnected the well from vacuum and extinguish the fire. For some wellheads that have excess of the oxygen concentration limit, expanding the gas collection system could introduce more air into the wells and could exacerbate the problem. For many cases of wellhead oxygen concentration excesses, the appropriate corrective action is to repair or replace the particular well, monitoring point, or landfill surface near this well/monitoring point. Such corrective actions could return the well to compliant status, but would not constitute an "expansion" of the gas collection system. Due to the logistics of the necessary repair or replacement activities, it may not be possible to complete all necessary corrective actions within 15 days. For wells subject to alternative wellhead oxygen limits that require a corrective action pursuant to Section 414.3, the landfill gas collection system does not need to be "expanded" to correct the wellhead excess, if other corrective actions can be completed within the time period allowed pursuant to Section 414.4.

Regulation 8, Rule 34 requires that this facility be equipped with a landfill gas collection that is properly maintained and properly operated. The District previously authorized alterations to the collection system that were intended to fulfill these Regulation 8-34 requirements. Monitoring of wellhead parameters at the installed wells indicates that the new wells are functioning properly.

Notifications of well changes were submitted on 10/12/11 in Application # 23460. The currently installed landfill gas collection system wells and the revised well IDs are identified in Table 1 below. The decommissioned components are identified with strike-through formatting and are highlighted in yellow. New components and replaced wells with new IDs are identified with underline formatting and highlighted in green. Renamed wells are highlighted in blue.

Three components, the new horizontal collector (HC-3), an existing horizontal collector (HC-1) and a vacuum connection point at the leachate collection and removal system piping (LCRS-1) were installed for landfill gas migration control purposes and are not part of the main landfill gas collection and control system. These components were installed to prevent the emission of landfill gas in the event that landfill gas escapes from the waste area and migrates into these piping systems. Since these components are not part of the main landfill gas collection system, they are not required to be operated continuously by Section 301.1 and are not subject to the Section 305 wellhead standards.

Table 1. Landfill Gas Collection System Components Installed as of October 12, 2011

A001	B001	D001	E007R	K013R	L037R	M001		Q001R	R001P	S001	HC-1
A002	B002	D002	E008R	K014	~~L039~~	M003R		Q002R	R003P	S002	HC-2
A003	B003	D003	E010R	K015R	L040R	M005R		Q003R	R004P	S003	HC-3
A004	B004	D004	E012R	K016R		M007R		Q004R	R005P		LCRS-1
A005	B005	D005	E019R	K017R		M010		Q005R	R006P		
A006	B006	D006	E020R	K018R		M011		Q006R	R007P		
A021	B007		E024R	K022R		M012		Q007R	R008P		
A023R	B008		~~E025R~~	K028R				Q008R	R1		
A029			E027R	K033R				Q009R	R3		
A030				K035R				Q010R			
A031				K036							
A032											
12	8	6	~~98~~	11	~~32~~	7	0	10	9	3	4

Federal Requirements:

NSPS for MSW Landfills: In the BAAQMD, compliance with Regulation 8, Rule 34 will ensure compliance with all applicable requirements of 40 CFR, Part 60, Subpart WWW. Specific applicable NSPS requirements are listed in the existing MFR Permit. The pertinent standard is 40 CFR 60.753(c), which states:

> Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 °C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The owner or operator may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

As with Regulation 8-34-305, the NSPS allows for the establishment of alternative wellhead standards. These alternative standards must be approved by the administrator, which in this case is the District, prior to implementation. The MFR Permit review and approval process constitutes approval by the administrator of an alternative standard for 40 CFR 60.753(c). EPA will have the opportunity to review the District's proposed increase in the number of wells that are subject to the alternative oxygen standard pursuant to the MFR Permit review process. KCLC is expected to continue to comply with all applicable NSPS monitoring and record keeping requirements for the affected wells including: 40 CFR 60.755(a)(5), 60.756(a)(2), and 60.758(e).

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. All applicable requirements are contained in the existing MFR permit. This facility is expected to continue to comply with these requirements.

J. PERMIT CONDITION REVISIONS

The District is proposing to modify Condition # 17309, Parts 18 and 19, as indicated below to update the description of the main landfill gas collection system based on the alteration notifications submitted to date and to include nine additional wells under the alternative wellhead oxygen limit.

Condition # 17309
For S-1 KELLER CANYON LANDFILL, A-1 LANDFILL GAS FLARE, AND A-2 LANDFILL GAS FLARE:

(no changes to Parts 1-18)

18. Landfill Gas Collection System Design and Alteration Requirements:
The Permit Holder shall have a properly operated and properly maintained active landfill gas collection system at the S-1 Keller Canyon Landfill that complies with the design and alteration requirements listed below. (Basis: Regulations 2-1-301, 8-34-301.1, 8-34-303, 8-34-304, 40 CFR 60.755(a) and 60.759)

a. The Permit Holder has been issued a Permit to Operate for the landfill gas collection system components listed below. Well and collector locations, depths, and lengths of associated piping are as described in detail in Permit Application #23460. The authorized number of landfill gas collection system components is the baseline count listed below plus any components installed and minus any components permanently decommissioned pursuant to Part 18b, as evidenced by start-up and decommissioning notification letters submitted to the District.

i. The following components constitute the main landfill gas collection system.

Well Station	Vertical Wells
A	12
B	8
D	6
E	~~9~~8
K	11
L	~~3~~2
M	7
O	0
Q	10
R	9
S	3

ID	Horizontal Collectors
HC-2	1

ii. The following components have been installed to prevent or control landfill gas migration and are not part of the main landfill gas collection and control system.

	Horizontal Collectors
HC-1	1
HC-3	1
	Other Components
LCRS-1	1

b. The Permit Holder has been authorized to conduct the landfill gas collection system alterations listed below pursuant to Application #23460. All collection system alterations shall comply with subparts i-vii below. Components installed or decommissioned pursuant to Part 18b shall be added to or removed from Part 18a(i) in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415.

i. The authorized collection system alterations are:
- Install up to 100 vertical gas collection wells.
- Permanently decommission up to ~~60~~58 vertical wells.
- Install up to 2 wellhead stations that will provide flow rate control and monitoring points for recently installed wells.

ii. The Permit Holder shall apply for and receive a Change of Conditions from the District before implementing any changes to the landfill gas collection system described in Part 18a, other than those authorized by Part 18b. Installing, decommissioning, and relocating vertical wells and horizontal collectors are alterations that are subject to this requirement, unless this change constitutes a replacement as defined in subpart iii below.

iii. Replacement of landfill gas collection system components with identical or functionally equivalent components will not be deemed an alteration and will not subject to the Authority to Construct requirement under the following circumstances. If a well or collector will be shut down and replaced by a new well or collector in essentially the same location as the old component and this decommission/installation will be accomplished in accordance with Regulations 8-34-117 and 8-34-118, then this activity shall be considered a component replacement that is not subject to an Authority to Construct or Change of Conditions requirement. For each individual well or collector replacement, this subpart authorizes a maximum vacuum disconnection time of five consecutive days for compliance with Regulation 8-34-117.5. The disconnected component and the new component shall not be counted toward the Part 18b(i) component alteration limits; the numbers of replacement wells and replacement collectors are not limited. Alterations, repairs, or replacements of non-perforated piping sections (such as risers, laterals, or header pipes), piping

connectors, or valves are not subject to the Authority to Construct requirement.

iv. At least three days prior to initiating operation of a well or collector installed pursuant to Part 18b, the Permit Holder shall submit a start-up notice to the District that contains the component ID number for each new well or collector and the anticipated initial start-up date for each new component.

v. For each well or collector that is permanently decommissioned after April 16, 2007, the Permit Holder shall submit a decommissioning notice to the District within no later than three working days after the component was disconnected from vacuum system. This decommissioning notice shall contain the component ID for each well or collector that was decommissioned, the date and time that each component was disconnected from the vacuum system, and the reason the component was decommissioned.

vi. Within six months of installing a new component or permanently decommissioning an existing component, the Permit Holder shall prepare an updated map of the landfill gas collection system that identifies the ID numbers and locations of all operable wells and collectors. On this map or in accompanying documentation, the Permit Holder shall summarize all component changes that were made since the last map was prepared. The previous collection system map, the updated collection system map, and the component change summary shall be provided to District staff upon request.

vii. If the Permit Holder has a net reduction (number of decommissioned components minus the number of installed components) of more than five components within a 120-day period, the Permit Holder shall submit a more comprehensive decommissioning notice to the District. In addition to the information required by subpart v, this comprehensive decommissioning notice shall include the maps and documentation required by subpart vi, shall identify all component changes that have occurred but that are not included on the most recently updated map, shall identify any components that are temporarily disconnected from vacuum pursuant to Part 19c, shall provide estimated vacuum reconnection dates for these components, shall include a list of all well installations that are expected to occur within the next 120 days, and shall discuss the reasons why this reduction in gas collection components is not expected to result in surface emission leaks. Upon request, the Permit Holder shall provide wellhead monitoring data, surface leak monitoring data, records of repair attempts made to date, and other information to support the need for a net component reduction of more than five wells. The District may require additional surface monitoring to verify that this net component reduction is not causing landfill surface leaks. The District will notify the Permit Holder in writing of

any additional surface monitoring that is required pursuant to this subpart.

19. Operating Requirements for Landfill Gas Collection System and Collection System Components:

a. The landfill gas collection system described in Part 18a(i) shall be operated continuously. Each component that is subject to this continuous operation requirement shall not be shut off, disconnected, or removed from operation without prior written authorization from the District, unless the Permit Holder complies with Part 19c or with all applicable requirements of Regulation 8, Rule 34, Sections 113, 116, 117, and 118. (Basis: Regulation 8-34-301, 40 CFR 60.753(b and c) and 60.755(e))

i. The components identified in Part 18a(ii) are not required to operate continuously and may be connected to or disconnected from the main vacuum system at the operator's discretion, provided the owner/operator either connects each component to the vacuum system at least once per quarter or inspects each component to determine if vacuum connection is necessary at least once each quarter. The operator shall record the date, time, and reason for each vacuum connection/disconnection event and for each inspection.

b. Each landfill gas collection system component listed in Part 18a(i) shall be operated in compliance with the wellhead limits of Regulation 8-34-305, unless an alternative wellhead limit has been approved for that component, (as identified in subpart i below), and the Permit Holder complies with all of the additional requirements for that component, as identified in subparts ii-vii below. (Basis: Regulation 8-34-305)

i. The nitrogen and oxygen concentration limits in Regulation 8-34-305.3 and 8-34-305.4 shall not apply to the landfill gas collection wells listed below, provided that the oxygen concentration in each of the following wells does not exceed 15% by volume.

E027R, K035R, M005R, R001(P), R003(P), R004(P), R005(P), R006(P), R007(P), A001, A002, A003, A004, A005, A021, A029, A030, and A032

ii. The Permit Holder shall demonstrate compliance with the alternative wellhead oxygen limit in subpart i by monitoring each wellhead for oxygen on a monthly basis, in accordance with the provisions of Regulations 8-34-505 and 8-34-604.

iii. All test dates, wellhead oxygen concentration data, any deviations from the subpart i limit, repair actions, repair dates, re-monitoring dates and results, and compliance restoration dates shall be recorded in a District approved log and made available to District staff upon request in accordance with Regulations 8-34-34-501.4, 8-34-501.9, and 8-34-414.

iv. To demonstrate that the alternative wellhead oxygen limit in subpart i will not cause surface emission leaks, the Permit Holder shall conduct additional surface emission monitoring within a 15 meter vicinity of each component listed in subpart i

at the specific locations discussed below. For each component in subpart i, the Permit Holder shall maintain a map showing the location of the buried collection component and identifying the approximate radius of influence for the component. For each component in subpart i, the Permit Holder shall monitor for landfill surface emissions – in accordance with Regulations 8-34-506 and 8-34-607 – at three representative points on the landfill surface that are within the radius of influence of the component and that are not more than 15 meters from the surface location of the component. This additional surface emission monitoring shall be conducted on a monthly basis for a period of at least six consecutive months.

v. If no excesses of the Regulation 8-34-303 surface emission limit are detected within a 15 meter vicinity of a component for six consecutive months, the Permit Holder may discontinue the additional monthly surface emission monitoring in the vicinity of that component and shall continue with the routine quarterly surface emission monitoring requirements for that component.

vi. If one or more excesses of the Regulation 8-34-303 surface emission limit are detected within a 15 meter vicinity of a component during a six consecutive month period, the Permit Holder shall follow all applicable requirements for recording and reporting the excess and shall follow the Regulation 8-34-415 repair schedule for landfill surface leak excesses. The additional monthly surface emission monitoring in the vicinity of that component shall continue until either the no surface excess requirements of subpart v have been achieved or the repair and compliance restoration requirements of subpart vii have been satisfied.

vii. If excesses of the Regulation 8-34-303 surface emission limit are detected within a 15 meter vicinity of a component for three or more monitoring events during a six consecutive month period, the subpart i alternative wellhead oxygen limit shall be revoked for that component. The Permit Holder shall conduct all necessary repairs to the landfill gas collection well, to any piping associated with the well or the remote wellhead monitoring system, to valves, flanges, or other connectors, and to any test ports or other openings that are necessary to eliminate air intrusion into the well or the monitoring point, to prevent impairment of vacuum application or vacuum adjustment at the collection well, and to restore the collection well and associated monitoring point to proper function. The Permit Holder shall complete all of the above repairs and any necessary landfill surface repairs and shall restore compliance with the Regulation 8-34-303 surface emission limit (at each location where an excess of the surface limit was measured) and the Regulation 8-34-305.4 wellhead oxygen concentration limit by the earlier of the following dates: (a) within 120 days of the date that the first excess was discovered if the three excess events are discovered

within a single quarterly period pursuant to the re-monitoring requirements of 8-34-415 or (b) within 60 days of detection of the third excess.

c. The Permit Holder may temporarily disconnect individual wells or collectors listed in Part 18a(i) from the vacuum system, provided that all requirements of this subpart are satisfied. (Basis: Regulation 8-34-404)

i. No more than five (5) landfill gas collection system components (wells or collectors) may be temporarily disconnected from the vacuum system at any one time pursuant to Part 19c.

ii. For each individual well or collector that is temporarily disconnected from the vacuum system pursuant to Part 19c, the total vacuum system disconnection time shall not exceed 120 days during any 12-month period.

iii. Collection system components that are disconnected from the vacuum system are not subject to wellhead limits (Regulation 8-34-305 or Part 19b) or to monthly wellhead monitoring requirements (Regulation 8-34-505) during this vacuum disconnection time.

iv. Wells or collectors that are temporarily disconnected from the vacuum system continue to be subject to the component leak limit (Regulation 8-34-301.2) and the quarterly leak testing requirement (Regulation 8-34-503) at all times. In addition, the Permit Holder shall conduct the following component leak monitoring at each component that has been disconnected from the vacuum system pursuant to Part 19c: test for component leaks using the procedures identified in Regulation 8-34-602 within 10 calendar days of disconnection from vacuum and again within 1 month of disconnection from vacuum. If a component leak is detected at the well, the Permit Holder shall take all steps necessary to reduce the leak below the applicable limit, including reconnecting the well to the vacuum system, if no other corrective action measures are successful within the time frames allowed by Rule 34.

v. For each temporary component disconnection event, the Permit Holder shall record each affected well ID number, all well disconnection dates and times, all well reconnection dates and times, all related monitoring dates and monitoring results in a District approved log. This log shall also include an explanation of why the temporary vacuum disconnection was necessary and shall describe all adjustments or repairs that were made in order to allow this well to operate continuously, to reduce leaks, or to achieve compliance with an applicable limit. All records shall be retained for a minimum of five years and shall be made available to District staff upon request.

K. RECOMMENDATION

Issue a Change of Permit Conditions for the following equipment:

S-1 Keller Canyon Landfill – Waste Decomposition Process, Equipped With Landfill Gas Collection System; abated by Flares (A-1 and A-2):

	signed by Carol S. Allen	3/8/12
By:	Carol S. Allen	Date
	Supervising Air Quality Engineer	