

**SECTION II**  
**OPERATION PLAN**

**OPERATIONS PLAN  
WEST HAWAI'I SANITARY LANDFILL  
WAIKOLOA, HAWAI'I**



**PREPARED BY  
WASTE MANAGEMENT OF HAWAII, INC.  
APRIL 2008**

# CONTENTS

---

<b>1</b>	<b>INTRODUCTION</b>	<b>1-1</b>
<b>2</b>	<b>SITE UTILIZATION CONCEPT</b>	<b>2-1</b>
2.1	Landfill disposal areas	2-1
2.2	Site Life and Capacity	2-1
2.3	Landfill ancillary facilities	2-1
2.4	Site Utilities	2-1
2.5	Environmental Monitoring & Control Systems	2-1
2.5.1	Liner and Leachate Collection and Removal System	2-2
2.5.2	Perimeter Gas Monitoring System	2-2
2.5.3	Surface Water Management System	2-3
2.5.4	Storm Water Pollution Management and Control System	2-3
2.5.5	Groundwater Monitoring Network	2-3
<b>3</b>	<b>LANDFILL CONSTRUCTION</b>	<b>3-1</b>
3.1	Composite Liner	3-1
3.2	Cell Construction Requirements	3-1
<b>4</b>	<b>OPERATIONAL PROCEDURES</b>	<b>4-1</b>
4.1	WHSL Waste Acceptance Policy	4-1
4.2	Incoming Waste	4-1
4.3	Traffic Control	4-1
4.4	Waste Unloading	4-2
4.5	Waste placement	4-2
4.5.1	General Lift Construction	4-2
4.5.2	Wet Weather Disposal Operations	4-3
4.5.3	Initial Select Lift	4-3
4.5.4	Landfill Sideslopes	4-4
4.6	Cover Material Requirements	4-4
4.6.1	Daily Cover	4-4
4.6.2	Intermediate Cover	4-4
4.6.3	Final Cover	4-4
4.6.4	Cover Integrity	4-5
<b>5</b>	<b>SPECIALIZED LANDFILL PROCEDURES</b>	<b>5-1</b>
5.1	Storage and Disposition of Unacceptable Waste	5-1
5.1.1	Hazardous Waste	5-1
5.1.2	Non-Hazardous Unacceptable Waste	5-1
5.1.3	Site Generated Waste	5-2
5.2	Special Handling Procedures	5-2
5.2.1	Friable and non-friable (non-hazardous) asbestos waste	5-3
5.2.2	Treated Medical Waste	5-3
5.2.3	Contaminated Materials	5-3
5.2.4	PCB-Contaminated Waste	5-3
5.2.5	Dead Animals and Offal	5-4
5.2.6	High Moisture Content & Odorous Waste	5-4
5.2.7	Radioactive Waste	5-4

<b>6</b>	<b>SITE MAINTENANCE AND CONTROL</b>	<b>6-1</b>
6.1	Access Roads	6-1
6.2	Air Criteria & Gas Control	6-1
6.3	Mud and Dust Prevention Program	6-2
6.4	Odor Control Program	6-2
	6.4.1 Management of Odorous Wastes	6-3
	6.4.2 Soil Cover Material	6-3
6.5	Litter Control Plan	6-4
6.6	Vector Control Plan	6-5
6.7	Equipment & Vehicle Cleaning	6-5

## **FIGURES**

1. Site Layout Map
2. Leachate Collection and Removal (LCRS) Layout
3. Liner System Details

# 1 INTRODUCTION

---

This section of the West Hawai'i Sanitary Landfill (WHSL) Site Operations Manual provides information regarding existing landfill facilities and operating systems, and describes general procedures, requirements, and methodologies to be utilized by WHSL personnel in the daily operation of the landfill. This section was developed based on operating permits, applicable regulations, Waste Management (WM) policies and directives, and incorporates proven operations techniques. This section should be utilized in conjunction with other applicable sections of the West Hawai'i Sanitary Landfill Operations Manual, to ensure that landfill operations are conducted in the best possible manner.

## 2 SITE UTILIZATION CONCEPT

---

### 2.1 Landfill disposal areas

The WHSL is permitted as a lined municipal solid waste (MSW) disposal area with a footprint of 149 acres, contained within the 300 acre site. The MSW disposal area is designed to contain 23 cells, constructed in one or more stages or sub cells as disposal space is needed.

### 2.2 Site Life and Capacity

Aerial surveys are flown for the WHSL on an annual basis and are located on-site at the landfill. Quantities of airspace filled and remaining, and landfill cell fill sequencing are updated annually as part of the WHSL Annual Operating Report, which is submitted to the State of Hawai'i, Department of Health (DOH) 30 days following June 30th of each year. These documents are also maintained on-site as part of the WHSL Operating Record/Files.

### 2.3 Landfill ancillary facilities

Listed below are the WHSL ancillary facilities and areas designated for activities that are essential to the overall functioning of the landfill as a waste disposal site:

- Administration building and weigh station
- Fueling Area
- Maintenance shop
- Water tank and pumping area

The landfill disposal areas and locations of the items listed above are shown on Figure 1.

### 2.4 Site Utilities

Existing WHSL utilities include:

- Water supply (provided by onsite pump and tank);
- Telephone;
- Electrical power;
- Septic tanks and leaching field systems

### 2.5 Environmental Monitoring & Control Systems

Existing environmental monitoring and control systems at the WHSL include the following:

- Liner and Leachate Collection and Removal System
- Perimeter Gas Monitoring System
- Groundwater Monitoring Well Network

### **2.5.1 Liner and Leachate Collection and Removal System**

All disposal areas at the WHSL are equipped with a bottom and side slope composite liner and leachate collection and removal system (LCRS) meeting Federal (Subtitle D equivalent) and State requirements (Hawai'i Administrative Rules [HAR] §11-58.1-14). Refer to Section 3.0 Landfill Construction (below) for details of the liner systems in place at the WHSL.

The LCRS in the MSW cells consists of a drainage gravel layer on the cell floor, trenches constructed within the liner system (containing drainage gravel & perforated HDPE pipes), leachate collection sumps, riser pipes, automatic sump pumps, discharge pipes, pump sensors and controls, and storage tanks. The current extraction program in place at the WHSL maintains the site's leachate levels in compliance with federal (Subtitle D) and state regulations, which require that leachate not be allowed to accumulate on the landfill bottom liner to a depth of more than 1-foot, not including that contained in the collection sumps. When the leachate level in a sump reaches a pre-determined height, the pump will automatically start, and pump leachate out of the sump until the level has dropped to a set height. Leachate is temporarily stored on-site in three individual 3,000-gallon tanks (one tank for each of the existing leachate sumps). The stored leachate periodically pumped into a water truck and used as dust control on the lined MSW cells.

The leachate riser pump systems are currently monitored at least once a week. If leachate level is measured at a depth more than 1-foot on the landfill bottom liner appropriate action will be taken and daily monitoring of the leachate system will occur until compliance level (i.e. less than 1-foot) is achieved. Data such as leachate levels (depth in the sumps), pump run times, total flow, gallons of leachate pumped and disposed of on-site, etc., are recorded on a leachate log, which is maintained on-site as part of the WHSL Operating Record/Files.

The WHSL LCRS design is depicted on Figure 2. Refer to Section III of this Site Operations Manual – *Leachate Management Plan* for a detailed description of operation, maintenance, and management procedures associated with leachate at the WHSL.

Leachate monitoring and sampling activities are conducted annually at the WHSL in conjunction with the site's groundwater monitoring program. Refer to Section 2.5.5. Groundwater Monitoring Network (below) and Section VII of this Site Operations Manual – *WHSL Groundwater and Leachate Monitoring Plan* for a detailed description of the groundwater monitoring program.

### **2.5.2 Perimeter Gas Monitoring System**

In accordance with the landfill gas monitoring requirements of the Federal Resource Conservation and Recovery Act (RCRA) Subtitle D regulations, HAR and the WHSL Solid Waste Permit (No.LF-0072-93), an interim perimeter gas monitoring system is installed at the WHSL to detect landfill gas migration from the WHSL. The gas probe network, which is monitored on a quarterly basis, is temporary until a permanent gas probe network is installed. Refer to Section VIII of this Site Operations Manual – *Interim Perimeter Gas Monitoring Plan* for a detailed description of the perimeter gas monitoring system at the WHSL.

### **2.5.3 Surface Water Management System**

The WHSL Solid Waste Operating Permit No.LF-0072-93, dated September 28, 1993, issued by the DOH, has no specific requirements for a Surface Water Management Plan (SWMP). Pursuant to the *surface water requirements* in the Federal Conservation and Recovery Act (RCRA) Subtitle D regulations 40 Code of Federal Regulations §258.27, and HAR Title 11, Chapter 58.1-15(h):

Municipal solid waste landfill units shall not:

(a) Cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, pursuant to section 402.

(b) Cause the discharge of a nonpoint source of pollution to waters of the United States, including wetlands, that violates any requirement of an area-wide or State-wide water quality management plan that has been approved under section 208 or 319 of the Clean Water Act, as amended.

The DOH issued a letter dated October 28, 1998, which indicates that coverage under the NPDES general permit at the WHSL is not required at that time as there is no discharge of storm water run-off from the facility. A copy of the NPDES no exposure certification letter is provided Section IX of this Site Operations Manual (WHSF Facility Permits).

### **2.5.4 Storm Water Pollution Management and Control System**

Storm water run-off associated with industrial activities is regulated by the National Pollutant Discharge Elimination System (NPDES) General Permit (HAR §11-55, Appendix B). Due to the historic lack of storm water discharge from the WHSL, a request for exclusion under the NPDES General Permit was submitted to the DOH by Waste Management of Hawai'i, Inc. on October 14, 1998. A certification of no exposure under the NPDES General Permit was provided by the DOH on October 28, 1998. A copy of the no exposure certificate is included in Section IX of this Site Operation Manual – *Facility Permits*.

In addition, the WHSL implements a Spill Prevention Control and Countermeasure (SPCC) Plan (see Section IV of this Site Operation Manual) to prevent releases of petroleum products used on-site from being discharged to surface water.

### **2.5.5 Groundwater Monitoring Network**

In accordance with HAR §11-58.1-16, a groundwater monitoring program is in place at the WHSL for the purpose of early detection of changes to groundwater in the area of the landfill. The program includes a groundwater well network, and sampling, monitoring, and analytical procedures.

WHSL groundwater and leachate monitoring activities are conducted pursuant to the WHSL Groundwater and Leachate Monitoring Plan, which complies with the Code of Federal Regulations (CFR), Solid Waste Disposal Facility Criteria (and its revisions) in 40 CFR §258 (Subtitle D), and HAR §11-58.1. The installed groundwater monitoring wells are inspected and monitored on a semiannual basis. Results of each groundwater and leachate

monitoring events are presented in semiannual reports that are submitted to the DOH within 90 days of the sampling event.

Refer to Section VI of this Site Operations Manual, WHSL Groundwater and Leachate Monitoring Plan, for a complete description of the WHSL Groundwater Monitoring Program.

## 3 LANDFILL CONSTRUCTION

---

### 3.1 Composite Liner

The landfill liner system at the WHSL consists of the following components, from top to bottom:

- 12-inch protective layer;
- 16 ounces per square yard (oz/yd<sup>2</sup>) geotextile separation layer between the drainage layer and the protective layer (on cell floor and 10 vertical feet up side slope only);
- Drainage Layer
- 16 oz/yd<sup>2</sup> geotextile;
- 60 mil high density polyethylene (HDPE) single-sided textured geomembrane liner;
- Geosynthetic clay liner; and
- Soil cushion layer.

See Figure 3 for a general detail of the liner system.

### 3.2 Cell Construction Requirements

Prior to liner installation, the cell area is excavated to the lines and grades as shown on the construction plans developed by a registered professional engineer. The subgrade is prepared using gravel or soil with a maximum particle size of  $\frac{3}{4}$  inch. A registered surveyor provides accurate as-built documentation of the base grade, and the liner installer must accept the subgrade in a written statement prior to beginning the installation of geosynthetic materials.

Refer to the Construction Quality Assurance (CQA) documents (located on-site at the WHSL) for the constructed cells, for a description of the sub-drain system.

- Geosynthetic installation must be by a qualified contractor who has installed a minimum of 500,000 square feet of similar liners, or who is working under the supervision of the liner manufacturer. All geosynthetic installation must be performed under CQA protocols developed by a registered professional engineer and implemented by a qualified CQA inspector responsible to the engineer. The WHSL must notify the DOH, in writing, five (5) days prior to any liner installation work.
- No waste may be placed in newly constructed cells until the CQA engineer has certified the construction and a DOH representative has approved the work. Upon certification of completion, the DOH will be notified so that an inspection of the new cell can be arranged with the engineer and the WHSL Site Manager or the WMH Environmental Protection Manager.
- The CQA engineer will prepare a summary report, containing a documented control program of all phases of liner installation, for submittal to the DOH certifying that the construction has been prepared according to plans and specifications.

## 4 OPERATIONAL PROCEDURES

---

### 4.1 WHSL Waste Acceptance Policy

Certain wastes are prohibited from being disposed at the WHSL. Refer to Section I, Part B of this Site Operations Manual – Waste Acceptance / Hazardous Waste Exclusion Program, for a detailed description of the WHSL's waste acceptance policy, methods used to detect and prevent the disposal of hazardous & unacceptable wastes, and special waste identification and handling procedures.

WHSL personnel take necessary steps to ensure compliance with all operating and regulatory requirements associated with waste acceptance. Landfill personnel have the authority and responsibility to reject unauthorized loads, have unauthorized material removed by the transporter, and/or assess appropriate surcharges and have unauthorized materials properly managed by the facility.

### 4.2 Incoming Waste

Waste from the island of Hawai'i arrives at the WHSL via the following delivery methods:

- Transfer trailers from off-site transfer stations.
- Direct commercial haul.
- Residential self-haul.

Scale house attendants and WHSL equipment operators (operations personnel) monitor the incoming waste. They are trained annually on the WHSL Waste Acceptance / Hazardous Waste Exclusion Program and are familiar with the rules and regulations governing the various types of waste that can or cannot be accepted at the WHSL. The WHSL is not required to accept any solid waste that may cause problems in maintaining full and continuous compliance with the solid waste permit. If the scale house attendant or operations personnel have any doubt or concern regarding the acceptability of a particular waste load, they will contact WHSL Management for guidance prior to the load being deposited at the working face.

Once a waste load has been determined to be acceptable by the scale house attendant, it is weighed and the hauler proceeds to the active disposal area. The active disposal area is a designated portion of the waste cell, which is any lined area that has or will receive waste and has not been closed. Waste tonnage data is entered into the scale house records.

### 4.3 Traffic Control

Signs are posted to direct incoming traffic from the front gate to the scale house. After being processed at the scale house, waste haulers are directed to the disposal area by signs, traffic barricades, cones, and/or traffic controllers. WHSL operations personnel are posted at key locations, as needed to direct traffic to the MSW disposal areas. Traffic signs posted along the main haul road also inform customers of the on-site speed limit of 15 miles per hour (mph).

In addition, rules for waste disposal and prohibited waste are prominently displayed on signs at the site entrance and at the scale house.

#### **4.4 Waste Unloading**

At least one landfill operator is present (at all times) at the disposal area during hours when the landfill is accepting waste. Landfill equipment is to be operated at least 15 feet away from an unloading vehicle. At the landfill disposal area, WHSL traffic controllers stop vehicles/trucks at a staging area and then direct the waste haulers to unload in a specific area known as the "tipping area". WHSL equipment operators and traffic controllers communicate via two-way radio to coordinate the vehicle/truck traffic in the disposal area so that landfill customers enter the tipping area safely when landfill equipment is pushing waste from the unloading area to the working face. Vehicle/truck traffic will be directed to unload at the tipping area away from landfill equipment pushing trash in the area.

During waste unloading, a 15-foot clearance between vehicles is maintained at all times, and no more than two people should be out of a vehicle at any time. The traffic controller will also ensure that children and pets are kept in their vehicles at all times. Drivers / landfill customers must stay within 6 feet of their vehicle.

WHSL equipment operators observe the unloading operations to monitor the waste for unacceptable materials. All WHSL personnel at the working face are equipped with two-way radios to facilitate coordinated and safe traffic control, and also to stop any attempts to salvage materials from waste deposited at the working face. Scavenging is prohibited at the WHSL.

#### **4.5 Waste placement**

Waste placement within the WHSL must conform to standard procedures in order to provide maximum protection of the synthetic liners, to ensure adequate stability of the base and waste mass, and to ensure the best performance of the leachate collection system.

In general, the "area fill" method of landfilling is used, which consists of spreading and compacting waste in horizontal layers ("lifts"), which form the waste cells.

##### **4.5.1 General Lift Construction**

After waste is unloaded at the tipping area, waste placement procedures are as follows:

- A bulldozer enters the tipping area, pushes the waste to the working face, and spreads it into layers up to two feet thick;
- A compactor traverses the working face area to compact the waste into 2-foot thick layers.
- Large or bulky objects are separated from the waste at the working face, placed in the upper portion of the advancing waste layer, and crushed by compaction equipment to prevent bridging and voids that could result in localized subsidence;
- Successive layers of compacted waste form lifts advance/build up to form the waste cell;

- At the end of each working day, the exposed waste at the working face is covered with a minimum of six inches of soil or an alternative daily cover (ADC) (as approved by the DOH);
- Waste placement and compaction proceeds until final elevations and grades are achieved.

During waste placement operations, the waste surface will be graded to prevent surface water run-on and promote water run-off.

#### **4.5.2 Wet Weather Disposal Operations**

Wet weather operations are implemented when excessive precipitation may make normal operations difficult. In advance of the rainy season or extended wet periods a specific wet weather disposal area and access road are designated for use based on filling plan progress and the approximate waste volume expected. A wet weather pad is constructed by covering the disposal area (and road[s] leading to, if necessary) with crushed rock generated onsite. This allows for safe driving and continuous unloading during rainy weather. It also helps to minimize the tracking of mud onto public roads. During wet weather, the active working face is kept relatively small and soil is stockpiled nearby for daily cover.

#### **4.5.3 Initial Select Lift**

The first layer of solid waste shall be a minimum of 6 feet of select waste (pre-compaction) with no object having a dimension greater than 24 inches to prevent damage to the liner. The initial lift within each landfill cell will consist of a mixture of MSW, household trash, etc., not to include large, sharp, or possibly damaging objects such as pipe, re-bar, lumber, or bulky materials. This lift, in addition to the 12-inch thick operations layer and the 12-inch thick drainage gravel layer, will provide adequate protection to the underlying geosynthetic liner.

Placement of the six-foot thick select waste layer is monitored by the WMH Environmental Protection Manager (or properly trained WHSL personnel) to ensure compliance with the site's operating permit and to maintain liner integrity. Select waste refresher training is conducted (as necessary) to ensure that WHSL operations personnel are aware of the importance of select waste placement in new cells. Operators are instructed on what materials are appropriate for use in the select lift, and that they should pull any unacceptable objects from waste loads that may have been dumped for use as select waste. Documentation of training is kept on-site as part of the WHSL Operating Record/Files.

WHSL equipment operators follow the standard operational procedures listed below to ensure that landfill equipment does not damage the underlying liner.

- Only tracked, low ground pressure bulldozers or landfill equipment with rubber wheels are allowed on the surface of lining system (the operations layer).
- A minimum of 6 feet of waste is placed above the operations layer before any heavy point-load landfill equipment, such as compactors, are operated over the area.

- Only moderate compaction is applied to the top portion of the initial select lift.

If damage to the liner or liner system is suspected, the WHSL operator must notify the Foreman immediately. The Foreman will contact the WHSL Site Manager and appropriate personnel.

#### **4.5.4 Landfill Sideslopes**

For waste mass and liner system stability, special care is given to the configuration of the waste as it rests against the sideslope of the liner system. As stated earlier in this section, waste configurations are based on a slope stability analysis specific to each cell or area of the landfill. The top surface of the cells will be sloped at least five percent to facilitate drainage. Side slopes in the MSW landfill area will not exceed a slope of 4H:1V (horizontal to vertical).

#### **4.6 Cover Material Requirements**

Landfill operations require various phases of cover to be utilized throughout the life of the landfill. This section describes the requirements for cover at the WHSL. Soil cover material or alternative daily cover (ADC) is used at the WHSL to reduce infiltration of surface water (leachate reduction); to minimize odors, and to deter nuisance vectors such as insects, rodents, and birds. In addition tarps are used as ADC where appropriate.

##### **4.6.1 Daily Cover**

In accordance with HAR §11-58.1-15(b)(1), the active MSW disposal area is covered at the end of each day with a minimum of 6 inches of daily cover soil, or ADC in order to control disease vectors, fires, odors, or blowing litter. Trucks deliver daily cover to the refuse disposal area where it is applied to the working face, by bulldozers, at the end of each day (under normal operating conditions). ADC in the form of tarps also is used at the WHSL if appropriate conditions exist. If additional waste is to be placed in the same area, the upper part of the cover soil may be scraped off for subsequent reuse, prior to further lift progression.

##### **4.6.2 Intermediate Cover**

Intermediate cover, consisting of a minimum of 12 inches of soil (including 6 inches of daily cover), is required to be placed over all inactive waste areas, which are defined as areas that do not receive waste within a 30-day period. Inactive areas shall be graded to promote surface water drainage. Effective drainage minimizes ponding, infiltration, and erosion. Any areas that have vehicular traffic shall also be covered with intermediate cover.

##### **4.6.3 Final Cover**

A final cover system will be placed over the final lift of waste in filled areas that have reached design final grades. A final cover performs the following functions:

- Separates the waste from the environment.
- Adjusts the landfill surface topography to provide appropriate slopes to promote runoff and controlled drainage of surface water.

- Controls erosion by conveying run-off at non-scouring flow rates.
- Minimizes surface-water infiltration into the waste.
- Controls and contains landfill gas.

The proposed final cover configuration for the WHSL will meet or exceed the existing State and Federal regulatory requirements and will be constructed in accordance with the WHSL Closure and Post Closure Plan, included in Section VIII of this Site Operations Manual. Refer to the Plan for a detailed description of the proposed final cover design, associated CQA program, and additional closure and post-closure activities for the WHSL.

#### **4.6.4 Cover Integrity**

Intermediate and daily cover integrity is inspected and monitored by the WHSL Site Manager and/or WMH Environmental Protection Manager for proper placement, the presence of vectors, "flagging" waste, and erosion as part of monthly inspections, vector control inspections, and internal site compliance tasks. Site operations will mitigate any deficiencies in intermediate cover by restoring or adding the cover material, grading, track-walking or compacting the area. The monthly inspections are documented and maintained on-site as part of the WHSL Operating Record/Files.

## 5 SPECIALIZED LANDFILL PROCEDURES

---

### 5.1 Storage and Disposition of Unacceptable Waste

Information regarding all hazardous or unacceptable wastes that are managed, transported off-site, or generated on-site is maintained on-site as part of the WHSL Operating Record/Files.

#### 5.1.1 Hazardous Waste

The WHSL Waste Acceptance / Hazardous Waste Exclusion Program (Section I – Part B of this Site Operation Manual) establishes procedures for preventing, detecting, and managing wastes that are not suitable for disposal at the landfill. If hazardous wastes are detected at the landfill working face and the hauler/generator is unknown, the WHSL has procedures in place to manage and/or temporarily store the waste in a designated area until a licensed contractor transports the waste off-site for proper disposal (see Section I – Part B). Any hazardous wastes generated on-site by equipment maintenance activities are properly stored in appropriate containers in the maintenance shop area.

#### 5.1.2 Non-Hazardous Unacceptable Waste

In accordance with HAR§11-58.1-65(b) and (c), scrap vehicles, tires, compressed gas tanks, vehicle batteries, and chlorofluorocarbon (CFC) [freon]-containing appliances (white goods such as refrigerators, freezers, and air conditioners) may not be disposed of at the WHSL. Scrap vehicles are readily identifiable at the scale house, and will be rejected at the scale house. Tires, CFC-containing appliances, and compressed gas tanks are occasionally encountered in mixed loads after they have been dumped at the working face. In these cases, WHSL personnel will carefully transport the waste to the temporary storage area and the waste will be identified, logged, placed in bins or separated onto pallets, labeled, and stored until a licensed contractor transports the waste off-site for proper disposal, as required by federal and state regulations. This temporary storage area is away from normal traffic flow and allows for a safe storage environment. Waste-specific storage and disposition guidelines are described below.

##### 5.1.2.1 Tires

Tires that are pulled from the working face are temporarily stored at the tipping area until they are moved to the Cell 7 storage area. The number of tires collected is recorded on the WHSL Daily Operations Log. The tires are taken for recycling on a monthly basis by the County of Hawai'i.

##### 5.1.2.2 CFC-Containing Appliances

CFC-containing appliances are handled and stored in a manner to prevent damage, spills or releases of oil, lubricants, or chlorofluorocarbons (CFCs). Refrigerators, freezers, air conditioners, and any other items containing CFCs are handled in accordance with 40 CFR §82.156(f), as amended. Refer to the WHSL Refrigerant Management Plan, located in Section I – Part B (Appendix B of the Waste Acceptance / Hazardous Waste Exclusion

Program) of this Site Operations Manual. CFC-containing items are removed from the designated storage area and transported off-site to a convenience center where the refrigerant is properly removed and/or the appliance is sent for metal recycling.

### 5.1.3 Site Generated Waste

A site's generator status is determined by the quantity of hazardous waste generated at the site on a monthly basis. The WHSL is classified as a "conditionally exempt small quantity generator" (CESQG). Wastes that are generated on-site at the WHSL include, but are not limited to:

Site Generated Waste	
Oil Filters	Spent Lead Acid Batteries
Transmission Filters	Scrap Tires
Fuel Filters	Spent Anti-Freeze
Water Filters	Empty Paint, Aerosol Cans
Hydraulic Filters	Empty Containers
Used CRTs	Used Tires
Air Filters	Paint Solvent/Thinner
Used Oil	Scrap Metal
Lubricating Oil	Welding Slag
Spent Solvent	Leachate
Spent Absorbents/Rags	

The quantity of site generated waste streams are identified and tracked on a monthly basis on the WHSL Waste Accumulation / Generation Waste Log. Load check items and items pulled from the working face are included on this log. The WHSL utilizes 3rd-party contractors for transportation, recycling, and disposal of site generated waste. Each vendor signs an Environmental Service Agreement (ESA). Wastes are properly managed on-site according to applicable regulations –

- Appropriate containers and tanks are used for temporary storage,
- Wastes are proper marked and labeled
- The temporary storage location of these wastes is inspected as part of the WHSL monthly facility inspections.

All documentation related to waste generation and characterization (e.g., waste log, lab analytical data, MSDS, off-site shipping records, etc.) is maintained on-site at the WHSL as part of the Operating Record/Files for at least three (3) years, as required by federal regulations.

### 5.2 Special Handling Procedures

All special waste materials must be pre-approved prior to acceptance at the WHSL. Refer to the WHSL Waste Acceptance / Hazardous Waste Exclusion Program (Section I – Part B

of this Site Operations Manual) for a description of the WHSL's special waste acceptance policy.

Specialized handling and operating procedures are implemented at the WHSL to manage the following waste streams for disposal at the WHSL:

#### **5.2.1 Friable and non-friable (non-hazardous) asbestos waste**

Refer to the WHSL Asbestos Management and Disposal Plan (see Section I – Part B – Appendix A) for detailed management and disposal procedures of asbestos/asbestos-containing wastes. If the asbestos waste is properly packaged, there are no operational cut-offs that would preclude the WHSL from accepting asbestos waste.

#### **5.2.2 Treated Medical Waste**

Treated medical wastes that have been rendered non-infectious (sterilized or incinerated) may be disposed at the WHSL. Treated medical waste may pose a physical threat to WHSL operations personnel or the public due to the presence of sharps. The WHSL must be notified at least 24-hours prior to the actual receipt of the waste.

When the load arrives on-site, the scale house attendant will notify WHSL equipment operators so that a disposal pit or trench can be excavated into the waste at the working face. The medical waste is unloaded near the trench/pit and pushed (by landfill equipment) into the excavated trench/pit. In order to protect public health as well as the health of the WHSL employees, treated medical waste is backfilled with waste and compacted as soon as possible after dumping. Additionally, six inches of soil material is placed over the entire working face at the end of the working day.

#### **5.2.3 Contaminated Materials**

Contaminated materials (soils, debris, and other materials contaminated with petroleum or other chemical products, and PCB-contaminated soils not regulated under the TCSA) may be accepted at the WHSL for disposal or for use as cover. Soils that are below the US EPA Region IX industrial preliminary remediation goals (PRGs) may be used as daily cover or general fill within the MSW landfill area. The DOH will be notified anytime the WHSL accepts contaminated soil (either for reuse [if below industrial PRGs], or for disposal [if above PRGs]). All correspondence incorporated in this policy will specify the quantity of waste and special management / handling procedures for the waste.

Trucks delivering contaminated material must be covered. WHSL personnel will oversee the unloading of all contaminated materials and will ensure the materials are removed completely from the trucks. If necessary, a water truck will be available during dry or windy conditions to suppress dust while contaminated materials are being unloaded. Disposal of contaminated material will not occur when wind speeds are in excess of 30 miles per hour (mph). All documentation relating to contaminated materials acceptance is maintained on-site as part of the WHSL Site Operating Record/Files.

#### **5.2.4 PCB-Contaminated Waste**

PCB-contaminated waste can be accepted for disposal at the WHSL following verification that the waste contains less than 50 parts per million (ppm) PCBs. Small non-leaking capacitors contained in fluorescent light ballasts, white goods, and other electrical

appliances are not considered regulated PCB wastes. If approved, the WHSL must be notified at least 24-hours prior to the actual receipt of the waste.

Proper manifest documents are required to accompany the hauler into the landfill. The generator is required to ensure that the load does not pose any air emission problems, i.e. dust conditions. The hauler is then directed to a designated unloading area away from the tipping area to ensure a reduced chance of exposing the general public and WHSL employees to PCB-contaminated waste. If necessary, a water truck will be available to provide dust control during unloading. If necessary, a water truck will be available during dry or windy conditions to suppress dust while PCB-contaminated waste is being unloaded. Disposal of PCB-contaminated waste will not occur when wind speeds are in excess of 30 mph.

#### **5.2.5 Dead Animals and Offal**

Dead animals and offal (hides, intestines and other waste from slaughtered animals) can be brought to the WHSL for disposal. The transporter must inform the scale house attendant that they have a dead animal(s) and/or offal, and the scale house attendant will notify WHSL equipment operators at the working face. Whenever possible, a disposal pit or trench will be excavated into the waste at the working face and the animal/animal waste will be placed in it. In order to protect public health as well as the health of the WHSL employees, dead animals and offal are covered with a minimum of two feet of MSW or soil and compacted as soon as possible after dumping. Additionally, six inches of soil material is placed over the entire working face at the end of the working day.

#### **5.2.6 High Moisture Content & Odorous Waste**

High moisture content waste (e.g. municipal sludge) must be stabilized, solidified, or dried with absorbent by the generator prior to disposal at the WHSL. All waste except expired/off-spec food products must meet liquids restriction criteria (paint filter test).

Odorous loads must be de-odorized by the generator either by bagging the material or treating the load with odor control products prior to disposal at / delivery to the WHSL.

Odorous / high moisture content wastes are unloaded close to the working face and then covered immediately with dry solid waste.

#### **5.2.7 Radioactive Waste**

Radioactive Waste is not accepted for disposal at the WHSL.

## 6 SITE MAINTENANCE AND CONTROL

---

This section sets forth policies and procedures of the WHSL that help to prevent and control air pollution, explosive gas, mud and dust, litter, odor, and disease vectors, in addition to maintaining the site and its roadways. The WHSL operates in compliance with State (HAR §11-58.1-15 [e] and HAR§11-60.1) and Federal Clean Air Act requirements for air pollution control.

### 6.1 Access Roads

All access roadways used by WHSL customers are maintained as passable, all-weather roads by surfacing with rock, gravel, or asphalt/concrete rubble. Roads are re-graded as needed to minimize depressions, ruts, and potholes, and maintain safe operating conditions. The landfill haul roads and access roads are maintained in a reasonable dust-free condition by periodic spraying from an on-site water truck throughout the day. Roadside drainage ditches and swales are cleaned or otherwise maintained on an as needed basis, to prevent erosion/damage.

Two-way access roads have a minimum width of 30 feet, and one-way roads have a minimum width of 15 feet. Roads are constructed with a maximum grade of eight percent, except for short distances where less steep grades cannot be achieved.

Temporary roads may be constructed as other than all-weather roads, provided they are not needed for maintenance of drainage facilities, emergency access or truck route for exiting the facility during wet weather.

### 6.2 Air Criteria & Gas Control

The US EPA enforces rules limiting the ambient emissions of non-methane volatile organic compounds (NMOCs) from solid waste landfills (40 CFR §51, 52, and 60, Standards of Performance for New Stationary Sources and Guidelines for Control of Existing Sources: Municipal Solid Waste Landfills). Under this rule, landfills having a design capacity in excess of 2.5 million metric tons (2.76 million tons) are limited to 50 metric tons (55.1 tons) per year of NMOC emissions. The WHSL has not reached this threshold, therefore is not required to install a Gas Collection and Control System (GCCS) at this time.

The WHSL implements control and monitoring procedures and plans such as the WHSL Odor Control Plan, Fire Prevention Plan, Mud and Dust Prevention Program, and the Perimeter Gas Monitoring Plan, to ensure compliance with State and Federal regulations regarding air criteria, the prohibition of open burning, explosive gases control, and air pollution control.

Activities conducted at the WHSL in relation to air programs include:

- Management and disposal of asbestos-containing waste, in conformance with National Emission Standards for Hazardous Air Pollutants (NESHAPS) (See Asbestos Management & Disposal Plan, located in Section I – Part B, Waste Acceptance / Hazardous Waste Exclusion Program).

- Implementation of “Fire Control Procedures” and a Fire Prevention Plan as part of the WHSL Emergency Action Plan to prevent, detect, and suppress several types of fires at the WHSL (fires at the landfill working face; incoming waste load fires; landfill surface and structure fires; landfill subsurface fires; brush/buffer zone fires; and equipment fires). The open burning of solid waste is prohibited at the WHSL (see Section I – Part E, Emergency Action Plan, of this Site Operations Manual).
- Controlling dust and odors at the site according to Operating Plans that have been written specifically for these purposes (see Sections 6.3 and 6.4).

### **6.3 Mud and Dust Prevention Program**

WHSL personnel are responsible for preventing the emission of excessive dust from the facility. Site operations personnel utilize a 5,000-gallon water truck to apply water to areas that may be potential dust problems, such as access roads, work areas, and stockpiles. Each “water run” is recorded on the WHSL Daily Water Log, along with the date and time the water truck was filled up, the driver’s name, and the amount of water used (in gallons). Approximately 4 “water runs” are performed daily at the WHSL, with more runs conducted as necessary. The volume of water and frequency of spraying is increased as needed during particularly dry or windy conditions, or during times of increased truck traffic on-site.

The following precautions and operations are implemented on-site to prevent the discharge of visible fugitive dust beyond the site property boundary:

- Grading and watering haul roads.
- Periodically applying a fine water spray to work areas throughout the day. More frequent applications of water are required during the windy season or when fugitive dust is observed migrating from these areas.
- Using sprayers on screening operations.
- Applying water on intermediate soil cover.

During wet weather, the WHSL implements measures to minimize the tracking of mud onto public roads. As indicated in Section 6.1, wet weather pads and access routes to the MSW disposal areas may be constructed using rock, gravel, or asphalt/concrete rubble, in order to minimize the exposure of trucks and other vehicular traffic to excessively muddy conditions. On-site and off-site roads (Queen Kaahumanu Highway in front of the WHSL) are monitored for the presence of mud, debris, or litter that may have been tracked-out.

### **6.4 Odor Control Program**

Common landfill odor sources include the wastes being delivered to the landfill, the active disposal area (working face) and leachate storage tanks. Other wastes have the potential for becoming odor sources as they biodegrade and decompose.

Odor impacts from landfill operations must be addressed and managed. The WHSL takes a proactive approach to odor management through the implementation of the WHSL Odor Control Program, which consists of the following elements:

- Identification and special handling of odorous wastes.

- Effective application of daily and intermediate cover.

#### **6.4.1 Management of Odorous Wastes**

Waste streams capable of creating off-site odor problems require special handling to minimize potential odor problems. Some of the wastes received at the WHSL are a potential source of odor upon receipt, such as sewage sludge, bulk shipments of off-specification foods and food wastes, and dead animals and offal. These wastes are among those generally handled as "special wastes" in accordance with the WHSL Waste Acceptance / Hazardous Waste Exclusion Program (see Section I – Part B, of this Site Operations Manual). Upon receipt at the scale house, odorous loads will be directed to a designated area of the landfill working face and disposed in the following manner:

- A bulldozer will excavate a trench or pit in previously placed solid waste (known to contain no odorous special wastes). The pit will be large enough to contain approximately twice the volume of the anticipated load. An alternative to the 'pit' is to utilize prior loads of MSW to provide sufficient cover immediately over the odorous loads.
- The odorous load will be off-loaded into the pit.
- The bulldozer will immediately cover the odorous material with the solid waste excavated to create the pit, and compact it firmly.
- If necessary, an odor control agent can be sprayed at the working face to help manage odors and wind transport issues (see next section).
- At the end of the day, daily cover soil will be placed over the working face.

The WHSL may require pre-treatment of odorous loads (addition of oxidizing agents/odor neutralizers) at the generator's site in order to minimize odor emanation during transport and while on-site at the landfill.

Daily scale house records and the WHSL Special Waste Schedule reflect the receipt of odorous loads designated for special handling.

The WHSL requires advance notification for the disposal of known odorous loads specific hours of acceptance of odorous loads allow the WHSL to ensure that there is adequate staffing to receive, process, and cover the material promptly upon receipt at the site.

#### **6.4.2 Soil Cover Material**

Odor is also controlled through the application of daily and intermediate soil cover material to MSW. As described in Section 4.6.1, a minimum of six inches of soil cover or ADC is placed over the landfill working face at the end of each day, and compacted by track walking the area with a bulldozer. Intermediate cover, consisting of an additional six inches, further controls odors on a long-term basis. Regular inspection and maintenance of cover integrity in order to identify and mitigate cracks or fissures in the cover layer(s) also aids in controlling odor that may emanate from MSW after it is buried.

## 6.5 Litter Control Plan

The WHSL uses various strategies to confine litter to the landfill working face area, to prevent on-site litter accumulation, and to prevent litter from leaving the landfill premises. Wind blown litter is controlled through proper management of the landfill working face, the use of portable litter fences, and utilizing laborers to pick up litter. Elements of the WHSL litter management program are described below.

- Managing the landfill working face to control litter entails good waste compacting practices; keeping the working face small; orientating the trucks that are dumping so their cabs are facing into the wind, thus sheltering the waste being off-loaded from becoming airborne; and placing soil cover material over the working face at the end of each day to keep litter from being picked up by wind. The working face may also be sprayed with limited amounts of water to in an effort to suppress any potential flyaway waste.
- Portable litter fencing is placed down-wind from where the refuse is being off-loaded at the working face (primary fencing) and relocated as necessary in accordance with wind changes. The fences catch and contain litter that may be picked up by the wind and otherwise carried away from the active face. Litter that is caught by the fences is picked off on a daily basis. Additional fences can be placed further down-wind (secondary fencing) to capture litter that may stray past the primary litter fences during gusty wind conditions.
- In addition to actions taken at the working face, the WHSL hires laborers as needed to pick up litter around the site (both on the fences and that which may have blown over the litter fences). Labor personnel clean and pick litter along the main haul road and in front of the landfill, along the Queen Kaahumanu Highway to help maintain cleanliness around the facility property. If laborers need to go onto an adjacent property (not owned by the landfill owner), permission from the landowner will be obtained in advance. The collected litter is bagged and disposed of at the landfill working face.

Occasionally, special conditions such as severe gusty winds [40 to 60 miles per hour] from variable directions, necessitate the implementation of the following supplementary measures to control and/or clean-up excessive litter at the WHSL:

- The progressive application of soil cover to the working face throughout the day (rather than waiting until the end of the day), to keep the minimum surface area of waste exposed at any given time.
- Erecting additional sections of portable litter fencing.
- Hiring extra labor personnel to pick up litter.

At the end of each day, the number of temporary laborers hired and the quantity of litter bags that were filled up are recorded on the WHSL Daily Operations Log. There is also a "comments" column on the log where WHSL personnel can make daily notes of severe weather conditions, such as excessive wind.

## **6.6 Vector Control Plan**

This Vector Control Plan was prepared by WMH for the WHSL in order to comply with the operating criteria for MSW landfills as detailed in 40 CFR §258.22 and HAR §11-58.1-15(c), "Disease Vector Control". These regulations state, "Owners or operators of all MSWLF units must prevent or control on-site populations of disease vectors using techniques appropriate for the protection of human health and the environment."

This plan explains procedures that are in place at the WHSL to prevent, detect, and manage on-site populations of disease vectors and minimize nuisance conditions.

An inventory of possible vector species at the WHSL includes rodents, termites, flies, mosquitoes and other insects, and birds. To date, the WHSL has not experienced any vector problems.

The placement of a minimum of six inches of daily cover or ADC on the MSW active working face and a minimum of twelve inches of intermediate cover on inactive portions of the WHSL is essential to controlling vectors. WHSL operators are trained annually to promote compliance awareness with operational practices such as proper depth and frequency of cover material placement on the landfill. Minimizing the size of the active working face is another method utilized at the WHSL to reduce the likelihood of vectors feeding on MSW.

Public health and vector control concerns are addressed at the WHSL through the implementation of inspections and subsequent control and abatement activities. On a monthly basis, WHSL personnel inspect the facility for any signs of vectors or indications of vector attractants that may cause nuisance or disease. The integrity of the landfill cover material is also inspected as part of the WHSL Vector Control Plan to verify that vectors are not an issue. If vectors are identified at the landfill, WMH will develop and implement a specific plan to control or eradicate the on-site populations. As a preventative measure, the administration and scale house buildings are routinely sprayed for rodents, termites, and insects by a licensed exterminator.

All vector control activities and inspection results are documented monthly on the WHSL *Vector Control Summary Form*. Receipts for extermination services and the WHSL *Vector Control Summary Form* are maintained on file as part of the WHSL Operating Record/Files.

## **6.7 Equipment & Vehicle Cleaning**

Operators clean the tracks/wheels of landfill equipment at the working face of the landfill typically using shovel/dry methodology. Occasionally equipment may be washed (during disassembly or repair) with a high-pressure steam/water cleaner, within the lined portion of the landfill. Site vehicles are also washed over the lined portion of the landfill.

**FIGURES**

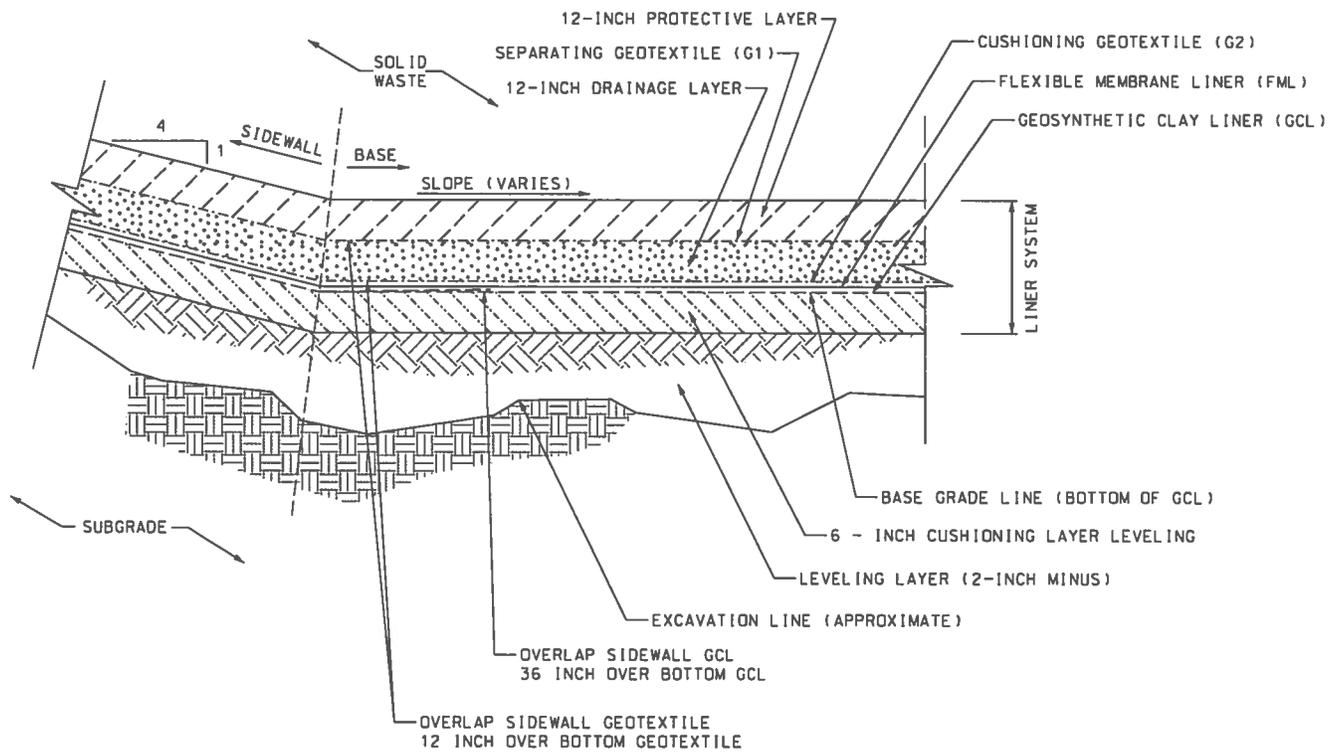


GRAPHIC SCALE  
0 200 400  
SCALE: 1"=200'



**Figure 1**  
**Site Layout Map**  
**West Hawai'i Sanitary Landfill**  
**Waikoloa, Hawai'i**





**Figure 3**  
**Liner System Detail**  
**West Hawai'i Sanitary Landfill**  
**Waikoloa, Hawai'i**

Source: Construction Drawings for Cell 8A & 9A, January 2007,  
 Speherd Engineering