

2. SOURCE 1- LANDFILL WITH GAS COLLECTION SYSTEM

The collection and control systems consist of operating landfill gas extraction wells installed at the East and North Parcels connected to landfill gas processing facilities located in the southwest corner of the site (see Figure 1). This report does not include the closed South Parcel because the total in-place tonnage of refuse in this Parcel is less than 1,000,000 tons. The South Parcel is not contiguous with the other Acme Landfill Parcels and has been excluded from any MFR Permit requirements. The landfill gas processing facilities consist of a flare (abatement device A-2), four microturbine generators operated by Bulldog Gas & Power, LLC as BAAQMD Plant 13782, and a gas compression plant used to deliver processed landfill gas to Central Contra Costa Sanitary District.

Acme operated the collection and control systems at the site during the reporting period. The existing collection system consists of 20 extraction wells and three trenches at the East Parcel (see Figure 2) and 40 extraction wells and 25 horizontal collectors at the North Parcel (see Figure 3). Except as described in the following sections, all of the extraction wells and the control systems at the landfill gas processing facilities were operated continuously. The horizontal collectors were operated less than continuously consistent with MFR Permit condition #19906, Part 5. Testing and operation of the horizontal collectors is described below. Required operating records and data for the landfill gas collection and control system are also discussed.

2.1 Operating Records

Acme's collection and emission control systems daily operation records are included in Appendix A. The daily summaries include gas flow rates, scheduled shutdowns, and unscheduled shutdowns along with a description of the shutdown occurrence. The landfill gas flare and gas compression plant can be operated independently or in combination. The microturbines can only be operated when the gas compression plant is running. The microturbines were not operated during the reporting period. Planned shutdowns of the gas plant for maintenance and component replacement occurred during July 2013, August 2013, and September 2013. There were a total of 877 hours of scheduled shutdowns during these months. The landfill gas flare was operated during these planned gas plant shutdowns. There were no reported unscheduled shutdowns of the gas plant or flare during the reporting period. The 8-34-113 requirements allow for up to 240 scheduled shutdown hours during any calendar year. Since the flare was operated while the gas plant was shut down, there were no scheduled or unscheduled shutdowns of the emission control systems during the reporting period. The systems are therefore being operated in compliance with the scheduled shutdown limitations during this reporting period.

The flare was operated for a total of 877 hours during the reporting period. The heat input to the flare during these operating periods did not exceed the maximum daily MFR BTU permit limit. The heat input to the flare during this reporting period is approximately 11,892 million BTU which is well below the 412,650 million BTU per year limitation. Flare flow and strip chart recorder data will be retained in Acme files for review by the BAAQMD upon request. The

operation records provided for this reporting period indicate that Acme is in compliance with the MFR heat input limits and the 8-34-113 requirements.

The East Parcel accepted green waste, wood waste, construction and demolition debris, and other inert wastes during the reporting period. Daily summaries of waste acceptance from April 1 to September 30, 2013 are provided in Appendix B. There are no areas on the East or North Parcels at Acme Landfill that are excluded from the landfill gas collection system. Acme Landfill's calculated waste acceptance rate during the reporting period, approximately 125 tons per operating day, is well below the 1,500 tons per day MFR Permit limit.

2.2 Flare Source Testing Results

Blue Sky Environmental completed source testing of the flare on July 10, 2013. Pursuant to a BAAQMD directive, an electronic copy of the source test report was submitted to the source test section in an August 21, 2013 Acme letter. Source test results are therefore not being appended to this report. Compliance testing was completed for the parameters listed in Condition #19906, Items 9 and 10 of the MFR Permit. Testing results demonstrate that the flare is being operated in compliance with the 8-34-301 emission criteria. Non-methane organic compounds (NMOC) were not detected in the flare outlet. Acme's MFR Permit allows for up to 30 parts per million (ppm) NMOC in the flare exhaust or greater than 98 percent removal by weight. Testing of the untreated landfill gas for the parameters listed in the Environmental Protection Agency's (EPA's) AP-42 Table 2.4-1 was completed concurrent with the 2013 source test as specified in Blue Sky Environmental's June 4, 2013 source test plan.

2.3 Collection and Emission Control Systems Leak Testing

Landfill gas wells and horizontal collectors are leak-tested quarterly to comply with the 8-34-503 requirements. Leak testing data are recorded in Appendix C. No leaks in excess of the 1,000-ppm MFR Permit component limit were measured at any of the North or East Parcel wellheads during this reporting period. Component leaks at the ground surface/landfill gas wellhead interface below the 1,000-ppm limit were observed in some of the East Parcel wells during the reporting period. These leaks were primarily repaired by adding additional soil or rehydrating the bentonite chips around the East Parcel wellheads. Additional bentonite and soil placement around recently extended East Parcel wellheads will be completed during the next reporting period. PVC tape is routinely used to seal the annular space between North Parcel liner boots and the landfill gas wells to prevent leaks. In addition to the landfill gas wellhead work, flanges and boots on North and East Parcel horizontal collectors were checked during this reporting period and resealed as necessary.

2.4 Wellhead Monitoring

Acme completed monthly wellhead monitoring of the landfill gas wells during the reporting period for the parameters required by 8-34-505. A Landtec GEM 2000 instrument was used to measure the required wellhead monitoring parameters. This instrument is factory-calibrated at six-month intervals and field-calibrated each month before use. Operation of the horizontal collectors and vertical wells on the North and East Parcels is described below.

Vacuum and pressure gauges installed on the North Parcel horizontal collectors were monitored monthly consistent with MFR Permit condition #19906, Part 5. Negative pressures were observed in the collectors during each of the monthly monitoring events. The isolation valves to each of the collector legs were therefore off during the reporting period. Gauge readings and gas quality results for the horizontal collectors are included in Appendix D. All of the North and East Parcel gas well measurements were in compliance with the 8-34-305 requirements during this reporting period. These results are also included in Appendix D.

One of the North Parcel wells (EW-108) had oxygen concentrations above the 5 percent criteria during the initial routine monthly testing. Oxygen concentrations were reduced by sealing leaking wellhead components and through valve adjustments. This well was then retested within one day and the retest results were in compliance with the 8-34-305 requirements for all parameters, including oxygen. The remaining North Parcel gas wells were in compliance with the 8-34-305 requirements during the routine monthly testing programs and did not have to be adjusted.

All of the East Parcel vertical wells except EW-17 were in compliance with the 8-34-305 requirements during the initial routine monthly monitoring events. EW-17 had oxygen concentrations above the 5 percent criteria during the initial testing during April, May and June 2013. Oxygen concentrations were reduced by through valve adjustments and the well was retested within one day. Retest results were in compliance with the 8-34-305 requirements for all parameters including oxygen. In addition, the control valve at EW-17 is not working properly and will be replaced during the next reporting period. One to three East Parcel wells were not monitored during a portion of the reporting period because they are located in active fill areas. All of the East Parcel wells will be returned to operation by October 2013. Gas quality in East Parcel collectors T-1 and T-2 varied during this reporting period. T-2 had high oxygen and relatively low methane concentrations during the reporting period and was not operated. The valve at T-1 was turned on or off depending on the gas quality and oxygen concentrations measured during a given month. Collector T-3 had good gas quality throughout the reporting period and was operated continuously. Tabular summaries of the East Parcel wellhead data are also included in Appendix D.

2.5 Landfill Surface Emission Monitoring

During third quarter 2013, annual integrated and instantaneous surface emission monitoring (SEM) was conducted at the North Parcel as required by the Assembly Bill (AB-32) regulations that are included in Title 17, California Code of Regulations (CCR), Sections 95460 through 95476. The North Parcel was monitored within 3 inches of the Parcel surface along approximately 100-foot intervals in 50,000 square foot grids using AB-32 compliant Trimble SiteFID™ Landfill Gas Monitors. A figure showing the North Parcel grid layout is included in Appendix E. The Trimble monitors incorporate flame ionization detectors that are linked by wireless technology to GPS-enabled hand-held computers.

There were no emissions above 1.0 ppm detected during the July 2013 SEM of the North Parcel. North Parcel SEM results are tabulated in Appendix E. Site wind speed data was collected on the days that SEM was performed using a portable data-logging anemometer. Acme has applied for an alternative compliance option (ACO) with the CARB that proposes termination of monitoring when the average wind speed exceeds 10 miles per hour or the instantaneous wind speed exceeds 20 miles per hour. These criteria were exceeded during the July 2013 SEM of the North Parcel. Windy days occurred frequently at Acme during second and third quarter 2013. Several attempts to monitor the North Parcel earlier in July 2013 were aborted due to high winds regardless of the time of day that monitoring was attempted. Therefore, a fixed criterion during the windy late Spring and early Summer months does not appear feasible at Acme. Acme will continue to use its best efforts to obtain SEM data when the wind is within the ACO criteria but proposes a higher limit of 15 miles per hour average and 30 miles per hour instantaneous during the windier late Spring and early Summer months. In addition, Acme will move annual SEM monitoring of the North Parcel to the first calendar quarter to avoid the windier months of the year.

Based on the results of the July 2013 SEM, the North Parcel is in continued compliance with the methane emission standards specified in Title 17, CCR Section 95465. Consistent with Title 17, CCR Section 95471, annual SEM of the North Parcel will continue to be completed along a 100-foot interval walking pattern. Please note that the closed North Parcel has a final cover consisting of three different liner materials that has effectively sealed the surface of the landfill preventing landfill gas emissions.

There were no instantaneous results above 500 ppm or integrated results exceeding the 25 ppm criteria during second quarter 2013 SEM of the East Parcel. Second quarter monitoring results are summarized in Appendix E. Second quarter 2013 SEM of the East Parcel was completed between May 24 and May 30, 2013. Site wind speed data was collected on the days that East Parcel SEM was performed using a portable data-logging anemometer. As mentioned previously, Acme has applied for an ACO with the CARB that proposes termination of monitoring when the average wind speed exceeds 10 miles per hour or the instantaneous wind speed exceeds 20 miles per hour. These criteria were exceeded during second quarter 2013 monitoring at some of the grids. Windy days occurred frequently at Acme during second and third quarter 2013. Several attempts to monitor the East Parcel earlier in the quarter were aborted due to high winds regardless of the time of day that monitoring was attempted. Therefore, a fixed criterion during the windy late Spring and early Summer months does not appear feasible at Acme. Acme will continue to use its best efforts to obtain SEM data when the wind is within the ACO criteria but proposes a higher limit of 15 miles per hour average and 30 miles per hour instantaneous during the windier late Spring and early Summer months.

Third quarter 2013 SEM of the East Parcel was completed between September 18 and 25, 2013. During third quarter 2012 SEM, there were three instantaneous results above the 500 ppm criteria detected in monitoring grids 7, 8, and 9. There were no integrated results above the 25 ppm criteria. An Acme operator used a loader to apply additional soil cover on grids 7, 8, and 9 over the areas where the instantaneous results above 500 ppm were recorded. The locations were re-monitored within one day after the additional soil cover was placed. The re-monitoring results

were less than 5 ppm. Consistent with BAAQMD 8-34-415, these three locations were monitored again on October 16, 2013 to satisfy the 30 day re-monitoring requirement and confirm that were below 500 ppm. The October 16, 2013 results were less than 30 ppm. Third quarter monitoring results are summarized in Appendix E along with a figure showing the three locations where instantaneous measurements above 500 ppm were recorded.

Site wind speed data was collected on the days that East Parcel SEM was performed using a portable data-logging anemometer. Wind speeds during monitoring at the majority of the grids were less than the ACO criteria of 10 miles per hour average and 20 miles per hour instantaneous. Hand held anemometers used by the SEM field personnel indicated that the wind speeds were within the alternative compliance option criteria at all of the grids. Data from the portable data-logging anemometer were higher than the hand held units perhaps due to spatial variables. Wind speed monitoring data is also presented in Appendix E.

2.6 Continuous Temperature and Flow Recorders

As mentioned previously, the landfill gas flare was operated during the reporting period. Flare temperature graphs for the periods of operation have been recorded using a strip chart recorder. Temperatures above the 3-hour average of 1,400 °F MFR Permit criteria were maintained while the flare was being operated. Strip chart recorder data documenting compliance with this MFR Permit criterion will be retained in Acme files for review by the BAAQMD upon request. Daily gas flow meter readings are summarized in Appendix A. The gas flow meters are regularly calibrated to ensure the accuracy of the measurements. The gas revenue flow meter is calibrated at 12-month intervals. Flare and microturbine flow meters are calibrated annually or as needed. Gas flow meter calibration data is retained in Acme files and can be submitted to the BAAQMD upon request.

2.7 Miscellaneous Landfill Operating Records

Acme maintains and operates a water truck to control dust emissions from the unpaved roadways at the site. A summary of the watering records for the reporting period containing the data required by the MFR Permit condition #19906, Part 11 is included in Appendix F. During the wet weather period, road watering is completed only when necessary. There were several days during this reporting period when use of the water truck was not necessary because weather conditions precluded dust emissions from the roads at the site. Acme also measured hydrogen sulfide concentrations in the raw landfill gas on a quarterly basis during the reporting period as required by MFR Permit condition #19906, Part 8. Hydrogen sulfide levels in the gas were measured using a GasTech GT Land Surveyor instrument. Monitoring results are included in Appendix G. The readings recorded during this reporting period, 24 and 34 ppm, are significantly below the 1,300-ppm MFR Permit limit.

Acme performed routine maintenance on the landfill gas extraction well network during the reporting period. The routine maintenance including periodic taping of liner boot seals, draining condensate from header lines, labeling wells, and replacing landfill gas sampling ports and

horizontal collector pressure gauges. The maintenance activities performed are included on the field data forms provided in Appendix D.

3. SOURCES 9 AND 10 – IC ENGINE POWERING WASTE RECYCLER

Acme used a diesel-fueled waste recycler manufactured by Peterson Pacific Corporation to chip wood and green wastes received at the landfill during the reporting period. An hour meter connected to the engine records waste recycler operating hours. The waste recycler was operated for a total of 158.8 hours during this reporting period. The waste recycler hour meter log and diesel fuel consumption records will be retained in Acme files and submitted upon request. Acme is permitted to operate the waste recycler for up to 1,200 hours during any consecutive 12-month period. The waste recycler operating hours during this reporting period indicate that the annual operating hours are below the permitted maximum. California-certified diesel was used to fuel the waste recycler during the reporting period. Vendor certifications of sulfur content were included on every invoice received and are being retained in Acme files for review by the BAAQMD upon request. Water was used to moisture condition wood and green waste before chipping. Acme has installed a water line at the green waste chipping pad. A hose is connected from the water line to the spray bars on the Peterson Pacific Corporation waste recycler. Excessive visible particulate emissions were not observed while the waste recycler was operated and no fallout of particulate on adjacent property occurred during the reporting period.

4. SOURCE 200 – LEACHATE TREATMENT FACILITY

Influent and effluent leachate samples are collected and analyzed semiannually for the volatile organic compounds (VOCs) specified by MFR Permit condition #19908, Part 2. The VOC results and daily flow rate data are used to calculate VOC and benzene emissions from the leachate treatment plant. A 75 percent biodegradation efficiency factor is included in the emission calculations. VOC and benzene emissions from the leachate treatment plant were well below the criteria included in the MFR Permit condition #19908, Part 1 during the reporting period. Daily leachate flow rates were also below the 36,000-gallon per day limit during the reporting period. Emission calculations and leachate treatment plant flow rate data are included in Appendix H.

5. SOURCE 201 – EMERGENCY GENERATOR

Acme maintains a 50-kilowatt emergency generator at the leachate treatment plant to ensure reliable run time at the plant and enable compliance with other regulatory requirements at the site. Acme received a permit from the BAAQMD to operate the emergency generator in a December 5, 2003 letter. An hour meter is connected to the engine and is read and recorded monthly to comply with the permit conditions. The generator was operated for a total of 14.4 hours during the reporting period. Of this total, 10.6 hours were accumulated due to two emergency power outages at the leachate treatment plant during April and September 2013. The remaining run time, 3.8 hours accumulated during this reporting period, was for maintenance purposes. The California Air Resources Board (CARB) requirements limit the inspection and maintenance run time of this engine to less than 20 hours per year. The 3.8 hours of maintenance run time during this reporting period is well below the 20-hour per year criteria.