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**CITY AND COUNTY OF HONOLULU**

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IN REPLY REFER TO:  
RD 16-035

Mr. Edmund Aczon, Chairperson  
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Mr. Dean I. Hazama, Chair  
Planning Commission  
c/o Department of Planning and Permitting  
City and County of Honolulu  
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Honolulu, Hawaii 96813

Dear Mr. Aczon and Mr. Hazama:

Subject: Docket No. SP09-403  
New Special Use Permit  
Waimanalo Gulch Sanitary Landfill

In accordance with the State Land Use Commission Order Adopting the City and County of Honolulu Planning Commission's Findings of Fact, Conclusions of Law, and Decision and Order with Modifications, the attached Sixth Annual Report is submitted for your information. This report covers the period from June 2015 through May 2016.

The report is also being submitted to the Planning (Land Use) Commission.

Sincerely,



Lori M.K. Kahikina, P.E.  
Director

Attachments

**EXHIBIT K409**

**SIXTH 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 SANITARY LANDFILL**

**Prepared For:**

**Land Use Commission**  
**State of Hawaii**

**Planning Commission**  
**City and County of Honolulu**

**Prepared By:**

**Department of Environmental Services**  
**City and County of Honolulu**

**June 15, 2016**

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## **PREFACE**

This report was prepared in accordance with the State of Hawaii Land Use Commission's ("LUC") Order Adopting the City and County of Honolulu Planning Commission's Findings of Fact, Conclusions of Law, and Decision and Order with Modifications, dated October 2, 2009 ("LUC Order"). Under Condition No. 6 of the LUC Order, the Applicant (Department of Environmental Services, City and County of Honolulu, hereinafter "ENV") is required to submit annual reports to the Planning Commission of the City and County of Honolulu ("Planning Commission") and the LUC regarding the following: (1) the status of identifying and developing new landfill sites on Oahu to supplement or replace the Waimanalo Gulch Sanitary Landfill ("WGSL"); (2) the WGSL operations; and (3) ENV's compliance with the conditions imposed by the LUC Order. This report shall also address ENV's efforts to use alternative technologies as appropriate, and to seek beneficial re-use of stabilized, dewatered sewage sludge.

This is the sixth report and covers the period from June 2015 through May 2016, or as otherwise stated.

## **STATUS OF IDENTIFYING AND DEVELOPING NEW LANDFILL SITES ON OAHU**

### **1. General**

Condition No. 4 of the LUC Order requires that, on or before November 1, 2010, ENV shall begin to identify and develop one or more new landfill sites that shall either replace or supplement the WGSL.

### **2. Current Status**

The first meeting of the Landfill Advisory Committee was held on January 20, 2011, and subsequent meetings were held on February 10, March 10, March 31, May 12, July 19, November 8, 2011 and February 1, March 16, and April 20, 2012. The Landfill Advisory Committee's final report was completed on September 25, 2012. All Committee meetings were open to the public and to public comment. Handouts provided to the Landfill Advisory Committee, the Group Memory of each meeting, and the final report are posted online at [www.opala.org](http://www.opala.org).

In the final report, 11 potential sites were identified and ranked based on community criteria. The City is proceeding with this process by having the consultant further review and analyze the sites based on the following technical and engineering considerations: capacity, cost, feasibility, land ownership (including cost and ability to acquire, capacity and infrastructure requirements, logistics and transportation, development costs, and capacity projections for current landfills, WGSL and PVT), and a timetable for WGSL, new landfill development and construction. Based on the remaining capacities of the existing landfills and the projected fill rates, it is prudent to analyze if any of the 11 identified sites could become more or less favorable based on this timetable.

The consultant's original contract called for an Environmental Impact Statement (EIS) to be undertaken as a part of their scope of work. Because the Landfill Advisory Committee identified 11 potential sites, it was not feasible to do an EIS at this stage. Therefore, the consultant's contract was amended to include the further analysis of the 11 sites as indicated above. The consultant is proceeding to evaluate the relevant criteria as described above. It is anticipated that the project will be completed before the end of the year.

## STATUS OF LANDFILL OPERATIONS

### 1. Tonnage

Over the period beginning June 1, 2015, through May 31, 2016, the Waimanalo Gulch Landfill received the following amounts of material:

	June 1, 2015 Through <u>May 31, 2016</u>
H-POWER Ash.....	124,068 tons
H-POWER Residue.....	69,235 tons
Municipal Solid Waste (MSW).....	75,220 tons

### 2. Current Status of WGSL

Activities conducted during the reporting period include general site excavation and cell construction in the expansion area, completion of construction of the final cap over the old ash cells located at the front of the landfill, MSW landfilling in Cells E-5, E-6 and E-7 and ash landfilling in Cell E-8.

Excavation of the final cell in the expansion area (Cell E-9) was completed during April 2015, with liner placement commencing in late June 2015. Ash began to be delivered to Cell E-9 in December 2015. Closure of the original ash monofill, located at the base of the landfill, began in November 2013 and is now complete.

### 3. Landfill Expansion Permits

#### a. Solid Waste Permit

The final solid waste permit for the proposed lateral expansion was approved by the State of Hawaii, Department of Health (DOH) on June 4, 2010. A permit renewal application was submitted on a timely basis to DOH in May 2014. In accordance with Hawaii Revised Statutes § 343H-4(e) and Hawaii Administrative Rules §11-58.1-04(3), the landfill is legally continuing operations under the conditions of the previous permit and the current operations plan submitted to DOH. The permit renewal is expected to be issued in summer 2016. New cell construction and drainage improvements are complete.

#### b. Special Use Permit

Condition No. 14 of the current supplemental use permit (SUP) provided that WGS� stop accepting MSW for disposal as of July 31, 2012. The City filed an appeal to the Supreme Court on February 22, 2012 to reverse the LUC's imposition of Condition No. 14, arguing that the LUC had arbitrarily and capriciously imposed this condition contrary to its own findings that established the continuing need to dispose of municipal solid waste at WGS� beyond July 31, 2012.

On June 28, 2011, ENV filed a SUP Amendment Application with the City Department of Planning and Permitting, to delete Condition No. 14 of the SUP, which would allow WGS� to continue accepting municipal solid waste until the landfill reaches its capacity as permitted by the DOH.

The City and County of Honolulu Planning Commission (Planning Commission) convened a public hearing on October 5, 2011, to consider ENV's application to delete Condition No. 14 of the SUP. The Commission heard public testimonies and granted petitions to intervene in the SUP proceeding to Ko Olina Community Association (KOCA), Maile Shimabukuro, and Schnitzer Steel Hawaii Corp. With the granting of the petitions to intervene, the matter proceeded as a contested case. A pre-hearing conference to discuss procedural and other matters in the contested case was held on October 12, 2011. A contested case hearing began on December 7, 2011, with opening statements given by ENV and interveners. The contested case hearing continued on January 11, 25, February 8, March 7, 14, April 4, 11, 23 and May 25, 2012. On May 25, 2012, the Commission stayed the matter for six (6) months in light of the Hawaii Supreme Court's (Supreme Court's) decision to strike Condition No. 14 of the SUP described below.

On May 4, 2012, the Supreme Court ruled in favor of the City and struck down Condition No. 14. The Supreme Court further ordered that the matter be remanded to the Circuit Court and the LUC for action on the SUP consistent with the Supreme Court decision. The LUC convened on July 5, 2012, to discuss procedural options only, in light of the Supreme Court remand and stayed Commission proceeding.

Upon request by ENV, the LUC directed the parties to file written briefs regarding the proper procedural steps. ENV argued that the case decided by the Supreme Court remain with the LUC for decision-making. The intervenors argued to remand the Supreme Court case back to the Planning Commission with a request to consolidate the amendment application and the Supreme Court case. The LUC decided at its meeting on September 14, 2012, to remand the Supreme Court case to the Planning Commission with a recommendation to consolidate the two matters. On December 19, 2012, the Planning Commission continued its consideration of the LUC request to consolidate the two cases to allow the incoming City administration to weigh in on the matter and the possibility of a joint recommendation from the parties. On February 20, 2013,



the Planning Commission again continued its consideration of the LUC request to consolidate based upon the parties' representation that they intended to file a joint recommendation to the Planning Commission regarding both the consolidation and the subject matter of the remand.

Per a request by the LUC, a public hearing was held on May 16, 2014, to update the LUC on the status of action on the SUP. ENV provided a power point presentation of the City's progress to further divert waste from the landfill. The LUC requested that the City provide progress reports every other month, beginning in mid July 2014, on the parties' progress in negotiating a joint recommendation to the Planning Commission.

At a public hearing before the LUC on October 22, 2015, ENV provided a report on the status of the proceedings before the Planning Commission. ENV reported that it made progress in negotiating with KOCA and that the parties needed additional time to establish objectives for further landfill waste diversion. Accordingly, ENV and KOCA represented that they would file a stipulation with the Planning Commission to commit to an 18-month schedule to implement additional alternative uses or disposal methods to increase waste diversion. The LUC requested that the parties include Colleen Hanabusa, who was an intervenor in the matter remanded by the Supreme Court, in the negotiations.

At a hearing before the LUC on May 18, 2016, ENV reported that it reached an agreement with all parties except Colleen Hanabusa. ENV was subsequently informed that Colleen Hanabusa would not sign the agreement to continue the proceedings before the Planning Commission to April 22, 2017. Thus, the City is preparing a motion to stay the proceedings, which will be filed at the Planning Commission.

The landfill will continue operations under the current SUP while the deadline for receipt of MSW is resolved by the Planning Commission and the LUC.

## COMPLIANCE WITH CONDITIONS OF ORDER

The LUC adopted the Planning Commission's Findings of Fact, Conclusions of Law, And Decision and Order dated August 4, 2009, as its own Findings of Fact, Conclusions of Law, And Decision and Order, subject to sixteen (16) conditions. The general description and status of each condition is as follows:

Condition No.	Description
1	<p><b>The Applicant shall obtain all necessary approvals from the State Department of Health, Department of Transportation, Commission on Water Resources Management, and Board of Water Supply for all onsite and offsite improvements involving access, storm drainage, leachate control, water, well construction, and wastewater disposal.</b></p> <p><u>Status:</u> All applicable permits/approvals have been obtained.</p>
2	<p><b>In accordance with Chapter 11-60.1 "Air Pollution Control," Hawaii Administrative Rules, the Applicant shall be responsible for ensuring that effective dust control measures during all phases of development, construction, and operation of the landfill expansion are provided to minimize or prevent any visible dust emission from impacting surrounding areas. The Applicant shall develop a dust control management plan that identifies and addresses all activities that have a potential to generate fugitive dust.</b></p> <p><u>Status:</u> Dust control measures and management plan have been provided for as part of the Solid Waste Management Permit issued by the DOH.</p>
3	<p><b>The City and County of Honolulu shall indemnify and hold harmless the State of Hawaii and all of its agencies and/or employees for any lawsuit or legal action relating to any groundwater contamination and noise and odor pollution relative to the operation of the landfill.</b></p> <p><u>Status:</u> So noted.</p>
4	<p><b>On or before November 1, 2010, the Applicant shall begin to identify and develop one or more new landfill sites that shall either replace or supplement the WGSL. The Applicant's effort to identify and develop such sites shall be performed with reasonable diligence, and the Honolulu City Council is encouraged to work cooperatively with the Applicant's efforts to select a new landfill site on Oahu. Upon the selection of a new landfill site or sites on Oahu, the Applicant shall provide written notice to the Planning Commission. After receipt of such written notice, the Planning Commission shall hold a public hearing to reevaluate 2008/SUP-2 (SP09-403) and shall determine whether modification or revocation of 2008/SUP-2 (SP09-403) is</b></p>

Condition No.	Description
	<p><b>appropriate at that time. The Planning Commission shall make a recommendation to the Land Use Commission.</b></p> <p><u>Status:</u> See section on Status of Identifying and Developing New Landfill Sites on Oahu in this report.</p>
5	<p><b>The Applicant shall continue its efforts to use alternative technologies to provide a comprehensive waste stream management program that includes H-POWER, plasma arc, plasma gasification and recycling technologies, as appropriate. The Applicant shall also continue its efforts to seek beneficial reuse of stabilized, dewatered sewage sludge.</b></p> <p><u>Status:</u> See section on Alternative Technologies in this report.</p>
6	<p><b>The Applicant shall provide, without any prior notice, annual reports to the Planning Commission and the Land Use Commission regarding the status of identifying and developing new landfill sites on Oahu, the WGS�'s operations, and Applicant's compliance with the conditions imposed herein. The annual reports also shall address the Applicant's efforts to use alternative technologies, as appropriate, and to seek beneficial re-use of stabilized, dewatered sewage sludge. The annual reports shall be submitted to the Planning Commission and Land Use Commission on June 1 of each year subsequent to the date of this Decision and Order.</b></p> <p><u>Status:</u> Subsequent reports will be submitted in June of each year.</p>
7	<p><b>Closure Sequence "A" for the existing landfill cells at WGS� as shown on Exhibit "A12" must be completed, and final cover applied, by December 31, 2012.</b></p> <p><u>Status:</u> Closure Sequence "A" was commenced in June 2012 and the final cover was applied and substantially completed in December 2012.</p>
8	<p><b>WGS� shall be operational only between the hours of 7:00 a.m. and 4:30 p.m. daily, except that ash and residue may be accepted at the Property 24 hours a day.</b></p> <p><u>Status:</u> The Solid Waste Management Permit issued by DOH requires that landfill operations be confined to between the hours of 7:00 a.m. and 4:30 p.m. Permission to extend hours to accommodate refuse loads during H-POWER outages shall be obtained from DOH on an as-needed basis.</p>

Condition No.	Description
9	<p><b>The Applicant shall coordinate construction of the landfill cells in the expansion area and operation of WGS� with Hawaiian Electric Company (HECO), with respect to required separation of landfill grade at all times and any accessory uses from overhead electrical power lines.</b></p> <p><u>Status:</u> Coordination with HECO will be done to ensure that landfill construction and operations are adequately separated from overhead electrical power lines.</p>
10	<p><b>The operations of the WGS� under 2008/SUP-2 (SP09-403) shall be in compliance with the requirements of Section 21-5.680 of the Revised Ordinances of the City and County of Honolulu 1990, to the extent applicable, and any and all applicable rules and regulation of the State Department of Health.</b></p> <p><u>Status:</u> Revised Ordinances of Honolulu § 21-5.680 is inapplicable to the WGS� as that Property is a public use and said ordinance therefore does not impact operations at WGS�. The operations of the WGS� are in compliance with any and all applicable rules and regulations of the DOH.</p>
11	<p><b>The Planning Commission may at any time impose additional conditions when it becomes apparent that a modification is necessary and appropriate.</b></p> <p><u>Status:</u> So noted.</p>
12	<p><b>Enforcement of the conditions to the Planning Commission’s approval of 2008/SUP-2 (SP09-403) shall be pursuant to the Rules of the Planning Commission, including the issuance of an order to show cause why 2008/SUP-2 (SP09-403) should not be revoked if the Planning Commission has reason to believe that there has been a failure to perform the conditions imposed herein by this Decision and Order.</b></p> <p><u>Status:</u> So noted.</p>
13	<p><b>The Applicant shall notify the Planning Commission and Land Use Commission of termination of the use of the Property as a landfill for appropriate action or disposition of 2008/SUP-2 (SP09-403).</b></p> <p><u>Status:</u> Respective notifications will be made prior to termination of the use of the property as a landfill.</p>
14	<p><b>Municipal solid waste shall be allowed at the WGS� up to July 31,</b></p>

Condition No.	Description
	<p><b>2012, provided that only ash and residue from H-POWER shall be allowed at the WGSL after July 31, 2012.</b></p> <p><u>Status:</u> The landfill will continue operations under the current SUP while the deadline for receipt of MSW is resolved by the State Land Use Commission. See section on Status of Landfill Operations, 3. Landfill Expansion Permits b. Special Use Permit.</p>
15	<p><b>The Honolulu City Council through the City Administration shall report to the public every three months on the efforts of the City Council and the City Administration in regard to the continued use of the WGSL, including any funding arrangements that are being considered by the City Council and the City Administration.</b></p> <p><u>Status:</u> See Condition No. 16 Status.</p>
16	<p><b>The City Council and the City Administration shall have a public hearing every three months to report on the status of their efforts to either reduce or continue the use of the WGSL.</b></p> <p><u>Status:</u> On August 3, 2010, the Circuit Court of the First Circuit issued its order modifying this condition by substituting ENV for the City Council and the City Administration. That portion of the order was not appealed. Public hearings are being conducted every 3 months to report on the efforts of ENV in regard to the continued use of the WGSL, including any funding arrangements being considered by the City Council and the City Administration. During the reporting period, 4 public hearings were held at Kapolei Hale on July 20, 2015, October 12, 2015, January 25, 2016 and April 18, 2016. For the 4 hearings held during the period, a grand total of 6 members of the public have attended. On average, 1 or 2 members of the public have attended each meeting. ENV publishes public notice of the public hearings in the newspaper and posts notice on <a href="http://opala.org">opala.org</a>. ENV also requested that the Neighborhood Commission Office notify each Neighborhood Board of forthcoming meetings, which has been done. Reports of what occurred during the hearings are also posted online at <a href="http://opala.org">opala.org</a>.</p>

## ALTERNATIVE TECHNOLOGIES

### 1. H-POWER

The H-POWER waste-to-energy facility, operated by Covanta, continues to process over 700,000 tons of municipal solid waste each year. The facility has operated reliably for over twenty five years and has disposed of over 16,500,000 tons of municipal solid waste, generating in excess of \$30,000,000 annual net revenues from the sale of electricity, recovered metals and tipping fees, and avoided the importation of 16,500,000 barrels of oil. The original refuse-derived fuel (RDF) facility was upgraded with state of the art air pollution control equipment (fabric filter bag houses) in 2009 and refurbishment of major equipment such as boiler water walls, shredders, and magnets has been ongoing since 2010.

The facility's capacity to process municipal solid waste was increased by 50% in 2012 with the addition of a third boiler, which utilizes mass-burn technology. The third boiler opened to commercial operations on August 4, 2012. It now enables the facility to process and burn bulky waste that previously had to be disposed at the landfill. With the addition of the third boiler, H-POWER now plays an even larger role in reducing waste disposal at the landfill. Combined with the expansion of the City's residential curbside recycling program and other efforts to divert waste from the landfill, H-POWER's third boiler will significantly reduce the quantity of MSW disposed at the landfill.

#### a. Sludge

The sludge receiving station at H-POWER commenced commercial operations in May 2015. The sludge processing system has the capacity to process 90 tons of sludge per day and is accepting dewatered sludge from Honouliuli, Waianae, and Kailua Wastewater Treatment Plants. The 20,000 tons per year of sludge currently produced by these plants is now being diverted from the landfill to H-POWER. In addition, a corresponding amount of bulky waste, which was required to bulk the sludge at the landfill, is now being disposed of at H-POWER.

#### b. Medical Waste

The disposal of treated medical waste at H-POWER commenced on December 30, 2015. Due to safety concerns, however, medical sharps will not be accepted at H-POWER and will continue to be disposed of at the landfill.

#### c. Tires

H-POWER received a conditional variance from DOH to accept used auto tires collected by the City, including refuse collection, convenience centers, illegal dumping, and the City's automotive services, Department of Parks and

Recreation, and Department of Facilities Maintenance. The variance allows H-POWER to process up to 400 tires per day or 65,000 tires per year. The variance is now part of H-POWER's current solid waste management permit and is in effect until February 28, 2021, which coincides with the expiration/renewal of the facility's solid waste management permit.

d. Process Residue

The City is discussing residue reduction/reprocessing options with Covanta to reduce/eliminate residue disposal at the landfill. A plan to capture more of the metal fraction in the process residue is being devised to allow the residue to be re-processed through the third boiler.

e. Auto Shredder Residue (ASR)

Approximately 23,000 tons per year of ASR is disposed at WGSL. Covanta is currently devising test procedures to characterize the material for possible disposal at H-POWER.

2. Sludge Re-use

a. General

The City and County of Honolulu currently operates nine (9) wastewater treatment plants (WWTPs) on Oahu. The percentage of total sewage sludge generated from the nine (9) City WWTPs is as follows based on Calendar Year 2015:

<b>WWTP</b>	<b>% of Total Sludge (based on Dry Tons Produced)</b>
Honouliuli	39.3
Kahuku	1.4
Kailua	1.2
Laie	<1
Paalaa Kai	<1
Sand Island	41.4
Wahiawa	6.4
Waianae	3.7
Waimanalo	<1

a. Current Actions/Efforts to Re-Use Sludge

Laie WWTP: Convert green waste mixed with sewage sludge into compost by using the Windrow process.

Sand Island WWTP: Process sewage sludge into fertilizer pellets using the Synagro process. In FY 2011, about 20% of the pellets were disposed at the landfill and about 80% was beneficially reused. In FY 2012, approximately 12% of the product went to the landfill and about 88% of the product was reused. In FY 2013, approximately 10% of the product went to the landfill and about 90% of the product was reused. In calendar year 2014, approximately 7% of the product went to the landfill and about 93% of the product was reused. In calendar year 2015, approximately 3% of the product went to the landfill and about 97% of the product was reused.

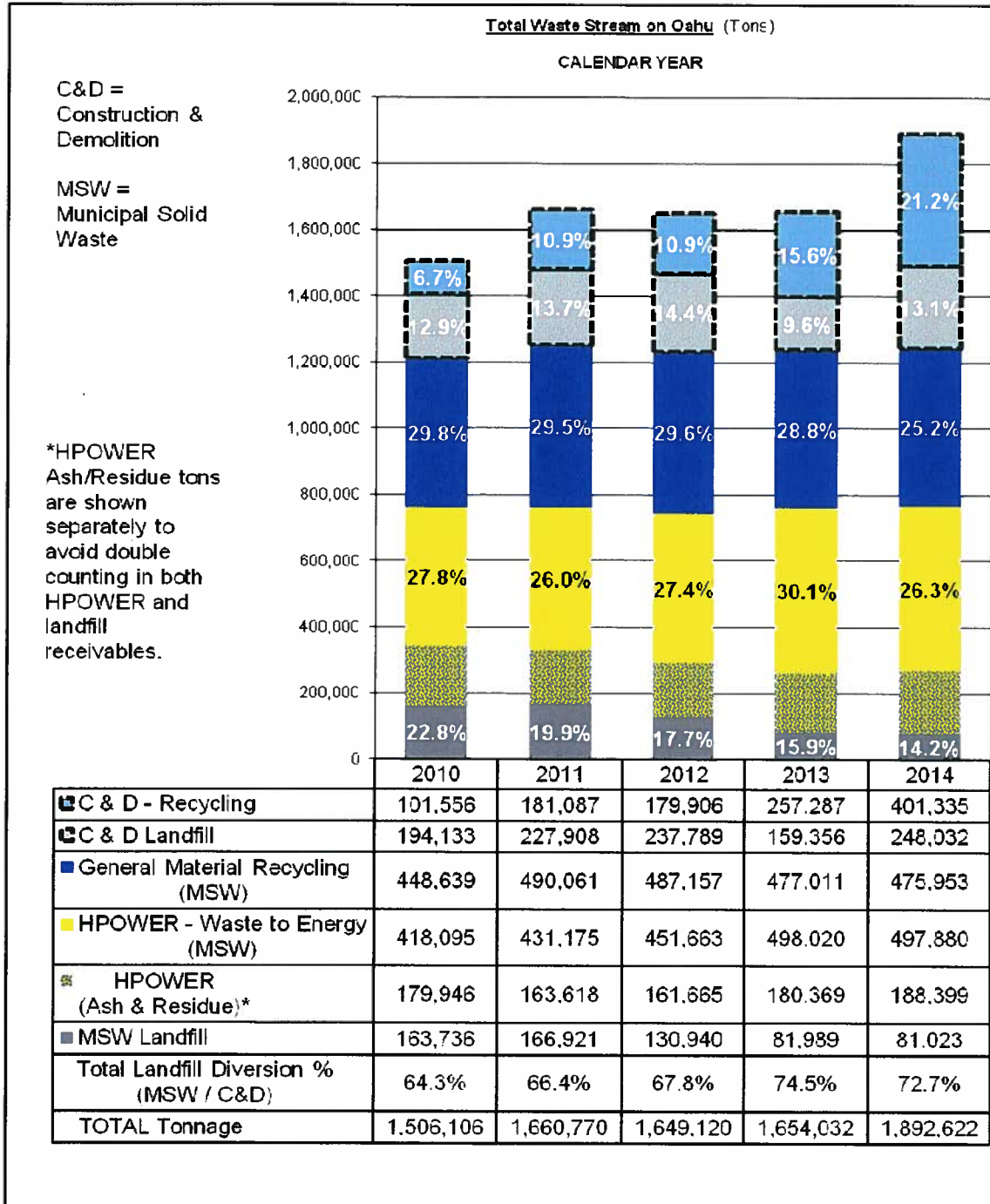
### 3. Other Request For Proposals (RFPs) for Alternative Waste Disposal Technologies

To further reduce the amount of waste disposed of at the landfill, the City issued a RFP for demonstration waste-to-energy facilities in July 2009 and RFPs for recycling H-POWER residue, fly ash, and bottom ash in March 2010. The City did not receive any responses to these RFPs.



#### 4. Materials Recycling

To present a complete waste flow picture, the most current data available for calendar year 2014 is presented in the charts below. Although waste to the landfill and H-POWER is tracked every month by ENV, recycling data is provided by commercial recycling companies that are surveyed annually. Recycling data for 2015 is being gathered and compiled and updated charts and analysis will be posted online at [www.opala.org](http://www.opala.org) around mid year.



The data in the chart above shows how Oahu's waste has been diverted from the landfill through recycling and waste-to-energy. Tonnage rates at the H-POWER waste-to-energy facility remained steady for 2014. General material recycling rates also leveled off, while rates for construction and demolition material recycling rose significantly due to major construction projects on island. Recycling and waste-to-energy combined for a total waste landfill diversion rate of nearly 73% for 2014.

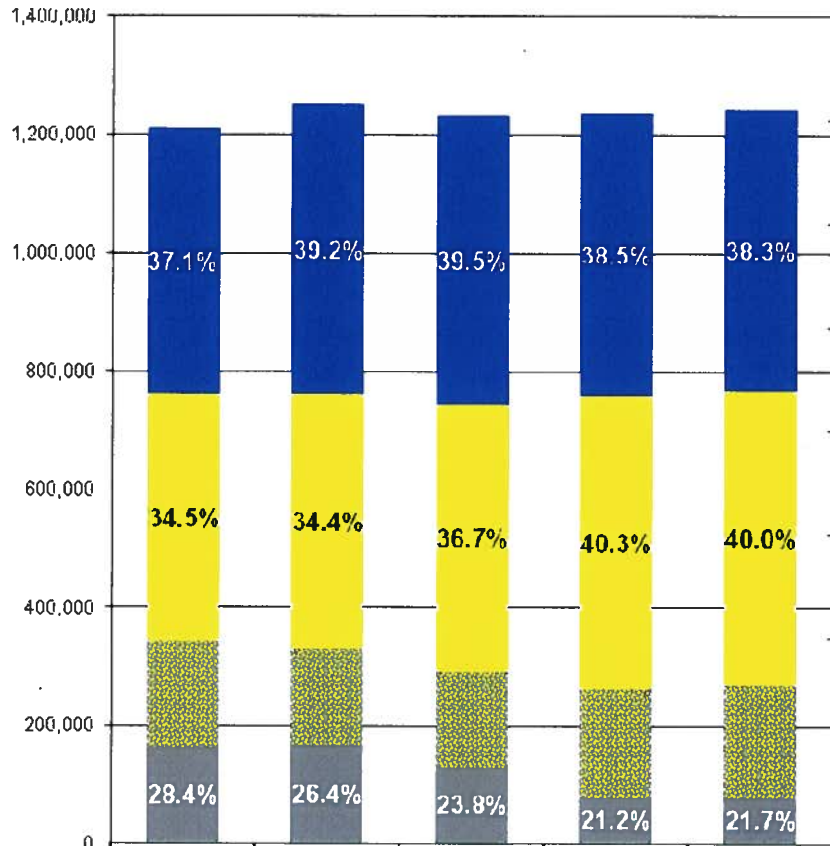
Total waste includes all types of wastes disposed/recycled on Oahu, including construction and demolition waste. There are two landfills on Oahu: the City's Waimanalo Gulch Sanitary Landfill (WGSL), which is designated for MSW, and the privately-owned PVT Landfill, which is permitted for construction and demolition waste only. When analyzing MSW only and landfill diversion specific to the WGSL, the landfill diversion rate achieved through recycling and waste-to-energy is over 78% and the general material recycling rate is about 38%. See the chart below for a fuller comparison of diversion rates for WGSL over the most recent five (5) years. It is important to note that of the 21% of material landfilled at WGSL in 2014, less than 7% was MSW, with the rest consisting of ash and non-combustible residue from H-POWER.

**Municipal Solid Waste Stream on Oahu (Tons)**

CALENDAR YEAR

MSW =  
Municipal  
Solid  
Waste

\*HPOWER  
Ash/Residue tons  
are shown  
separately to  
avoid double  
counting in both  
HPOWER and  
landfill  
receivables.



	2010	2011	2012	2013	2014
■ General Material Recycling (MSW)	448,639	490,061	487,157	477,011	475,953
■ HPOWER - Waste to Energy (MSW)	418,095	431,175	451,663	498,020	497,880
■ HPOWER (Ash & Residue)*	179,946	163,618	161,665	180,369	188,399
■ MSW Landfill	163,736	166,921	130,940	81,989	81,023
Total Landfill Diversion % (MSW)	71.6%	73.6%	76.2%	78.8%	78.3%
TOTAL Tonnage (MSW)	1,210,417	1,251,775	1,231,425	1,237,389	1,243,255

*Recycling data:* The tables below provide detail of tons recycled by material type. The City has gathered annual recycling data since 1988 (except for 1989 and 1990). Note the upward trend of general material recycling from approximately 75,000 tons in 1988 to nearly 500,000 tons today. Recycling of construction and demolition (C&D) materials, such as concrete, rock and asphalt, contributes an additional 400,000 tons to the recycling rates, for a total of almost 900,000 tons recycled for 2014. C&D recycling rates tend to fluctuate based on the volume and type of construction projects undertaken from year to year but have risen significantly for 2014 due to the start of several major projects this past year.

<b>Year</b>	<b>General Material Recycling</b>	<b>C&amp;D Recycling</b>	<b>Total Recycled</b>
2014	475,953	401,335	877,286
2013	477,011	257,287	734,298
2012	487,159	179,906	667,065
2011	483,707	181,087	664,794
2010	448,639	101,556	550,195
2009	426,947	116,670	543,617
2008	456,876	216,745	673,621
2007	453,282	148,952	602,234
2006	421,072	121,675	542,747
2005	417,669	193,829	611,498
2004	386,338	173,916	560,254
2003	366,639	106,773	473,412
2002	352,699	139,055	491,754
2001	367,300	114,070	481,370
2000	327,710	165,000	492,710
1999	314,075	225,200	539,275
1998	318,690	148,800	467,490
1997	313,394	204,400	517,794
1996	299,574	95,300	394,874
1995	294,340	44,400	338,740
1994	290,412	35,700	326,112
1993	241,600	30,000	271,600
1991	167,152	0	167,152
1988	73,992	0	73,992

<b>Oahu Recycling 2014</b>	
<b>Material Type</b>	<b>Amount in tons</b>
<b>PAPER</b>	
Corrugated Cardboard	45,314
Newspaper	15,016
Office Paper	11,789
Other Paper	1,326
<b>METALS</b>	
Ferrous (includes autos)	155,485
Non-Ferrous (includes aluminum)	11,819
<b>GLASS</b>	20,969
<b>PLASTIC</b>	6,528
<b>TIRES</b>	14,578
<b>AUTO BATTERIES</b>	3,541
<b>ELECTRONIC SCRAP</b>	2,258
<b>GREEN WASTE (yard trimmings)</b>	118,380
<b>WOOD WASTE/PALLETS</b>	10,178
<b>CONSTRUCTION &amp; DEMOLITION (rock, concrete, asphalt)</b>	401,335
<b>FOOD WASTE</b>	39,287
<b>OTHER REUSE (Goodwill, Salvation Army)</b>	19,484
<b>TOTAL</b>	<b>877,287</b>

<b>Oahu Recycling 2013</b>	
<b>Material Type</b>	<b>Amount in tons</b>
<b>PAPER</b>	
Corrugated Cardboard	45,235
Newspaper	14,415
Office Paper	12,548
Other Paper	1,326
<b>METALS</b>	
Ferrous (includes autos)	171,143
Non-Ferrous (includes aluminum)	14,016
<b>GLASS</b>	22,934
<b>PLASTIC</b>	5,903
<b>TIRES</b>	12,926
<b>AUTO BATTERIES</b>	2,654
<b>ELECTRONIC SCRAP</b>	2,247
<b>GREEN WASTE (yard trimmings)</b>	104,065
<b>WOOD WASTE/PALLETS</b>	11,436
<b>CONSTRUCTION &amp; DEMOLITION (rock, concrete, asphalt)</b>	257,287
<b>FOOD WASTE</b>	38,466
<b>OTHER REUSE (Goodwill, Salvation Army)</b>	18,235
<b>TOTAL</b>	<b>734,298</b>

The City's efforts to increase residential recycling have continued with budgetary commitments to support the expansion of island-wide curbside recycling, recycling centers, and condominium recycling assistance. Additionally, the City requires commercial sector recycling through mandatory laws established by City ordinance, and provides assistance to businesses to establish and expand recycling programs.

a. Curbside Recycling

ENV completed the final phase expansion of the fully-automated 3-cart curbside recycling program in May 2010. There are currently 160,000 homes participating in the program, and capturing material at a rate of 22,000 tons of mixed recyclables and 50,000 tons of green waste per year. In November 2011, the City completed an evaluation of the first year of full operation, which indicated that the program had achieved a 77% capture rate for green waste and 53% capture rate for mixed recyclables. Increased public experience with identifying and sorting recyclables should produce higher results for the mixed recyclables as the program continues to mature. The program continues to be evaluated to identify strategies for improving participation and efficiencies.

b. HI-5 Plus Recycling Centers

Many recycling companies have expanded the types of materials accepted at HI-5 redemption centers and now take many of the same materials that residents are able to recycle at the curb, including glass containers, metal cans, plastics 1 and 2, newspaper, and white and colored office paper. Some even take electronic waste. Currently, there are approximately 30 of these drop-off locations around Oahu that offer "HI-5 plus" recycling, and ENV's Recycling staff has been working with the recycling companies to increase the number of these locations. The City maintains a list of the recycling centers on [www.opala.org](http://www.opala.org).

c. Condominium Recycling Program

The City continues to promote condominium recycling through a program that reimburses condominium properties for costs associated with the start-up of a recycling program, and additionally provides technical assistance, educational materials, wheeled carts and guidance in establishing collection services.

d. Electronic Waste (e-waste)

A State law requiring manufacturers to provide take-back programs for e-waste went into effect January 1, 2010, and is administered by DOH. In general, the covered electronics include computers and televisions. Collection and recycling of e-waste has increased, but the law is weak in its requirements for the manufacturers to achieve recovery goals or to provide consumer

convenience in take back programs. DOH is looking for ways to strengthen the collection programs and has proposed bills in the four most recent legislative sessions (2012, 2013, 2014 and 2015). The most recent amendments to the law require electronic device manufacturers to establish drop-off locations for e-waste and prohibit mail-back only recycling options for some devices. ENV will continue to work in collaboration with DOH and local e-waste recycling companies to support local programs and legislative proposals.

e. Business Recycling Programs

The City continues to provide assistance to commercial sector recycling efforts and to ensure compliance with mandatory recycling laws established in the mid 1990's that require office buildings to recycle office paper, bars/restaurants to recycle glass and a variety of food operations to recycle food waste. Disposal site bans/restrictions divert materials from landfill and H-POWER, including green waste, cardboard, metals, tires, auto batteries, e-waste. The City provides technical assistance to businesses for designing and implementing recycling programs through how-to guides, workshops and on-site support, and works collaboratively with the State's Green Business Program.

f. Plastic Bag Ban

Since July 1, 2015, Oahu businesses have been prohibited from providing single-use plastic checkout bags and non-recyclable paper bags to their customers at the point of sale for the purpose of transporting groceries or other merchandise. ENV is responsible for implementing and enforcing the ban. Prior to the ban's effective date, ENV mailed compliance surveys and tip sheets to approximately 10,000 potentially-affected businesses and asked the businesses to return the forms and indicate how they planned to comply with the ban. ENV mailed the forms again in 2016 and businesses are being inspected for compliance.

g. Public Education

Public education regarding recycling is ongoing and includes the distribution of brochures and print materials, dissemination of information via the Opala.org website, WasteLine e-newsletter and several annual events including Tour de Trash and Discover Recycling. In October 2009, ENV and Oceanic Time Warner Cable launched "Opalavision" on The Green Channel at Oceanic 332 and online at opala.org. The Green Channel features short 3-minute stories about the City's recycling initiatives and programs to keep viewers informed and entertained. The format is interactive, supporting 24/7 viewing of all episodes on demand. City ENV supports recycling education for our youth through school recycling projects, classroom activity books and recycling education shows presented by the Honolulu Theatre for Youth. The sixth season of performances featured a theatre presentation that ran in November and December 2015, plus a

traveling show to local schools entitled "Sort It Out!" for February 2016. The shows include distribution of recycling activity and Opala IQ books, recycling "handy list" stickers and educational materials to students and teachers. A seventh season of performances is planned for November 2016 – February 2017. In September 2013, in partnership with Costco, the City installed large 3D displays at all four Costco stores, delivering the message, "Sort It Out For Recycling And Energy. Nothing Wasted, Nothing To Landfills", and distributing brochures and the handy list recycling sticker.

5. Interim Off-island Shipping of Waste

No waste was ever shipped to the mainland due to various problems encountered by Hawaiian Waste Systems LLC ("HWS"), the bidder awarded the contract to ship waste to the mainland. These problems culminated in the U.S. District Court, Eastern District of Washington ruling on August 30, 2010 to enjoin the shipment of waste from Hawaii to Washington or Oregon ports on the Columbia River and/or to the Roosevelt Landfill in Washington. Consequently, the U.S. Department of Agriculture canceled the compliance agreement permits of all Hawaii shippers that might otherwise have enabled the shipment of waste to the mainland. At the point where shipping was no longer possible, HWS had approximately 20,000 tons of baled waste stored at three locations. To dispose of this baled waste, HWS agreed to disassemble the bales, sort the waste and take the burnable waste to H-POWER and the non-burnable waste to the Waimanalo Gulch Landfill.

As of January 2011, approximately 11,000 tons had been taken to H-POWER and 140 tons had been taken to WGSL. On January 6, 2011, there was a fire at the HWS facility that damaged the building in which the waste bales were disassembled and processed. The City, however, continued to work with HWS and DOH to dispose of the remaining bales of waste.

On May 12, 2011, the last bale of waste at the HWS facility was removed and delivered to a City waste disposal facility. Of the original 20,000 tons in its possession, HWS delivered 14,779 tons to H-POWER (76%) and 4,565 (24%) tons to WGSL. HWS was able to extract and recycle 1,525 tons of metal.



## **CONCLUSION**

The foregoing report is submitted in accordance with reporting requirements set forth in the LUC Order dated October 2, 2009. This report focuses on the status of ENV's efforts to identify and develop one or more landfill sites that shall either replace or supplement the WGSL and the 16 Conditions contained in the LUC Order. Also discussed are the further progress of WGSL operations and the City's active efforts to reduce waste volume that is directed to the landfill, such as the expansion of the H-POWER facility and recycling.

The City intends to continue its efforts to ensure proper solid waste management for the people of Oahu, in close coordination with applicable regulatory agencies and decision-makers.