MICHAEL P. VICTORINO
Mayor

ERIC A. NAKAGAWA, P.E.
Director

SHAYNE R. AGAWA, P.E.
Deputy Director

MICHAEL P. RATTE
Solid Waste Division

SCOTT R. ROLLINS, P.E.
Wastewater Reclamation Division

TAMARA L. FARNSWORTH
Environmental Protection &
Sustainability Division

COUNTY OF MAUI
DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
2050 MAIN STREET, SUITE 2B
WAILUKU, MAUI, HAWAII 96793

June 12, 2020

Ms. Lene Ichinotusbo, P.E., (Acting) Chief
Hawaii Department of Health
Solid and Hazardous Waste Branch
2827 Waimano Home Road
Pearl City, Hawaii 96782

Dear Ms. Ichinotsubo:

SUBJECT: **REQUEST FOR PEAK DAILY TONNAGE INCREASE**
CENTRAL MAUI LANDFILL, PUUNENE, MAUI, HAWAII
SOLID WASTE MANAGEMENT PERMIT LF-0074-13

As you are aware, the Central Maui Landfill (CML) is periodically experiencing operational days on which the MSW tonnage received for disposal exceeds the permitted peak daily disposal rate of 1,200 tons per day. The increased disposal tonnage is being primarily driven by the phasing out of the EKO composting operation to make way for development of the Phase III-A disposal area which necessitates the direct disposal of some or all of the formerly composted green waste and biosolids. Presently, there are no available alternates to disposal for these materials.

Recognizing that the increase in disposal tonnage is expected to persist until a new composting facility is sited and commences operation, or alternate diversion methods for these or other materials become available, the County of Maui has determined it is appropriate and responsible to request an increase in peak disposal. To that end, the County submits the following attachments reflecting the requested tonnage increase:

- Operations Plan change pages (pages affected by this request in redline/strikeout)
- Operations Plan change pages (clean, no mark-ups)

Should you have any questions, please call Sage Kiyonaga, Solid Waste Division Engineer at (808) 270-7941.

Sincerely,

Shayne R Agawa

ERIC A. NAKAGAWA, P.E.
Director, Department of Environmental Management

surrounding terrain.

Phase VI is planned as a future expansion area once the County acquires the underlying property. The Phase VI area abuts the southeast end of Phase V-B Extension. The Phase VI area, when developed, will be an area of approximately 16 acres, disposal capacity of 2.75 million cubic yards, and have a projected site life of 7 years. When completed, Phase VI will be filled to a maximum elevation of approximately 390 feet above sea level, and rise approximately 90 to 120 feet above surrounding terrain.

2.6 Types and Quantities of Waste

CML is permitted to accept solid wastes as defined in HAR 11-58.1-03. Sources generating solid waste received at the CML are residential, commercial, industrial, and construction and demolition (C&D) activities. A list of unacceptable waste types is included in Section 13.2.

Special Wastes, defined as solid wastes which because of their source or physical, chemical, or biological characteristics, require special consideration for proper processing and/or disposal, are accepted at CML under the terms of its permits and the Special Waste Acceptance and Hazardous Waste Exclusion Programs described in Section 13.

CML is permitted to accept no more than 1,600 tons of solid waste in one day. CML currently receives and disposes of, on average, 770 tons of solid waste each day with daily tonnage spikes exceeding 1,200 tons/day occurring with increasing frequency.

2.7 Climate

The climate at the landfill is characterized by an average temperature range from 67°F to 84°F and annual precipitation of approximately 20 inches. The design rainfall event at the site for 24-hour, 25-year storm is 7.5 inches, and the 1-hour, 50-year storm is 2.5 inches.

Prevailing winds at CML are generally from the northeast. Winds average approximately 13 miles per hour throughout the year, and reach speeds of 25 miles per hour or more with some frequency (WRCC, 2004).

2.8 Surrounding Area

The CML is bordered by Pulehu Road to the west/southwest (with agricultural land immediately west/southwest of Pulehu Road), by agricultural land to the northwest and east, by the HC&D (formerly Ameron) rock processing plant and Maui Paving facility to the north, and by the depleted rock quarry to the south/southeast.

2.9 User Population

The CML accepts solid waste delivered directly by residents, businesses, commercial collection services, transfer station, and municipalities and agencies within the Island of Maui except for waste generated in Hana Landfill service area. The cities generating solid waste to be disposed of at CML are Wailuku, Kahului, Waiehu, Paia, Waikapu and Puunene from the central section of Maui (representing 54.6 percent of the total waste stream), Kihei and Wailea from the south section of Maui (16.6 percent of the total waste stream) and Lahaina, Honokowai, Kaanapali and Kapalua from the west section of Maui (20.5 percent of the total waste stream). The remaining waste inflow is received from Makawao, Pukalani and Kula and represents approximately 8.3 percent of the total waste stream. The majority of waste is delivered to the site by commercial vehicles with the remainder of the waste stream delivered by County collection trucks and private vehicles.

9 EQUIPMENT AND PERSONNEL REQUIREMENTS

9.1 Personnel

9.1.1 Operating Personnel

At least two employees, one equipment operator and one landfill attendant must be at the working face at all times during operating hours to manage the landfill in a safe and efficient manner. On days when the incoming waste volume is expected to be below 800 tons, at least one operator and one landfill attendant will be assigned to the working face. On days when the incoming waste volume is expected to exceed 800 tons, an additional operator and additional landfill attendant will be available to supplement the active face operation as necessary to manage the additional tonnage.

At least two employees must be at the entrance facility to monitor operations at the self-haul drop-off area (Station 2) and residential recycling drop-off area (Station 1) during operating hours to manage the incoming waste and recyclables in a safe and efficient manner.

The landfill Site Supervisor provides management oversight of the both the entrance facility and the landfill staff and activities, observing operations regularly throughout the operating day.

The following operating personnel are assigned to the overall landfill and entrance facility.

- One Solid Waste Superintendent
- Two Landfill Worksite Supervisor I
- Eight Equipment Operators
- Nine Landfill Attendants (spotters)
- Six Laborer
- Three Scale Attendants (cashiers)
- One Administrative Assistant II (office manager)

Scale attendants are responsible for weighing waste loads, collecting fees, recording the source accounts billed, initial screening for unacceptable materials, enforcing the covered and secured loads requirements, directing customers to the correct location for unloading, and monitoring total daily disposal tonnage throughout the day. The scalehouse weight ticketing system totalizes disposal tonnage as it is received, and the system is programmed to alert the scale attendants when the site receives 800 tons. The scalehouse attendants communicate the total disposal tonnage received with landfill operations personnel throughout the operating day.

Landfill attendants are responsible for screening for unacceptable materials, directing customers to the correct unloading location, and maintaining the unloading area in workable condition at both the landfill active face and the entrance facility Stations 1 and 2.

Laborers are tasked and responsible for litter control and pickup in and around the entrance facility Stations 1 and 2, and throughout the active site. Labors also provide assistance to other landfill personnel as directed**.**

Equipment operators are responsible for operating equipment for landfilling and other site activities. General duties include compacting landfill waste, covering waste at the end of each day, stockpiling and borrowing soils for intermediate cover, performing general site earthwork, shuttling roll-offs from Station 2 to the landfill disposal area, and maintaining roads and drainage.

The scalehouse is to be staffed at all times during working hours. The landfill attendant or equipment operator is to be at the working face as needed to screen incoming loads from vehicles discharging at the active area. The equipment operators are to be present at the working face as needed to spread and compact waste as it is delivered. At no time should non-landfill individuals be allowed at the working face without an attendant or equipment operator present.

- North America (SWANA) (landfill operations supervisor and equipment operator).
- Hazardous waste exclusion program, conducted annually, for all landfill personnel.
- Storm water pollution control plan training will be mandatory for all landfill personnel.
- Leachate reintroduction system operations training will be mandatory for personnel operating system.
- Certified training in first aid and CPR (all site employees).

Records for all required training will be maintained in the CML Administration Building documenting dates of training, subject of training, instructor, and attendees.

2.10 Operating Equipment

9.2.1 Equipment Inventory and Usage

Primary operating equipment for the landfill and entrance facility as of June 2020 includes the following:

Equipment Type	Make, Model, County ID No.
Bulldozer	Caterpillar D-8R No. 74
	Komatsu D155AX-6 No. 113
	Caterpillar D-8T No. 32329
	Caterpillar D-5 No. 101
	Caterpillar D-6T No. 78A
Compactor	Caterpillar 826H No. 4
	Caterpillar 826K No. 6
	Al-Jon 525C4 No. 5
Wheel Loader	Case 921 No. 111
	Caterpillar 287DR No. 287D
	Caterpillar 966M No. 112
Backhoe	Case 580-MT No. 53
Water Truck	Peterbilt 367 No.1506
	Caterpillar CT660S No. 1507
Service Truck	GMC C Series No.1392
Dump Truck	Dump Truck No.1146
Roll-off Truck	AutoCar WX64 No. 1214
	AutoCar WX64 No. 1217
	Peterbilt 329 No. 1458
	Peterbilt 320 No. 1459

At least one bulldozer, one compactor and a water truck shall be in operation at the landfill at all times. On days on which incoming waste volume is expected to exceed 800 tons, an additional dozer and an additional compactor shall be located at the working face and operated proportionately as needed to provide adequate operational machine capacity to properly manage the additional tonnage in excess of 800 tons. At least one roll-off truck shall be operational at all times to service the entrance facility Station 2.

9.1.2 Maintenance Procedures

Consistent with manufacturer's recommendations, CML performs three categories of maintenance on facility operating equipment: daily servicing; periodic preventive maintenance; and scheduled major maintenance. Work performed during each type of maintenance is as

to five passes of the landfill compactor over all portions of the lift before more waste is added. Compaction by a bulldozer is not effective. The length of the service life of the landfill depends heavily on the ability of equipment operators to achieve effective compaction of the waste.

Under normal circumstances, the compactors should work on a relatively flat working face, with a bulldozer pushing and spreading the waste from the tipping area as needed. Figure 8 illustrates schematically the preferred ways of pushing and compacting the refuse.

10.1.4 Lift Height

The goal of each day's operation is to construct a portion of an advancing lift across the floor of the cell or across the top deck of the previous lift. The height or thickness of the lift should be optimized to produce the smallest surface area possible that will require daily cover at the end of the working day. Minimizing the surface area will reduce the cost of importing and applying cover soil, and conserve airspace by reducing the amount volume occupied by soil in place of refuse.

Appendix E contains an analysis to derive the theoretical optimum thickness or height of a lift of refuse. It demonstrates that the optimum thickness depends on the anticipated average daily volume, with the best lift height increasing as the volume increases. This is due to the need to cover the advancing sideslopes, which increase in area as the height of the lift increases. Based on the analysis, the following lift heights are recommended for the range of daily volumes anticipated at CML, assuming a 50-foot wide lift:

Daily Volume (tons)	**Optimum Lift Height** (feet)(rounded to nearest foot)
100	5
200	7.5
300	9
400	11
500	12
600	13
700	14
800	15
900	16
1000	17
1100	18
1200	19
1300	19
1400	20
1500	21
1600	22

To the extent possible, lift heights should be within plus or minus one to two feet of the theoretical optimum. It should be understood that once the lift has been started, the height should be consistent across the entire surface of the area being filled, and not vary from day to day. It is important that the top deck of the landfill be maintained with the appropriate grade (minimum 3%) needed to promote runoff from the surface and minimize infiltration into the cover soil and underlying waste.

10.1.5 Alternative Thin Lift Fill Procedure and Sequencing

In addition to traditional landfilling operations covered above in Sections 10.1.1 through 10.1.4, the CML may also utilize thin lift operations, also referred to as "pancake lifts". This type of operation consists of spreading incoming refuse in thinner daily lift heights of 2 to 3 feet, over a larger operations area. Filling will occur in a three-day cycle, with the second and third days filling occurring above the first day's lift to achieve a 3-day lift of approximately 6 to 9 feet that is expanded laterally across the cell. Active area slopes will be 2:1 to 3:1 (horizontal to vertical), and the daily active area will be approximately 100 feet wide by 90 to 120 feet long. ADC will be

surrounding terrain.

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