Waimanalo Gulch Sanitary Landfill Design and Operation Review Technical Memorandum

Prepared for

Cades Schutte, LLP
1000 Bishop St, Suite 1200
Honolulu, HI 96813

Prepared by

Parametrix
411 108th Avenue NE, Suite 1800
Bellevue, WA 98004-5571
T. 425.458.6200 F. 425.458.6363
www.parametrix.com

EXHIBIT K146

CERTIFICATION

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.

Chris MacDonald

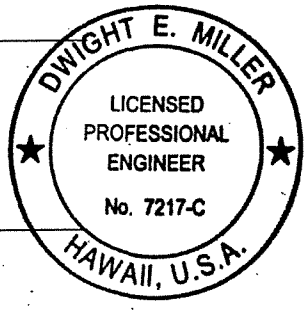
Prepared by Chris MacDonald, PE

Lisa Gilbert

Prepared by Lisa Gilbert, LHG

Checked by Dwight Miller, PE

Approved by Dwight Miller, PE



This work was prepared by
me or under my supervision

12/13/11

EXHIBIT K146

INTRODUCTION

This technical memorandum compares the design and landfill operations described in the Engineering Report for Landfill Expansion (engineering report) (Geosyntec, 2008) and Final Environmental Impact Statement (FEIS) (R.W. Towill, 2008) for the Waimanalo Gulch Sanitary Landfill (WGSL) expansion to the current state of the practice for landfill design and planning. The memorandum also compares the actual landfill operations to the operations plans presented in the engineering report and FEIS, and evaluates the calculations of remaining airspace as presented by Waste Management of Hawaii, Inc. (WMH), the landfill operator. In addition, specific improvements to operations are identified that would reduce the chances of select waste leaving the site through system breaches caused by unanticipated weather events or other emergencies.

In summary, the evaluation conducted by Parametrix found that:

- Design and operations plans in the engineering report and FEIS meet standard practices.
- Operation of the landfill has not followed the engineering report or FEIS. The cells have been constructed in a different order and to different sizes than specified in the engineering report and FEIS. In addition, the City and County of Honolulu (City) did not construct the western stormwater diversion system prior to filling in the expansion area, and waste has not been diverted as planned.
- Airspace will be consumed faster than projected by WMH in their April 22, 2011 spreadsheet, due to erroneous assumptions in the calculations made by WMH.
- There is an uncertainty in groundwater flow direction, which results in low confidence in determining whether groundwater monitoring wells are properly located to measure impacts from the leachate sumps.

COMPARISON OF DESIGN TO STANDARD PRACTICES

The review findings indicate that, in general, the lining system, leachate collection, cover system, and stormwater conveyance features have been designed to current standard practices. The landfill gas collection system currently meets current standard practices, including the vertical gas extraction wells in completed municipal solid waste (MSW) cells.

COMPARISON OF OPERATIONS PLAN TO STANDARD PRACTICES

In both the engineering report and the FEIS, with respect to the landfill expansion of areas E-5 through E-11, general plans of operation are provided that meet the requirements for Subtitle D landfills, Hawaii Administrative Code 11-58.1-11 through 18, and current standard practices. The operations plans include standard practices to manage odor, dust, stormwater, and the leachate depth in active cells.

Operations plans for three types of special waste were reviewed: medical waste, sewage sludge, and asbestos. According to the engineering report and FEIS, medical waste may only be accepted if it is sterilized prior to arriving at the WGSL. Medical waste that meets the requirements for disposal at WGSL is handled as if it is any other type of MSW. All odorous loads, including sewage sludge, are to be identified when entering the facility. When an odorous load enters the site, the operations plan states that a trench is to be excavated in the waste mass twice the volume of the odorous load, the odorous load placed in the trench, MSW from the trench placed over the odorous load, and the trench recovered with daily cover. Sewage sludge not identified as odorous does not receive any special treatment.

Asbestos handling procedures described in the operations plan section of the engineering report and FEIS include logging the load of asbestos, placing it in a trench similar to the process for odorous loads, and recording the location of the asbestos.

COMPARISON OF OPERATIONS PRACTICES TO DESIGN AND OPERATIONS PLAN

Violations

Operations at the WGSL have been observed by regulators to be out of compliance with state law on multiple occasions, resulting in the following violations being issued against the City and WMH:

1. January 31, 2006. Docket No. 05-SJW-SWS-004, Fee $2,445,130. Summarized in the FEIS (R.W. Towill, 2008).
   - Count I—Exceedance of permitted grades
   - Count II—Failure to submit annual operating reports in a timely manner
   - Count III—Failure to place daily cover on the active face of the MSW landfill
   - Count IV—Failure to place intermediate cover material on the ash monofill
   - Count V—Exceedance of leachate head on the liner in the ash monofill
   - Count VI—Exceedance of leachate head on liner in MSW Cell E-1 sump
   - Count VII—Failure to measure leachate levels and to maintain records on leachate levels in Cell 4-B sump
   - Count VIII—Failure to measure leachate levels and to maintain records on leachate levels in the ash monofill sump
   - Count IX—Failure to notify the Hawaii State Department of Health (DOH) of non-compliance on equipment blockage in MSW Cell 4-B leachate lateral line and inability to measure leachate levels
   - Count X—Failure to notify DOH on non-compliance in a timely manner on the exceedances of permit grades and submission of the annual operating reports
   - Count XI—Unauthorized storage of material on the ash monofill
   - Count XII—Failure to manage and ban the acceptance of special waste
   - Count XIII—Failure to maintain records and record location of asbestos disposal at the landfill
   - Count XIV—Failure to cover a dead animal
   - Count XV—Failure to submit annual surface water management plan
   - Count XVI—Failure to control the generation of dust from vehicular traffic
   - Count XVII—Failure to minimize free litter generation in the landfill
   - Count XVIII—Failure to monitor explosive gases and maintain monitoring

   Of the 18 counts in the Notice of Violation, 16 were already corrected when the Notice of Violation was issued. One of the other two counts (Count VII) was resolved through final installation of the required equipment on September 27, 2007.

The remaining count (Count I—Exceedance of permitted grades) was addressed through the submission of an application to the DOH for a permit modification to increase the maximum final grades of the ash monofill.

2. May 13, 2010 (Docket No. 10-SJW-SWS-002). The finding was $424,000 and the case was settled on December 3, 2010 for $100,000.
   - Count I—Failure to construct the final cover and west berm in accordance with design specifications
   - Count II—Failure to notify the DOH of non-compliance regarding construction of the west berm
   - Count III—Failure to submit interim status reports for the construction of each stage of the western stability berms
3. April 5, 2006 (Docket R9-2000-06). The U.S. Environmental Protection Agency (EPA) found that WMH violated the Clean Air Act by failing to meet certain deadlines for designing and installing a gas collection and control system.
4. November 29, 2011 (Docket No. CWA-309(a)-12-003). EPA found that WMH and the City failed to prevent surface water runoff that had contacted waste; failed to control erosion to prevent loss of cover or washout of refuse slopes; failed to properly manage leachate; and failed to adequately retain and remove silt from surface water before it was discharged from the site.

Impacts of these violations are detailed in the section below.

Operational Deviations from Documents

The WGSL operators have shown a consistent pattern of deviation from the design concepts and operations plans described in the engineering report and FEIS. These deviations appear to have increased the risk of public health hazards, including exposure and off-site discharge of MSW caused by storm events, migration of leachate out of the landfill area, fugitive landfill gas emissions, and potential disturbance of asbestos after landfilling. Deviations are described below.

- Operations exceeded permitted grades in the monofill area. After this was identified by regulators in Count I of the January 31, 2006 Notice of Violations, WMH and the City requested the permitted grades be changed to allow the fills already placed. This grade exceedance could have affected slope stability in ways not considered in the engineering report.
- Between 2003 and 2005, operations staff repeatedly failed to provide adequate daily cover in both the ash monofill and regular MSW cells; failed to place and cover dead animals within the MSW cell active areas; accepted landfilled tires that are classified as special waste; and stored unauthorized material on the ash monofill. These incidents are identified in Counts III, IV, XI, XII, XIV, and XVI of the January 31, 2006 Notice of Violations. These violations increased the risk to public health by increasing the opportunity for contact between pathogen vectors (birds, rats, other animals, insects, and stormwater) and the waste mass.
- Between 2003 and 2005, leachate within the landfill was allowed to exceed the design maximum depth of 1 foot on the lining system (a 2-foot depth is allowed in the sumps). The depth of leachate on the lining systems exceeded the allowed depth in three sumps due to lack of regular pumping, and in one sump due to a blockage in

the riser from the sump that prevented pumping. The depth of leachate on the liner in the sumps ranged from 7 to 16 feet, which would accelerate the rate of leakage through any potential defect in the lining system for the sections of the landfill that have a geomembrane liner. These incidents are identified in Counts V and VI of the January 31, 2006 Notice of Violations.

- Between 1998 and 2006, operations staff failed to implement a landfill gas collection and control system, creating a potential for fugitive gas emissions throughout that period. This incident is identified in the April 5, 2006 Notice of Violations.
- Recordkeeping at the WGSL has not met regulatory requirements regarding leachate and asbestos handling, reporting, and planning. Specifically, the operations staff could not provide records of leachate pumping volumes and depth of leachate from 2003 through 2005; did not notify regulators that equipment for the leachate system was not working; could not provide any record of asbestos handling in this same time frame; failed to submit annual operating reports in a timely manner; and failed to submit surface water management plans. These recordkeeping failures can have a direct effect on the public health and the safety of the workers at the site, because the lack of records of the asbestos locations greatly increases the risk of accidental asbestos release if areas with asbestos must be excavated at a later date. These incidents are identified in Counts VII, VIII, IX, X, XIII, and XV of the January 31, 2006 Notice of Violations.
- The order and extent of expansion cell construction was changed. Cell E-6 was constructed before Cell E-5, differing from the order described in the engineering report. In addition, Cell E-6 was not constructed to the limits shown in the engineering report and FEIS, which appears to have directly contributed to the stormwater damage to the lining systems of Areas E-4 and E-6 during storm events in December 2010 and January 2011. This change in the limit of the Cell E-6 lining system contributed to the damage in two ways: 1) by creating a low point in the lining system and channeling stormwater toward the vulnerable low point at the junction of Cells E-4 and E-6, and 2) by allowing areas above the western upper edge of the E-6 lining system to drain onto the lining system, ultimately undermining the edges of the system and damaging the geomembrane and clay liner. This change in the limits of Cell E-6 and the order of construction has created a significant impact on public health, and may require a supplemental EIS under Hawaii Administrative Rules Section 11-200-26.In December 2010 and January 2011, stormwater was allowed to flow onto and flood the active area of Cell E-6 during a series of storm events (DES, 2011a). The engineering report states that stormwater is to be controlled by constructing diversion ditches above the active cells to divert stormwater away from the landfill and below, as needed, to prevent erosion. A permanent stormwater diversion system was to be constructed to convey stormwater from above the site around the landfill with discharge being conveyed downhill of the site. Also, surface water management is described in the Surface Water Management Plan (AECOM, 2010) that is updated yearly. The system is designed to prevent runon and control runoff from a 25-year, 24-hour storm. Surface water at the WGSL is directed away from covered refuse by temporary and permanent drainage control measures including perimeter diversion ditches, drainage benches, storm drains, and drainage swales. The main drainage feature for the WGSL consists of the western perimeter drainage channel and the terminus sedimentation basin that borders the west side of the site (R.M. Towill, 2008). According to the EPA Notice of Violation (Docket No. CWA-309(a)-12-003) and DES letter dated February 2011 (DES,

EXHIBIT K146

2011a), the permanent stormwater diversion system construction had not been completed and the temporary diversion ditches and inlets above the active cells were not maintained, or were not sized appropriately for the storm events. Because of these reasons, stormwater damaged the E-6 cell bottom lining system in two locations, requiring repairs that were documented in the AECOM liner damage assessment letter dated January 26, 2011 (AECOM, 2011a). In addition, the stormwater was allowed to pond on the active area of the landfill, increasing leachate generation, wetting any dried sewage sludge pellets near the surface and generating odor from the wet sludge, and eroding and moving daily cover off the active area. Ultimately, during the third event on January 12, 2011 stormwater carrying floatable waste, including sterilized medical waste, flowed over the edge of the sedimentation basin into the storm drainage outlet and out under Farrington Highway to the ocean.

- The FEIS specifies multiple methods of waste diversion that were to be completed by the end of 2011. These included increasing the waste to energy (WTE) capacity of the H-POWER facility from 600,000 tons per year to 900,000 tons per year; improving composting programs, including sewage sludge co-composting by 2011; transporting MSW to the mainland United States; and recycling residual waste and ash into construction products by 2011. None of these actions will be completed on time. The H-POWER facility will not be functioning at the increased capacity until mid-2012; only a fraction of City sewage sludge is being processed into fertilizer or other useful product (see Waimanalo Gulch Landfill Alternatives Technical Memorandum section titled "Comparison Of Biosolids Management To Current State Of The Practice"). The City's attempt to transport MSW to the mainland United States was not successful; no recycling of ash has been implemented to date, nor has state law been changed to readily allow for the beneficial uses of ash.

AIRSPACE

WMH provided a figure dated April 2011 showing the landfill having a projected site life of 29.4 years from that date. A review of the calculations used to derive this projected site life indicates that there are several incorrect assumptions and omissions in the calculations as described below.

There were inconsistencies between the volume of waste being received and the volumes reported by R.W. Beck in the Integrated Solid Waste Management Plan Update, as well as the engineering report and FEIS.

The operations staff apparently failed to include WTE ash in the volume calculations, when the remaining airspace noted includes volume for ash in Cells C-8 and C-9. The total volume remaining, as stated by WMH, includes all added airspace from Cells E-5 through E-11, which comprises all the additional airspace proposed through 2023 in the FEIS. This area will receive all waste streams once the ash monofill area is completely filled. The monofill area should reach capacity soon according to Exhibit A10 from the Special Use Permit Application, which lists the available airspace in the ash monofill area at 188,320 cubic yards as of March 16, 2009. According to the Integrated Solid Waste Management Plan Update, 88,000 tons of ash were received at WGSL in 2006—a typical year where the WTE system had no outages. Assuming the density of ash reported in the engineering report, this tonnage equates to approximately 75,000 cubic yards of ash monofill airspace being used each year. This rate of filling would completely fill the ash monofill area in 2.5 years from the March 16, 2009 date, or September of 2011. The calculation assumes current waste production rates on the island will continue. This assumption is not realistic because the current waste

generation rates have been depressed due to negative economic conditions associated with the recession that started in late 2008. As the economy improves, waste generation rates would likely increase.

OPERATIONS FAILURES TO FOLLOW BEST MANAGEMENT PRACTICES

The following items have been identified where the WGSL operations and management staff have failed to implement changes to improve operations safety for on-site workers, lower risks to public health, and reduce impacts on neighboring properties:

- Medical waste should be contained by a process similar to that described for asbestos and odorous waste (i.e., burying in a trench within the waste mass). The trench should be near the middle of the landfill to prevent erosion in the event of exceptional storm events or natural disasters.
- Asbestos should be confined to predetermined corridors within the waste mass so that only those areas of the landfill could contain asbestos. This action would decrease the chance of accidental interaction with asbestos during excavation in the waste mass for installation of landfill gas collection systems, odorous waste placement, and medical waste placement.
- Stormwater systems should be maintained and temporary systems constructed to prevent the inflow of stormwater onto the active filling areas.
- The temporary stormwater collection and conveyance systems should be designed by a licensed engineer experienced in hydrologic modeling and water collection and conveyance design.
- Leachate must be pumped from the leachate collection sumps as often as necessary to maintain the depth of leachate in the sumps at less than 2 feet and on the remainder of the liner system at less than 1 foot.
- Cells should be constructed as shown in the engineering report and FEIS, or the City should engage the services of a qualified engineering team to revise the cell layout if revisions are needed to meet changing operations requirements.

ENVIRONMENTAL MONITORING

Air and Landfill Gas

The landfill gas collection and control system was installed in 2005 and 2006 and upgraded in 2007 and 2008 (R.M. Towill, 2008). It consists of 27 vertical extraction wells, a flare station, and a condensate collection system. Landfill gas monitoring is currently conducted monthly at 10 perimeter monitoring probes to measure whether methane is below 25 percent of the lower explosive limit (LEL) in structures and below 5 percent by volume at the property boundary. A review of the data (EIL, 2009 through 2011) indicates that methane has been detected periodically in Gas Probe GP-8 at levels slightly above and below the limit of 5 percent by volume at the property boundary. The data findings are as follows:

- September 2008: 18.3 percent by volume. This detection was followed by installation of eight additional extraction wells in September 2008.
- October 2008: 7.4 percent by volume

- November 2008: 5.4 percent by volume
- March 2011: 7.3/10.7 percent by volume
- September 2011: 1.6 percent by volume (below 5 percent)
- October 2011: 4.0 percent by volume (below 5 percent)

The FEIS reported that gas temperatures in some of the gas wells exceeded the standard operational temperature of 131 degrees Fahrenheit established by EPA for MSW landfills. WMH has notified EPA and has conducted studies to demonstrate that the higher temperatures are not the results of subsurface fires. Federal guidelines allow establishing alternative temperature limits if it can be demonstrated that the higher temperatures do not cause fires or significantly inhibit anaerobic decomposition.

Groundwater Occurrence and Flow Direction

The WGSL is located over the Makaiwa Aquifer System and groundwater occurs within the Waianai volcanic series at elevations of approximately 4 feet above mean sea level (ft MSL). The landfill is not located in a groundwater recharge area, as designated by the Honolulu Board of Water Supply (BWS), and the site is makai of the No Pass Zone and Underground Injection Control (UIC). Although no groundwater resource has been developed in the Makaiwa Aquifer System near WGSL, several monitoring wells and test wells have been drilled in the lower part of the valley and the Kahe Point area. Test wells to the west near Kahe Point have water elevations of approximately 1.5 to 2 ft MSL.

The climate is relatively arid with annual rainfall of approximately 20 inches (Geosyntec, 2010). Depth to groundwater ranges from about 50 feet near the landfill toe to over 450 feet in the upper reaches of the site. Potential impacts to groundwater could occur if leachate were released into the relatively brackish groundwater; however, these releases would be mitigated by the leachate collection and recovery system that consists of a 1-foot layer of gravel and perforated pipes above the liner that gravity drain to the sumps. Leachate levels in the sumps are measured and controlled by pumping the leachate for disposal.

The positions of existing and future groundwater monitoring wells have been selected to detect releases from the leachate sumps; these sumps collect leachate as it accumulates on the liner as described in the Groundwater and Leachate Monitoring Plan (Geosyntec, 2010). However, the groundwater gradient in the site vicinity is relatively flat, and the groundwater flow directions along the length of the site are subject to considerable uncertainty. Therefore, it is unclear whether the monitoring wells are located in appropriate positions to detect leachate releases.

The volcanic rocks directly south of the WGSL are overlain by a coastal wedge of sedimentary deposits consisting of relatively low permeability carbonate rocks (i.e., caprock). The low permeability caprock retards the southwestward migration of groundwater in this area and appears to deflect the flow of groundwater in the lower reaches of the canyon towards the northwest. The caprock has been shown to be absent to the west and northwest of the WGSL near Kahe Park, allowing discharge to the ocean in this area.

Most of the landfill groundwater wells are located near the toe of the landfill. Water levels in the landfill toe area show a westerly to northwesterly flow direction. Well MW-12 was installed in 2007 on the east side of the landfill. Groundwater flow direction in this well was measured using a colloidal borescope, which showed the flow to be 210 to 290 degrees (southwest to northwest). Groundwater flow direction in the upper reaches of the canyon has still not been determined.

Currently, Well MW-7 monitors the leachate sumps in MSW Cells E-1 and 4B, and Well MW-13 was installed in 2010 to monitor the leachate sump in MSW Cell E-6. Well MW-12 was installed in 2007 as an upgradient well. The Groundwater and Leachate Monitoring Plan showed that two additional wells, MW-14 and MW-15, will be installed to monitor the respective leachate sump in Ash Monofill Cell 8 and the sumps in future Cells E-8 and E-9 (Geosyntec, 2010). The proposed locations of these wells are based on a westerly flow direction near the toe and a southwesterly flow direction in the upper part of the site (see Geosyntec Figure 6).

However, it is not clear that the southwesterly flow direction in the upper reaches of the site agrees with the water levels measured in the new monitoring well (MW-13) that was installed in July 2010. If accurate, the groundwater elevations measured quarterly since the well installation indicate a northwesterly flow direction in the area of MW-13. The groundwater levels from MW-13 are not yet being used in preparing groundwater contours (AECOM, 2011b), pending results of flow direction testing in the well using a colloidal borescope. If the groundwater flow direction near MW-13 is toward the northwest, this well may not be in the correct location to monitor leachate sump E-6, which is located northeast of the well. In addition, proposed Well MW-15 may not be in the correct location to monitor future leachate sumps E-8 and E-9.

Groundwater and Leachate Quality

Recent groundwater and leachate monitoring reports (Second Quarter 2009 through Second Quarter 2011) were reviewed and these pertinent findings (AECOM, 2009 through 2011) are summarized below.

Overall, groundwater quality in the monitoring wells is brackish, with total dissolved solids (TDS) ranging from 1,100 milligrams per liter (mg/L) to 3,100 mg/L, and chloride concentrations ranging from 510 mg/L to 1,600 mg/L. These concentrations are higher than the Maximum Contaminant Levels for drinking water of 500 mg/L for TDS and 250 mg/L for chloride.

Potential impacts to groundwater are evaluated through statistical comparisons described in the Groundwater and Leachate Monitoring Plan (Geosyntec, 2010). Intrawell (comparing new data for each well to its historical data) statistical evaluations using Shewhart-CUSUM control charts are conducted quarterly for dissolved metals and site-specific indicator parameters. Compliance is measured based on concentrations of volatile organic compounds (VOCs), potassium, chemical oxygen demand, and nitrate-nitrite. The most recent monitoring report for the Second Quarter of 2011 (May event) verified exceedances of the statistical limits for nitrate-nitrite in Wells MW-2, MW-7, and MW-10 (AECOM, 2011b). The report states that a June 9, 2011 letter was submitted to DOH stating that an Alternate Source Demonstration (ASD) is being prepared to show the exceedances are not a result of a release from the facility, based on detection in multiple wells versus a single well. The ASD has not yet been made available. Results for the third quarter sampling event (August) will provide further evidence of whether this trend is continuing in these wells and/or developing in other on-site monitoring wells.

It is questionable whether nitrate is the best indicator parameter to be used for compliance assessment. Useful indicator parameters have a high leachate to groundwater contrast and can therefore be used to identify leachate impacts to groundwater. During the last few monitoring reports, groundwater concentrations have been substantially higher than leachate concentrations. Nitrate concentrations in leachate have been non-detected or less than 0.1 mg/L, and nitrate concentrations in groundwater have been greater than 1 mg/L.

Quarterly monitoring reports indicate consistent detection of the VOC, tetrachloroethene, at low-level concentrations below the reporting limit in a number of the wells near the landfill toe, as well as low-level detections of methylene chloride and acetone (common laboratory contaminants). No other VOCs have been routinely detected in WGSL groundwater monitoring wells. Although the concentrations of tetrachloroethene are not statistically significant, they bear watching due to their repeated detections.

Leachate quality is measured quarterly at the four leachate monitoring sumps (AECOM, 2011b). The leachate from the ash monofill cell is highly mineralized (TDS of 80,000 mg/L), while the leachate from the MSW cells has a TDS ranging from 3,800 mg/L to 13,000 mg/L.

CONCLUSIONS

WMH is conducting the required environmental monitoring of landfill gas, leachate, and groundwater. Some exceedances of methane at perimeter probe GP-8 were noted in 2008 and 2011, but gas is apparently being controlled by improvements or adjustments to the gas extraction system. The high temperatures in the landfill gas system bear watching. The December 2010 and January 2011 stormwater events were catastrophic beyond the 25-year 24-hour storm that the landfill was engineered to withstand, which unfortunately led to release of some wastes to the ocean. However, WMH made engineering improvements to the drainage system in response to this event. The groundwater underlying WGSL is brackish and not usable for drinking water; the groundwater monitoring data have not shown verifiable impacts. The issue of most concern regarding groundwater is the uncertainty in groundwater flow direction, which results in low confidence in determining whether groundwater monitoring wells are properly located to measure impacts from the leachate sumps.

REFERENCES

AECOM. 2010. Surface Water Management Plan, Waimanalo Gulch Sanitary Landfill, Kapolei, Oahu, Hawaii. Prepared for Waste Management of Hawaii. August 2010.

AECOM. 2011a. Liner Damage Assessment and Construction Quality Assurance Report for Cell E-6 and E-4 Repairs, Waimanalo Gulch Sanitary Landfill, Kapolei, HI. Prepared for Waste Management of Hawaii. January 26, 2011.

AECOM. 2011b. Quarterly Monitoring Report, Waimanalo Gulch Sanitary Landfill, Kapolei, Oahu, Hawaii, April 1, 2011 to June 30, 2011. Prepared for Waste Management of Hawaii. August 2011.

AECOM. 2009 through 2011. Quarterly Monitoring Reports, Waimanalo Gulch Sanitary Landfill, Kapolei, Oahu, Hawaii. Prepared for Waste Management of Hawaii.

DES (Department of Environmental Services), City and County of Honolulu. 2011a. Report on Status of Actions Taken Pursuant to State Land Use Commission's Letter dated January 21, 2011, Waimanalo Gulch Landfill. Prepared for Land Use Commission, State of Hawaii. February 2, 2011.

DES (Department of Environmental Services), City and County of Honolulu. 2011b. Second Annual Report Status of Actions Taken to Comply with the State Land Use Commission's Order dated October 2, 2009 and Status of Operations, Waimanalo Gulch Landfill. Prepared for Land Use Commission, State of Hawaii. June 1, 2011.

DES (Department of Environmental Services), City and County of Honolulu. 2011c. Letter to Department of Planning, City and County of Honolulu, and Permitting. June 28, 2011.

EIL (Environmental Information Logistics), LLC. 2009 through 2011. Waimanalo Gulch Sanitary Landfill, Monthly Perimeter Gas Monitoring Letter Reports. Prepared for Waste Management of Hawaii.

Geosyntec Consultants. 2008. Engineering Report for Landfill Expansion, Waimanalo Gulch Landfill, Ewa Beach, Oahu, Hawaii. Prepared for Waste Management of Hawaii, Inc. March 12, 2010.

Geosyntec Consultants. 2010. Updated Groundwater and Leachate Monitoring Plan, Kapolei, Oahu, Hawaii. Prepared for Waste Management of Hawaii, Inc. August 2, 2010.

R.W. Beck. 2008. City and County of Honolulu Integrated Solid Waste Management Plan Update (ISWMP). October 2008.

R.M. Towill Corporation. 2008. Final Environmental Impact Statement (FEIS), Waimanalo Gulch Sanitary Landfill Expansion. Prepared for City and County of Honolulu. October 2008.