



STARTUP, SHUTDOWN, AND MALFUNCTION PLAN

GAS COLLECTION AND CONTROL SYSTEM (GCCS)

AMERICAN AVENUE LANDFILL KERMAN, CA

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AMERICAN AVENUE LANDFILL KERMAN, CA

This startup, shutdown, and malfunction (SSM) plan (SSM Plan) was prepared by SCS Engineers for the County of Fresno in order to comply with the requirements of 40 CFR 63.6(e)(3), as this facility is subject to 40 CFR Part 63, Subpart AAAA, the National Emission Standard for Hazardous Air Pollutants (NESHAPs) for Municipal Solid Waste (MSW) landfills. The SSM Plan contains all of the required elements set forth within 40 CFR 63.6(e).

This SSM Plan will be revised if the procedures described herein do not adequately address any malfunction or startup/shutdown events that occur at the facility. A copy of the original plan and all revisions/addenda will be kept on file at the facility for at least five (5) years. The Senior Engineering Technician, James D. Moore is responsible for assuring that the most recent copy of this SSM Plan is made available to all personnel involved with the landfill gas (LFG) collection and control system (GCCS) at the American Avenue Landfill as well as to appropriate regulatory agency personnel for inspection.

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2 Introduction

2.1 Purpose and Scope

This start-up, shutdown, and malfunction (SSM) plan was prepared by SCS Engineers (SCS) on behalf of the County of Fresno, Planning & Resource Management Department, Resources Division (County) for the American Avenue Landfill to fulfill the requirements of 40 CFR 63.6(e)(3). The County is the municipal solid waste (MSW) landfill owner or operator of an affected source and, as such, must develop and implement a written SSM Plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction; a program of corrective action for malfunctioning processes; and air pollution control and monitoring equipment used to comply with the relevant standard. The purpose of the SSM Plan is to:

- Ensure that, at all times, the MSW landfill owner or operator operates and maintains the affected source, including associated air pollution control and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions to the levels required by the relevant standards;
- Ensure that MSW landfill owners or operators are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of hazardous air pollutants; and
- Reduce the reporting burden associated with periods of startup, shutdown, and malfunction (including corrective action taken to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation).

The landfill is subject to 40 CFR Part 62, Subpart GGG, which is the Federal Plan for the Emission Guidelines (EG). On May 1, 2003, the American Avenue Landfill became fully subject to the requirements of the Federal Plan for the EG, which are essentially a duplicate of the New Source Performance Standards (NSPS) contained in 40 CFR Part 60, Subpart WWW.

The American Avenue Landfill is an existing affected source under the Maximum Achievable Control Technology (MACT) rule for MSW landfills, which began operating on January 1, 1971 and maintains Solid Waste Facility Permit (SWFP) No. SWFP-10-AA-0009 issued on June 6, 2000. As such, an SSM Plan is required to be prepared, and implemented for this landfill site by January 16, 2004, and this SSM Plan meets or exceeds this requirement.

The County and management of the American Avenue Landfill fully understands and acknowledges the SSM Plan requirements of the MACT rule. This SSM Plan has been developed to specifically address these requirements as summarized above.

2.2 Description Of Site

The American Avenue Landfill (site) is in rural central Fresno County, approximately 17 miles west of the City of Fresno on American Avenue, between Highway 145 and Placer Avenue. The landfill's site address is 18950 West American Avenue in Kerman, California 93630. The site is an existing disposal facility owned and operated by the County of Fresno Planning & Resources Management Department. The site resides on a 440-acre parcel with 361 acres permitted for waste disposal.

The site is comprised of assessor parcel numbers 020-052-02S, -05ST, -06, and -09 and 020-021-26S, -27, -33ST, -34ST, and -35ST. The site occupies the southeast quarter of Section 32, Township 14 South, Range 17 East, Mount Diablo Baseline & Meridian (MDB&M); the southwest quarter of Section 33, Township 14 South, Range 17 East, MDB&M; the southern half of the northwest quarter of Section 33, Township 14 South, Range 17 East, MDB&M; and the northeast quarter of the northwest quarter of Section 33, Township 14 South, Range 17 East, MDB&M.

The landfill began operations in 1971 and continues to accept waste. Per the Waste Discharge Requirements (WDR), the landfill is classified as a Class II and Class III landfill. The WDR authorizes the use of the Class III waste management units for disposal of non-hazardous solid wastes and inert solid wastes. The Class II waste management units were authorized for the disposal of ash from a waste-to-energy plant proposed for the Fresno Metropolitan area. However, the Class II waste management units have not been constructed at the landfill site to date, and it does not appear that the proposed facility will be constructed.

The site has an estimated maximum design capacity of 24,877,456 tons. The SWFP limits its total incoming average daily refuse disposal rate to 2,200 tons per day (TPD) and 3,600 TPD as the peak daily disposal rate.

The landfill area consists of three fill areas (Fill Areas I, II and III) encompassing approximately 361 acres. Fill Area I is unlined and partially filled with refuse and covered with an average of 12 inches of interim cover material. The County anticipates clean closure of Fill Area I beginning summer of 2002. All existing material will be excavated and re-located to Fill Area II. The footprint area, now under Fill Area I, will be lined, per Resource Conservation and Recovery Act (RCRA) Subtitle D requirements, for further waste placement. Fill Area II is composite-lined and divided into eight modules. Fill Area II is currently being filled with waste, of which six modules have waste in place. Fill Area III has not yet been constructed but will be composite-lined and divided into 15 modules.

Surrounding land use to the east and south consists of agriculture, primarily orchards, vineyards, and cotton fields. To the north, land is partially used for agriculture and is partially undeveloped. Land use to the west is a mixture of residential, agricultural, and undeveloped land. A few single-family residences reside within 1,000 feet of the landfill to the north. Land within 1 mile of the site is zoned AE-20, exclusive agriculture, 20-acre minimum size, by the County of Fresno. The landfill itself is zoned AE-20, which permits landfills subject to a conditional use permit. The site maintains Title V Permit No. C-1031914 as issued by the San Joaquin Valley Air Pollution Control District (SJVAPCE) and currently operates under Conditional Use Permit

No. 2146 issued by the County of Fresno. As of 11-20-3002, the site's Authority To Construct (ATC) Permit No.C-3115-2-2 is under review by the Environmental Protection Agency (EPA) as a proposal to incorporate it into the Title V permit. The ATC allows the installation of a landfill gas (LFG) collection and control system (GCCS).

2.3 Climate

The Fresno area experiences hot, dry summers and mild winters. Temperatures in the summer often exceed 100 degrees F, and winter temperatures range between 30 degrees F and 55 degrees F. The frost season is from late November until early March. Average daily temperatures from 1951 through 1980 (recorded at the Fresno station approximately 17 miles east of the site), ranged from a minimum of 45.3 degrees Fahrenheit (°F) in December to a maximum 97.9°F in July, with an annual mean temperature of 62.5°F (National Climatic Center, 1982).

Normal annual precipitation of 10.6 inches, as recorded from the Fresno Air Terminal (National Climate Data, 2001), was calculated from records extending 65 years from 1931 to 1995. Based on the records available, 95 percent of the precipitation occurs between October and April.

The California Energy Commission (1985) analyzed wind data from the Fresno station, approximately 17 miles from the landfill, and reported that prevailing winds blow from the northwest at an annual average of 6.5 miles per hour. During storm events, the wind generally blows from the southeast. Records were taken between 1962 and 1983 at this station.

2.4 GCCS

The existing GCCS, designed by SCS Engineers, Long Beach, California, includes 34 vertical wells installed on the top deck of closed Fill Area I and the inactive Fill Area II of the landfill. The wells are 6-inch in diameter and are made of HDPE SDR 11 pipe. Well boreholes are typically 30 inches in diameter, and range in total depths from 36 to 55 feet.

The depth to the top of the perforation section of the well casing (normally referred as well screen) ranges from 21 to 28 feet. Well screen are 4 - 3/4- inch diameter holes in a row, spaced at 90° around the circumference of the pipe and 3 inches on centers along the pipe. The adjacent row of holes is staggered at 45°. The annular space between the well screen and the borehole wall is backfilled with 3/4- to 1 1/2-inch clean gravel to minimum one foot above and below the well screen. The boreholes are sealed using hydrated bentonite.

LFG header and laterals is constructed of fusion-weld HDPE SDR 17 pipe, varying in size from 4 to 12 inches in diameters. Most of the collection system, headers and laterals piping, is installed above-grade, except for a short length of 12 -inch diameter header in front of the recycling yard and the flare station, where it is installed below-grade.

The LFG collected by the GCCS is conveyed to the flare station via 12-inch HDPE header. The flare station is located on southern side of Fill Area I, across from the scale house. The flaring system comprises of the blower skid (gas moving equipment), vertical ground flare, condensate injection system, and the air compressors.

The vertical ground flare is manufactured by John Zink Company and is 8-foot in diameter and 40 feet high. The flare is rated for a maximum heat output of 51 MMBTU/hr, with a total throughput of LFG flow not to exceed 1,700 scfm per SJVAPCD permit requirements.

The gas moving equipment consists of two multi-stages centrifugal blowers with a rated capacity of 1,700 scfm each and are manufactured by National Turbine Corporation. The blowers are connected in parallel configuration, which feed LFG to the flare. One blower operates at a time while the other is used for standby.

Condensate collected in the LFG headers is drained into two automatic pneumatic condensate sumps, one located on the northern side and the other on the southern side of the GCCS, which being the lowest elevations along the GCCS. Compressed air to the pumps in the sump is furnished by two air compressors (one operating and other as a standby) located in the flare station. The rotary screw compressors are manufactured by Gardner Denver, Inc. The condensate collected in these two sumps, is pumped into a 3,150-gallon double walled condensate store tank. Condensate is disposed off by injecting into the flare by using high-pressure electric centrifugal pumps manufactured by Grundfos Pump Corporation. Two Grundfos pumps are installed in parallel, with one operating and other as a standby.

2.5 Description Of SSM Plan

This SSM Plan has been divided into three major sections comprising the major elements related to startup, shutdown, and/or malfunction of a GCCS at a MSW landfill. Malfunction events are distinct events when the GCCS is not operating in accordance with NSPS/EG requirements and which result, or have the potential to result, in an exceedance of one or more emission limitations or operational standards under the NSPS/EG. Startup and shutdown events are generally planned events associated with system repair, maintenance, testing, and upgrade, and may or may not be related to or occur in association with a malfunction of the GCCS.

2.6 Site Equipment Subject To This SSM Plan

The following components of the GCCS are subject to this SSM Plan:

Collection wells and other collectors
Lateral and header extraction piping
LFG mover equipment
Temperature monitoring and recording equipment
Flow monitoring and recording equipment
Condensate Management Equipment
Gas Control Devices and Accessories – Flare
Electrical Control Panel
Air Compressor

2.7 Implementation Requirements

This SSM Plan is designed to address instances of startup, shutdown, and/or malfunction of all or portions of the GCCS that could cause a deviation of the requirements of the NSPS/EG. As such, the Plan is not required to be implemented until such an event causes or has the potential to cause a deviation. With landfill GCCSs, it is sometimes difficult to tell immediately that the SSM event will cause a deviation; therefore, it is prudent to begin implementation of the Plan for any SSM event that any potential to cause a deviation or exceedance of emission limitations. At a later date, it may be determined that the event did not actually qualify as an SSM event; therefore, it could be excluded from consideration.

The startup and shutdown elements of this SSM Plan include planned events when the GCCS or portions of it will be started up and/or shutdown for a variety of purposes. In these cases, the SSM Plan must be implemented if there is any potential that there could be instances of deviation or excess emissions during the startup or shutdown periods. As indicated above, if there is any uncertainty, it is recommended that the SSM Plan be fully implemented as the default course of action even if later it is determined that no deviation could have occurred. Since the GCCS is generally not operating at optimal level during startup or shutdown, the default assumption should be that any startup or shutdown should trigger the SSM implementation unless it is an automatic event that does not require operator intervention. In many cases, these startup and shutdown events will happen in sequence, such as when the GCCS is shutdown for a planned maintenance event and then started up again upon completion of maintenance. The startup portion of the plan is also applicable when the GCCS is initially started up when new components are added to the system.

The malfunction element to the SSM Plan is unique in that it is only triggered when certain qualifying malfunction events (e.g., breakdowns not due to human error or poor maintenance) occur that cause or have the potential to cause deviations of the NSPS/EG. Again, if there is any uncertainty, it is recommended that the SSM Plan be fully implemented as the default course of action even if later it is determined that no deviation could have occurred. Also, if there is any uncertainty whether the event that occurs qualifies as a malfunction, implementation of the SSM Plan should be the default course of action until it can be later determined that the event was a qualifying event. Startups or shutdowns that occur due to malfunctions should be addressed via the malfunction plan rather than the startup or shutdown plans.

The NSPS specify that corrective actions be implemented if surface emissions monitoring shows exceedances of the 500 parts per million by volume (ppmV) threshold or if exceedances of the wellhead standard for oxygen, temperature, and vacuum occur. This defined procedure for corrective action and re-monitoring allow the landfill to correct exceedances before they become deviations. Therefore, it is not necessary to include these procedures in this SSM Plan.

Specific requirements for dealing with startup, shutdown, and malfunction events under this SSM Plan are described in detail in Sections 3, 4 and 5, below, respectively. In general, each portion of the plan requires notifications, implementation of various responses actions, recordkeeping, and reporting.

3 Startup Plan

This section details procedures for the startup of the GCCS to ensure that, at all times, good safety and air pollution control practices are used for minimizing emissions to the levels required by the relevant standards.

Pursuant to the requirements of the NSPS/EG for MSW landfills, a GCCS must be installed and operated when the landfill exceeds a threshold of 50 Mg/year NMOC and meets all the applicable criteria for a controlled landfill. The American Avenue Landfill has triggered these requirements and has been operating the GCCS in accordance with these standards since May 1, 2003.

3.1 How to Identify a GCCS Startup Event

The regulatory definition of “startup” reads as follows:

“Startup means the setting in operation of an affected source or portion of an affected source for any purpose.” (§63.2)

GCCS startup operations include startup of gas mover equipment, LFG control devices, and any ancillary equipment that could affect the operation of the GCCS (e.g., power supply, air compressors, etc.). Potential emission limitation exceedances caused by startup are listed in Table 3-1.

**Table 3-1— Potential Emission Limitation Exceedances
Caused by Startup Events**

GCCS downtime of greater than SJVAPCD requirements or 5 consecutive days
Any free venting of collected LFG without control in excess of 1 hour
Control device temperatures excursions in which 3-hour block average is less than 1500° F
Any downtime for control device temperature monitoring and/or recording equipment
Downtime for LFG flow monitoring and/or recording equipment of greater than 15 minutes
LFG throughput in excess of 1700 scfm

3.2 Actions To Take When the GCCS is Started-Up

The following provides a summary of typical response actions for startup of the GCCS.

3.2.1 Gas Mover and Collection System

The following activities may have the potential to emit regulated air pollutants to the atmosphere during startup of the collection system portion of GCCS: (1) purging of gases trapped within piping system prior to normal operation; (2) repair of system leaks discovered during startup, and (3) all other activities after construction of the system but prior to fulltime operation, which could release HAPs from the collection system. These activities would be subject to the Startup Plan portion of the SSM Plan.

During such activities, work shall progress such that air emissions are minimized to the greatest extent possible by:

- Temporarily capping pipes venting gas if such capping does not impact safety or the effective construction of the system.
- Minimizing surface area allowing gas to emit to the atmosphere to the extent that it does not impact safety or the effective construction of the system.
- Ensuring that other parts of the system, not impacted by the activity, are operating in accordance with the applicable requirements of NSPS/EG.
- Limiting the purging of piping to as short duration as possible to ensure safe combustion of the gas in the control device.

GCCSs, once installed, are “closed” systems designed to prevent the uncontrolled release of LFG to the atmosphere. The network of piping installed at the site connects each extraction point with the control device(s) with no open vents located anywhere in the collection system.

Portions of collection systems or individual extraction points may be isolated by valves installed in the system from time to time and subsequently opened. Opening these valves shall not be considered a startup, unless such an activity causes the venting of gas to the atmosphere. If the activity results in emissions to the atmosphere, the actions listed above shall be followed.

The operation of the collection system, once installed, shall be consistent with the provisions of NSPS/EG as well as the GCCS Design Plan, which has been developed and approved for the facility.

3.2.2 Control Device(s):

Personnel shall follow the procedures as identified below when starting the respective control devices. Control devices operating at MSW landfills normally undergo planned startups.

However, flare systems are designed for unattended operation. Automatic startups are described in the standard operating procedures incorporated as part of this SSM Plan, as listed below. Successful implementation of automatic startup procedures will be deemed to comply with this SSM Plan. Control device startup procedures can be located in operations manuals, notes, reports, etc.

Table 3-1—Startup Procedure Reference

Device Name	Operations manual, notes, report, etc.
	Title
Lateral and header piping	Operation and Maintenance Manual – Landfill Gas Collection
LFG mover equipment	Operation and Maintenance Manual – BIOGAS Flare System, Prepared by John Zink, Project No. 988-3537
Temperature monitoring and recording equipment	Operation and Maintenance Manual – BIOGAS Flare System, Prepared by John Zink, Project No. 988-3537
Flow monitoring and recording equipment	Operation and Maintenance Manual – BIOGAS Flare System, Prepared by John Zink, Project No. 988-3537
Flares and accessories	Operation and Maintenance Manual – BIOGAS Flare System, Prepared by John Zink, Project No. 988-3537
Air Compressor	Manufacturer’s Operation and Maintenance Manual – Air Compressor

3.2.3 Implementation

Events, which could require planned startup of the GCCS (possibly after a shutdown), and therefore, trigger implementation of this SSM Plan, include, but are not limited to:

- Control device, gas processing equipment, gas mover, or ancillary equipment maintenance, repair, troubleshooting, or cleaning.
- Startup (e.g., testing, debugging, etc.) of new GCCS components (i.e., flares, blowers, etc.)
- Extraction well raising or maintenance or other modifications to collection system requiring system startup
- Source testing
- Automatic shutdown
- Monitoring devices maintenance, calibration, and testing
- Recording devices maintenance, calibration, and testing
- Testing or maintenance of power supply and planned electrical outages

3.3 What to Record for All Startup Events

The operator shall record the following information on the attached **Startup Report Form** (Appendix B):

- The date and time the startup occurred.
- The duration of the startup.
- The actions taken to effect the startup.
- Whether procedures in this SSM Plan were followed. If the procedures in the SSM Plan were not followed, a **SSM Plan Departure Report Form** (Appendix B) must also be completed.
- If an applicable emission limitation was exceeded, a description of the emission standard that was exceeded.

3.4 Whom to Notify at the Facility in Case of a Startup Event

- The Senior Engineering Technician should be notified immediately of the startup.
- The Senior Engineering Technician should be notified within a reasonable timeframe of progress of the diagnosis and resolution of the startup.
- The Senior Engineering Technician should be notified when the alternative timeframe for startup has been established if it is outside of the timeframes currently allowed by the NSPS/EG for particular compliance elements.
- The **Startup Report Form** should be initially prepared upon startup, or discovery of an automatic startup, and implementation of the SSM Plan. The form should be finalized by the operator on duty upon successful implementation of the SSM Plan and submitted to the Senior Engineering Technician. The original form should be retained in the landfill files for five (5) years.

3.5 What to Report for a Startup Event

- If the actions taken during the startup **were consistent** with this SSM Plan, file the necessary information in your semi-annual SSM report (*within 30 days following the end of each 6-month period*) with the following information included:
 1. Name and title of the person filing report;
 2. Certifying signature of the owner/operator or other responsible official;

3. Statement that the actions taken during the startup or shutdown were consistent with the SSM Plan; and
 4. A copy of the **Startup Report Form**.
- If the actions taken during a startup **were not consistent** with this SSM Plan, **and** the startup resulted in an exceedance of an applicable emission standard, the Senior Engineering Technician must report the actions taken to the enforcing authority by telephone or facsimile transmission within two (2) working days after the startup or shutdown. A letter must then be sent to the enforcing authority within seven (7) working days after the startup or shutdown. The letter should be sent by certified or registered mail or overnight delivery service, and must include the following information:
 1. Name and title of person filing report;
 2. Certifying signature of the owner/operator or other responsible official (Note that “responsible official” has the same meaning as under the Title V permitting program.);
 3. A copy of the **Startup Report Form**;
 4. Detailed explanation of the circumstances of the startup;
 5. The reasons the SSM Plan was not adequate; and whether any excess emissions and/or parameter monitoring exceedances is believed to have occurred during the event.
 6. A copy of the **SSM Plan Departure Report Form**.
 - Note: If the revisions to the SSM Plan alter the scope of the process activities at American Avenue Landfill or otherwise modify the applicability of any emission limit, work practice requirement, or other requirement in the MACT rule and/or the NSPS/EG, the revised SSM Plan is not effective until written notice has been provided to the permitting authority describing the SSM Plan revision(s).

4 Shutdown Plan

This section details procedures for the shutdown of the GCCS to ensure that, at all times, good safety and air pollution control practices are used for minimizing emissions to the levels required by the relevant standards.

Pursuant to the requirements of the NSPS for MSW landfills, a GCCS can not be removed unless the landfill meets all the applicable criteria for removal of collection and control system in 40 CFR 60, Subpart WWW.

4.1 How to Identify a GCCS Shutdown Event

The regulatory definition of “shutdown” reads as follows:

“Shutdown means the cessation of an affected source or portion of an affected source or portion of an affected source for any purpose.” (§63.2)

With GCCS, shutdown events would generally include shutdown of gas mover equipment, LFG control devices, and any ancillary equipment that could affect the operation of the GCCS (e.g., power supply, air compressors, etc.).

The following list includes events that may necessitate a shutdown of the GCCS at a MSW Landfill. This list should not be considered exhaustive.

Table 4-1—Potential Events Necessitating Shutdown of the GCCS

Control Device Maintenance, Repair, or Cleaning
Addition of New GCCS Components
Extraction Well Raising
Movement of LFG Piping to Accommodate New Components
Source Testing
Gas Mover Equipment Maintenance, Repair, or Cleaning
Gas Processing Equipment Maintenance, Repair, or Cleaning
Ancillary Equipment (e.g., compressors, etc.) Maintenance, Repair, or Cleaning
New Equipment Testing and Debugging
Shutdown and Subsequent Startup to Address Malfunctions or Other Occurrences
Planned Electrical Outages

GCCS downtime of greater than SJVAPCD requirements or 5 consecutive days
Any free venting of collected LFG without control in excess of 1 hour
Control device temperatures excursions in which 3-hour block average is less than 1500° F
Any downtime for control device temperature monitoring and/or recording equipment
Downtime for LFG flow monitoring and/or recording equipment of greater than 15 minutes
LFG throughput in excess of 1700 scfm

4.2 Actions To Take When The GCCS Is Shutdown

4.2.1 Collection System

GCCSs, once installed, are “closed” systems designed to prevent the uncontrolled release of LFG to the atmosphere. The network of piping installed at the site connects each extraction point with the control device(s) with no open vents located anywhere in the collection system.

Portions of collection systems or individual extraction points may be isolated by valves installed in the system from time to time. Closing these valves shall not be considered a shutdown, unless such an activity causes an exceedance of the provisions of NSPS/EG and/or any subsequent approvals of alternatives in the facility’s GCCS Design Plan or approved variances issued thereafter. If a shutdown occurs, the following action shall occur.

4.2.2 Control Device(s):

Personnel shall follow the procedures as identified below when shutting down the respective control devices. Control devices operating at MSW landfills normally undergo planned shutdown for the various events listed above. Shutdowns for equipment malfunction or breakdown should be addressed in the malfunction plan. Control device shutdown procedures can be located in operations manuals.

Automatic shutdowns are described in the standard operating procedures incorporated as part of this SSM Plan, as listed below in Table 4-2. If these procedures are successfully used in an automatic fashion, this SSM Plan shall be deemed fully implemented.

4.2.3 Implementation

Events, which could require planned shutdown of the GCCS, and therefore, trigger implementation of this SSM Plan, include, but are not limited to:

- Control devices, gas processing equipment, gas mover, or ancillary equipment maintenance, repair, troubleshooting, or cleaning.
- Extraction well raising or maintenance or other modifications to collection system requiring system shutdown

- Source testing
- Automatic shutdown
- Monitoring devices maintenance, calibration, and testing
- Recording devices maintenance, calibration, and testing
- Testing or maintenance of power supply and planned electrical outages

Table 4-2—Shutdown Procedure Reference

Device Name	Operations manual, notes, report, etc.
	Title
Lateral and header piping	Operation and Maintenance Manual – Landfill Gas Collection
LFG mover equipment	Operation and Maintenance Manual – BIOGAS Flare System, Prepared by John Zink, Project No. 988-3537
Temperature monitoring and recording equipment	Operation and Maintenance Manual – BIOGAS Flare System, Prepared by John Zink, Project No. 988-3537
Flow monitoring and recording equipment	Operation and Maintenance Manual – BIOGAS Flare System, Prepared by John Zink, Project No. 988-3537
Flares and accessories	Operation and Maintenance Manual – BIOGAS Flare System, Prepared by John Zink, Project No. 988-3537
Air Compressor	Manufacturer’s Operation and Maintenance Manual – Air Compressor

4.3 What To Record For All Shutdown Events

The operator should record the following information on the attached **Shutdown Report Form** (Appendix B):

- The date and time the shutdown occurred.
- The duration of the shutdown.
- The actions taken to effect the shutdown.
- Whether procedures in this SSM Plan were followed. If the procedures in the plan were not followed, a **SSM Plan Departure Report Form** must also be completed.
- If an applicable emission limitation was exceeded, a description of the emission standard that was exceeded.

4.4 Whom to Notify at the Facility in Case of a Shutdown Event

- The Senior Engineering Technician should be notified immediately of the shutdown.
- The Senior Engineering Technician should be notified within a reasonable timeframe of progress of the diagnosis and resolution of the shutdown.
- The Senior Engineering Technician should be notified when the alternative timeframe for shutdown has been established if it is outside of the timeframes currently allowed by the NSPS/EG for particular compliance elements.
- The **Shutdown Report Form** should be initially prepared upon shutdown, or discovery of a automatic shutdown, and implementation of the SSM Plan. The form should be finalized by the operator on duty upon successful implementation of the SSM Plan and submitted to the Senior Engineering Technician. The original form should be retained in the landfill files for five (5) years.

4.5 What to Report for a Shutdown Event

- If the actions taken during the shutdown **were consistent** with this SSM Plan, file the necessary information in your semi-annual SSM report (*within 30 days following the end of each 6-month period*) with the following information included:
 1. Name and title of person preparing report;
 2. Certifying signature of the owner/operator or other responsible official (Note that “responsible official” has the same meaning as under the Title V permitting program.);
 3. Statement that the actions taken during the shutdown were consistent with the SSM Plan; and
 4. A copy of the **Shutdown Report Form**.
- If the actions taken during a shutdown **were not consistent** with this SSM Plan, **and** the shutdown resulted in an exceedance of an applicable emission standard, the Senior Engineering Technician must report the actions taken to the enforcing authority by telephone or facsimile transmission within two (2) working days after commencing the actions that were inconsistent with the plan. A letter must then be sent to the enforcing authority within seven (7) working days after the startup or shutdown. The letter should be sent by certified or registered mail or overnight delivery service, and must include the following information:
 1. Name and title of person preparing report;

2. Certifying signature of the owner/operator or other responsible official (Note that “responsible official” has the same meaning as under the Title V permitting program.);
 3. A copy of the **Shutdown Report Form**;
 4. Detailed explanation of the circumstances of the shutdown;
 5. The reasons the SSM Plan was not adequate; and
 6. Whether any excess emissions and/or parameter monitoring exceedances is believed to have occurred during the event.
 7. A copy of the **SSM Plan Departure Report Form**.
- Note: If the revisions to the SSM Plan alter the scope of the process activities at American Avenue Landfill or otherwise modify the applicability of any emission limit, work practice requirement, or other requirement in the MACT rule and/or the NSPS/EG, the revised SSM Plan is not effective until written notice has been provided to the permitting authority describing the SSM Plan revision(s).

5 Malfunction Plan

5.1 How to Identify a GCCS Malfunction

The regulatory definition of “malfunction” reads as follows:

“**Malfunction** means any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.” (§63.2, revised 5/30/03)

The following list includes events that may constitute a malfunction of the GCCS at American Avenue Landfill. The cause of these events should be investigated immediately in order to determine the best course of action to correct the malfunction. Each of these malfunctions could have multiple causes that need to be evaluated and possibly considered. It is the intent of this SSM Plan to include all possible causes for the specific malfunction events. Common malfunction events for LFG collection and control systems are listed in Table 5-1.

Table 5-1—Potential Malfunction Events

Possible Malfunction	Section
Loss of LFG Flow/Gas Mover Malfunction	5.3
Loss of Electrical Power	5.4
Low Temperature Conditions at Control Device	5.5
Loss of Flame at the Control Device	5.6
Malfunction of Flow Measuring/Recording Device	5.7
Malfunction of Temperature Measuring/Recording Device	5.8
Collection Well and Pipe Failures	5.9
Other GCCS Malfunctions	5.10
Malfunctions of Field Monitoring Equipment	5.11

For one of these occurrences to be considered a malfunction that is required to be addressed by this SSM Plan, it must result in, or have the potential to result in, an exceedance of one or more of the NSPS/EG operational and compliance requirements or the provisions of the MACT rule (e.g., exceedance, reading outside of required operational range, etc). The following list constitutes the possible exceedances of the (NSPS/EG) for MSW landfills and/or the state/local emission guidelines (EG) rule that could occur due to a malfunction of GCCS, thereby necessitating implementation of this SSM Plan:

**Table 5-2— Potential Emission Limitation Exceedances
Caused by Malfunction Events**

GCCS downtime of greater than SJVAPCD requirements or 5 consecutive days
Any free venting of collected LFG without control in excess of 1 hour
Control device temperatures excursions in which 3-hour block average is less than 1500° F
Any downtime for control device temperature monitoring and/or recording equipment
Downtime for LFG flow monitoring and/or recording equipment of greater than 15 minutes
LFG throughput in excess of 1700 scfm

If the occurrence does not result in an exceedance of an applicable emission limitation, or does not have the potential to result in such an exceedance, then **it is not required to be corrected in accordance with this SSM Plan**, although use of the plan may still be advisable. Malfunctions should be considered actionable under this SSM Plan whether they are discovered by the MSW landfill owner or operator during normal operations or by a regulatory agency during compliance inspections.

The operator should follow all the corrective action, notification, record keeping, and reporting procedures described herein in case of malfunction of the GCCS.

5.2 Actions to Take When The GCCS Malfunctions—All Malfunctions

- Determine whether the malfunction has caused an exceedance, or has the potential to cause an exceedance, of any applicable emission limitation contained in the NSPS/EG or MACT.
- Identify whether the malfunction is causing or has caused excess emissions to the atmosphere. If excess emissions are occurring, take necessary steps to reduce emissions to the maximum extent possible using good air pollution control practices and safety procedures.
- Contact the site Senior Engineering Technician immediately and proceed with the malfunction diagnosis and correction procedures described in Appendix A (“Common Causes and Response Actions for GCCS Malfunctions”) for each specific malfunction.
- Site-specific malfunction and/or troubleshooting procedures are contained in the documents or appendices referenced below. Personnel shall follow these procedures when addressing a malfunction of a collection system or control device.

Table 5-3—Malfunction Procedure Reference

Control Device ID	Operation manual, notes, report, etc.
	Title
Lateral and header extraction piping	Operation and maintenance manual – Landfill gas collection
LFG mover equipment	<ul style="list-style-type: none"> • Operation and Maintenance Manual – BIOGAS Flare System, Prepared by John Zink, Project No. 988-3537 • O & M literature and recommended spare parts • Manufacturer’s Operation and maintenance manual • Consult or hire outside contractor or engineer
Temperature monitoring and recording equipment	<ul style="list-style-type: none"> • Operation and Maintenance Manual – BIOGAS Flare System, Prepared by John Zink, Project No. 988-3537 • O & M literature and recommended spare parts • Manufacturer’s Operation and maintenance manual • Consult or hire outside contractor or engineer
Flow monitoring and recording equipment	<ul style="list-style-type: none"> • Operation and Maintenance Manual – BIOGAS Flare System, Prepared by John Zink, Project No. 988-3537 • O & M literature and recommended spare parts • O & M manual • Manufacturer’s Operation and maintenance manual • Consult or hire outside contractor or engineer
Gas control device and accessories	<ul style="list-style-type: none"> • Operation and Maintenance Manual – BIOGAS Flare System, Prepared by John Zink, Project No. 988-3537 • O & M literature and recommended spare parts • O & M manual • Manufacturer’s Operation and maintenance manuals • Consult or hire outside contractor or engineer
Field Monitoring Equipment	<ul style="list-style-type: none"> • Manufacturer’s Operation and Maintenance Manuals • Use backup equipment

- If the procedures in this SSM Plan do not address or adequately address the malfunction that has occurred, the operator should attempt to correct the malfunction with the best resources available. The Senior Engineering Technician for the site should be notified of this situation immediately. Complete a **SSM Plan Departure Report Form** (Appendix B) as discussed in Section 5.14. The SSM Plan must be updated to better address this type of malfunction.
- Notify the Senior Engineering Technician for the site of the progress of the diagnosis and correction procedures and status of the malfunction as soon as practicable.

- If the GCCS malfunction cannot be corrected within the time frame specified in the NSPS/EG, notify the Senior Engineering Technician for the site and proceed to shutdown the control device and/or the process(es) venting to the control device, if this has not already occurred automatically.
- If the GCCS malfunction cannot be corrected within the time frame allowed by the NSPS/EG rule for each specific malfunction, define the appropriate alternative timeframe for corrective action that is reasonable for the type of repair or maintenance that is required to correct the malfunction.
- If the GCCS malfunction cannot be corrected within alternative timeframe for corrective action specified above, notify the Senior Engineering Technician for the site and conduct the appropriate record keeping and reporting required for deviations of the MACT rule and Title V permit. For the SJVAPCD, this may require the obtaining of a variance through District variance procedures. Information on obtaining a variance is included in Appendix C.
- Once the malfunction is corrected, notify the Senior Engineering Technician for the site as soon as the system is operational.
- Complete the **Malfunction Report Form** (Appendix B) after the malfunction diagnosis and correction procedures are completed.
- If the procedures in this SSM Plan do not address or adequately address the malfunction that has occurred, the operator should note the circumstances and the actual steps taken to correct the malfunction in the **Malfunction Report Form** (Appendix B). This SSM Plan will need to be revised based on this information, as described in Section 5.13 below.
- Follow procedures in Sections 5.12 through 5.14, as appropriate, to adequately document, notify, and report the malfunction and corrective action.

5.3 Loss of LFG Flow/Gas Mover Malfunction

- Follow the procedures in Section 5.2, above: **What to Do When the GCCS Malfunctions—All Malfunctions.**
- Check to see if the control device has shutdown. If control device has shutdown, make sure that gas mover equipment has shutdown to prevent free venting of LFG. Attempt to restart control device to determine if system will remain operational.
- Conduct diagnostic procedures to identify the cause of the malfunction. Potential causes and response actions for this type of malfunction are listed in Appendix A.

- If the malfunction cannot be corrected within 5 days, follow the procedures under Section 5.2 above to establish an appropriate alternative timeframe for corrective action and complete necessary record keeping and reporting if the malfunction cannot be corrected within the established timeframe.

5.4 Loss of Electrical Power

- Follow also the procedures in Section 5.2, above: **What to Do When the GCCS Malfunctions—All Malfunctions.**
- Conduct diagnostic procedures to identify the cause of the malfunction. Potential causes and response actions for this type of malfunction are listed in Appendix A.
- If the malfunction cannot be corrected within the time frame allowed by the NSPS/EG rule, follow the procedures under Section 5.2 above to establish an appropriate alternative timeframe for corrective action and complete necessary record keeping and reporting if malfunction cannot be corrected within the established timeframe.

5.5 Low Temperature Conditions at the Control Device

- Follow also the procedures in Section 5.2, above: **What to Do When the GCCS Malfunctions—All Malfunctions.**
- Check to see if the control device has shutdown. If control device has shutdown, make sure that gas mover equipment has shutdown to prevent free venting of LFG. Attempt to restart control device to determine if system will remain operational.
- Conduct diagnostic procedures to identify the cause of the malfunction. Potential causes and response actions for this type of malfunction are listed in Appendix A.
- If the malfunction causes an exceedance of the control device's minimum temperature for a 3-hour block average of less than 1500°, follow the procedures under Section 5.2 above to establish an appropriate alternative timeframe for corrective action and complete necessary record keeping and reporting if the malfunction cannot be corrected within the established timeframe.
- If the malfunction causes the GCCS to go off-line and cannot be corrected within the time frame allowed by the NSPS/EG rule, follow the procedures under Section 5.2 above to establish an appropriate alternative timeframe for corrective action and complete necessary record keeping and reporting if the malfunction cannot be corrected within the established timeframe. For the SJVAPCD, this may require the obtaining of a variance through District variance procedures. Information on obtaining a variance is included in Appendix C.

5.6 Loss of Flame at the Control Device

- Follow also the procedures in Section 5.2, above: **What to Do When the GCCS Malfunctions—All Malfunctions.**
- Check to see if the control device has shutdown. If control device has shutdown, make sure that gas mover equipment has shutdown to prevent free venting of LFG. Attempt to restart control device to determine if system will remain operational.
- If system will not restart, follow also the procedures in Section 5.3, above: **Loss of LFG Flow.**
- Conduct diagnostic procedures to identify the cause of the malfunction. Potential causes and response actions for this type of malfunction are listed in Appendix A.
- If the malfunction cannot be corrected within the time frame allowed by the NSPS/EG rule, follow the procedures under Section 5.2 above to establish an appropriate alternative timeframe for corrective action and complete necessary record keeping and reporting if the malfunction cannot be corrected within the established timeframe.

5.7 Malfunctions of Flow Monitoring/Recording Device

- Follow the procedures in Section 5.2, above: **What to Do When the GCCS Malfunctions—All Malfunctions.**
- Conduct diagnostic procedures to identify the cause of the malfunction. Potential causes and response actions for this type of malfunction are listed in Appendix A.
- If the malfunction cannot be corrected in 15 minutes by the NSPS/EG rule, follow the procedures under Section 5.2 above to establish an appropriate alternative timeframe for corrective action and complete necessary record keeping and reporting if the malfunction cannot be corrected within the established timeframe. For the SJVAPCD, this may require the obtaining of a variance through District variance procedures. Information on obtaining a variance is included in Appendix C.

5.8 Malfunctions of Temperature Monitoring/Recording Device

- Follow the procedures in Section 5.2, above: **What to Do When the GCCS Malfunctions—All Malfunctions.**
- Conduct diagnostic procedures to identify the cause of the malfunction. Potential causes and response actions for this type of malfunction are listed in Appendix A.

- If the malfunction cannot be corrected immediately, follow the procedures under Section 5.2 above to establish an appropriate alternative timeframe for corrective action and complete necessary record keeping and reporting if the malfunction cannot be corrected within the established timeframe. For the SJVAPCD, this may require the obtaining of a variance through District variance procedures. Information on obtaining a variance is included in Appendix C.

5.9 Collection Well and Pipe Failures

- Follow the procedures in Section 5.2, above: **What to Do When the GCCS Malfunctions—All Malfunctions.**
- Follow also the procedures in Section 5.3, above: **Loss of Flow/Gas Mover Malfunction.**
- Conduct diagnostic procedures to identify the cause of the malfunction. Potential causes and response actions for this type of malfunction are listed in Appendix A.
- If the malfunction causes the entire GCCS to go off-line and cannot be corrected within 5 days, follow the procedures under Section 5.2 above to establish an appropriate alternative timeframe for corrective action and complete necessary record keeping and reporting if the malfunction cannot be corrected within the established timeframe.

5.10 Other GCCS Malfunctions

- Follow also the procedures in Section 5.2, above: **What to Do When the GCCS Malfunctions—All Malfunctions.**
- Check to see if the control device has shutdown. If control device has shutdown, make sure that gas mover equipment has shutdown to prevent free venting of LFG. Attempt to restart control device to determine if system will remain operational.
- Conduct diagnostic procedures to identify the cause of the malfunction. Potential causes and response actions for this type of malfunction are listed in Appendix A.
- If the malfunction causes an exceedance of the control device's minimum temperature for a 3-hour block average of less than 1500°, follow the procedures under Section 5.2 above to establish an appropriate alternative timeframe for corrective action and complete necessary record keeping and reporting if the malfunction cannot be corrected within the established timeframe. For the SJVAPCD, this may require the obtaining of a variance through District variance procedures. Information on obtaining a variance is included in Appendix C.

- If the malfunction causes the entire GCCS to go off-line and cannot be corrected within 5 days, follow the procedures under Section 5.2 above to establish an appropriate alternative timeframe for corrective action and complete necessary record keeping and reporting if the malfunction cannot be corrected within the established timeframe. For the SJVAPCD, this may require the obtaining of a variance through District variance procedures. Information on obtaining a variance is included in Appendix C.

5.11 Malfunctions of Field Monitoring Equipment

- Follow the procedures in Section 5.2, above: **What to Do When the GCCS Malfunctions—All Malfunctions.**
- Verify that malfunction of monitoring equipment will cause a deviation of the NSPS/EG requirements for wellhead and/or surface emissions monitoring.
- Conduct diagnostic procedures to identify the cause of the malfunction.
- Repair the device or obtain replacement device to complete the monitoring as required by the NSPS/EG.
- Conduct proper calibration procedures before use of the device for NSPS/EG compliance monitoring.
- If the malfunction cannot be corrected so that the monitoring equipment can be used for the purposes required by the NSPS/EG rule, follow the procedures under Section 5.2 above to establish an appropriate alternative timeframe for corrective action and complete necessary record keeping and reporting if the malfunction cannot be corrected within the established timeframe. For the SJVAPCD, this may require the obtaining of a variance through District variance procedures. Information on obtaining a variance is included in Appendix C.

5.12 What to Record for a Malfunction

The operator must record the following information on the attached **Malfunction Report Form**:

- The date and time the malfunction occurred.
- The duration of the malfunction.
- A description of the affected equipment.
- The cause or reason for the malfunction (if known).

- The actions taken to correct the malfunction (checklist).
- Whether the procedures in this SSM Plan were followed. If the procedures in the plan were not followed, a **SSM Plan Departure Report Form** must also be completed.
- A description of the emission standard that was exceeded or had the potential to be exceeded.

5.13 Whom to Notify at the Facility in Case of a Malfunction

- The Senior Engineering Technician shall be notified immediately of the malfunction.
- The Senior Engineering Technician shall be notified within a reasonable timeframe of progress of the diagnosis and corrective action of the malfunction.
- The Senior Engineering Technician for the site shall be notified when the alternative timeframe for corrective action has been established if it is outside of the timeframes currently allowed by the NSPS/EG for particular compliance elements.
- The Senior Engineering Technician for the site shall be notified if the malfunction cannot be corrected within the timeframe allowed by the NSPS rule or the alternate timeframe established under this SSM Plan. Notification should also occur if the malfunction that occurred is not addressed by the current SSM Plan.
- The **Malfunction Report Form** shall be initially prepared upon discovery of the malfunction and implementation of the SSM Plan. The form shall be finalized by the operator on duty upon successful implementation of the SSM Plan and submitted to the Senior Engineering Technician. The original form must be retained in the landfill files for five (5) years.

5.14 What to Report for a Malfunction Event

- If the actions taken during the malfunction **were consistent** with this SSM Plan, file the necessary information in your semi-annual SSM report (*within 30 days following the end of each 6-month period*) with the following information included:
 1. Name and title of person preparing report;
 2. Certifying signature of the owner/operator or other responsible official (Note that “responsible official” has the same meaning as under the Title V permitting program.);
 3. Statement that the actions taken during the malfunction were consistent with the SSM Plan; and

4. A copy of the **Malfunction Report Form**.
- If the actions taken during a malfunction **were not consistent** with this SSM Plan, and the malfunction resulted in an exceedance of an applicable emission standard, (see items listed under Step 1 above), the Senior Engineering Technician must report the actions taken to the enforcing authority by telephone or facsimile (FAX) transmission within two (2) working days after commencing the actions that were inconsistent with the plan. A letter must then be sent to the enforcing authority within seven (7) working days after the malfunction. The letter should be sent by certified or registered mail or overnight delivery service, and must include the following information:
 1. Name and title of person preparing report;
 2. Certifying signature of the owner/operator or other responsible official (Note that “responsible official” has the same meaning as under the Title V permitting program.);
 3. A copy of the **Malfunction Report Form**;
 4. Detailed explanation of the circumstances of the malfunction;
 5. The reasons the SSM Plan was not adequate; and
 6. Whether any excess emissions and/or parameter monitoring exceedances is believed to have occurred during the event.
 7. Prepare and include **Deviation Report Form**.
 - If the actions taken during the malfunction **were not consistent** with this SSM Plan, the Senior Engineering Technician at the landfill must:
 1. Revise the SSM Plan within 45 days after the malfunction to include procedures for operating and maintaining the GCCS during similar malfunction events.
 2. Include the revised SSM Plan in the semi-annual report (*within 30 days following the end of each 6-month period*).

Note: If the revisions to the SSM Plan alter the scope of the process activities at American Avenue Landfill or otherwise modify the applicability of any emission limit, work practice requirement, or other requirement in the MACT rule and/or the NSPS/EG, the revised SSM Plan is not effective until written notice has been provided to the permitting authority describing the SSM Plan revision(s). For the SJVAPCD, this may require the obtaining of a variance through District variance procedures. Information on obtaining a variance is included in Appendix C.

APPENDIX A

Common Causes and Response Actions for GCCS Malfunctions

(Appendix A represents a summary of possible causes and response actions for GCCS malfunctions. The list is not considered to be exhaustive. The list of response actions is not intended to be a sequence of events that are to be implemented in order. Certain malfunction incidents may or may not be associated with the listed “common causes” nor will the “common response actions” be appropriate in all instances. Site-specific evaluation of the malfunctions and development of specific response actions is recommended in all cases.)

EQUIPMENT	PURPOSE	MALFUNCTION EVENT	COMMON CAUSES	TYPICAL RESPONSE ACTIONS
LFG Collection and Control System				
Blower or Other Gas Mover Equipment	Applies vacuum to wellfield to extract LFG and transport to control device	Loss of LFG Flow/Blower Malfunction	<ul style="list-style-type: none"> -Flame arrestor fouling/deterioration -Automatic valve problems -Blower failure (e.g., belt, motor, impeller, coupling, seizing, etc.) -Loss of power -Extraction piping failure -Condensate knock-out problems -Extraction piping blockages 	<ul style="list-style-type: none"> -Repair breakages in extraction piping -Clean flame arrestor -Repair blockages in extraction piping -Verify automatic valve operation, compressed air/nitrogen supply -Notify power utility, if appropriate -Provide/utilize auxiliary power source, if necessary -Repair Settlement in Collection Piping - Repair Blower -Activate back-up blower, if available -Clean knock-up pot/demister -Drain knock-out pot
Extraction Wells and Collection Piping	Conduits for extractions and movement of LFG flow	Collection well and pipe failures	<ul style="list-style-type: none"> -Break/crack in header or lateral piping -Leaks at wellheads, valves, flanges, Test ports, seals, couplings, etc. -Collection piping blockages -Problems due to settlement (e.g. pipe separation, deformation, development of low points) 	<ul style="list-style-type: none"> -Repair leaks or breaks in lines or wellheads -Follow procedures for loss of LFG flow/blower malfunction -Repair blockages in collection piping -Repair settlement in collection piping -Re-install, repair, or replace piping
Blower or Other Gas Mover Equipment And Control Device	Collection and control of LFG	Loss of electrical power	<ul style="list-style-type: none"> - Force majeure/Act of God (e.g., lightning, flood, earthquake, etc.) -Area-wide or local blackout or brown-out -Interruption in service (e.g. blown service fuse) -Electrical line failure -Breaker trip -Transformer failure -Motor starter failure/trip -Overdraw of power -Problems in electrical panel -Damage to electrical equipment from on-site operations 	<ul style="list-style-type: none"> -Check/reset breaker -Check/repair electrical panel components -Check/repair transformer -Check/repair motor starter -Check/repair electrical line -Test amperage to various equipment -Contact electricity supplier -Contact/contract electrician -Provide auxiliary power (if necessary)

EQUIPMENT	PURPOSE	MALFUNCTION EVENT	COMMON CAUSES	TYPICAL RESPONSE ACTIONS
LFG Collection and Control System				
LFG Control Device	Combusts LFG	Low temperature conditions at control device	<ul style="list-style-type: none"> -Problems with temperature - monitoring equipment -Problems/failure of -thermocouple and/or thermocouple wiring -Change of LFG flow -Change of LFG quality -Problems with air louvers -Problems with air/fuel controls -Change in atmospheric conditions 	<ul style="list-style-type: none"> -Check/repair temperature monitoring equipment -Check/repair thermocouple and/or wiring -Follow procedures for loss of flow/blower malfunction -Check/adjust louvers -Check/adjust air/fuel controls
LFG Control Device	Combusts LFG	Loss of Flame	<ul style="list-style-type: none"> -Problems/failure of thermocouple -Loss/change of LFG flow -Loss/change of LFG quality -Problems with air/fuel controls -Problems/failure of flame sensor -Problems with temperature monitoring equipment 	<ul style="list-style-type: none"> -Check/repair temperature monitoring equipment -Check/repair thermocouple -Follow procedures for loss of flow/blower malfunction -Check/adjust air/fuel controls -Check/adjust/repair flame sensor -Check/adjust LFG collectors
Flow Monitoring/Recording Device	Measures and records gas flow from collection system to control	Malfunctions of Flow Monitoring/Recording Device	<ul style="list-style-type: none"> -Problems with orifice plate, pitot tube, or other in-line flow measuring device -Problems with device controls and/or wiring -Problems with chart recorder 	<ul style="list-style-type: none"> -Check/adjust/repair flow measuring device and/or wiring -Check/repair chart recorder -Replace paper in chart recorder
Temperature Monitoring/Recording Device	Monitors and records combustion temperature of enclosed combustion device	Malfunctions of Temperature Monitoring/Recording Device	<ul style="list-style-type: none"> -Problems with thermocouple -Problems with device controls and/or wiring -Problems with chart recorder 	<ul style="list-style-type: none"> -Check/adjust/repair thermocouple -Check/adjust/repair controller and/or wiring -Check/adjust/repair electrical panel components -Check/repair chart recorder -Replace paper in chart recorder

EQUIPMENT	PURPOSE	MALFUNCTION EVENT	COMMON CAUSES	TYPICAL RESPONSE ACTIONS
LFG Collection and Control System				
Control Device	Combusts LFG	Other Control Device Malfunctions	<ul style="list-style-type: none"> -Control device smoking (i.e. visible emissions) -Problems with flare insulation -Problems with pilot light system -Problems with air louvers -Problems with air/fuel controllers -Problems with thermocouple -Problems with burners -Problems with flame arrester -Alarmed malfunction conditions not covered above -Unalarmed conditions discovered during inspection not covered above 	<ul style="list-style-type: none"> -Site-specific diagnosis procedures -Site-specific responses actions based on diagnosis -Open manual louvers -Clean pitot orifice -Clean/drain flame arrester -Refill propane supply -Check/repair pilot sparking system

APPENDIX B
SSM Plan Reporting Forms

**AMERICAN AVENUE LANDFILL
STARTUP REPORT FORM
Landfill Gas Collection and Control System**

This form is used to document actions taken during any startup of any portion of the gas collection and control system. If any of the steps taken are **not consistent with this procedure**, document the variations on a "SSM Plan Departure Form" and follow the reporting requirements in the SSM plan.

1. Beginning of Startup Event	Date:	Time:
2. End of Startup Event	Date:	Time:
3. Duration of Startup Event (hours):		
4. Description of Affected Equipment:		
5. Cause/Reason for Startup:		
6. Name of person completing this form (please print):		
7. Date completed:		
8. Type of Shutdown (check one):		
	<input type="checkbox"/> Manual	<input type="checkbox"/> Automatic

- If this is an automatic startup, skip sections 9 and 10 below and go to section 11.
- If this is a manual startup, the procedure listed in section 9 should be followed. Check off the steps completed and continue on to section 10.

9. STARTUP PROCEDURE CHECKLIST	Check if procedure was followed

10. Did the actual steps taken vary from the procedure specified above? If response is "Yes," proceed to section 11 below. If "No," stop.	<input type="checkbox"/> YES	<input type="checkbox"/> NO
11. Did this startup result in an exceedance of any applicable emission limitation? If response is "Yes," proceed to section 12 below. If "No," stop.	<input type="checkbox"/> YES	<input type="checkbox"/> NO

12. Describe the emission standard that was exceeded below. Complete a "SSM Plan Departure Report Form." Notify the appropriate regulatory agency verbally or by fax within 2 working days after commencing the actions that an event inconsistent with the SSM Plan and which resulted in an exceedance of an applicable emission limitation has occurred. Follow up in writing to the agency within working 7 days after the end of the event.

This form is intended to satisfy the recordkeeping requirements of 40 CFR 63.6(e)(3)(iii) and (iv) and 63.10(b)(2).

**AMERICAN AVENUE LANDFILL
SHUTDOWN REPORT FORM
Landfill Gas Collection and Control System**

This form is used to document actions taken during any shutdown of any portion of the gas collection and control system. If any of the steps taken are **not consistent with this procedure**, document the variations on a "SSM Plan Departure Form" and follow the reporting requirements in the SSM plan.

1. Beginning of Shutdown Event	Date:	Time:
2. End of Shutdown Event	Date:	Time:
3. Duration of Shutdown Event (hours):		
4. Description of Affected Equipment:		
5. Cause/Reason for Shutdown:		
6. Name of person completing this form (print):		
7. Date completed:		
8. Type of Shutdown (check one):		
<input type="checkbox"/> Manual <input type="checkbox"/> Automatic		

- If this is an automatic shutdown, skip sections 9 and 10 below and go to section 11.
- If this is a manual shutdown, the procedure listed in section 9 below should be followed. Check off the steps completed and continue on to section 10.

9. SHUTDOWN PROCEDURE CHECKLIST	Check if procedure was followed

10. Did the actual steps taken vary from the procedure specified above? YES NO
If response is "Yes," proceed to section 11 below. If "No," stop.

11. Did this shutdown result in an exceedance of any applicable emission limitation? YES NO
If response is "Yes," proceed to section 12 below. If "No," stop.

12. Describe the emission standard that was exceeded below. Complete a "SSM Plan Departure Report Form." Notify the appropriate regulatory agency verbally or by fax within 2 working days after commencing the actions that an event inconsistent with the SSM Plan and which resulted in an exceedance of an applicable emission limitation has occurred. Follow up in writing to the agency within working 7 days after the end of the event.

This form is intended to satisfy the recordkeeping requirements of 40 CFR 63.6(e)(3)(iii) and (iv) and 63.10(b)(2).

**AMERICAN AVENUE LANDFILL
MALFUNCTION REPORT FORM
Landfill Gas Collection and Control System**

<p>This form is used to document actions taken during a malfunction of any portion of the gas collection and control system. If any of the steps taken are not consistent with this procedure, document the variations on a "SSM Plan Departure Form" and follow the reporting requirements in the SSM plan.</p>		
1. Beginning of Malfunction Event	Date:	Time:
2. End of Malfunction Event	Date:	Time:
3. Duration of Malfunction Event (hours):		
4. Description of Affected Equipment:		
5. Cause/Reason for Malfunction:		
6. Name of person completing this form (please print):		
7. Date completed:		
<p>Follow the procedure listed below for each malfunction. This form is to be used to document the actions taken during each malfunction. Check off the steps completed.</p>		
8. MALFUNCTION PROCEDURE CHECKLIST	Check if procedure was followed	
<p>9. Did the actual steps taken vary from the procedure specified above? <input type="checkbox"/> YES <input type="checkbox"/> NO If response is "Yes," proceed to box 10 below. If "No," stop.</p>		
<p>10. Did this malfunction result in an exceedance of any applicable emission limitation? <input type="checkbox"/> YES <input type="checkbox"/> NO If response is "Yes," proceed to box 11 below. If "No," stop.</p>		
<p>11. Describe the emission standard that was exceeded below. Complete a "SSM Plan Departure Report Form." Notify the appropriate regulatory agency verbally or by fax within 2 working days after commencing the actions that an event inconsistent with the SSM Plan and which resulted in an exceedance of an applicable emission limitation has occurred. Follow up in writing to the agency within working 7 days after the end of the event.</p>		

This form is intended to satisfy the recordkeeping requirements of 40 CFR 63.6(e)(3)(iii) and (iv) and 63.10(b)(2).

**AMERICAN AVENUE LANDFILL
SSM PLAN DEPARTURE REPORT FORM
Landfill Gas Collection and Control System**

1. Type of Event:	<input type="checkbox"/> Startup	<input type="checkbox"/> Shutdown	<input type="checkbox"/> Malfunction
2. Date:	Time:	Duration:	
3. Provide detailed explanation of the circumstances of the startup, shutdown, or malfunction:*			
4. Provide description of corrective actions taken:*			
5. Describe the reasons the SSM Plan was not followed:*			
6. Describe any proposed revisions to the SSM Plan:*			
7. Name (print):			
8. Title			

*Use additional sheets if necessary.

Note: If the event documented in this form was a malfunction and if the SSM plan needs to be revised to address the particular type of malfunction that occurred, the revision of the SSM plan must be made within 45 days of the event.

This form is intended to assist in meeting the recordkeeping and reporting requirements of 40 CFR 63.6(e)(3)(iv).

ATTACHMENT C

SJVAPCD Variance and Breakdown Information

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

1990 E. Gettysburg
Fresno, CA 93721
(559) 230-5950
Fax: (559) 230-6062

IN THE EVENT OF A BREAKDOWN:

- Notify the District of the breakdown by telephone or fax within one hour after its detection if it is emission related, eight hours for CEM equipment breakdowns.
- Your notification should include the time, specific location, equipment involved, and the cause of the occurrence (to the extent known)
- **Do not** report breakdowns unless a District rule or permit condition will be violated as a result of the breakdown.
- The breakdown or failure must not be the result of neglect or disregard of any rule or regulation.
- The breakdown must not be the result of improper maintenance or operator error.
- The condition cannot create a nuisance.
- The breakdown or failure must not be of a recurrent nature.

RULE 1100 - EQUIPMENT BREAKDOWN

(Adopted June 18, 1992, Amended December 17, 1992)

1.0 Purpose

This rule defines a breakdown condition and the procedures to follow if one occurs. The corrective action, the issuance of an emergency variance, and the reporting requirements are also specified.

2.0 Applicability

This rule shall apply to any owner or operator of any source operation with any air pollution control equipment or related operating equipment which controls air emissions or any continuous monitoring equipment.

3.0 Definitions

- 3.1 Breakdown Condition: an unforeseeable failure or malfunction of any air pollution control equipment, or related operating equipment, which causes a violation of any emission limitation or restriction prescribed by these Rules and Regulations, or by State Law; or any in-stack continuous monitoring equipment, where such failure or malfunction:
- 3.1.1 Is not the result of neglect or disregard of any air pollution control law, rule or regulation; and
 - 3.1.2 Is not intentional or the result of negligence; and
 - 3.1.3 Is not the result of improper maintenance; and
 - 3.1.4 Does not constitute a nuisance; and
 - 3.1.5 Is not a recurrent breakdown of the same equipment.

4.0 Criteria for Determining a Breakdown Condition

- 4.1 An occurrence which constitutes a breakdown condition, and which persists only until the end of the production run or 24 hours, whichever is sooner (except for continuous monitoring equipment, for which the period shall be 96 hours), shall constitute a violation of any applicable emission limitation or restriction prescribed by these Rules and Regulations. However, the APCO may take no enforcement action if the owner or operator demonstrates to the APCO's satisfaction that a breakdown condition exists and the following requirements are met:
 - 4.1.1 The owner or operator submits the notification required by Section 6.1 of this rule;
 - 4.1.2 The owner or operator immediately undertakes appropriate corrective measures and comes into compliance; and
 - 4.1.3 The APCO determines that the attainment or maintenance of ambient air quality standards will not be endangered.

5.0 Emergency Variance

- 5.1 An occurrence which constitutes a breakdown condition shall not persist longer than the end of the production run or 24 hours, whichever is sooner (except for continuous monitoring equipment, for which the period shall be 96 hours), unless the owner or operator has obtained an emergency variance.
- 5.2 If the breakdown condition will either require more than 24 hours to correct or persist longer than the end of the production run (except for continuous monitoring equipment, for which the period shall be 96 hours), the owner or operator may, in lieu of shutting down, request the APCO to commence the emergency variance procedure set forth in Rule 5200 (Emergency Variance).

6.0 Breakdown Procedures

- 6.1 The owner or operator shall notify the APCO of any occurrence which constitutes a breakdown condition; such notification shall identify the time, specific location, equipment involved, and (to the extent known) the cause(s) of the occurrence. Such notification shall be given as soon as reasonably possible, but no later than one (1) hour after its detection, unless the owner or operator demonstrates to the APCO's satisfaction that the longer reporting period was necessary.
- 6.2 The APCO shall establish written procedures and guidelines, including appropriate forms for logging of initial reports, investigations, and enforcement follow-up, to ensure that all reported breakdown occurrences are handled uniformly to final disposition.
- 6.3 Upon receipt of notification pursuant to Section 6.1 the APCO shall promptly investigate and determine whether the occurrence constitutes a breakdown condition. If the APCO determines that the occurrence does not constitute a breakdown condition, the APCO may take appropriate enforcement action, including, but not limited to seeking fines, an abatement order, or an injunction against further operation.

7.0 Reporting Requirements

Within ten (10) days after a breakdown condition has been corrected, the owner or operator shall submit a written report to the APCO which includes:

- 7.1 A statement that the breakdown condition has been corrected, together with the date of correction and proof of compliance;

- 7.2 A specific statement of the reason(s) or cause(s) for the occurrence sufficient to enable the APCO to determine whether the occurrence was a breakdown condition;
- 7.3 A description of the corrective measures undertaken and/or to be undertaken to avoid such an occurrence in the future. (The APCO may, at the request of the owner or operator, for good cause, extend up to 30 days the deadline for submitting the description required by this section);
- 7.4 An estimate of the emissions caused by the breakdown condition; and
- 7.5 Pictures of the equipment or controls which failed, if available.

8.0 Burden of Proof

The burden shall be on the owner or operator of the source to provide sufficient information to demonstrate that a breakdown did occur. If the owner or operator fails to provide sufficient information, the APCO shall undertake appropriate enforcement action.

9.0 Failure to Comply with Reporting Requirements

Any failure to comply, or comply in a timely manner, with the reporting requirements established in Sections 6.1, and 7.1 through 7.5 of this rule shall constitute a separate violation of this rule.

10.0 False Claiming of Breakdown Occurrence

It shall constitute a separate violation of this rule for any person to file with the APCO a report which falsely, or without probable cause, claims that an occurrence is a breakdown occurrence.

11.0 Hearing Board Standards and Guidelines

The Hearing Board shall adopt standards and guidelines consistent with this rule to assist the Chairperson or other designated member(s) of the Hearing Board in determining whether to grant or deny any emergency variance, and to assist the in the enforcement of this rule.

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

RULE 5040 - PETITIONS FOR VARIANCES

(Adopted May 21, 1992; Amended December 17, 1992; Amended December 16, 1993)

1.0 Requirements

In addition to the matters required by Rule 5030 (Contents of Petition), petitions for variances shall state briefly:

- 1.1 The code, section, or District rule, at issue or being violated, and from which relief is requested.
- 1.2 The facts showing why compliance with the code, section, or District rule, is unreasonable or unduly burdensome for the applicant.
- 1.3 The period of time for which the variance is sought. If the variance is for a period of time greater than one year, the petition shall include a compliance schedule which shows dates when increments of progress will be completed (See Rule 5050 (Compliance Schedule)).
- 1.4 The burden resulting, or which would result, to the petitioner from immediate compliance with such section or rule.
- 1.5 The requirements of the applicable code, section, or District rule which the petitioner can meet and the date when the petitioner can comply with such requirements.
- 1.6 The advantages and disadvantages to the residents of the District resulting from requiring compliance or resulting from granting a variance, including the nature, quantity, and air quality impacts, of the emissions which the variance would permit.
- 1.7 Facts establishing whether or not operations under such variance, if granted, would constitute a nuisance as defined in Rule 4102 (Nuisance) and section 41700 of the Health and Safety Code.
- 1.8 Whether or not any case involving the same identical equipment or process is pending in any court, civil or criminal.
- 1.9 Whether or not the subject equipment or process is covered by a Permit to Operate issued by the APCO. If so, state the permit number, operating schedule and excess emissions expected during the period of the variance.
- 1.10 Whether or not the applicant for the variance has given consideration to curtail operation of the source in lieu of obtaining a variance.
- 1.11 The methods of monitoring or alternative methods that will be used to quantify and report, pursuant to a schedule established by the District, the emission levels from the source during the period the variance is in effect, if applicable.
- 1.12 The efforts that will be undertaken during the period the variance is in effect to ensure that excess emissions are reduced to the maximum extent feasible, if applicable.

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RULE 5200 - EMERGENCY VARIANCE

(Adopted May 21, 1992; Amended December 17, 1992; Amended December 16, 1993)

1.0 Requirements

- 1.1 Upon receipt of a request for an emergency variance, the APCO shall contact the Chairperson of the Hearing Board or other designated member(s) of the Hearing Board to establish a time and place for consideration of the request. The APCO shall inform the owner or operator of the source of such time and place. During consideration of the emergency variance, the APCO shall recommend whether an emergency variance should be granted, and the owner or operator of the source shall be entitled to present testimony and evidence. The burden shall be on the owner or operator to establish that a breakdown condition, or good cause exists. Thereafter, the Chairperson or other designated member(s) may, without notice or hearing, grant or deny an emergency variance. Reasonable conditions may be included in the variance. The Chairperson or other designated member(s) shall, within five (5) working days, issue a written order confirming the decision with appropriate findings.
- 1.2 No emergency variance shall be granted unless the Chairperson or other designated member(s) determines that:
 - 1.2.1 The variance is issued for good cause, including but not limited to, a breakdown condition;
 - 1.2.2 Continued operation is not likely to create an immediate threat or hazard to public health or safety;
 - 1.2.3 The requirements for a variance set forth in Health and Safety Code sections 42352 and 42353 have been met; and
 - 1.2.4 The attainment or maintenance of National Ambient Air Quality Standards will not be endangered.
- 1.3. At any time after an emergency variance has been granted, the APCO may request that the Chairperson or designated member(s) reconsider and revoke, modify, or further condition the variance if the APCO has good cause to believe that:
 - 1.3.1 Continued operation is likely to create an immediate threat or hazard to public health or safety;
 - 1.3.2 The owner or operator is not complying with all applicable conditions of the variance;
 - 1.3.3 A breakdown condition no longer exists;
 - 1.3.4 Final compliance is not being accomplished as expeditiously as is practicable; or
 - 1.3.5 Continued operation is likely to endanger the maintenance or attainment of National Ambient Air Quality Standards.

The procedures set forth in section 1.1 shall govern any further proceedings conducted under this rule.

- 1.4 An emergency variance shall remain in effect only for as long as is necessary to repair or remedy the condition which necessitated the emergency variance, but in no event after a properly noticed hearing to consider an interim or 90 day variance has been held, or 30 days from the date of the subject occurrence, whichever is sooner.